

12-1-2013

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### Recommended Citation

Obadan, Mike I. (2013). Coping with capital flow volatility: policy consideration for Nigeria. *Economic and Financial Review*, 51(4) 177-191

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# Coping With Capital Flow Volatility: Policy Consideration for Nigeria

Mike I. Obadan, Ph.D, FNES, FIMC\*

## I. Introduction

Over the past three decades, there has been remarkable growth in international capital flows, especially to the developing countries/emerging market economies (EMEs). Such international financial flows allow for the efficient allocation of savings and investment thereby promoting growth. Indeed, in the recipient economies of capital flows, foreign resources complement domestic savings in financing domestic investment and also contribute to the development of domestic financial markets. Capital flows provide additional financing to countries with limited domestic savings and make local financial markets deeper and more liquid. As summarised by Obadan (2004: 84), "in the developing countries, where domestic resources tend to be in short supply, capital inflows can lead to increased investment, fasten economic growth, improved living standards, and the deepening and broadening of domestic financial markets". Despite these benefits, foreign capital flows have, from time to time, elicited deep concerns and debates because of their tendency to be volatile besides various macroeconomic and other related effects. Huge surges in capital flows to the emerging market economies have often been accompanied by crises as witnessed during the Mexican financial crisis of 1994-1995, East Asian and Russian crises of 1997-1998, Turkey in 2000-2001, and Argentina in 2001 - 2002.

Generally, the volatility of capital flows, especially in the form of huge surges pose significant risks and raise concerns about excessive exchange rate appreciation and the corresponding adverse impact on exports and growth. Besides, large capital inflows may contribute to an unsustainable expansion of credit, generate asset price bubbles and, consequently, increase financial fragility (Sidaoui, Ramos-Francia and Cuadra, n.d). Concerns are also raised about the recipient economies' vulnerability to sudden reversal in capital flows and the resulting implications for financial and economic activities. Sudden reversals of capital flows have an adverse impact on domestic economies as witnessed in the East Asian financial crisis of 1997 – 1998 (Obadan, 2004: 207-240).

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In light of the risks associated with foreign capital flows, it is desirable to have appropriate policy responses to such flows, taking cognizance of the determinants of capital flows volatility, the composition of capital flows and the flows that are more susceptible to high volatility.

## **II. Stylised Facts On Capital Flows Volatility**

### **II.1 Capital Flows to Emerging Market Economies**

One major aspect of capital flows that attracts a high risk of volatility is the 'hot money' variety or temporary short-term flows that could be reversed at short notice, and possibly lead to domestic financial crisis. "Temporary" capital flows tend to be associated with the phenomenon of reversibility – the risk that capital pulled in by certain temporary factors could flow out once the attractions waned. Empirical evidence showed that capital flow reversals, known as 'sudden stops' in the literature, have an adverse impact on domestic economies through contractions of domestic expenditure and production, collapses in real exchange rate, and reductions in both asset prices and credit to the private sector.

- Capital flows to the emerging market economies (EMEs) have been more volatile than those to the developed countries. In their study, Broner and Rigobon (2004) found the percentage of greater volatility to be 80.0 per cent. But this decreased when controlled for a series of macroeconomic variables, and then non-fundamental variables such as outliers, lags, and contagion effects. In the same way, the volatility of each component of net capital flows is lower for the industrialised countries than for the developing countries. While the volatility of each component of capital has decreased for the developed countries, the volatility of net flows of capital has increased for the developing countries (Alfaro, Kalemli-Ozcan and Volosovych, 2004: 14).
- Both the poor and middle-income developing countries experience a high degree of volatility, particularly outflows. But while capital outflows from the poor countries are more volatile than the outflows from the middle-income countries, inflows are less volatile (very likely because the poor countries receive little of the more volatile capital market flows) (World Bank, 2002: 70). The implication is that many poor countries face the same issues surrounding capital flows volatility and the consequences for macroeconomic stabilisation as the middle-income countries. Overall, the poor countries face higher levels of volatility. It is more costly for them,

and they are less equipped to deal with it, compared with the middle-income countries.

- The possible explanations for the greater volatility of capital flows to EMEs are as follows:
  - Likelihood that EMEs are hit by fundamental shocks that have different stochastic properties than those that affect the developed countries and the capital flows might just reflect those properties;
  - Different responses of capital flows to EMEs and developed countries to similar fundamental shocks;
  - Tendency of EMEs to be subject to larger sources of non-fundamental shocks, such as crises, persistence, and contagion.
- Generally, the factors that can cause capital flows volatility include: macroeconomic variables, reflecting fundamental factors such as terms of trade shocks, time preference shocks, and initial endowments. Others are bad policies, weak institutions, underdevelopment of the domestic financial markets, level of development, external factors, and non-fundamental factors such as crises, persistence, lags, and contagion. In a study of a panel of 48 countries, Broto, et al., (2008) found that the development of the domestic financial system tends to reduce the volatility of portfolio and banking flows, while it is also relevant for the other types of flows. Global factors were found to have become more important in determining the volatility of capital flows, particularly in the case of FDI flows. Also, FDI was found to be the flow whose volatility is more associated with macroeconomic soundness. Higher per capita GDP, the ratio of reserves to imports (a measure of self-insurance) and lower inflation in the countries all reduce the volatility of FDI. Broner and Rigobon (2004) similarly found underdevelopment of the domestic financial markets, weak institutions and low per capita income as being associated with capital flows volatility. In other words, financial development, good institutions, and high income per capita are all associated with lower volatility. Finally, bad policies, represented by inflation, inflation volatility, government consumption – fiscal deficit, have an important role in explaining the high volatility of different forms of capital flows (Alfaro, Kalemli-Ozcan, and Volosovych, 2004: 40). The authors also found the level of development as an important variable in

explaining the volatility of capital flows. Increases in GDP per capita reduced the volatility of capital flows.

- On the volatility of the components of capital flows, the literature suggests a hierarchy of volatility and that long-term capital flows (particularly foreign direct investment – FDI) are more stable than other flows. FDI flows are in general less volatile than portfolio flows as they normally tend to be driven by long-term considerations. An empirical study by Turner (Griffith-Jones, 1998) concluded that a stability ranking can be established in the following order:
  - Long-term bank loans;
  - Foreign direct investment;
  - Investment in bonds;
  - Investment in shares; and
  - Short-term credits

## **II.2 Volatility of Nigeria's Capital Flows**

Estimates of measures of volatility of components of Nigeria's capital flows support the finding in the literature relating to the greater stability of FDI flows (Table 1).

FDI inflows are far less volatile than portfolio investment inflows. The coefficient of variation measure of volatility is much lower for total FDI inflow at 0.25, compared with 0.69 for portfolio investment inflow. Also, while the coefficient of volatility of net FDI flow is 0.23 that of net flow of portfolio investment is 3.99 and that of equity securities is - 4.36. The volatility measures of FDI outflow are higher than those for inflow. Other investment inflows relating to loans, and currency and deposits are far more volatile than the other inflows.

**Table 1: Volatility of Components of Nigeria's Foreign Capital Flows\***

Capital Flows Items	CV of Inflow+	CV of Outflow	CV of Net Flow	Mean of Inflow (\$'mn)	Mean of Outflow (\$'mn)	Mean of Net Flow (\$'mn)
1. Foreign Direct Investment	0.25	0.63	0.23	6,839.26	794.13	6,045.13
Equity Capital	0.27	0.63	0.26	4,223.18	784.05	3,439.13
Re-investment Earnings	0.25	0.61	0.25	2,553.60	11.72	2,543.55
2. Portfolio investment	0.69	0.70	3.99	2,447.27	1,871.19	576.08
Equity Securities	1.01	0.66	-4.36	1,185.57	1,669.74	-484.17
Debt Securities	0.79	1.08	0.85	1,261.69	201.47	1,060.22
Long-term debt securities	0.79					
Short-term Debt Securities	0.91					
3. Other Investment	-2.04	-0.56	-0.42	-4,320.35	9,922.65	-14,243.00
Loans	-1.73			-4,891.48		
Currency and deposits	-3.18			207.59		

**Notes:** \* Period covered is 2005 – 2011.

+ CV is Coefficient of Variation

**Source:** Underlying data are from CBN, [Annual Report](#) and [Statistical Bulletin](#), Various Issues.

### III. Overview Of Policy Responses To Capital Flows

In light of the macroeconomic effects and concerns (including volatility) of capital flows in relation to the potential benefits of higher investment and growth, policy makers must find the right balance between accommodating the beneficial effects of the inflows and the overheating/volatility effects. The policy responses to capital flows depend not only on the macroeconomic effects and concerns, but also on the need to achieve objectives such as:

- Maintaining international competitiveness;
- Avoiding over-reliance on short-term capital flows;
- Encouraging more long-term capital flows;
- Avoiding the risk of future debt or foreign exchange crisis; and
- Complementing increased external savings with higher domestic savings, thereby avoiding a displacement of domestic savings by external savings.

Besides, the policy responses to capital inflows fashioned out by the policy makers depend on whether such inflows are likely to be sustained or temporary, and whether the inflows carry the potential for improvements in investment and growth. The appropriate policy responses are also a function of the nature and causes of the inflows, degree of flexibility allowed by the domestic institutional structure, persistence of the inflows, the nature of the domestic credit and financial markets, as well as availability of different instruments and the extent of credibility enjoyed by the authorities. Thus, for example, when surges in capital inflow are clearly attracted by sustainable improvements in competitiveness or potential productivity, the policy response could be focused on improving the absorptive capacity of the economy than on containing the destabilizing effects. This means that unless the inflows are caused by temporary changes in external circumstances, domestic credit conditions, or bandwagon effects, the thrust of the policy response should be on creating the conditions for the inflow to be used productively. But where the effects of the inflows may be destabilising, policies need to focus on how to contain the inflows or neutralise their effects.

Policy makers have at their disposal the following policy measures:

- Countercyclical macroeconomic policy measures – monetary policy, fiscal policy and nominal exchange rate flexibility;
- Structural measures (trade policy, banking and supervision and regulation);
- Foreign reserve accumulation; and
- Macro-prudential policy.

Each of the policy tools has its benefits and costs which must be taken into account when assessing the appropriate policy mix to deal with volatility of capital flows.

Generally, where the capital flows are mainly driven by fundamental factors, the corresponding real exchange rate (RER) appreciation and the consequent change in relative prices could reflect the need to re-allocate resources in the economy. The danger is the possibility of excessive expansion of domestic demand that could lead to inflationary pressures in the non-tradable sector, which in turn, would lead to a further appreciation of the RER. In this case, policy actions should facilitate rather than impede the reallocation of resources from tradable to non-tradable sectors. Policy makers should allow a nominal (and real) appreciation caused by stable and long-term capital flows. However, measures

could be adopted to mitigate the appreciation pressures if the magnitude of capital inflows leads to a sharp appreciation of the RER. Here, the macroeconomic policy stance would need to be adjusted.

### **III.1 Macroeconomic Policy: Fiscal Policy**

Appreciation pressures relating to massive capital inflows can be handled with fiscal consolidation. It could work to attenuate RER appreciation. As a significant part of public expenditures involves non-tradable goods, fiscal consolidation exerts downward pressure on the price of these goods. And the decline in the relative price of non-tradable goods and services tends to depreciate the RER, or ease appreciation pressures in the least.

A fiscal consolidation programme and a prudent monetary policy lead to stronger macroeconomic fundamentals, which helps to improve investors' confidence and induce long-term and stable capital flows. However, the additional sources of external funding associated with better fundamentals may also lead to further appreciation pressures and may require additional fiscal measures. Therefore, fiscal and monetary policies aimed at strengthening macroeconomic fundamentals and improving investors' confidence should be accompanied with structural reforms to take full advantage of the benefits related to capital inflows. Over the medium-term, a tightening of fiscal policy may be needed to control increases in absorption to prevent an excessive appreciation of the RER and to contain inflation and external deficit.

Nevertheless, there are some limitations in the use of fiscal tightening as a response to capital inflows.

- ✓ As fiscal measures usually require legislative approval, they are often executed with a lag; they may also be a difficult political task;
- ✓ A tight fiscal policy is somewhat unwieldy for short-term demand management because of the lags associated with the formulation and implementation of specific measures.

Where the capital inflows are driven by short-term considerations, the fiscal response may take the form of taxes on short-term borrowing abroad or tighter fiscal stance in the face of persistent capital inflows. This is necessary against the backdrop of unbalanced macroeconomic policies (most often an excessively expansionary fiscal policy compensated for by a tight monetary policy). Taxes on short-term borrowing are effective in the short term. But the private sector may be



quick in finding ways to dodge the taxes through over-and under-invoicing of imports and exports, and through increased reliance on parallel financial and foreign exchange markets.

And prolonged taxes on inflows to the banking system could weaken bank profits and encourage disintermediation. Overall, a tight fiscal policy stance may not stop the capital inflow. But it may lower aggregate demand and curb the inflationary impact of capital inflows. In this respect, lower government expenditure may be more effective than higher taxes.

### **III.2 Macroeconomic Policy: Monetary and Exchange Rate Policy**

Under conditions of surges in short-term capital inflows monetary policy can be relaxed or tightened. Relaxing monetary policy stance can narrow the differentials between domestic and foreign interest rates, and hence reduce the incentives for the inflows. This may be good policy where there are no inflation expectations. But reducing the monetary policy rate would contribute to stimulating aggregate demand, which could generate pressures on inflation and RER appreciation. On the other hand, tightening monetary policy to address an inflation problem could attract further capital inflows through increase in domestic interest rates. In this circumstance, the monetary authorities would face a difficult trade-off and may require the support of fiscal consolidation measures – to relieve upward pressures on interest rates and prices.

Generally, the monetary policy instrument of sterilisation (sterilised intervention) could be used in the early stages of the capital inflow. Sterilised intervention involves accumulating reserves and sterilising the monetary effects on money supply. The idea is to insulate the money stock from fluctuations stemming from the free inflow of capital. Usually, through sterilised intervention, the country's central bank buys foreign exchange (often issuing securities at high interest rates) to pay for it, and thus, adding to its reserves (often at lower interest rates). Thus, sterilisation entails fiscal costs, which may be large, resulting in a large quasi-fiscal deficit (the difference between the interest earned on the reserves and the costs of financing the sterilization). Also, the ability to sterilise the effects of capital inflows on the monetary base may be limited if suitable instruments are not available to the central bank and the domestic financial markets are not well developed. Besides, aggressive sterilisation through OMO maintains the pressure on domestic interest rates, perpetuating the conditions that attracted large inflows in the first place.

In some countries, as inflows persisted and the costs associated with different types of sterilization became exorbitant, particularly the fiscal costs, successful

policies began to rely on exchange rate flexibility to discourage capital inflows, especially of the portfolio type. Adjusting the exchange rate in a timely manner may preempt the inflationary impetus of the inflows and floating makes the money supply and domestic credit exogenous to capital inflows. But floating has its own disadvantages too.

### **III.3 Foreign Reserve Accumulation**

The most common motivation for accumulating large reserves in emerging economies is to self-insure against external shocks such as abrupt reversals in capital flows, especially flows driven by short-term factors. A sudden burst of capital outflows can be painlessly met by a corresponding loss of reserves without affecting credit meant for the private sector. Besides being a buffer to absorb adverse external shocks, foreign reserves are also perceived to be a tool to reduce the probability of self-fulfilling speculative attacks. A country with large foreign reserves is less likely to suffer from such attacks. Thus, foreign reserves allows a country a larger margin of manoeuvre to cope with various attacks and hence help to mitigate their impact on the economy.

But there are costs associated with accumulating foreign reserves.

- Reserves accumulated through purchases of foreign currency via open market operations entails a fiscal cost as noted above.
- The resources used to finance foreign reserve accumulation could alternatively be used to finance either public or private investment projects. This implies a high opportunity cost of foreign reserve accumulation.

Overall, the potential benefits of foreign reserve accumulation need to be compared with the costs when considering increasing the level of foreign reserves.

### **III.4 Macro-prudential Regulation and Supervision**

The financial consequences of short-term capital inflows can be addressed with some prudential macro-prudential tools (Sidaoui, Ramos-Francia and Cuadra, n.d). These include:

- Reserve requirements or credit ceilings. These can be used to prevent unsustainable credit expansions;
- Limits on currency mismatches and improved credit information. Aimed at improving the quality of loans;

- Capital requirements. Can be used to enhance the financial system's resilience to adverse shocks.

A technical problem that may arise though relates to the possible difficulty in calibrating the appropriate policy response when using some of these tools (*ibid*). Generally, adequate regulation and supervision could be useful in preventing an inefficient intermediation of capital inflows and thus help to contain systemic risk in the domestic financial sector.

### **III.5 Capital Controls**

Capital controls can be considered in the context of trade and exchange policy. They have also been regarded as a macro-prudential tool which some emerging economies have been adopting in order to cope with massive and speculative short-term capital inflows. Capital controls are necessary if other policy instruments have limited effectiveness and if an economy is receiving a greater volume of capital inflows than it has the capacity to absorb, such that the inflows will pose problems for economic policy management, particularly, monetary and exchange rate policies (Obadan, 2004: 101). Although there are credible and coherent arguments for the imposition of some capital controls, they are an instrument that can be considered relevant in the context of the "theory of the second best".

Generally, capital controls can be imposed either by limiting asset transactions through market-based mechanisms, such as taxes, or through administrative measures such as explicit quantitative limits or outright prohibitions. Capital controls give a country some respite and can be directed at deterring short-term, overly speculative inflows, as well as moderate the volume of aggregate inflows and lengthen their maturities.

From the successful experiences of countries like Chile, Columbia and Malaysia, capital controls could take the form of a prescription that capital inflows remain in the country for a minimum of, say, one year or that fixed fraction be made in the form of a non-interest-bearing deposit. For a number of years, the countries successfully applied such requirements to limit portfolio capital flows, thereby obtaining a balance between short-term investment and foreign direct investment that has reduced the volatility of aggregate capital inflow. In other words, some of the requirements created an incentive for foreign investment to be long-term by raising the cost of short-term investments. Short-term investments were limited by making them unprofitable.

However, there are problems associated with capital controls: One relates to their enforcement. Capital controls can be evaded if transactions are misreported by economic agents as capital inflows of the type that are either not subject to controls or are subject to lower tax rates. In light of the problems, capital controls tend to lose their effectiveness over time because economic agents will always find a way to evade them. Also, the imposition of capital controls may raise uncertainty about future policy actions, which may also negatively affect foreign agents' willingness to invest in the country.

Overall, in view of the inherent costs of capital controls, including possible misallocation of resources and a lower rate of investment and growth, such controls should be progressively dismantled as the quality of surveillance and prudential supervision improves and the capacity of the banking system to handle flows increases.

#### **IV. Policy Direction For Nigeria**

In discussing this, cognizance is taken of the nature and composition of Nigeria's capital flows, the degrees of volatility of the different components, the government's extant policies on capital flows, and international lessons of experience. First, on a broad level, let us note the economic policy implications of the empirical findings on volatility of capital flows for the poor countries, including Nigeria as follows:

- Need for policy to encourage and attract long-term capital flows, FDI in particular;
- Avoidance of financing of current account deficits with very large capital inflows of whatever ranking;
- Considering the high volatility of short-term capital flows (notably, bank loans and portfolio flows), need to avoid giving too much exposure to foreigners in the economy in such areas of investment. Large foreign holdings of short-term treasury bills and similar financial instruments create potential vulnerability for government, especially the balance of payments. A major contributor to the Mexican financial crisis of 1994 – 1995 was the government's accumulation of huge foreign short-term debt in the form of treasury bills.

Secondly, the following facts should guide the policy on capital flows. From Table 1, it is clear that FDI was relatively much more significant than portfolio investment

flows over the period, 2005 - 2011. The average FDI inflow was nearly three times the portfolio investment inflow, while the average net FDI inflow was over ten times the net portfolio inflow. Other investments, comprising bank loans, currency and deposits recorded negative net average flow. Portfolio investment and other investment flows are characterised by much higher volatility than FDI.

As Table 2 further shows that portfolio investment inflow showed great volatility during the recent global financial crisis. Portfolio inflow declined from US\$2,825.59 million in 2006 to US\$1,334.3 million in 2008 and to only US\$481.69 million in 2009.

**Table 2: Trend of Direct Investment and Portfolio Investment Inflows, 2005 – 2011.**

	Direct Investment (US\$' Million)	Percent Change (%)	Portfolio Investment (US\$' Million)	Percent Change (%)
2005	4,978.26	-	883.0	-
2006	4,897.81	-1.6	2,825.59	220.0
2007	6,086.73	24.3	2,665.50	-5.7
2008	8,248.64	35.5	1,334.30	-49.9
2009	8,649.53	4.9	481.69	-63.9
2010	6,098.96	-29.5	3,747.90	678.1
2011	8,914.89	46.2	5,192.80	38.6

**Source:** CBN. Statistical Bulletin, Vol. 22, December, 2011.

But it appears that in the last two years, portfolio investment inflow has rebounded to acquire greater significance than FDI. Table 3 shows details of foreign private capital inflows in the first five months of 2012 and 2013. In the two sub-periods, portfolio investment inflow accounted for over 80 percent of the total private capital inflow. And equity securities accounted for over 70.0 percent of the total portfolio inflows.

**Table 3: Structure of Nigeria's Foreign Private Capital Inflow – January to May 2012 and January to May 2013.**

	January to May 2012 (US \$)	%	January to May 2013 (US \$)	%
1. Foreign Direct Investment – Equity	648,060,187.93	10.55	811,761,557.67	8.11
2. Foreign Direct Investment – Other Capital	23,431,046.51	0.38	20,142,280.62	0.20
Sub – Total FDI	<u>671,491,234.44</u>	<u>10.93</u>	<u>831,903,838.3</u>	<u>8.31</u>
3. Portfolio Investment - Equity	4,422,071,507.8	72.01	7,096,501,682.9	70.93
4. Portfolio Investment – Bonds	206,218,148.9	3.36	749,127,420.9	7.49
5. Portfolio Investment – Money Market Instruments	423,414,626.4	6.89	565,370,843.7	5.65
Sub – Total – FPI	<u>5,051,704,283.0</u>	<u>82.3</u>	<u>8,410,999,947.5</u>	<u>84.07</u>
6. Other Investments – Trade Credits	43,671,903.7	0.71	0	0
7. Other Investments – Loans	366,906,708.0	5.97	754,616,466.3	7.54
8. Other Investments – Currency Deposits	0.0	0.0	1,733,975.0	0.02
9. Other Investments – Other Claims	7,194,265.0	0.12	5,611,651.53	0.06
Sub – Total – Other Investments	<u>417,772,876.7</u>	<u>6.80</u>	<u>761,962,092.82</u>	<u>7.62</u>
10. Total Foreign Capital Inflow	<u>6,140,968,394.1</u>	<u>100</u>	<u>10,004,865,878.6</u>	<u>100.00</u>

• **Source:** Nigerian Investment Promotion Commission Website: [www.nipc.gov.ng/](http://www.nipc.gov.ng/)

Very importantly, for some time now, especially since the current democratic dispensation began in 1999, public policy has favoured the attraction of high level foreign direct investment and it has been promoted rather aggressively. The Nigerian Investment Promotion Commission (NIPC) – established by the NIPC Act, No. 16 of 1995 – promotes, coordinates and monitors domestic and foreign investment in Nigeria. Various measures have consequently been designed to promote FDI inflow. Also, in the bid to attract FDI, the government, a few years ago, set up the Honorary International Investors' Council, consisting of world business and social leaders, to help promote FDI inflow. This Council is chaired by Baroness Lynda Chalker of Great Britain who was a former member of the British Parliament and Minister of State for Overseas Development and Africa.

Against the above background, the concern is not much about the volatility of FDI flows. Rather, it is how to improve the macroeconomic and institutional environment to attract a higher level of FDI inflow.

Required therefore for FDI are the following:

- Sound macroeconomic policies, reflecting low inflation, low fiscal deficits, stable exchange rate, high and sustainable economic growth, among others. In other words, prudent fiscal and monetary policies aimed at maintaining macroeconomic stability and investors' confidence are indispensable;
- Strengthening of the financial markets – money and capital markets – to inspire the confidence of investors;
- Significant improvement in the investment climate, particularly issues relating to poor infrastructure, corruption, insecurity of lives and property, multiple taxes, among others; and
- Improvements in macroeconomic policies also need to be complemented with structural reforms to make the economy competitive. Good economic fundamentals and a more competitive economy would provide a good basis for the country to handle upsurges in capital inflows.

For the highly volatile flows such as portfolio investment, and other investment (bank loans, and currency and deposits), a combination of the following is suggestive:

- Good macroeconomic policies, reflecting low fiscal deficit, low inflation, etc, can also reduce their volatility. Lower levels of inflation and fiscal deficit may result in lower levels of uncertainty in terms of the net flows of capital, equity securities in particular; and
- More effort at developing and improving confidence in the financial system can reduce the volatility of portfolio and banking flows. Policies should aim at reinforcing the depth and soundness of the domestic financial system.

Should portfolio flows become sizable and pose a threat to economic and financial stability, the following policies can be considered:

- Monetary policy – sterilisation of inflows. But the fiscal costs of this would need to be weighed against the benefits;

- Prudential capital controls, for example, those that can change the duration and structure of inflows to relatively long-term;
- Greater flexibility of the exchange rate; and
- More reserve accumulation in the context of managing capital flows in contrast to reserve accumulation arising from crude oil export earnings.



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