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POLICY ISSUES IN MARKET BASED AND NON MARKET BASED MEASURES TO CONTROL THE VOLATILITY OF PORTFOLIO INVESTMENT

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Executive Summary

The wave of financial crises in emerging markets since 1995 has led to increasing concern as to the consequences of the instability of international portfolio capital flows. The leading industrial countries are in the process of constructing a new 'global financial architecture'. Meanwhile, there is an increasing interest in the regulation of portfolio flows among developing countries.

The causes of the growth and volatility of short term portfolio capital flows towards emerging markets are to be found in systemic characteristics of global financial markets, particularly the way in which investment funds are managed in order to confront uncertainty. Securities markets in developing countries are both narrow and shallow, leading to considerable instability in the face of foreign capital flows. The results can be inconsistent with the levels of domestic savings and real investment required for sustainable economic development.

Developing countries have maintained and adopted measures to control the volatility of portfolio flows. These controls are based on 'price' measures, particularly taxes, which act by changing the incentives to market participants. In contrast, 'quantity' measures, which are administrative in nature - including exchange controls and borrowing restrictions - have become less common. The use of complex financial instruments and offshore financial centres has made these controls less difficult to evade.

None the less, the empirical evidence shows that market-based measures are an effective means of balance of payments stabilization when combined with active monetary intervention. The volatility of portfolio flows can be reduced and maturities lengthened despite financial liberalization. Open-market operations have proved quite successful in this regard, and can be complemented by the active use of reserve requirements and public sector deposits. Domestic regulatory systems may also be important supportive factors.

The stabilization of portfolio flows and the lengthening of maturities cannot be achieved by individual developing countries acting in isolation. The existing 'international financial architecture' is mainly designed to prevent international bank failures; greater coordination between securities authorities is required due to the systemic instability of

global capital markets. This could be supported by appropriate multilateral investment disciplines and cooperation between tax authorities.

Marked based policy measures to control the volatility of foreign portfolio investment in developing countries thus have a significant role to play in underpinning sustainable development, but these should form part of a consistent multilateral framework.

1. INTRODUCTION

1.1 The Increasing Importance of Portfolio Investment

The increasing globalization of capital markets is widely regarded as a unique opportunity for poor economies to accelerate their rate of growth by accessing financial resources. Higher rates of private fixed capital formation are expected to result from financial liberalization, reducing poverty by generating new jobs at good wages and providing fiscal resources for human development (World Bank 1997).

There are three main categories of private foreign investment flows: foreign direct investment (FDI) which involves investment *within* a firm where the foreign investor has a permanent interest in the subsidiary; foreign portfolio investment (FPI); and foreign bank lending (FBL) to banks, firms and governments in the recipient country.

Foreign portfolio investment is effected by purchases of bonds and equities issued by companies and governments, on both international and domestic capital markets. Large domestic corporations in developing countries are increasingly issuing international depository receipts or gaining listings on major stock markets; while foreign investors increasingly purchase bonds (particularly government paper) issued on domestic markets. As Table 1 indicates, FPI has accounted for about one half of net private capital flows to 'emerging markets' (that is, developing and transition countries) during the 1990s.

Table 1 Emerging Market Economies: Net Capital Flows
(US \$ Billion)

	1991	1992	1993	1994	1995	1996	1997	1998
Net private capital flows	123.8	119.3	181.9	152.6	193.3	212.1	149.1	64.3
Net direct investment	31.3	35.5	56.8	82.7	97.0	115.9	142.7	131.0
Net portfolio investment	36.9	51.1	113.6	105.6	41.2	80.8	66.8	36.7
Net bank lending*	55.6	32.7	11.5	-35.8	55.0	15.4	-60.4	-103.4
Net official flows	36.5	22.3	20.1	1.8	26.1	-0.8	24.4	41.7
Change in reserves	-61.5	-51.9	-75.9	-66.7	-120.2	-109.1	-61.2	-34.7
Current account balance	-85.1	-75.6	-116.0	-72.0	-91.0	-91.8	-87.1	-59.2

Source: IMF (1999). * 'other net investment' in the source table.

The rapid growth of portfolio investment in terms of capital flows across frontiers, is primarily due to the securitization of capital flows and the institutionalization of savings in industrial countries (UNCTAD, 1998c). None the less, new equity issues (as opposed to secondary trading) are not very significant as Table 2 indicates. Between 1996 and 1998, equity issues accounted for only 8 percent of gross private financing to emerging market economies. Rather it is bond issues - by corporations and governments - which account for most of the new market. In consequence, the effect of portfolio flows is felt mainly through their impact on the liquidity of local capital markets rather than directly on the management of local corporations (UNCTAD, 1998d).

Table 2: Gross Private Financing to Emerging Market Economies

	1996	1997	1998
Total gross private financing	218.4	286.1	148.8
Bond issues	101.9	128.1	77.7
Other fixed income	9.4	10.0	0.5
Loan commitments	90.7	123.2	60.7
Equity issues	16.4	24.8	9.9

Source: IMF (1999)

1.2 Concerns about the Volatility of Portfolio Investment

In terms of the relative stability of the three categories of private flows, it is evident from Table 1 that FDI is the more stable flow in the aggregate during the 1990s. FBL is the most volatile of the three - becoming sharply negative when short-term bank credits are not renewed - have been the main source of instability in recent emerging market crises. Aggregate FPI volatility lies between these two. Detailed statistical tests reveal that these patterns are repeated at the individual country level (UNCTAD, 1998d).

Opinions differ widely as to the origins of the evident volatility of exchange rates and capital flows, and the proper means of stabilizing them. None the less, concern is growing that the impact of the volatility in short-term capital flows on developing countries is deleterious due to its effect on real exchange rates, domestic interest rates, asset values and domestic credit levels. National authorities are frequently forced to undertake sudden shifts in fiscal and monetary policy in order to offset such shocks, while international institutions become even further involved in policy conditionality and last-resort lending.¹

This concern about the impact of short-term capital movements clearly goes beyond the traditional fear of systemic risk in the financial system arising from the differing maturity of

¹ In this context, the IMF (1999) forecast that net portfolio flows will be as low as US\$ 9 billion in 1999 appears realistic but worrying; while the somewhat optimistic projection of a recovery to US \$ 44 billion in 2000 implies yet another massive capital surge with all the attendant problems discussed in this paper.

assets and liabilities and the consequences of uncertain expectations being transmitted from one institution or market to others ('contagion'). The 'real economy' - that is production, investment, wages, social services and so on - can be negatively affected by capital surges.

Failure to meet the standards required by foreign investors can be penalized by lower investment and growth as capital resources move elsewhere, leading to the danger of marginalization of those groups or nations not able to compete efficiently due to lack of resources, skills or institutions (UNRISD, 1995). Moreover, there are good reasons to believe that financial markets are inherently unstable, and have historically required strong institutions to control them (Kindelberger, 1996). Thus a considerable degree of intervention is probably required in order to ensure an orderly market in portfolio flows and to ensure that these flows support sustainable development. In consequence, it is not surprising that there is increasing interest in the regulation of portfolio flows in developing countries; controls that have only been lifted in recent decades by developed countries themselves (UNCTAD, 1998a).

2. CAUSES AND CONSEQUENCES OF THE VOLATILITY OF FOREIGN PORTFOLIO INVESTMENT FLOWS

2.1 Systemic characteristics of flows towards emerging markets

The theoretical case for liberalising international capital flows is based on four principles. First, free capital movements can facilitate a more efficient allocation of savings, channelling resources to countries where they can be used most productively, and thereby increasing growth and welfare. Second, access to foreign capital markets may enable investors to achieve a higher degree of portfolio diversification, allowing them to obtain higher returns at lower risk. Third, full convertibility for capital account transactions may complement the multilateral trading system, broadening the channels through which countries can obtain trade and investment finance. Fourth, liberalisation may improve macroeconomic performance by subjecting governments to greater market discipline and penalising unsound monetary and fiscal policies.

However, global capital markets are characterized by asymmetric and incomplete information. The increasing international exposure of both equity funds in industrial countries and financial systems in emerging market economies, has not been accompanied by a corresponding depth of information about the true value of the assets and liabilities. The speed and scale of shock transmission between markets has increased enormously due to technological advances in trading and settlement, which forces traders to act without knowledge of wider price movements, exacerbating fluctuations. There are also substantial agency problems for bank lenders and portfolio investors. Unlike multinational corporations involved in direct foreign investment, they can exercise little direct control over the asset acquired and thus cannot protect its market value. Banks can count on the international financial institutions to protect their interests to some extent, but as funds cannot count upon protection of asset value², the logical response is to avoid assets which cannot be rapidly sold if things go wrong.

These information and agency problems lead logically to the two main characteristics of short-

² Bail-outs can, of course, stabilize currencies (albeit at new lower levels) but unlike banks with a contractual right to the nominal values of their loans, portfolio investors have no such guarantee.

term investment in emerging markets.³ First, international portfolio investors and bank lenders seek liquidity and use ‘quick exit’ as a means of containing downside risk. In consequence, indicators such as the ‘quick ratio’ of a country’s short-term foreign liabilities to central bank reserves become critical to market stability, and can easily trigger self-fulfilling runs on a currency. Second, fund managers control risk not by seeking more information or control, but by portfolio diversification based on an assumed lack of covariance between emerging market indices. The competition between funds for clients⁴ drives them towards seeking high-yield, high-risk markets, but by the same token leads them to make frequent marginal adjustments to their portfolios.

High-risk emerging market assets with high returns have a positive attraction for global portfolio investors because the riskiness of their overall portfolio is considerably reduced by the low covariance between regional markets; but this does not prevent fund managers from switching frequently between markets in attempt to maximise short-term profitability. Although capital movements towards ‘emerging markets’ should depend upon ‘fundamental valuation efficiency’ on the part of international portfolio managers in assessing future income streams; because this is very difficult in practice and relies to a great extent on observing the behaviour of other investors, so that in practice misallocation is widespread and sudden corrections are frequent (Tobin, 1984).

The volatility of portfolio flows thus cannot be attributed to investor irrationality or even to ‘speculation’ except in the technical sense of international or intertemporal arbitrage (Hirschliefer and Riley, 1992). Rather it is the scale of these flows in relation to the size of the domestic capital market - in terms of both the proportion of the domestic capital stock that is effectively ‘on the market’ and the size of the local market in relation to the international market in which the non-resident investors operate - and the high covariance between asset prices within a given developing economy or even region, which renders them problematic (UNCTAD, 1998d).

Shifts in international portfolio composition usually correspond to changes in perceptions of country solvency by international investors rather than to variations in underlying asset value. Because of the imbalance between borrowers and lenders (emerging market assets form a relatively small part of savers’ portfolios in developed countries, but a large part of firms’ and banks’ liabilities in developing countries) marginal shifts in lenders’ positions tend to destabilize borrowers’ liquidity.⁵ These surges are worsened by herding behaviour due to mean variance

³ Annual fluctuations in flows conventionally regarded as ‘long term’ such as foreign direct investment (FDI) and sovereign debt issues may also reflect short-term liquidity considerations. However, they are not considered here because, the *stock* of such capital cannot be readily sold by non-residents to residents through the domestic capital market in the short run and thus the same destabilizing consequences for the domestic economy do not occur.

⁴ Because depositors in (say) pension funds cannot know the eventual value of the asset acquired when they retire, they can only rely on the *current* return on the fund in question: this encourages short-termism by fund managers in order to gain market share. The bias which is exacerbated by the system of bonuses as a form of remuneration which can only range between zero and (large) positive sums, thus placing a high option value on risk-taking.

⁵ Financial liberalization in an economy such as Mexico meant not only that half of all Mexican equity and bond trade takes place on US stock markets, but also that the entire domestic money supply is - in effect - a contingent foreign exchange claim on the central bank because all peso securities can be converted into dollars

portfolio optimisation as the market moves in a process of ‘contagion’ (IMF, 1999). As opportunities for diversification increase, the impact of news on the allocation of funds in a single country, relative to initial allocations, grows without bounds resulting in a massive outflows further threatening financial stability.⁶ Therefore prudential regulation may be needed of global lenders as much as of global borrowers.

2.2 Capital Market Stability in Open Developing Economies

Financial systems exist in order to facilitate the allocation of resources across space and time, in an environment of uncertainty and transaction costs (Levine, 1997). In general it is expected that the integration of stock markets internationally would reduce their volatility because of the portfolio diversification and increased liquidity and transparency of information this provides (Atje and Jovanovic, 1993; Korajczyk, 1996). It is frequently argued (eg Levine, 1991) that the ability to trade corporate securities should help to fund long-term projects, reducing agents’ productivity risks and increasing their liquidity; and a similar argument is extended to developing countries (Bencivenga, Smith and Starr, 1996). The selection and monitoring functions of financial markets are basically concerned with providing and processing information; but as information is imperfect, financial markets are characterized by market failure and imperfections (Stiglitz, 1994); indeed stock markets can have a negative effect on growth if these markets are subject to excess volatility (De Long et al, 1989).

While resident financial investors evidently behave differently from non-residents, much of this difference arises from their respective portfolio compositions - resident investors have a much greater weighting of local assets (‘home bias’). This home bias in turn results from asymmetric knowledge of local opportunities and control over local agents, plus the currency in which consumption is expressed (Brainard and Tobin, 1992). Access to information and control over investment outcomes also seems to differ between residents and non-residents, although here distinction may well be between large and small investors rather than their location. Moreover, as the result of decades of overseas asset acquisition by domestic wealth-holders in developing countries (‘capital flight’) not only do their portfolios have a large foreign-exchange denominated component, but also much of what appears to be ‘foreign’ portfolio investment inflows is often in fact the reduction of external asset positions by domestic investors (‘repatriation of flight capital’).

The changes in the short-term asset holdings of non-residents are to a considerable extent *exogenous* to fluctuations in the real economy - output, investment, employment and wages. It is widely agreed that the larger part of the fluctuations in short-term capital flows to any one developing country are caused by changes in global capital markets (Calvo, Leiderman and Reinhart, 1993; IMF, 1997). Moreover financial markets - particularly in developing countries - are supply-constrained (Stiglitz & Weiss, 1992) so that they are in stable disequilibrium with adjustments determined by creditors rather than debtors because demand is in effect infinitely

on demand.

⁶ Even if information on the return (or risk) on a particular asset can be acquired at a cost, the benefit from this knowledge eventually declines as the opportunities for diversification increase; diversified investors have little incentive to search for information since they are shielded by low covariance and high liquidity (Hallwood and MacDonald, 1994).

elastic at the equilibrium interest rate. In consequence, changes in the asset demand pattern (reflecting international portfolio composition) of non-resident investors, rather than the supply of liabilities by residents, can be taken as the immediate cause of short term capital flows.

Apart from the longer-term effects on saving and investment, portfolio capital inflows are generally regarded as being expansive in the sense of increasing domestic adsorption, unless they are fully sterilized by increasing reserves. However, this expansive process is not the same as an autonomous rise in government expenditure (or even an export-led boom) because to create a flow the portfolio investment asset must have been acquired from (or sold to) a domestic agent and much depends upon that domestic agent's consequent response - to consume, invest or acquire external assets in the case of private agents, or to spend, invest or reduce debt in the case of government.

Short-term capital inflows often lead to an unsustainable appreciation of the exchange rate, which prevents export promotion and generates an import boom, while the expansion of domestic credit consequent upon asset sales to non-residents being deposited in the domestic banking system tends to result in unsafe loans at low rates of interest. The subsequent outflow usually forces cutbacks in domestic adsorption to restore external balance, which lead in turn to a fall in current output levels. Fragile financial institutions then often collapse under the pressure of bad debts and the fall of asset prices as interest rates rise and domestic activity declines (Rojas-Suarez and Weisbrod, 1994).

In sum, portfolio flows mainly affect domestic capital market liquidity and (through foreign demand for domestic currency in order to make asset purchases) the exchange rate. The direct impact on private fixed capital formation is not great, for two reasons: on the one hand, government bond sales and corporate commercial paper issues dominate the market, while on the other hand, most equity purchases are on the secondary market or initial offerings of privatised state enterprises.

2.3 Savings, Investment, Macroeconomic Volatility and Capital Surges

The impact of portfolio flows on economic development depends upon their net effect on savings and investment, and thus the key issue in evaluating the initial impact of these (and other) short term capital flows is the way in which the savings-investment balances of the public and private sectors react to an exogenous change in short term external liabilities.⁷ A 'virtuous' debt cycle,

⁷ These relationships are reflected in the 'accumulation balance' - the national accounting identity which relates the savings of the public sector (S_g) and the private sector (S_p) and investment in the two sectors (I_g , I_p) on the one hand, and the changes in the short-term asset position of non-residents (A), long-term external debt and foreign investment stocks (D) and the level of reserves (R) on the other - which must hold ex-post at all times.

Install Equation Editor and double-click here to view equation.

Public saving depends on fiscal revenue (T) and current expenditure (G), while private savings are disposable income ($Y - T$) less consumption (C) so we have

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Thus if short term liabilities (A) rise *ex-ante* and the other capital account items (D , R) are given, then one of the left hand side variables must adjust *ex-post*: the key issue in evaluating the effect of short-term capital flows is to determine which variable or variables do adjust, and what the consequences of this adjustment are.

requires, of course, that in the longer term the subsequent fixed capital formation is sustainable.⁸ It had been expected that financial liberalization would raise savings in developing countries (World Bank, 1997), but in fact this has not been the case. There is in fact a strong substitution observed between external and domestic savings - with an elasticity of about 0.5 (Edwards 1995; Masson, Bayoumi & Samiei, 1995). Turner (1996) shows that in the first half of the 1990s, private portfolio capital flows made the link between external savings and domestic investment more indirect, which has enhanced the likelihood of external savings being used to finance consumption rather than investment because consumers and financial markets react more rapidly than real investment to the relaxation of liquidity constraints. Short capital inflows appear to foster consumption through two channels. First, the positive wealth effect generated by the increase in asset prices and real exchange rate appreciation leads wealth holders.⁹ Second through credit boom they bring about as portfolio asset purchases from residents increase bank liquidity and thus consumer credit in the wake of financial liberalization.

This outcome is reinforced by the orthodox policy response to short-term capital flows. In the IMF 'monetary programming model' (Khan and Huq, 1990), an autonomous inflow of capital will permit the government to relax monetary policy and increase growth; a subsequent outflow would lead to the opposite policy. In other words, policy becomes pro-cyclical rather than stabilizing. Moreover, bond yields (and thus interest rates) in small open economies exposed to the international capital market do not act so as to balance savings and investment. Broadly speaking, the domestic interest rate (i) is determined by the international interest rate (i_s), the

$$i = i_s + (E_e - E)/E + \rho$$

expected depreciation of the exchange rate ($E_e - E$) and the country risk proper (ρ):

Of these three terms, the first is clearly exogenous and fluctuates considerably in the short term; the second depends not only on the current macroeconomic policy of the government but also on expected policy in the future and fluctuations in *other* currencies; and above all, the third term depends on foreign investors' perceptions of the country in the context of changing circumstances in the region and the world as a whole - and is the factor which determines the lack of substitutability between asset classes. The domestic interest rate is thus a consequence of much the same domestic and external factors that determine short-term capital flows, rather than acting as a domestic capital market clearing mechanism.

There are four macroeconomic consequences of exogenous changes in short-term capital flows (FitzGerald, 1999c).¹⁰ First the main direct transmission effects on the real economy are

⁸ Specifically, if the debt cycle is to end virtuously: (i) capital inflows should increase investment rather than consumption ($dI/dA > dC/dA$); (ii) the resulting investment should be efficient in the sense of leading to factor productivity growth ($dY/dA > 1$); (iii) investment should be in tradables to create the required trade surplus ($dX/dA > dM/dA$); (iv) and marginal savings rates should exceed the average ($dS/dY > S/Y$). This is, of course, true of both long- and short-term capital flows.

⁹ And also wage-earners as an appreciating real exchange rate corresponds to a rising real wage rate (and vice versa) - see FitzGerald (1999c).

¹⁰ By adapting the credit-constrained macroeconomic model in Blinder (1987) to the open developing economy with exogenous short-term capital inflows and outflows.

through variations in funds available to firms and in the demand for government bonds; while the main indirect effects are through variations in the real exchange rate and the level of economic activity. Second, the impact on the fiscal sector is mainly seen in sudden shifts in the perceived solvency of the public sector, and thus upon the level of debt believed by foreign investors to be sustainable; the effect of these fluctuations is felt in volatile levels of public investment, which reduce the efficiency of public provision of infrastructure and social services. Third, the impact on the firms sector is mainly through the supply of working capital, which generates asymmetric responses in terms of investment and output due to the impact on firms' balance sheets; the volatility of expected profits resulting from this has a strong depressive effect on private investment. Fourth, the impact on the household sector is the result of the employment and wage effects; these occur both directly through firms' response to short term capital flows, and as a result of the consequences of fiscal instability; and also indirectly through the effects of real exchange rate variations on real wages and aggregate employment levels.

The most damaging effect of volatile short-term capital flows is on private fixed investment, and thus on the growth of employment and productivity in the longer run. This is derived from the effect of this volatility on the expectations of firms about the profitability of investment through the impact of macroeconomic variables such as the real exchange rate and interest rates. Most investment expenditures are largely irreversible - sunk costs that cannot be recovered if market conditions turn out to be worse than expected. As firms¹¹ can delay investments until more information arrives, there exists an opportunity cost of investing now rather than waiting. In consequence, the value of a unit of investment must *exceed* the purchase and installation cost, by an amount equal to the value of keeping the investment option alive - which will increase exponentially with the level of uncertainty (Dixit and Pindyck, 1994). In consequence, if the goal of macroeconomic policy is to stimulate investment (and thus growth), macroeconomic stability and credibility may be much more important than particular levels of taxes or profit rates (Pindyck and Solimano, 1993). These findings apply *a fortiori* to the situation where short-term capital surges require abrupt compensatory movements in fiscal and monetary stances.

3. THE EXPERIENCE OF CAPITAL CONTROLS

3.1 The Motivation for Capital Controls

Recent financial market turmoil has prompted new interest in capital controls because emerging markets are adopting a more sceptical attitude towards short-term external finance in the wake of the crisis in East Asia. The IMF Articles of Agreement only require member countries to avoid imposing restrictions on current account transactions, such as those related to trade in goods and services and the remittance of profits and dividends. Specifically, Article VI.3 states

¹¹ Moreover, firms are not in fact a homogeneous group in LDCs, and in practice react in quite different ways to similar macroeconomic shocks (FitzGerald, 1995). The affiliates of multinational corporations do not face the same liquidity constraints as local firms as they can always rely on their headquarters as 'lender of last resort', or raise credit from international banks with the international assets of the corporation as implicit collateral. Large domestic firms - often organized as 'groups' - have preferential access to bank credit at any one time (frequently a bank within the group) and thus should suffer less from capital market fluctuations. Indeed it is often the case that banks are vulnerable to the non-financial firms in the group rather than the other way around. In contrast, independent domestic firms are the most vulnerable to shifts in bank credit. Small enterprises outside the formal credit system are also vulnerable to the business cycle because they rely on sub-contracts from larger firms or the expenditure of wages by their employees.

that: “Members may exercise such controls as are necessary to regulate international capital movements, but no member may exercise these controls in a manner which will restrict payments for current transactions or which will unduly delay transfers of funds in settlement of commitments, except as provided in Article VII, Section 3(b) and in Article XIV, Section 2.”

Several developed countries (including France, Spain and Italy) have in the comparatively recent past resorted to controls on the inflow or outflow of capital as a temporary expedient to stabilise domestic financial markets even though such controls have deliberately distortionary consequences and may increase the risk of a relaxation of macroeconomic discipline as well as discriminating against foreign investors. In developing countries, where domestic capital markets are imperfect and systems for financial supervision are not robust, there is a strong case for not liberalising capital account transactions fully until these problems have been addressed (Eichengreen and Mussa, 1998). None the less, the IMF Interim Committee agreed in 1997 that full convertibility for capital account transactions should be the ultimate objective for all Fund members.¹²

Johnston and Tamirisa (1998) examine the determinants of capital controls in 45 developing and transition countries. Their econometric evidence indicates that balance of payments and macroeconomic management, market and institutional evolution, and prudential factors are important in explaining recourse to capital controls. However, macroeconomic variables appear primarily to motivate controls on capital inflows, while institutional and market structures appear to motivate financial regulations related to the operations of banks and institutional investors. Their findings indicate that capital controls in fact reflect in fact the overall framework of economic regulation and the degree of financial market development, rather than just balance of payments management objectives.

3.2 The Design of Capital Controls

The focus of this paper is on preventive controls - that is, on capital inflows; and specifically those with a temporary horizon. The controls may be in the form of a tax on capital inflows (Brazil, Chile, Colombia and Thailand) or quantitative restrictions on capital inflows (Czech Republic and Malaysia) including prudential measures directed at the domestic banking sector.

Leaving aside¹³ direct investment and real estate transactions on the one hand, and credit operations and provisions specific to commercial banks on the other; the types of portfolio investment transactions possibly subject to controls are: shares or other securities of a participating nature; bonds or other debt securities; money market instruments; collective investment securities; derivatives and other instruments. In all five categories there are possible inflows (purchase locally by nonresidents or sale or issue abroad by residents) and outflows (sale or issue by nonresidents, or purchase abroad by residents) to be considered. In addition there may be provisions specific to institutional investors, typically restricting their ability to invest

¹² The IMF staff were instructed to draw up an amendment to the Articles of Agreement that would make the orderly liberalisation of capital account transactions one of the Fund's central purposes.

¹³ And also excluding in practice personal capital movements (deposits, loans, gifts, endowments, inheritances and legacies) to residents from non-residents (inflows) and by residents to nonresidents (outflows) as well as capital transactions by immigrants (such as settlement of debts).

abroad.¹⁴

Capital control measures on these transactions can be divided into three broad categories: price-based, quantity based and regulatory. Price-based measures reduce the interest rate differential between domestic and foreign assets by lowering the rate of return on an asset for any level of risk. This would induce investors to reallocate their portfolios away from that asset on the familiar mean-variance criterion. On capital inflows this would include a tax rate on interest payments in the local currency, and entry tax (or stamp duty) on the investment in local currency or a tax on foreign debt issuance by domestic residents. All these taxes can be structured to depend on the maturity of the investment.¹⁵ Keynes' original argument for a transaction tax to lengthen horizons; and may be relevant for emerging markets (Dornbusch, 1996, 1997).¹⁶

Quantity based capital control measures on portfolio capital inflows usually take the form of limits on the amount of foreign funds that can be invested in local currency.¹⁷ In contrast to price-based (ie tax) measures, the objective of quantitative capital controls is not to alter the return properties of local assets but rather to regulate the amount of foreign funds that can access these assets. In other words, non-residents' portfolios are altered by asset rationing rather than by altering the mean-variance characteristics.

Quantitative restrictions have typically involved limitations on external asset and liability positions of domestic financial institutions (especially banks); on the domestic operations of foreign financial institutions; on the external portfolios, real estate holdings or direct investment of nonbank residents. Measures implemented have included prudential limits or prohibitions on non-traded related swap activities, off-shore borrowing, banks' net foreign exchange positions (Czech Republic, Indonesia, Malaysia, Philippines, Thailand), caps on banks' foreign currency liabilities (Mexico) and even broad measures to prohibit residents from selling short term money market instruments to foreigners (Malaysia). Often the type of instrument to be used is controlled rather than the volume - such as restricting the ability of domestic borrowers to issue bonds on international markets.

The advantage of price-based controls is that they can be built into the investors' risk-return calculations and are credible insofar as they are backed by a sound legislative and legal framework. Their disadvantage is that they represent a relatively weak brake on large capital

¹⁴ For a detailed survey of regulations concerning foreign portfolio investment in emerging markets, see UNCTAD (1998d), Appendix II.

¹⁵ Examples include: the 4 percent interest tax and 1.2 percent stamp duty in Chile (1991); the 1 percent tax of stock market purchases by foreigners, 9 percent tax on foreign purchases of bonds, and 7 percent tax on the issuance of fixed-income securities abroad in Brazil (1994); and the 0.25 percent fee for certain foreign exchange transactions in the Czech Republic (1995).

¹⁶ The case for such a tax is set out in ul Haq *et al* (1996). The reasons why it would not in fact reduce volatility are set out in Arestis and Sawyer (1998).

¹⁷ Examples include: the ban on foreign purchases of money-market instruments in Malaysia (1994), limits on short-term securities sales abroad in the Czech Republic (1995); restrictions on the types of securities that can be owned by non-residents in Korea and China; and the restrictions on the use of proceeds from the issuance of Global Depositary Receipts in India (1995).

surges in response sudden changes in expected returns - where the tax payable on short stays may be very small compared to the gains (or losses) to nonresident investors from changing their portfolio composition rapidly.

The difficulty with quantitative restrictions is that they are subject to administrative discretion and thus investors cannot build their costs into their portfolio calculation. Their scope and application will be uncertain, introducing an unknown element of investor risk, and amplifying the opportunities for corruption. In addition, the ability of even honest administrators to keep up with new forms of derivatives is limited.

Regulatory capital control measures attempt to combine the effects of price-based and quantity-based measures.¹⁸ They involve the obligatory deposit of a proportion of portfolio purchases in local cash or government paper, and thus reduce the liquidity of the investor during the time period of the measure and cost her the yield difference. In consequence, they are more 'market-friendly' than quantitative restrictions. Although they do not generate explicit tax revenues, these measures can discriminate effectively between potential foreign investors according to their attitude to risk and thus encourage longer-term equity or bond holdings.

3.3 Circumvention of Capital Controls

In principle, the adoption of any measures aimed at preventing capital flows from enforcing the interest parity condition immediately introduces an incentive for circumvention (Dooley et al, 1996). Whether this occurs depends upon the fixed, variable and penalty components of circumvention. The fixed cost refers to finding loopholes in the legislation and constructing appropriate financial instruments to take advantage of them, which becomes easier with financial market sophistication (if only off-shore) and in any case is a one-off cost which can become in effect a public good. The variable cost refers to the administrative expenses and yield losses involved in continued circumvention and varies with the volume of transactions; it is particularly high in the case of prudential measures. The penalty component reflects not only the respective fine but also the risk of punishment and the reputational consequences of conviction.

Insofar as all these costs can be reduced to an equivalent tax, and that tax can be administered transparently with considerable welfare benefits in terms of public revenues, this would seem to be an argument for price-based controls.¹⁹ In practice, private operators will inevitably find ways to evade controls if there is sufficient incentive, if only by traditional methods such as the over- (or under-) invoicing of current account transactions, which are usually left uncontrolled due to international trade commitments. In the 1990s, the existence of reasonably liquid secondary markets - increasingly offshore - has made possible the construction of derivatives to avoid controls on maturities²⁰ and even 'synthetic sales' of long-term investments.²¹

¹⁸ Notable examples include: the 30 percent reserve requirement with a minimum maintenance-period of one year for financial investment by nonresidents in Chile (1992); the 100 percent reserve requirement for commercial banks against nonresident deposits in Malaysia (1994); and the 30 percent position limit against short open currency positions with nonresidents in the Czech Republic (1995).

¹⁹ It should be noted that although the foreign investor may appear to pay these taxes (or their equivalent) in the first instance, in a globally rationed capital market it is the domestic recipient who will end up carrying the cost of the controls in the form of higher bond yields.

²⁰ For instance, since 1995 Brazil has imposed an entrance tax on foreign borrowing which declines

In particular, the use of non-deliverable forward (NDF) and non-deliverable swap contracts (NDS) can be used to overcome quantitative restrictions²² - including currency non-convertibility. NDF markets are found in Brazil, China, India, Korea, the Philippines, Poland, Russia, Taiwan and Vietnam as well as in the Middle East. NDF and NDS contracts are off-shore transactions which require no delivery of the notional amounts of each currency at maturity: settlement takes place for the difference between the forward rate and the spot rate at maturity, funding constraints being avoided by payment of the difference in a major foreign currency.²³ They are commonly used to circumvent restrictions on forward markets but also to avoid entry taxes.

In consequence, controls may need to be wide-ranging and costly to evade in order to ensure their effectiveness. Policies to raise the cost of circumvention include measures such as broadening the coverage of controls (eg to cover 'speculative FDI' in the case of Chile), stricter monitoring and enforcement and increased penalties for circumvention.

3.4 Evaluating Capital Control Regimes

The criteria for evaluating the effectiveness of a capital control regime are unclear. One approach is to measure the divergence of key variables (such as interest rates) between countries with and without controls. Another is to assess the government's ability to pursue an independent macroeconomic policy indefinitely. In either case it is unclear what size of yield differential is required to enhance the effectiveness of a policy regime. This would require a structural model encompassing the government's objectives and the economic constraints upon it. In consequence, observers can examine the same or similar data sets and reach very different qualitative conclusions regarding the effectiveness of capital controls. Those who see controls as a short-term device which grants the government time to react and adjust other policy instruments generally argue that controls can be effective. Those who analyse currency regime collapse, suggest that such incidents are often preceded by controls, which cannot prevent and may even provoke such incidents.

Interpreting the effectiveness of capital controls on recorded flows is also problematic. Controlling for factors other than the controls is very difficult: total net capital flows are related

with maturity, reaching zero for six years or more. By simultaneously issuing long (ie over six year) bonds and writing put options with a one-year maturity, holders could sell the bond to the issuer at any time and thus hold what was in effect a tax-free short bond.

²¹ For example, the Malaysian decision in 1998 that the principal value of FPI could not be repatriated for at least a year while FDI could be freely repatriated led to two-part arrangements being made. First, portfolio and direct investors exchange holdings to allow the former to repatriate their funds; and second, an offshore swap of the respective earnings cash flows is arranged so that both parties still receive the original return on their investment.

²² For a practical explanation of forwards and swaps operations, and of derivatives trading generally, see Valdez (1997).

²³ If a spot market does not exist at the time of maturity, then the spot rate can be an official rate or index, which may create arbitrage opportunities between the domestic and off-shore rate. If the offshore investor (usually a bank) wishes to hedge, it may do so with a loan in the domestic currency, and thus reduce the insulation of domestic markets that the controls re designed to create.

to economic fundamentals such as yield differentials and changes in wealth on the one hand, and expectations about the future macroeconomic position on the other. The allocation between public and private securities depends on the current and expected fiscal stance and thus on government behaviour. Moreover, to the extent that controls themselves respond to fluctuations in capital flows, there is a strong element of endogeneity; and it would not be unexpected that new controls on inflows are associated with increased inward flows - as in the case of Chile. Finally, the standard balance of payments classifications are not very informative as to the volatility, effective maturity and liquidity of the recorded flows.

None the less, the extensive literature for the industrial and developing countries (Dooley 1996b, Gros 1987; Obstfeld, 1995, Eichengreen and Mussa, 1998) suggests that the government can drive a significant wedge between domestic and international yields on similar short-term financial instruments for extended time periods. In the five cases (Brazil, Chile, Colombia, Czech Republic, Malaysia and Mexico) during the 1990s examined in Glick (1997) the composition of flows has been effected by the lengthening of maturities, particularly in the cases of Chile, Colombia and Malaysia where the controls have been accompanied by an active monetary policy. In the case of Chile, Malaysia and to a lesser extent the Czech Republic various combinations of taxes and quantitative restrictions were successful in reducing the volume of inflows of short maturities. In Brazil controls seem to have been least effective, probably because they were accompanied by high interest rates originating in a combination of tight monetary policy and large fiscal deficits.

In addition, in four out of five cases reserve accumulation slowed down after the imposition of capital controls - probably due to a combination of reduced precautionary requirements and lesser sterilization by the authorities. Also, despite an easing of monetary policy in Chile and Malaysia and neutral monetary policies in Colombia and the Czech Republic there was a general deceleration in monetary growth following the introduction of capital controls. This appears to reflect the slowdown in non-resident banking sector deposits (Malaysia), less offshore borrowing by domestic banks (Chile and Colombia) as well as slowing down of foreign exchange accumulation by central banks.

Quirk and Evans (1995) evaluated controls in Chile, Colombia and Malaysia by examining the impact on three variables: (i) the magnitude of short capital flows and the composition of total flows; (ii) the disparity between onshore and offshore deposit rates; and (iii) differentials between domestic and foreign interest rates. Controls do seem to have increase the gap between domestic and international interest rates, and to have lengthened the term structure of foreign investment. However, circumvention appears quite quickly, and the interest rate 'wedge' is not large enough to prevent crises.

The specific case of Chile has attracted much attention, specifically the one-year 'unremunerated reserve requirement' (URR) on foreign inflows, introduced in 1991 at 20 percent to dissuade portfolio inflows and reduced to zero in 1998 in order to encourage them (Laurens and Cardoso, 1998). The review of a considerable number of detailed studies of the Chilean experience by De Simone and Sorsa (1998) reveals that there is strong evidence that controls were successful in driving the desired wedge between domestic and national interest rates, while the evidence for the effectiveness of controls in altering the composition of inflows towards the medium and longer-term maturities is positive but less strong. However, they conclude that there is only

mixed evidence that the URRs reduced total capital inflows and little evidence to support the conclusion that they had a significant effect on the real exchange rate.

In sum, the conclusion by Quirk and Evans (1995: 4) that “recent experience suggests that although controls or taxes on inflows should not be viewed as a substitute for fundamental policy measures ... they might serve as a temporary supplementary tools that could provide policy makers with time to react” seems to reflect the overall tone of the available literature. However, the considerable implications of having more ‘time to react’ tend to be overlooked by orthodox economists. First, the emphasis on the ‘interest rate wedge’ supposes that changes in the relative price of capital is the main effect (intended and achieved) of controls, while it is clear in practice that the *liquidity* effect is also considerable, and is generally more significant in imperfect capital markets. Second, the fact that the effectiveness of controls depends upon the way they reinforce fiscal and monetary policies designed to stabilize the balance of payments means that the design and implementation of *active* macroeconomic management is crucial to the reduction of the volatility of portfolio flows. Capital controls might thus be regarded as having an enabling function in permitting effective market intervention rather than as being expected to reduce volatility on their own.

4. FISCAL AND MONETARY POLICY TO STABILIZE CAPITAL FLOWS

4.1 Stabilizing Capital Flows

As we have seen, the source of fluctuations in short capital flows vary widely: alterations in local conditions (both structural such as banking liberalization and privatization, and policy shifts such as in interest rates), changes in international capital markets (such as variations in prudential regulation or in domestic asset yields), or perhaps - and most importantly, as we have seen - shifts in the perceived risk associated with a particular market. Each source implies a distinct policy response: for instance, increased demand for money domestically can be countered by monetary accommodation, while a change in international perceptions of risk may be best handled by sterilization of capital flows - particularly if the policy objective is to maintain a stable real exchange rate in order to promote exports.

The overriding goal should be to maintain high rates of private investment in traded sectors through macroeconomic stability and low real interest rates. The hysteresis in exports and investment that fluctuations in exchange rates and interest rates generate is a strong argument for dampening exchange rate movements in the absence of full hedging facilities (Krugman, 1987).

The impact of the portfolio flows on liquidity depends upon the behaviour of domestic financial institutions, and thus upon the structure of financial regulation. There are two separate motives for financial regulation. The first is economic regulation (eg over interest rates or credit allocation) which has been dismantled all over the world in order to improve market efficiency. However, this may make financial systems more vulnerable to crises. The second category of regulation is prudential regulation to protect the stability of the financial system itself or to protect small investors as ‘consumers’. In contrast to economic regulation, prudential regulation has not been dismantled and in many cases has been strengthened in response to financial crises.

The financial deregulation which has characterized emerging markets during the 1990s can be regarded as a permanent shock to the financial sector which alters the environment in which the

intermediation is carried out (Bachetta, 1992). Specifically, the lifting of regulations on asset portfolios and reserve ratios combined with privatization were designed to encourage better risk management and narrower margins, but may lead to excessive risk acquisition in the search for market share. Monetary policy has become more difficult to implement as the behaviour of monetary variables becomes more volatile with the reduction in market segmentation and consequently increased elasticities of substitution between assets (Melitz and Bordes, 1991). The high real interest rates and lower reserve requirements associated with financial liberalization can thus actually increase banking fragility.

4.2 Open Market Operations

Sterilization of inflows leads to higher domestic interest rates, especially if the domestic currency assets investors want to hold are imperfect substitutes for short term central bank paper or treasury bills supplied by the monetary authorities. This in turn can encourage even greater inflows and defeat the purpose of sterilization. If the domestic and foreign interest bearing assets are not good substitutes than large changes in supply are required to affect the price. Even if they are poor substitutes, considerable relative price adjustment among domestic assets will ensue as the portfolio equilibrium is restored, with negative effects for productive investment.

The open market operations (OMOs) required for sterilization entail the sale of government or central bank securities by the central bank in order to remove the liquidity generated by central bank purchases of foreign currency. The liabilities of the central bank thus remain unchanged but the composition of assets changes with the reduction of claims on the government and increase in international reserves. There is a corresponding change in the composition of non-bank liabilities.

OMOs have been adopted by most countries, particularly in the early 1990s by Chile, Colombia, Indonesia and Malaysia. In some cases (Chile, Colombia and Indonesia, as well as Korea and Philippines) the central bank issued new debt on its own behalf for this purpose; in others (such as Malaysia and also Sri Lanka) public debt was sold as the central bank depleted its own holdings. This form of sterilization has the advantage of not placing extra burdens on a weak domestic banking system; but it does lead to an increased fiscal burden as a high-yielding liability (domestic currency debt) is issued in exchange of lower-yielding assets (international reserves) and thus either a fiscal deficit is generated or expenditure must be reduced. Colombia increased the ratio of open market paper to the monetary base from less than 30 percent in late 1990 to over 80 percent by late 1991 in this way.

The impact of large changes in domestic bond yields interest rates can be serious, and may not be eased very much by the reduced country-risk premium; indeed the reduced rate of devaluation which often accompanies sterilization often raises ex-post dollar yields even further. This would imply that OMOs slow down the convergence of domestic to foreign interest rates and do not lead, therefore, to any pronounced or sustained shifts in the composition of capital inflows as a result of such intervention. Despite heavy intervention, either the rate of devaluation slowed down or there was even revaluation. Argentina is an interesting contrast as it did not sterilize between 1989 and 1992: in the absence of OMOs interest rates converged to world levels and short-term capital inflows levelled off by 1993 two years after the introduction of the currency board in 1991.

OMOs need not, however, lead to full sterilization and thus exchange rate stability because the active management of exchange rates within bands serves to discourage speculative flows, due to the cost of risk of asset values to foreign investors. In a sense, the uncertainty has a similar effect to a transactions tax for risk-averse investors. It also reduces fluctuations in reserves and thus allows the monetary authorities some margin of independence in monetary policy.

4.2 Management of Reserve Requirements and Public Sector Deposits

The reserve requirements of banks may be increased in order to reduce the money multiplier: this offsets the increase in the monetary base due to central bank intervention in the foreign exchange market. In effect, the private sector rather than the central bank has to issue the domestic interest-bearing liabilities (or reduce other asset holdings) in order to finance the new reserves. When commercial banks have higher reserve requirements they are forced to absorb the monetary base (ie non-interest yielding debt of the central bank) rather than interest bearing loans to the private sector; who in turn issue interest-bearing securities or reduce their expenditure. Whether this decreased expenditure is on investment or consumption is an important consideration for longer-term growth.²⁴

To prevent asset-switching (in order to avoid the cost of holding reserves) it may be necessary to increase the reserve requirement on *all* domestic currency deposits. Costa Rica, Malaysia, Sri Lanka and Peru have all used this option with some effect. This involves a lower fiscal cost than open-market operations. Reserve requirements are similar in effect to a tax on bank assets (the increase of reserve requirements in Malaysia from 3.5 to 11.5 percent between 1989 and 1994 was equivalent to an additional 1 percent tax on bank assets); a cost which is usually passed on to clients. Empirical evidence indicates that this leads to higher lending rates (where the banks are at a greater advantage than with depositors) which may stimulate further inflows and corporate borrowing abroad. In imperfect capital markets reserve requirements have much a stronger effect on domestic credit markets by reducing liquidity.

Capital flows may be sterilized by shifting the deposits of the public sector (or quasi-public sector pension funds) from the banking system into the central bank: Malaysia, Taiwan and Thailand have sterilized capital inflows by this method. If government deposits are counted as part of the money stock then such a transfer is equivalent to an increase in reserve requirements; but if they are not so counted, then the effect is the same as that of an OMO. If domestic assets are perfect substitutes then there is no interest rate effect; if they are not then the switch out of domestic assets will depress their prices and raise domestic interest rates.

This procedure has many advantages: it does not act as a tax on banks and it need not raise domestic interest rates overall; and there is no quasi-fiscal cost as associated with standard sterilization. If there is an income lost to the public funds, the fiscal impact is less than that of sterilization. However, it is difficult for banks to manage large deposit swings; and the cost of any market losses may be born by contributors - as it has been in the case of Employee Provident Funds in Malaysia. Moreover, the available funds are limited by the scale of liquid assets already held by the public sector: government deposits held at the Bank of Thailand increased from 25

²⁴ See Section 2.3 above.

percent of total government deposits at end-1987 to 82 percent by mid-1992.

This procedure was used with considerable effect by the Hong Kong government in 1998, which purchased 10 percent of the Hang Seng index - about a quarter of the market's free float in view of the fact that many companies are still family controlled. In this way speculative attacks on the Hong Kong stock market - and by extension the exchange rate - were effectively warded off. As the market recovered by some 60 percent between August 1998 and April 1999, the administration made a paper profit of some US\$8 billion on US \$ 10 billion invested - three times the budget deficit.

The resort to public sector deposit management requires, of course, fiscal solvency without debt overhang. It should also be preceded by an identification of the causes of the original fluctuation in short term capital flows - particularly a judgement as to whether this represents a temporary or a permanent shock (Reisen, 1996). Flows which will soon be reversed would presumably be handled through compensatory reserve management, while permanent flows require some form of macroeconomic adjustment - in the absence of any clear basis for such a judgement, the proverbial admonition to "treat all positive shocks as temporary and all negative shocks as permanent" may be a good guide.

4.3 Policy Design and Implementation

Following the Asian crisis, policy-makers have shown increasing interest in the macroeconomic model pioneered by Chile, which couples trade openness and FDI encouragement with restrictions on short-term capital inflows.²⁵ The model has a number of components, each of which are used by other emerging markets to some extent. *Sterilised intervention*: the central bank has intervened in the foreign exchange market to prevent the real exchange rate from appreciating excessively, purchasing dollars in exchange for local currency to maintain the exchange rate within a 12.5% band around a dollar-DM-yen reference rate. The impact on the money supply has been sterilised by massive placements of central bank promissory notes; albeit at the cost of additional fiscal burdens and high domestic interest rates. *Investment regulations*: capital investment is subject to a number of laws and restrictions specifying minimum entry amounts and the time which must elapse before capital can be repatriated. Decree Law 600 requires FDI to enter Chile through a foreign investment contract with a specified minimum duration, which varies according to the industrial sector concerned. Capital cannot be repatriated until one year after entry, although there are no restrictions on the repatriation of profits. Law 18,657 creates Foreign Capital Investment Funds. Foreign portfolio investment (FPI) in public securities and equities is allowed, subject to a minimum amount of 1 million dollars, which must be invested within one year. Capital invested in these funds cannot be repatriated for a minimum of five years, but profit repatriation is not restricted. *Reserve requirements*: the central bank has imposed reserve requirements on capital inflows, which attempt to discriminate between long-term capital investments and short-term 'non-productive' inflows. Short-term inflows are subject to a one-year reserve requirement of 30 percent at zero interest. The aim is to reduce speculative capital inflows and increase the proportion of direct investment and long-term credit in the capital account. These 'market friendly' controls have proved highly effective in practice.

²⁵ That is, until its recent partial dismantling.

Chile has also used several other policy instruments to restrict the speculative inflow of capital, including minimum conditions for external bond and equity issues, and reductions in the availability and increases in the cost of swap facilities at the central bank. The authorities have also taken measures to encourage capital outflows, including the liberalisation of pension fund regulations, in order to avoid excessive money supply growth. These measures necessarily involve a degree of discrimination against foreign capital, particularly the portfolio entry regulations. Although in principle these could apply equally to asset repatriation by residents, effective discrimination against foreign nationals is held to be justified because they are believed to be less 'committed' to the host economy.²⁶

Such 'fine tuning' is not easy, particularly since much of its effect depends upon the reputation of the economic authorities. Indeed, Obstfeldt (1995) suggests that because of the international integration of capital markets the only way to reduce the shocks arising from external capital flows is either a completely clean float or an irrevocable currency union. However, a pure float is probably unworkable in most developing countries due to the fact that monetary aggregates do not provide a reliable policy anchor, particularly in a period of financial liberalization. In any case, the resulting fluctuations in real exchange rates would have the negative real-economy effects we have discussed above. Monetary union is not a feasible option for most developing countries - and for those for which it is a real prospect (such as Mexico) the fiscal implications for the central economy of the region (eg the USA) are probably unacceptable. In practice, therefore the options appear to be: the design of fiscal policy to reduce the pressure on domestic debt markets; sterilized intervention as the basis of monetary policy, combined with a strong reserve level and low real interest rates; high but flexible marginal reserve requirements on banks in order to mitigate the effects of capital flows on credit provision; and active management of the nominal exchange rate in order to maintain a stable, competitive real exchange rate.

4.4 Complementary measures

Factors which are often cited as causes of financial crises in emerging markets (such as large current account deficits, overvalued real exchange rates, over-investment in non-traded sectors) are in practice often the outcome of massive capital inflows in the first place (Reisen, 1998). All three of the balance of payments management policies discussed above - open-market operations, reserve requirements and public asset management - are made more effective by the existence of direct capital controls.

This is for two reasons: first, the implicit asset differentiation between domestic and foreign assets and liabilities that controls create makes such interventions more effective precisely because it makes markets less efficient. In other words, stability can be attained at the cost of a loss of efficiency. As both enter into the objective function of investors in the real economy, there is a balance to be struck between the two. Second, controls over capital flows - if only in the form of registration - provide the means for the authorities to overcome the information and agency

²⁶ This is because foreign investors are believed to have less information about any one emerging market than nationals, and are also in a better position to switch between emerging markets rapidly. They thus are more likely to leave in response to bad news (Fitzgerald, 1999a). Razin et al (1998) model debt and equity flows in the presence of information asymmetry between the 'insiders' and 'outsiders' to the firm in a small economy. Investment is too low because the economy is too small for firms to invest optimally: lump-sum subsidies for equity finance are suggested as a solution.

problems posed by monetary intervention. In other words, real-time knowledge of the scale and nature of flows, and who is generating them, allows the central bank to take prompt action and to exert 'moral suasion' on market agents. This, of course, is why industrial countries operated capital controls until a late stage in the development of their financial markets.

In Asia these flows have mainly gone into short-term banking instruments and in Latin America into securities - particularly government paper. Recent Latin American experience shows that two mutually reinforcing policies can help influence capital flows towards longer-term equity. First, it is necessary to keep nominal exchange risk substantial for short-term investors chasing high local returns by skilful parity management within credible bands. Second, excessive inflows should be discouraged by an implicit tax that varies with maturity. There is strong empirical evidence that this kind of policy management can impact strongly on the composition and also overall size of flows (French-Davis and Reisen, 1998).

In addition, it is probably necessary to undertake specific national policy measures in order to support investment and employment during such episodes (FitzGerald, 1999c). Public investment programmes should be sustained by avoiding the use of short term debt as a source of funds; undertaking a tax reform sufficiently extensive to generate a structural fiscal balance; and avoiding the refinancing of long-term external debt with short term internal debt. High real rates of interest should be avoided by expansive monetary policy: they do little to stimulate aggregate savings, but clearly depress private investment and in this context, attract volatile capital flows while increasing budgetary costs. It is helpful to ensure that long-term credit is available to firms in order to sustain private investment through the cycles caused by short-term capital flows; possibly by the provision of rediscount facilities at the central bank and tax incentives to long-term profit retention. Finally, small firms and homebuilding should be protected from the effect of credit restrictions by dedicated loan schemes.

5. INTERNATIONAL REGULATORY ISSUES

5.1 The Effectiveness of International Financial Institutions

The existing international institutional 'architecture' to cope with the problems in emerging markets is based on the Bretton Woods bodies, and the IMF in particular. As an intergovernmental institution, the Fund is essentially a lender of last resort to developing country governments, against which facility it imposes policy conditionality in return for the restoration of liquidity²⁷: specific monetary and fiscal policies in order to stabilize the economy, and structural reforms in order to restore long-term solvency. However recent emerging market crises are essentially related to private sector asset deflation and liquidity shortages, the root causes of which were not prevented (and possibly have been exacerbated) by IMF policies of fiscal retrenchment and high interest rates. In particular, as the emerging market crises unfolded a number of apparently well-capitalised local banks were found to be insolvent; their fragility having been disguised by a failure to recognise the poor quality of their loan portfolios (BIS, 1998).

²⁷ This contrasts markedly with last resort lending by central banks, which offer unlimited funds on request - but at penal interest rates.

In response, the IMF has expanded its regular Article IV consultations with member countries to examine the quality of domestic banking supervision (IMF, 1998b). Basle standards are being employed by an increasing number of industrial and industrializing countries; a trend likely to be reinforced by the publication last year of the Basle Committee on Banking Supervision's *Core Principles for Effective Banking Supervision* (reproduced in IMF, 1998a). Although the Bank of International Settlements has no regulatory function as such, the Basle Committee members (central banks²⁸ and other supervisory agencies) does mean the acceptance of best practice for bank regulators in all jurisdictions.

In addition, the Basle Committee has issued a report on *The Supervision of Cross-border Banking* (1996) agreed with the Offshore Group of banking supervisors, representing 19 offshore financial centres²⁹. The report provided a checklist of principles for effective consolidated supervision, intended to ensure that no internationally-active banking group escapes the oversight of a regulator capable of effectively supervising its global operations. The report also contained principles which could be used to assess the quality of supervision in financial centres.³⁰ More importantly, the report represented a formal recognition by the Basle Committee that agreement among the leading industrialised countries alone was no longer sufficient to preserve the integrity of the international financial system in an increasingly integrated global economy.³¹

5.2 Beyond the Basle Approach

These measures in the 'Basle Approach' are restricted to bank supervision, as bank failures represent the greater threat to financial market stability. However, Basle rules extend to the portfolio operations of banks and thus implicitly strengthen the supervision of securities markets. Most private short-term capital flows take the form of negotiable securities rather than bank credit as such, and the larger part of these securities are marketed by banks or by securities houses linked with these banks. The final purchaser may not be fully aware of the risk involved, relying on the reputation of the bank to ensure asset value.

Much of the responsibility for coping with reversible portfolio flows thus still falls on emerging market governments themselves; despite the fact that the large scale of the flows and their evident correlation means that some form of international action is also necessary. High profile failures of a number of financial institutions among the leading industrialised countries have also highlighted the need for effective international supervisory standards. In addition, there is a growing recognition of the risk posed to the international financial system by the poor securities supervision in emerging markets.

²⁸ Brazil, China, Hong Kong, Korea, Mexico, Russia and Saudi Arabia and Singapore were invited to join the BIS in 1996.

²⁹ Including Hong Kong, Singapore, the Cayman Islands and the Isle of Man.

³⁰ Including: the standards and procedures for authorisation, the supervisory authority's ability to gather information about the banks and banking groups it authorises, and the powers available to the supervisory authority to take action against authorised institutions which breach their authorisation requirements.

³¹ The report was endorsed by banking supervisors from 140 countries at the latest biannual International Conference of Banking Supervisors in Stockholm.

The BIS itself bid successfully in 1996 to host the International Association of Insurance Supervisors (IAIS); and will soon bid to provide a secretariat for the International Organization of Securities Commissions (IOSCO). This could give the BIS the potential to supervise non-bank financial intermediaries as well as banks, although whether governments of the leading global capital markets will be willing to cede such authority is not yet clear.

The experience of financial turbulence in Latin America and Asia has led to a perceived need for greater monetary coordination at the regional level. In particular, as Latin American financial markets become more integrated, there is a growing interest in the harmonization of financial regulatory rules building on the European experience (FitzGerald and Grabbe, 1997). Within the NAFTA, the three central banks have become engaged in closer operational coordination in the wake of the 1995 peso crisis but there is a marked reluctance to establish formal institutional mechanisms (FitzGerald, 1999b).

In addition, an UNCTAD Expert Meeting (UNCTAD 1998b) suggested three further measures to stabilise international securities markets. First, the encouragement of closed-end funds as opposed to mutual funds, since investments in the former are relatively more stable because they are not bound by redemption obligations.³² Second, the issuance of American and Global Depository Receipts and other similar instruments at the regional level (issued in the most stable and developed capital market within the region)³³ in order to deepen regional markets. Third, special incentives for minimum holding periods (six months to one year) on a regional basis so as to ensure their effectiveness, and also to systematize both the differential taxation of portfolio assets and reserve requirements on non-resident holdings.³⁴

Finally, in the wake of the LTCM collapse, it has been suggested bank lending to hedge funds investing in developed countries should be restricted in order to limit their ability to leverage their emerging market assets to such a large extent (Edwards, 1998).

5.3 International Investment Rules

Bilateral investment treaties, double taxation treaties, regional trade agreements and certain WTO provisions play key roles in building investor confidence by locking in policy commitments over time (WTO, 1997a). Such new agreements - many of which refer to portfolio assets - are usually based on general standards of treatment; coupled with norms on specific matters such as expropriation, compensation, the transfer of funds and dispute settlement (UNCTAD, 1997). Such agreements are mainly designed to promote FDI, of course; however, by encouraging longer-term commitments by foreign investors, they also support more stable portfolio holdings.

Moreover, clear international rules on the treatment of portfolio assets would help in private debt workouts in the wake of financial crises and possibly even help prevent them. Working out bad

³² However, closed-end funds trade at a discount and there is thus less investor interest.

³³ Such as a 'South-East Asian Depository Receipt'. However, it is not at all obvious that extensive trading in Mexican stocks in New York ameliorated the 1994-95 crisis.

³⁴ However this is a strong disincentive for eg US mutual funds which are legally required to redeem shares within a period of 3 to 7 days; so that the imposition of a minimum holding period would represent a very strong disincentive to investments by those funds.

debts requires the disposal of securitized counterparty assets as the loan books of banks and other financial intermediaries are written down. In the absence of clear property rules, this can become very difficult - especially in a crisis situation. In consequence, private debtors are reluctant to participate in international bail-out operations. Greater confidence in portfolio asset ownership might reduce the desire to withdraw from markets, speed up workouts and increase international private sector participation in rescue operations.

Unlike the original draft for the ITO, GATT made no reference to investment issues.³⁵ However, by the late 1980s many developing countries took a cautiously constructive approach to efforts to adopt investment disciplines in the Uruguay Round. In particular, the Fifth Protocol to the GATS on Financial Services (WTO, 1997b) expands market access in banking, securities and insurance as well as asset management and financial information; particularly by commercial presence - which has considerable implications portfolio investment. The new commitments relax limitations on the forms of bank representation, expansion of existing operations, and foreign ownership and control of local financial institutions. However, in view of the crucial importance of financial stability and depositor protection in all countries many countries have chosen to schedule prudential measures under the GATS Annex on Financial Services.

Investment issues will be central to the next ('Millennium') round of WTO negotiations due to begin in 2000.³⁶ The WTO Working Group on the Relationship between Trade and Investment (WTO, 1998) argues that portfolio investment is inextricably bound up with direct investment, for two reasons: first, because foreign firms combine direct with portfolio investment in the process of establishing themselves within the host economy; second because while the conceptual definition of FDI is one of long-term involvement, in practice it is defined as an equity holding of over 10 percent. In consequence the asset definition of investment would probably include portfolio flows for the purposes of national treatment and investor protection.³⁷

A new set of multilateral investment rules would also have to include specific provisions for the financial services sector, including procedures for the recognition of another contracting party's financial regulation standards, transparency in authorisation procedures, and national treatment by self-regulating bodies such as stock markets. These would all stimulate longer-term portfolio investment.

At first sight, the inclusion of portfolio investment under a multilateral disciplines based on national treatment and investor protection might seem to restrict the ability of governments to impose controls on volatile capital inflows. Contracting parties would thus have to be allowed to adopt temporary non-conforming measures in the event that cross-border capital transactions cause or threaten to cause external financial difficulties or serious difficulties for the conduct of monetary or exchange rate policies.³⁸

³⁵ Although as early as 1954 the original GATT text was modified to allow for quantitative restrictions in cases of perceived balance of payments crises; although Article XVIIIb was rather vague.

³⁶ See FitzGerald (1999d) for a fuller discussion.

³⁷ The definition of investment in terms of 'expecting a return' would automatically exclude, however, government procurement and construction contracts etc.

³⁸ As was done in Section VI of the MAI draft (OECD, 1998). However, it was proposed that such measures should only be permitted with permission from the IMF, which was inappropriate in view of the need

5.4 International Taxation

International tax coordination would strengthen the effectiveness of tax-based measures in order to reduce the volatility of portfolio flows by reducing evasion and thus removing a source of volatility. Most developed countries have entered into double taxation agreements DTTs between themselves, and increasingly with developing countries.³⁹ There are two models used, which are similar in their general provisions but have very different implications for developing countries: the OECD Model Tax Convention (OECD, 1997), which is based on residence taxation; and the United Nations Model Double Taxation Convention between Developed and Developing Countries (1980), which is based on source (or 'territorial') taxation.⁴⁰ Under both models, fiscal income can be redistributed between two participating governments through the system of tax credits. The existing patchwork could be strengthened in order to stabilize international portfolio flows, through appropriate design of withholding taxes, without the need to establish a supra-national tax authority.

A multilateral (or even regional) agreement on withholding taxes on portfolio assets would not only improve the fiscal revenue position of developing countries and reduce the attractiveness of tax incentives to foreign investors, but would also strengthen the effort to combat money laundering and financial fraud - again, stabilizing financial flows. In addition there are current moves to establish withholding taxes on portfolio holdings in major financial centres in order to reduce the tax loss on the profits generated there (OECD, 1988b). The European Union, in particular, has found that the creation of a single market in financial services requires such a development (FitzGerald and Grabbe, 1997). In order to strengthen this process of fiscal capture by both developed and developing countries, it would be necessary to eliminate tax havens - or at the very least deny the benefits of international investor protection to firms registered there. Further the reconsideration of tax credits on portfolio flows within existing DTTs in order to encourage longer-term holdings would be desirable; as would the application of the US 'pass-through' principle to tax havens (Plasschaert, 1994).

Finally, many foreign investors control their portfolio investments in LDCs through offshore holding companies, often incorporated in tax havens. In some cases, this is done to avoid

for rapid and flexible action in balance of payments crises.

³⁹ There are now over 1,700 such treaties in existence (IBFD, 1998): 34 percent of all DDTs are between developed and developing countries, and a further 17 percent between developing countries.

⁴⁰ In theory, developing countries would benefit most from a multilateral withholding tax treaty based on the source principle for two reasons. First, the gains from taxing income of foreign investors would be greater than the loss from not taxing income from their own residents' assets held abroad, because a developing country has a net external liability position. Second, the full taxation of these assets held abroad by the authorities in that country on the source principle would make capital flight much less attractive. Although when applied unilaterally the source principle may encourage nationals or residents to invest abroad ('capital flight'), it is often adopted because tax administrators have great difficulty in finding out how much foreign income accrues to their residents. The residence principle, although based on overall capacity to pay, has proved to be of limited significance in countries whose residents do not have substantial (recorded) investments in other countries, and whose fiscal administration is not well equipped to ensure its application. Moreover, to the extent that developed countries do not tax non-residents, they too stimulate capital flight from developing countries.

financial regulation⁴¹ as well as for tax evasion or money laundering purposes; and as we have seen in Section 3.3 offshore markets play a key part in the evasion of capital controls. The inclusion and protection of indirect ownership, in this context, a potential problem for recipient LDCs; and should probably be excluded from multilateral investment protection as a positive disincentive to their use by foreign portfolio investors in emerging markets.

6. CONCLUSIONS

This paper has explored the causes and consequences of the volatility in foreign portfolio flows (FPI) and the effectiveness of policy controls over these flows in the international context. There is a general agreement that public policy responses to the challenges posed by cross-border transactions are evolving towards 'market-based' procedures. These procedures should not, however, be interpreted as including only monetary and exchange rate policies but rather can and do include transparent and 'costable'⁴² controls such as asset taxes and reserve requirements.

It is clear that policy must aim to both reduce the volatility of these flows and shift their maturity towards that of direct foreign investment (FDI), in order to reduce the macroeconomic uncertainty caused by capital surges and thus support productive capital formation and broad employment creation. In practice such a policy could combine tax- and reserve-based direct control measures, an active policy of monetary intervention, and a supportive international regulatory regime. In this context, controls have a significant role to play, but their effect is limited in time and most effective where the degree of integration into international capital markets is low. Larger and more open emerging markets must necessarily rely to a greater extent on monetary intervention and regulatory coordination.

The collective provision of prudential regulation of financial intermediaries is necessary in order to prevent not only fraud but also imprudent behaviour with wider consequences, and to protect vulnerable consumers of financial products. This presumes, however, the existence of a sound and transparent legal system that secures contracts and provides for efficient dispute settlement between contracting parties and between financial intermediaries and the regulators. This does not exist at the international level - indeed international investors have no status other than in municipal jurisdictions and only have recourse to essentially political mechanisms to solve investment disputes.

What is more, in practice the maintenance of an 'orderly market' at the domestic level involves de facto recognition of a small number of leading financial institutions ('market makers') who in principle stand ready to buy and sell assets at the current price - creating 'depth' and thus stability in the market - and can be called upon to take over the operations insolvent financial intermediaries when necessary. These do not exist in the global market, and although as international banking and securities management becomes more concentrated they could emerge, there is no indication of how they might be coordinated or by whom.

Whatever domestic policy to control the volatility of portfolio investment is adopted, determined

⁴¹ LTCM was registered in Bermuda.

⁴² That is, taxes and reserve requirements can be computed as costs by the investor involved, permitting rational economic calculations.

regulatory support from the international community is necessary. This must evidently include prudential supervision of large overseas investment funds by the securities regulators in developed countries - including restraints on bank lending to hedge funds. In addition, appropriate withholding tax agreements may be a necessary element in the construction of an orderly global capital market.

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