

# Macroeconomic Management with Informal Financial Markets

Pierre-Richard Agénor and Nadeem U. Haque  
Research Department, International Monetary Fund, 700 19th Street NW,  
Washington DC 20431, U.S.A.



Informal credit and foreign currency markets are a widespread phenomenon in developing countries. This paper begins by reviewing the scope and nature of these markets, and the channels through which they operate. It then examines their implications for macroeconomic management, particularly in the areas of monetary and exchange rate policies, interest rate liberalization, and foreign exchange market unification. The analysis emphasizes the importance of accounting for the presence of informal markets in the design of macroeconomic reform programmes.

**KEYWORDS:** financial markets; informal economy; developing countries; monetary policy; exchange market reform; stabilization programmes

## SUMMARY

Informal credit and foreign exchange markets are a common phenomenon in developing countries. The purpose of this paper is to review the implications of these markets for macroeconomic management. The first part of the paper reviews the nature and scope of informal financial markets. Both categories of markets emerge primarily as a result of government-imposed restrictions: interest rates ceilings and credit rationing in the case of informal loan markets, and restrictions on foreign trade transactions and capital controls in the case of parallel currency markets. The share of informal credit in total credit varies across countries from about a quarter to up to three-quarters. Interest rates in informal credit markets are, in general, substantially higher than those prevailing in official markets. The evidence suggests that informal interest rates are influenced in the short run by domestic money-market conditions and arbitrage relationships with foreign financial variables, whereas in the long run the size of the interest differential depends also on 'structural' factors, such as the degree of rationing in the official credit market. The parallel market

premium also depends in the long run upon 'structural' factors (such as the level of tariffs and export subsidies, the degree of rationing in the official market for foreign exchange, and the amount of resources devoted to apprehension and prosecution of offenders) but often displays large fluctuations in the short run—a reflection of the asset price characteristics of the parallel exchange rate. Sources of supply and demand in parallel currency markets vary across countries but smuggling and underinvoicing of exports appear to be the major sources of supply in most cases. The demand for foreign currency results from four main components: imports (legal and illegal, as a result of rationing in the official market for foreign exchange), residents travelling abroad, portfolio diversification, and capital flight—the last two motives being often indistinguishable. The portfolio/capital flight motive is particularly acute in high-inflation economies and in countries where uncertainty prevails over economic policies.

The second part of the paper examines the alternative channels through which informal financial markets affect the behaviour of private agents. Various types of effects are associated with parallel

currency markets: a price effect (through the parallel exchange rate, a key determinant of the price of smuggled imports), a balance-of-payments and monetary effect (since the premium affects the propensity to underinvoice exports), and portfolio and wealth effects: the expected rate of depreciation of the parallel exchange rate affects asset demands, and changes in the premium may exert sizeable valuation effects on real private wealth. Parallel currency markets also have a direct 'real' or 'supply side' effect, because the producer price for exports depends on the premium. Informal credit markets have a portfolio effect (as a result of the role of the curb market interest rate in asset allocation), an income or wealth effect (which depends on the degree of financial repression, that is, the net subsidy/tax generated by the existence of interest rate ceilings in the official market), and an expenditure or intertemporal effect. They may also have a supply-side effect (to the extent that producers are subject to financial constraints prior to the sale of output) and a price effect, resulting from the direct pass-through of financial costs to prices under mark-up pricing rules.

The third part of the paper considers various policy experiments: changes in monetary policy instruments (changes in the level of administered interest rates charged by commercial banks, the amount of credit extended by the central bank to commercial banks, and the required reserve ratio), a devaluation of the official exchange rate, interest rate liberalization, and the unification of foreign exchange markets. The analysis suggests that the different channels through which informal financial markets operate may combine in ways that may lead to perverse results. A devaluation, for instance, may or may not be contractionary, depending on factors such as the initial composition of private agents' portfolios, and the degree of rationing in the official credit market.

## INTRODUCTION

Informal markets—whether they refer to credit, foreign exchange, or any other good—are a widespread phenomenon in developing nations and often account for a significant component of economic activity. They typically develop in re-

sponse to a situation of excess demand in an official market, itself resulting from the existence of quantitative restrictions on transactions or from the imposition of price ceilings. They are often illegal, but are tolerated in many countries.

The macroeconomic role of informal financial markets has attracted considerable attention in recent years, particularly in the context of a renewed controversy regarding the short-run and long-run effects of financial repression.<sup>1</sup> While there exists a large consensus on the microeconomic distortions implied by interest rate ceilings, there is widespread disagreement regarding the short- and medium-run macroeconomic effects associated with interest rate liberalization. Analysts in the tradition of McKinnon (1973) and Shaw (1973) have argued that raising controlled interest rates would lead to a shift in the composition of aggregate demand from consumption to investment, exerting a positive effect on output growth. By contrast, adherents of the New Structuralist school have emphasized that in the presence of informal loan markets, raising controlled interest rates would draw funds away from these markets—thereby raising interest rates there, reducing aggregate supply and raising inflation, both in the short and the medium run.<sup>2</sup> The macroeconomic effects of parallel markets for foreign exchange have also attracted a great deal of interest recently, particularly in the context of trade and exchange market reforms (Agénor and Ucer, 1995). The costs associated with these markets have become better understood, and several countries have attempted to unify their official and parallel markets for foreign exchange.

The purpose of this paper is to examine the implications of the existence of parallel credit and foreign currency markets for macroeconomic management and the design of macroeconomic reform programmes. The next section reviews the scope and nature of these markets in developing countries. The following section identifies alternative channels through which informal financial markets affect macroeconomic behaviour. The section after examines their implications for macroeconomic management, particularly in the transmission process for credit policy, official exchange rate adjustment, interest rate liberalization, and unification of foreign exchange markets. Finally, some concluding observations are provided.

## SCOPE AND NATURE OF INFORMAL FINANCIAL MARKETS

Because of their vary nature, informal financial markets are difficult to monitor or quantify in a meaningful manner. Consequently, information on the size and nature of these markets is not very reliable. However, their qualitative features and basic structural characteristics are relatively well documented.<sup>3</sup>

### Informal Credit Markets

Informal credit markets consist of a variety of unregulated transactions, including the lending and borrowing activities of professional and non-professional moneylenders, private finance firms, indigenous bankers, rotating saving and credit associations, pawnshops, traders, landlords and households.<sup>4</sup> These transactions can be classified into the following four categories: (a) regular money-lending by individuals or institutions (such as pawnbrokers, indigenous bankers, or finance companies) whose principal activity consists of lending using their own funds or intermediated funds; (b) occasional or intermittent lending by individuals, firms and institutions with a surplus of funds; (c) tied credit, that is, lending (usually in kind) by those whose main activity lies in markets other than the credit market but who tie credit to transactions in markets where their primary activities lie, in order to increase their sales; and (d) group finance, or various forms of cooperative efforts aimed at generating loanable funds for individual credit needs. In a typical rotating savings and credit association, for instance, all members contribute a predefined amount at regular intervals to a common pool of resources, which is allocated to each member in turn. The importance of each activity varies considerably across countries. In India, for instance, tied credit accounts for a large fraction of total informal credit. Rotating savings and credit associations are very common in Asia and Africa, but less so in Latin America. Group finance is used frequently in both urban and rural areas of developing countries.

Available information on informal loan markets, while fragmentary and relying on disparate and non-comparable sources across countries, suggests

that the share of informal credit in total credit varies, in general, from about a quarter to about three-quarters. In Taiwan, for instance, the ratio of financial loans to private enterprises from the informal credit market to those from the regulated market averaged nearly 30% during the period 1971–1988 (Huang *et al.*, 1992). In some African countries, the volume of loans transacted through the informal credit market even exceeds the amount of resources lent through formal financial markets (Aryeetey and Hyuha, 1991).

Interest rates in informal credit markets are, in general, substantially higher than those prevailing in official markets. Unofficial credit markets may therefore represent an expensive source of finance for business investment and working capital.<sup>5</sup> In the absence of organized securities markets and in the presence of financial repression, the lending rate in the informal credit market represents the relevant opportunity cost of holding money for domestic residents. The evidence provided by Montiel *et al.* (1993) suggests that informal interest rates are influenced not only by domestic money-market conditions but also by arbitrage relationships with foreign financial variables. In the long run, the size of the differential between official and informal interest rates depend also on 'structural' factors, such as the degree of rationing in the official credit market.

### Parallel Markets for Foreign Exchange

Parallel currency markets in developing countries have emerged primarily as a result of restrictions on foreign trade transactions and capital controls. The imposition of such restrictions resulted in many cases from the desire to maintain an overvalued exchange rate, either for reasons of national prestige (as happened in several countries that became independent in the 1960s) or for fostering economic development, by making imported capital and intermediate goods relatively cheap for domestic producers.

The imposition of tariffs, quotas and other regulations—such as licensing procedures, administrative allocations of foreign exchange, and prohibitions on some categories of imports—creates incentives to smuggle and fake invoices, by creating excess demand for goods at official prices. Illegal trade creates an illegal demand for foreign

exchange, which stimulates in turn supply and leads to the establishment of a parallel currency market.<sup>6</sup> In some Latin American countries, for instance, the development of the illegal market for dollars has been closely associated with drug-related trade (Melvin and Laman, 1991). Restrictions on capital flows also tend to foster the development of parallel markets in foreign exchange. In countries where capital controls are pervasive, the parallel market tends to become a major element in financing capital flight and portfolio transactions, foreign currency being a hedge against the domestic inflation tax and adverse political change.

As with informal credit markets, parallel currency markets are often tolerated by governments. The size of these markets depends upon the range of transactions subject to control, as well as the degree to which restrictions are enforced. In countries where large and chronic balance-of-payments deficits force the central bank to ration foreign exchange allocated to the private sector (because government needs are large and must be satisfied in priority),

parallel currency markets will typically be well developed, with an exchange rate substantially more depreciated than the official rate. The parallel market premium, which depends in the long run upon 'structural' factors—such as the level of tariffs and export subsidies, the degree of rationing in the official market for foreign exchange, the penalty structure, and the amount of resources devoted to apprehension and prosecution of offenders—often displays large fluctuations in the short run (as illustrated in Figure 1), a phenomenon that reflects the forward-looking nature or asset price characteristics of the parallel exchange rate. In periods characterized by uncertainty over macroeconomic policies, or unstable political and social conditions, parallel exchange rates tend to react rapidly to expected changes in future economic circumstances. They also appear to be closely related to inflation (Kiguel and O'Connell, 1994), although this correlation does not necessarily imply the existence of a causal relationship between these variables. Figure 2 suggests that the parallel market premium may be

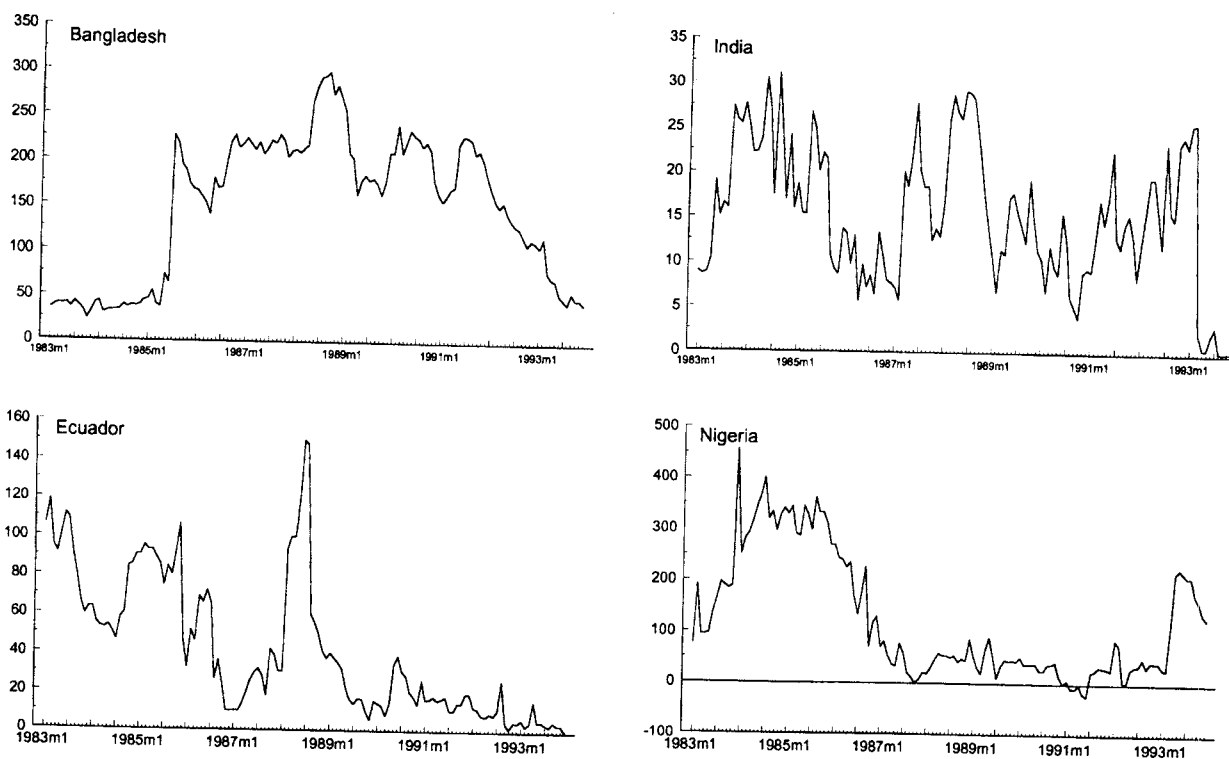


Figure 1. Parallel market premium in developing countries (in percent). Source: International Financial Statistics and World Currency Yearbook.

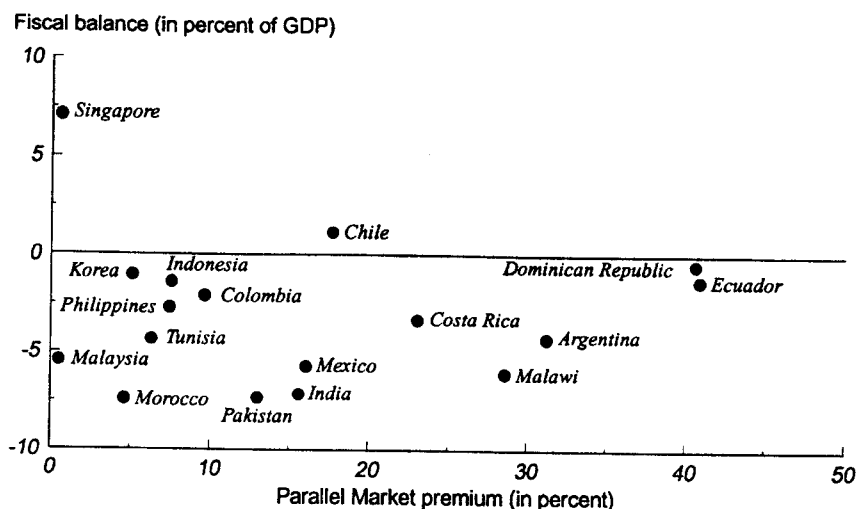


Figure 2. Fiscal deficits and parallel market premia (period averages over 1980–93).  
Sources: International Financial Statistics and World Currency Yearbook.

positively correlated with the size of the fiscal deficit, which is often the root cause of inflation persistence in developing countries.

Sources of supply and demand in parallel currency markets vary across countries. Available estimates suggest that smuggling and underinvoicing of exports are the major sources of supply in most cases. The propensity to underinvoice, itself appears to be closely related to changes in the parallel market premium (Kamin, 1993). The demand for foreign currency results from four main components: imports (legal and illegal, as a result of rationing in the official market for foreign exchange), residents travelling abroad, portfolio diversification, and capital flight—the last two motives being, of course, closely related and often indistinguishable. As emphasized in various studies (see, for instance, Phylaktis, 1991), the portfolio/capital flight motive is particularly acute in high-inflation economies and in countries where considerable uncertainty over economic policies prevails, because foreign currency holdings represent an efficient hedge against inflation bursts.

To examine how portfolio equilibrium is obtained, consider for simplicity the 'currency substitution' case in which there are only two assets available to private agents: domestic and foreign currency holdings (Kamin, 1993). A critical distinction exists between *stock* and *flow* equilibrium, in the presence of informal currency markets. Whereas the premium depends essentially on the structure of

trade taxes in the long run, it is determined by the requirement of household portfolio equilibrium in the short-run. At each instant, individuals attempt to maintain a portfolio balance that is such that the domestic currency value of the stock of foreign assets is equal to a desired proportion of total wealth. As indicated earlier, any loss of confidence in the domestic currency, such as fears about inflation or increased taxation, and low real interest rates would induce private agents to substitute away from the domestic currency and into foreign exchange holdings. In the short run, therefore, the parallel exchange rate will move to set portfolio demand equal to the existing stock of foreign currency holdings.

In the long run, by contrast, the parallel exchange rate and private sector holdings of foreign currency are determined by the requirements of both equilibrium portfolio allocation and equilibrium of the unreported current account, which is defined as the difference between the flow supply and demand for foreign exchange in the parallel market. Suppose, for simplicity, that smuggling of imports and exports accounts for all trade transactions conducted through unofficial channels. The flow demand for foreign currency in the parallel market can thus be derived from planned smuggled imports, while successfully smuggled exports will determine the flow supply of foreign currency. In the long run, where legal exports equal legal imports and successfully smuggled exports pay

for planned smuggled imports, the premium can be expressed as a weighted average of import and export tariff rates, and is therefore determined by the structure of tariff barriers (de Macedo, 1987). An importer will tend to smuggle if the tariff is so high that it pays to purchase foreign exchange in the parallel market at a premium, given the possibility of getting caught by the customs enforcement agency. Similarly, controlling for detection technology, the incentive to smuggle exports out will exist when the subsidy (or tax rate) on exports is smaller than the parallel market premium weighted by the probability of not getting caught. An increase (decrease) in the import tariff or export tax rate, therefore, pushes the parallel market premium up (down).

### **ANALYTICAL IMPLICATIONS OF INFORMAL FINANCIAL MARKETS**

While informal credit markets and parallel markets for foreign exchange coexist in many developing economies, the approach followed in the literature has long been to consider separately both types of markets. However, recent developments have attempted to integrate both types of informal financial markets in a systematic and consistent framework.<sup>7</sup> In what follows we briefly review the main channels through which informal markets in credit and foreign exchange have been captured analytically.

#### **The Menu of Assets**

A key structural feature of formal financial markets in developing countries is the limited menu of assets available to private agents. In most countries, private agents in the formal sector hold currency, demand and time deposits while they lend and borrow from the banking system. However, these transactions often remain subject to official restrictions on interest rates and amount and type of credit. Consumer durables, land and physical capital can be held directly, though often with official restrictions against collateralizing some of these assets. Organized equity markets are small or non-existent—although in several middle-income countries these markets have developed at a rapid pace in recent years—and the acquisition of foreign exchange or assets by domestic residents through

legal channels is often less restricted, as argued above.

The menu of financial assets in developing countries, therefore, can be viewed as consisting of domestic currency, deposits with the banking system, foreign currency, loans extended through the curb market, land, and physical capital. Holdings of these assets are financed by the individuals' personal net worth or by borrowing both from the banking system and through the curb market. Financial repression implies that interest rates on assets and liabilities of the formal banking system are fixed by administrative restrictions, while the price of foreign currency on the parallel market, and that of real assets as well as the interest rate on informal credit market loans, are determined by market conditions.

The analysis of policy shocks in this setting must therefore take into account the role of informal market assets as components of households' portfolios. Policy changes affecting the official exchange rate, and administered interest rates not only affect households' incomes and holdings of formal sector assets but also the valuation of households' aggregate wealth, because of induced effects on parallel exchange rates and informal interest rates.

#### **The Premium and the Degree of Financial Repression**

Central elements in the analysis of macroeconomic policy shocks in the presence of informal credit and foreign currency markets are the parallel market premium and the degree of financial repression. As indicated earlier, the parallel market premium is a forward-looking asset price through which future policy shocks are discounted back to the present. The degree of financial repression, like the parallel market premium, captures the distortion introduced by the existence of a price differential between the official and unofficial markets. Since interest rate ceilings imply an implicit tax on depositors and subsidy for creditors, the degree of financial repression can be related to the present value of the subsidy, per unit of bank credit, implied by legal ceilings on interest rates. This subsidy—and thus the financial repression index—can, in turn, be approximated by the difference between the interest rate offered by the banking system and the informal sector loan rate, divided by the banking system loan

rate (see Agénor *et al.*, 1993). In general, the total subsidy received by individuals with access to bank credit is equivalent to the interest rate differential between curb market loans and bank credit times the amount of bank credit extended. Depositors, by contrast, are taxed by an amount equivalent to the product of the value of bank deposits and the interest rate differential. The sum of the present value of these subsidies and taxes—which can be explicitly related to the index of financial repression—is the net addition to household income or financial wealth.<sup>8</sup> The net income or wealth effect of financial repression depends therefore on whether households are net creditors or debtors with respect to the banking system. In the presence of large reserve requirements (a situation that often prevails in developing countries where large public fiscal deficits are financed through central bank credit) households tend to be net creditors to the banking system. In this case, therefore, the implicit tax imposed on households by interest rate ceilings on deposits exceeds the subsidy received by favoured borrowers. Policies that increase (decrease) the degree of financial repression will thus reduce (increase) households' income or financial wealth.

### Linkages and Transmission Channels

The existence of large and relatively efficient informal financial markets establishes important new linkages between the financial and real spheres of the economy. These linkages can be classified as (a) income and wealth effects; (b) expenditure or inter-temporal effects; (c) price and output effects; and (d) fiscal and balance of payments effects. To examine the nature of these different linkages, it is convenient to begin with those affecting the fiscal and balance-of-payments accounts.

#### *Fiscal and Balance-of-payments Effects*

The fiscal effects of informal credit and foreign currency markets vary depending on the type of market considered. As discussed earlier, financial repression and informal loan markets generate a series of implicit taxes and subsidies on asset holders. The fiscal effect associated with parallel currency markets results from the role of the premium as an implicit tax on exports repatriated through official channels. As discussed in detail in the next section, this aspect is important for the

analysis of the longer-run effects of exchange market unification.

The balance-of-payments and monetary effects associated with informal financial markets result essentially from the role of the premium in affecting the propensity to underinvoice exports. A divergence between the official and parallel exchange rates induces, in the short run, a flow of arbitrage activity, the magnitude of which depends on both the costs of evading exchange controls and the size of the exchange rate differential. The arbitrage flows tend to alter over time the behaviour of foreign reserves held by the central bank, and thus the money supply. The dependence of legal imports on the exchange rate differential as well as income and wealth (which, as indicated earlier, may depend on the financial repression tax) may also alter the evolution of foreign reserves and the money stock.

#### *Income and Wealth Effects*

As indicated earlier, net implicit taxes associated with financial repression tend to affect private current income and/or financial wealth. Changes in the premium may also affect income (since it affects the propensity to underinvoice, and thus the flow of income generated through legal and illegal exports) and may generate sizeable wealth effects, associated with the valuation of holdings of foreign exchange in private portfolios. In addition, of course, there is a 'pure' portfolio effect associated with both categories of informal financial markets: both the curb market interest rate and the expected rate of depreciation of the parallel exchange rate play a critical role in determining the allocation of wealth among available assets.

#### *Expenditure or Intertemporal Effects*

Informal credit markets have an expenditure or intertemporal effect, since the informal interest rate, being the marginal cost of funds, may be used by households to evaluate the real interest rate. Spending may also depend on the level of financial wealth, and may thus be affected by the type of wealth effects described above.

#### *Price and Output Effects*

Parallel currency markets have two types of effects on domestic prices. First, being the marginal cost of foreign exchange, the parallel rate tends to affect the domestic price of imports. Second, if exporters have

the possibility to smuggle out a portion of their sales abroad, the parallel exchange rate will also affect the producer price of exportables. In turn, this will generate a direct supply-side effect. The informal interest rate may also have a direct negative effect on output, if firms need to finance labour costs and their working capital needs prior to the sale of output (Agénor, 1995*b*). They may also affect domestic prices directly, if—as often postulated in the New Structuralist models of Taylor (1983)—prices are set as a mark-up over financial as well as non-financial costs. In models (such as the one developed by Agénor *et al.* 1993), prices (of non-tradable goods) are determined through general equilibrium interactions, implying that informal interest rates only have an indirect effect on domestic inflation.

### Asset Substitutability

A final element for the analysis of policy shocks in the presence of informal markets is the degree of substitutability among assets. A relatively high degree of substitutability implies that a large shift in resources would occur from one sector to another in response to a given shock. The real effects would also differ as a result, depending on differences in the use of resources across sectors. Because of their relative lack of liquidity, real assets are likely to be poorer substitutes for deposits than currency. Curb market loans, real assets as well as foreign-currency denominated assets that are traded on parallel markets, differ from bank deposits (in financially repressed economies) in that the returns from holding the former category of assets are endogenous. The nominal rate of return from holding such assets consists of any real income derived from them as well as the expected rate of change in the nominal price of the asset. As indicated earlier, changes in the valuation of private sector wealth could occur as a result of relative changes in asset prices.

Consider, for instance, an increase in administered interest rates, which reduces financial repression and draws resources from the informal market into the formal sector. The real effects of this portfolio shift on the level of investment and economic activity may be positive or negative. This is because, on the one hand, the shift in portfolio composition can be implemented through a variety of channels (a reduction in loans to the informal

market, or lower holdings of 'non-productive' assets, such as domestic cash and gold, or foreign currency) which accordingly generate different types of effects on the curb market interest rate and the parallel exchange rate. On the other hand, the formal sector provides relatively less intermediation owing to the presence of the following: (a) large legal reserve requirements; (b) a larger requirement for free reserves because of larger liquid liabilities; and (c) a more tangible possibility of attaining global and/or sectoral credit limits imposed for stabilization purposes.<sup>9</sup>

## POLICY ISSUES WITH INFORMAL FINANCIAL MARKETS

In countries with sizeable informal credit and foreign currency markets, the different channels discussed in the previous section may significantly affect the transmission process and the overall effectiveness of macroeconomic policy shocks. We focus in what follows on changes in policy instruments that have figured prominently in stabilization and macroeconomic reform programmes implemented in developing countries.<sup>10</sup>

### Monetary and Exchange Rate Policies

In the absence of organized primary financial markets (such as credit auctions or government securities auctions) and secondary securities markets, monetary authorities in developing countries typically have recourse to four non-market based policy instruments: (a) the level of administered interest rates charged by commercial banks; (b) the amount of credit extended by the central bank to the commercial banking system; (c) the required reserve ratio; and (d) the official exchange rate.<sup>11</sup> To understand the transmission process of macroeconomic policies in the presence of informal financial markets, we will study the effect of changes in all four policy instruments in a setting where the portfolio structure of private agents is as described above, and prices of non-traded goods are determined through general equilibrium interactions.

*Increase in the Level of Administered Bank Interest Rates*  
Increasing interest rates in formal financial markets



causes asset holders to reallocate their portfolios by moving funds from both the informal loan market and foreign-asset holdings, into domestic deposits. The curb market interest rate therefore rises and the parallel exchange rate appreciates.<sup>12</sup> The magnitude of both effects depends on the degree of substitutability among assets held in individual portfolios. As the parallel exchange rate appreciates, the domestic-currency value of financial wealth falls, to an extent that depends on the weight of foreign currency assets in private portfolios. The reduction in the value of wealth causes a secondary reallocation of portfolios, since the demand for interest-bearing assets depends also on total (non-currency) financial wealth. Because of this wealth effect, the demand for domestic deposits may rise or fall in net terms.

This measure has a deflationary effect as well as a contractionary effect on output for a number of reasons. First, the appreciation of the parallel exchange rate reduces the real value of private wealth, which in turn reduces aggregate demand. Second, the exchange rate appreciation also reduces the producer price for domestic exports, which dampens the supply of exportable goods. Third, to the extent that the proportional increase in administered interest rates exceeds that in the curb market, the degree of financial repression falls. If households are net debtors with respect to the banking system, the implicit subsidy provided by controls on interest rates falls on impact, thus reducing income and aggregate demand. The increase in the informal interest rate exerts direct contractionary effects on spending as well. Consequently, output and domestic prices (that is, prices of non-traded goods) fall when the measure is implemented. Ignoring informal market linkages and wealth effects in the determination of macroeconomic outcomes as in the McKinnon-Shaw analysis would have led to the result that an increase in official interest rates is unambiguously expansionary, as a consequence of an increase in bank deposits, and an expansion in bank lending (or a reduction in the degree of financial repression) which reduces the intensity of rationing in the official credit market. In New Structuralist models where informal currency markets are absent and where prices are determined as a mark-up over financial and non-financial costs (with no role attributed to aggregate demand)—such as for instance in Taylor (1983)—the rise in the

informal interest rate leads to an unambiguous increase in prices. In our more extended framework in which prices are determined through general equilibrium interactions, however, changes in informal interest rates have only an indirect, downward effect on domestic prices through an increase in the real interest rate and a reduction in private expenditure.

#### *Credit Expansion by the Central Bank*

An expansion of credit by the central bank to commercial banks leads to an initial excess supply of domestic monetary assets in private agents' portfolios. Attempts to restore portfolio balance leads to an increased demand for foreign assets and hence to a depreciation of the parallel exchange rate as well as an increase in the domestic price level, in order to induce households to absorb the increased supply of money. Given administered interest rates, the increase in the price level implies a fall in the real rate of interest in the formal sector. The private sector's demand for deposits is reduced, causing households to shift assets towards informal market loans, which leads in turn to a fall in the curb market interest rate. The fall in the curb market rate also reduces the real interest rate, which stimulates private expenditure, contributing therefore to the increase in the domestic price level and output. This expansion of demand is somewhat dampened by a reduction in the degree of financial repression, which results from the decline in the implicit subsidy provided by official controls on interest rates.

If the stimulus resulting from the fall in the real interest rate outweighs the adverse effect on aggregate demand resulting from the reduced level of financial wealth, the net effect would be an expansion of private spending, which would stimulate output and raise prices. Net foreign assets of the central bank would fall, as a consequence of the higher level of domestic activity (which would raise imports), and the increase in underinvoicing of exports resulting from the higher parallel market premium.

#### *An increase in the Required Reserve Ratio*

A rise in the required reserve ratio leads to an increase in the cost of deposits and thus, since banks cannot increase loan rates, translates into a lower deposit rate. The induced increase in the financial

repression tax exerts a negative income and wealth effect on aggregate demand. Portfolio reallocation results in a substitution towards informal market loans and foreign currency holdings, lowering interest rates in the former and the premium in the latter. Lower informal market interest rates tend to offset the adverse effect of the higher degree of financial repression on domestic economic activity. Nevertheless, the net effect is often a reduction in domestic demand and output, which lowers the demand for imports while the propensity to under-invoice exports falls as a result of the lower premium. The net effect on the stock of foreign assets of the central bank is thus positive. The stock of foreign currency assets held by the public also rises in the long run.

#### *Devaluation of the Official Exchange Rate*

In the presence of informal financial markets, the potential contractionary effect of a devaluation of the official exchange rate tends to be reinforced.<sup>13</sup> This is so because a devaluation typically reduces the premium in the short run and leads to a substitution into domestic assets and an accumulation of foreign reserves by the central bank. Consequently, there is an expansion in the money supply that drives up (through its effects on wealth and expenditure) the domestic price level. The increased demand for currency due to a higher domestic price level tends to draw funds out of both the informal credit and foreign exchange markets, raising the interest rate charged for informal loans and causing the parallel exchange rate to appreciate. The higher curb market interest rate has a direct contractionary effect on private spending, as does the reduction in real private wealth brought about by a reduced domestic-currency value of foreign assets and a higher price level.

In the simulation results reported by Agénor *et al.* (1993), the official devaluation proves to be very effective in improving the current account because the conventional expenditure-switching effects are strongly reinforced by expenditure-reducing effects. In addition, the fall in the parallel market premium reduces the propensity to underinvoice sales abroad, resulting in a higher level of recorded exports. As a result, the reported current account improves while the unreported current account deteriorates. To the extent that the resulting inflow in foreign reserves is monetized and, if other

financial policies are unchanged, the real effects of the official devaluation will be slow to dissipate.

#### **Interest Rate Liberalization**

Strategies for the eventual unification of interest rates or for the liberalization of financial markets have gained considerable importance in developing countries during the past two decades. Experience has shown that the initial state of the economy is important to the implementation and eventual success of this type of reform.<sup>14</sup> In particular, the financial position of the private sector and commercial banks, the quality of prudential regulation over the banking system, and the extent of macro-economic stability are all factors that affect the pace and outcome of reform.

In low-inflation countries, especially where banking supervision is strong and efficiently enforced, and where demand management remains appropriately tight, interest rate adjustment aimed at quickly establishing positive real interest rates can be implemented. Within this group, countries with a record of economic stability and credible macro-economic policies may be able to liberalize interest rates fully, subject to a strengthened system of prudential regulations over the banking system (see Villanueva and Mirakhor, 1990). On the other hand, in countries where inflation is high and variable, interest rate liberalization is unlikely to prove successful. In this case the establishment of price stability and an adequate regulatory and supervision framework for financial markets becomes the first step in moving towards market-determined interest rates.

As seen above, in the presence of informal financial markets, increases in administered interest rates can have contractionary effects on impact. If such policies are adopted for efficiency reasons, compensating measures may be needed during the process of financial liberalization.<sup>15</sup> In particular, a reduction in reserve requirements during the process of financial liberalization may provide a potential offset to the adverse effects on aggregate demand of increases in administered interest rates. By reducing the interest rate in the informal market, through the positive wealth effect engendered by reduced financial repression—and possibly through effects on the parallel market premium as well—reduced reserve requirements may be expansionary.

Similar expansionary effects can also be obtained during the process of financial liberalization for alternative monetary policy instruments such as expanded credit to the banking system, as discussed earlier.

### Unification of Foreign Exchange Markets

Growing recognition of the ineffectiveness of capital controls<sup>16</sup> and the adverse effects of parallel market activities (such as efficiency losses induced by rent-seeking activities—corruption and bribery of government officials, in particular—the adverse impact of parallel exchange rate fluctuations on domestic prices, and the loss in tax revenue due to smuggling) has led policymakers in many developing nations to attempt to unify official and parallel markets for foreign exchange, in most cases by adopting a floating exchange rate arrangement.<sup>17</sup> Much interest has focused on the experience of sub-Saharan African countries in the mid 1980s.<sup>18</sup> While some of these countries chose to follow a gradual path to unification, most of them opted for an 'overnight' approach, consisting of floating the official exchange rate—often by adopting an inter-bank market for foreign exchange, with occasional central bank intervention—and a simultaneous removal of foreign exchange controls.

The experience of sub-Saharan African countries indicates first that in some countries—particularly in

Sierra Leone and Zambia, where a floating arrangement was implemented in July 1986 and September 1985, respectively—exchange rate unification led to a surge in inflation. Second, the evidence also suggests that the parallel market premium rose substantially in the months preceding the unification attempts, and fell sharply upon implementation of reform. The unified floating exchange rate that emerged immediately after the reform took place was in some cases very close to the pre-reform parallel rate—implying that the drop in the premium resulted essentially from a sharp depreciation of the official exchange rate. This was the case, most notably, in Nigeria and Zaire, as shown in Figure 3. However, despite a sharp drop on impact, a significant premium re-emerged subsequently in some countries—most notably Ghana, Sierra Leone, Somalia and Zambia.<sup>19</sup>

The analytical work on exchange market unification has shown that the impact of such a policy shift on the short- and long-run behaviour of the exchange rate and inflation is generally ambiguous. The short-run effects of a pre-announced future adoption of a unified, flexible exchange rate arrangement have been examined by Lizondo (1987) and Agénor and Flood (1992).<sup>20</sup> The behaviour of the parallel exchange rate in anticipation of reform has been shown to depend on the state of expectations about the timing of reform, the initial position of the economy, the length of the transition

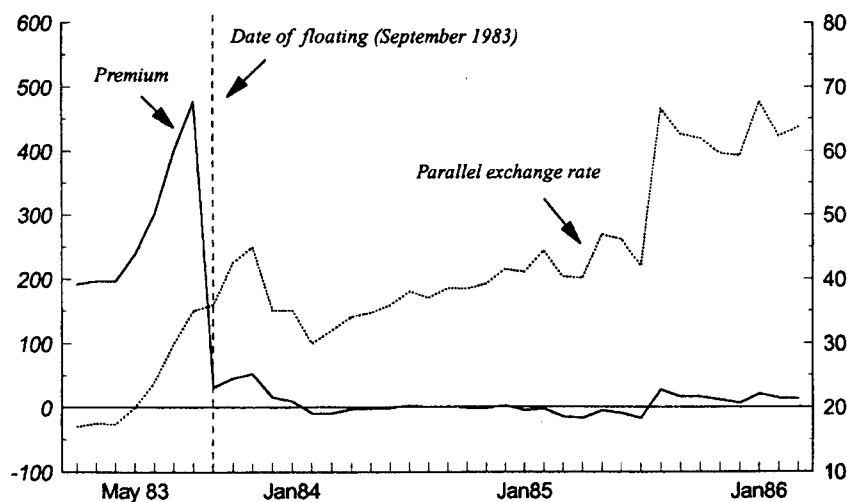


Figure 3. Zaire: unification and parallel market premium (premium: in percent, left scale. Parallel exchange rate: in Zaires per US dollar, right scale). Sources: International Financial Statistics and World Currency Yearbook.

period between announcement and implementation of reform, as well as the macroeconomic policy stance that agents expect policymakers to adopt in the post-reform regime. If the unification attempt is fully anticipated, agents will—to avoid capital losses—adjust their portfolios towards foreign-currency denominated assets if the uniform floating exchange rate is expected to be more depreciated than the existing parallel rate, and towards domestic-currency denominated assets if it is expected to be more appreciated. As a result of this portfolio adjustment, the parallel market rate will depreciate or appreciate immediately—at the moment the unification attempt is announced or when expectations are formed—towards the level asset holders expect the post-unification floating rate to be. After the initial jump, and if the reform is known to take place in the near future, the parallel market rate will steadily depreciate or appreciate—or appreciate during a first phase and depreciate subsequently—towards the unified exchange rate.

The longer-run macroeconomic effects of exchange market unification depend essentially on the fiscal implication of exchange rate reform. Pinto (1991) has emphasized the role of the premium as a tax on exports: by imposing repatriation at the official exchange rate of foreign exchange generated by sales abroad, the central bank levies an implicit tax. In Pinto's analysis the government is a net buyer of foreign exchange, and the primary budget deficit is financed in the steady state by the inflation tax (levied on domestic real money balances) and the implicit tax on exports. If the inflation elasticity of the demand for domestic money is less than unity, a trade-off will typically exist between the inflation tax and the premium for a given level of the fiscal deficit. Put differently, a decline in the implicit tax on exports will, in general, need to be compensated by an increase in the inflation rate. By unifying the official and parallel markets for foreign exchange, the government loses the quasi-fiscal revenue generated by the premium. The larger the tax on exports prior to reform, the larger the jump in inflation upon unification, since policymakers must compensate for a fall in revenue by an increase in monetary financing of the fiscal deficit and a higher tax on domestic money holdings.<sup>21</sup>

While the emphasis on the implicit taxation of exports appears warranted in view of the experience of some developing countries, Pinto's analysis

neglects another important source of implicit tax or subsidy that is associated with informal dual exchange rate regimes. As emphasized by Agénor and Ucer (1995), taxes on imports are an important source of revenue for developing countries, notably in sub-Saharan Africa. In many countries, the official rather than the parallel market exchange rate (which reflects the marginal cost of foreign exchange and is often highly correlated with domestic prices) is used for customs valuation purposes. The use of the official exchange rate for the valuation of imports provides an implicit subsidy to importers. To the extent that the subsidies provided through this channel are large relative to the revenue generated from the implicit tax on exports, the net long-run effect of exchange market unification may be a fall (rather than an increase) in the domestic inflation rate. Indeed, the evidence reported by Agénor and Ucer (1995) seems to suggest that, before unification, significant net quasi-fiscal losses were registered in many countries operating informal currency markets.

The foregoing discussion provides a formal basis for interpreting the empirical evidence, alluded to earlier, on the short-run behaviour of exchange rates and the premium observed during the unification process. The inflationary burst observed in some cases may not result from the elimination of the quasi-fiscal revenue derived from the implicit tax on exports (as emphasized by Pinto, 1991), but rather from the inability of policymakers to maintain under control the primary budget deficit (namely, government spending) and the rate of expansion of the money supply. The increase in the premium in the periods prior to reform can be interpreted as being, in part, the result of expectations about the timing of the reform process, as well as the size and direction of movements in the official and parallel exchange rates upon implementation. The fact that the parallel market exchange rate in some cases did not undergo a large 'jump' at the moment the reform was implemented is consistent with the view that the timing of reform was predicted with a relatively high degree of accuracy by private agents. At the time of implementation, only the official exchange adjusts in a discrete fashion, because most of the effects of the change in the exchange rate regime had already been discounted through the parallel market by forward-looking agents. Finally, the re-emergence of a significant premium subse-

quent to reform occurred in countries where money growth was not kept under control, foreign exchange controls were reintroduced, and inflation rose substantially.

## CONCLUDING REMARKS

Informal financial markets are a common phenomenon in developing countries. The purpose of this paper has been to review the implications of these markets for the formulation and effectiveness of short- and medium-term macroeconomic policies. We first provided a brief review of the nature and scope of these markets, emphasizing their common structural characteristics. We then examined the alternative channels through which informal credit and foreign currency markets affect the behaviour of private agents. The existence of these markets was shown to establish important new linkages between the financial and real spheres of the economy. Various types of effects are associated with parallel currency markets: a price effect (through the parallel exchange rate, a key determinant of the price of smuggled imports), a balance-of-payments and monetary effect (since the premium affects the propensity to underinvoice exports, and thus foreign reserves of the central bank and the money supply), and portfolio and wealth effects: the expected rate of depreciation of the parallel exchange rate affects asset demands, and changes in the premium may exert sizeable valuation effects on real private wealth. Parallel currency markets also have a direct 'real' or 'supply side' effect, because the producer price for exports depends generally on the premium. Informal credit markets have a portfolio effect (as a result of the role of the curb market interest rate in asset allocation), an income or wealth effect (which depends on the degree of financial repression, that is, the net subsidy/tax generated by the existence of interest rate ceilings in the official market), and an expenditure or intertemporal effect—since the informal interest rate, being the marginal cost of funds, may be used by households to measure the real interest rate. They may also have a supply-side effect (to the extent that producers are subject to financial constraints before the sale of output) and a price effect, resulting from the direct pass-through of financial costs to prices under mark-up pricing rules.

The main message of this paper is that informal financial markets have important implications for the analysis of the transmission process and the effectiveness of macroeconomic policy shocks. Because of their inherent flexibility and their forward-looking nature, they tend to transmit immediately perceived or actual changes in policy instruments to the rest of the economy. In particular, when stabilization programmes lack credibility, the parallel market premium will tend to increase and remain high, as expectations of higher inflation in the future induce agents to switch to foreign-currency denominated assets (Agénor and Taylor, 1993). Although the strength of the different linkages between official and informal markets highlighted earlier will vary across countries, the policy experiments discussed earlier suggest that they may combine in ways that may lead to perverse results. A devaluation, for instance, may or may not be contractionary, depending on factors such as the initial composition of private agents' portfolios, and the degree of rationing in the official credit market. While 'orthodox' prescriptions may well be warranted in many cases, the success of stabilization programmes may, in others, depend crucially on a proper account of the role of informal financial markets in the design of these programmes.

## ACKNOWLEDGEMENTS

We are indebted to several colleagues in the Fund, and participants at the Conference on Money, Foreign Exchange and Capital Markets (held at the Central Bank of Malta, 2–4 November 1994) for helpful comments on an earlier draft. The views expressed here do not necessarily reflect those of the International Monetary Fund.

## ENDNOTES

1. The term 'financial repression' is owed to McKinnon (1973). According to him, the financial system is 'repressed' (prevented from expanding the intermediation process) when a series of government interventions have the effect of keeping interest rates that commercial banks can offer to depositors at very low, and often negative, levels in real terms. See Agénor and Montiel (1996, Ch. 5) for a detailed discussion of this concept.
2. The New Structuralist view is associated with van Wijnbergen (1983) and Taylor (1983). See Agénor and

- Montiel (1996, Ch. 2) and Montiel *et al.* (1993) for a detailed account of these different perspectives.
3. The discussion that follows dwells to a large extent on Agénor (1992) and Montiel *et al.* (1993).
  4. In some developing countries (such as Ghana) savings collectors serve as intermediaries between small informal savers and borrowers (see Aryeetey and Hyuha 1991).
  5. If households are free to hold assets in the formal sector (such as deposits with the banking system) as well as in the informal sector (such as deposits with unregulated finance companies) and allocate their portfolio so as to equalize risk-adjusted rates of return, the implicit tax on bank deposits (which is discussed below) cannot explain the large interest rate differential between official and unofficial credit markets. Rather, it may reflect the risk component assigned to intermediation by informal finance companies, the informational advantage of moneylenders, and the limited alternatives available to borrowers. It is not necessarily symptomatic of pure rents accruing to moneylenders.
  6. The demand for foreign exchange associated with illegal trade cannot, in general, be channelled through the central bank, as a result of restrictions on eligible transactions (which, together with potential penalties, limit the extent to which importers can cover illegal operations by legal ones) at the official exchange rate.
  7. For a detailed discussion of models of informal markets as well as their macroeconomic implications, see Agénor and Montiel (1996) and Montiel *et al.* (1993).
  8. In some countries the banking system is dominated by large, loss-making state-owned banks. In such circumstances the cost of the subsidy to borrowers may be absorbed by banks in the form of lower profits and reduced net worth, instead of being passed onto depositors in the form of lower deposit rates, relative to those available in the informal market. To the extent that the quasi-fiscal deficit is financed by higher inflation, the net implicit tax on borrowers can be positive.
  9. New Structuralist macroeconomists—most notably Taylor (1983) and van Wijnbergen (1983)—have argued (in models where only informal credit markets are present) that if increasing administered interest rates draws funds away from cash and non-productive assets into the formal banking system, overall loanable resources (formal and informal) will increase despite the fact that resources are syphoned out of the lending stream by bank reserves. However, if the portfolio shift takes place through a reduction in informal sector loans, there may be a stagflationary effect. We examine in more detail below the McKinnon-Shaw analysis in the presence of both informal credit and parallel-currency markets.
  10. The analysis presented here is based on detailed analytical and simulation models developed by Agénor (1995a, 1995b), Agénor and Flood (1992), Agénor and Montiel (1996), and Montiel *et al.* (1993).
- In addition to the explicit consideration of informal financial markets, these models account for other macroeconomic features that are deemed important in developing countries—such as wage rigidity and imports of intermediate products.
11. A fifth instrument of monetary policy used in some developing countries is the secondary or statutory liquidity ratio, which could be introduced in the framework described previously by adding holdings of government bonds in commercial banks' assets. Changes in this instrument would affect the formal intermediation process in a manner similar to changes in reserve requirements.
  12. The policy shocks considered here are assumed in general to be unanticipated. However, given their forward-looking nature, both the parallel market premium and the informal interest rate would begin adjusting upon announcement (or when anticipations are formed), rather than upon implementation of policy shocks. As emphasized by Montiel *et al.* (1993), this feature of informal financial markets in developing countries is similar to that of well-functioning asset markets in industrial countries.
  13. See Agénor and Montiel (1996) for a detailed overview of the contractionary devaluation controversy in developing countries.
  14. The complete freeing of bank borrowing and lending rates, however, remains rare in the developing world and, where adopted, has not always been carried out successfully or retained permanently.
  15. As discussed above, the contractionary effect of the increase in controlled interest rates may be due to a reduction of the premium on impact, and not to the New Structuralist mechanism that focuses on the reduced efficiency of financial intermediation when funds are transferred from the informal to the formal market.
  16. The detailed econometric study of Johnston and Ryan (1994), for instance, shows that capital controls in developing countries have not been effective in insulating the capital account of their balance of payments from domestic and external shocks.
  17. Although, in theory, unification can also take the form of adopting a uniform fixed exchange rate or a crawling peg regime—with changes in net foreign assets clearing the official market—few developing countries have followed these options in recent years.
  18. These countries include Gambia, Ghana, Nigeria, Sierra Leone, Somalia, Zaire, and Zambia. These experiments are discussed by Agénor (1992) and Pinto (1991).
  19. Other countries that have recently unified their foreign exchange markets by adopting a floating exchange rate arrangement include, in particular, Guyana (March 1990), India (March 1993), Jamaica (September 1991), Peru (August 1990), Sri Lanka (August 1990), Trinidad and Tobago (April 1993), and Venezuela (March 1989). These experiences are briefly discussed in Agénor and Montiel (1996). Additional and more detailed evidence is provided by Agénor

- and Ucer (1995), and Kiguel and O'Connell (1994).
20. A simplified version of the Agénor-Flood model is presented in Agénor and Montiel (1996). Agénor and Ucer (1995) discuss the case in which the post-unification regime consists of a managed float.
  21. Pinto's emphasis on the trade-off between the premium and inflation in the unification process remains valid under a variety of rationing schemes in the official market for foreign exchange (Lizondo, 1991). Of course, if the government is a net seller of foreign exchange, Pinto's conclusions are reversed: unification would lead to a fall in inflation.

## REFERENCES

- Agénor, Pierre-Richard, 'Parallel Currency Markets in Developing Countries: Theory, Evidence, and Policy Implications', Essay in International Finance No 188, Princeton, New Jersey, Princeton University, 1992
- Agénor, Pierre-Richard, 'Illegal Trade, Devaluation and Exchange Rate Dynamics', *Journal of International Trade and Economic Development*, 4 (1995a), 1-15
- Agénor, Pierre-Richard, 'The Macroeconomics of Informal Financial Markets', unpublished, International Monetary Fund (April 1995b)
- Agénor, Pierre-Richard, and Flood, Robert P., 'Unification of Foreign Exchange Markets', *Staff Papers* (International Monetary Fund), 39 (1992), 923-47
- Agénor, Pierre-Richard, Haque, Nadeem U. and Montiel, Peter J. 'Macroeconomic Effects of Anticipated Devaluations with Informal Financial Markets', *Journal of Development Economics*, 42 (1993), 133-55
- Agénor, Pierre-Richard, and Montiel, Peter, *Development Macroeconomics*, unpublished, International Monetary Fund (August 1995). (Forthcoming, Princeton University Press.)
- Agénor, Pierre-Richard, and Taylor, Mark P., 'Analyzing Credibility in High-Inflation Economies', *Economic Journal*, 103 (1993), 329-36
- Agénor, Pierre-Richard, and Ucer, Murat E. 'Exchange Market Reform, Inflation, and Fiscal Deficits', unpublished, International Monetary Fund (April 1995)
- Aryeetey, Ernest, and Hyuha, Mukwanason, 'The Informal Financial Sector and Markets in Africa: An Empirical Study', in *Economic Reform in Sub-Saharan Africa*, Ajay Chhibber and Stanley Fischer, (Eds), Washington, DC. The World Bank, 1991
- de Macedo, Jorge Braga, 'Currency Inconvertibility, Trade Taxes and Smuggling', *Journal of Development Economics*, 27 (1987), 3-33
- Huang, Cliff J., Cheng, Jen-Chi, Chou, Ching-Sheng, and Lin Shung-Ying Charles, 'The Substitutability of Monetary Assets in Taiwan', *Southern Economic Journal*, 58 (1992), 975-87
- Johnston, R. Barry, and Ryan Chris 'The Impact of Controls on Capital Movements on the Private Capital Accounts of Countries' Balance of Payments: Empirical Estimates and Policy Implications', Working Paper No 94/78, International Monetary Fund (July 1994)
- Karmin, Steven B., 'Devaluation, Exchange Controls, and Black Markets for Foreign Exchange in Developing Countries', *Journal of Development Economics*, 40 (1993), 151-69
- Kiguel, Miguel A., and O'Connell, Stephen A. 'Parallel Exchange Rates in Developing Countries: Lessons from Eight Case Studies', Policy Research Working Paper No 1265, Macroeconomics Division, the World Bank (March 1994)
- Lizondo, J. Saul, 'Unification of Dual Exchange Markets', *Journal of International Economics*, 22 (1987), 57-77
- Lizondo, J. Saul, 'Alternative Dual Exchange Market Regimes', *Staff Papers* (International Monetary Fund), 38 (1991), 560-81
- McKinnon, Ronald I., *Money and Capital in Economic Development*, Washington, DC, The Brookings Institution, 1973
- Melvin, Michael, and Ladman, Jerry, 'Coca Dollars and the Dollarization of South America', *Journal of Money, Credit and Banking*, 23 (1991), 752-63
- Montiel, Peter J., Agénor, Pierre-Richard, and Haque, Nadeem, *Informal Financial Markets in Developing Countries*, Oxford, Basil Blackwell, 1993
- Phylaktis, Kate, 'The Black Market for Dollars in Chile', *Journal of Development Economics*, 37 (1991), 155-72
- Pinto, Brian, 'Black Markets for Foreign Exchange, Real Exchange Rates and Inflation', *Journal of International Economics*, 30 (1991), 121-35
- Shaw, Edward S., *Financial Deepening in Economic Development*, New York, Oxford University Press, 1973
- Taylor, Lance, *Structuralist Macroeconomics*, New York, Basic Books, 1983
- van Wijnbergen, Sweder, 'Interest Rate Management in LDCs', *Journal of Monetary Economics*, 12 (1983), 433-52
- Villanueva, Delano, and Mirakhor, Abbas, 'Strategies for Financial Reforms', *Staff Papers* (International Monetary Fund), 37 (1990), 509-36