

# Capital flows and policy in emerging-market economies

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The sharp net outflow of capital experienced by South Africa in October 2008 put into focus the sensitivity of the country's key markets to international capital flows. In that month a net withdrawal of almost R67 billion of foreign funds from the Johannesburg Stock Exchange contributed to a 12 per cent fall in the FTSE/JSE Africa All-Share Index and to a decline of almost 20 per cent of the rand against the United States (US) dollar. The net outflow of capital was one element in portfolio adjustments occurring worldwide and affecting markets in most countries, but South Africa's experience reflected its need to finance a persistent current-account deficit of more than 7 per cent of gross domestic product (GDP) and the unwinding of a yen–rand carry trade, stimulated by South Africa's relatively high interest rates, that had formerly buoyed the rand (the rand depreciation against the yen in October 2008 was greater than that against the US dollar). Such changes in external capital flows can have strong effects on inflation and real economic activity through their effect on the exchange rate and the cost of capital; in some circumstances countries have experienced them as a 'sudden stop' and wide-ranging crisis. The potential for changes in net inflows or outflows on the capital account complicates the task of macro-economic policy-makers charged with countering inflation and creating conditions for real growth, for policy variables such as a domestic interest rate influence both domestic and external capital flows and shocks to the latter are potentially ever present, not only in the unusual circumstances of the global financial turbulence of the late 2008. What are the implications for monetary policy?

Digging into his or her tool kit, the most basic instrument an economist pulls out for considering the connection between capital flows, exchange rate regimes and monetary policy is the Mundell–Fleming model (Fleming, 1962; Mundell, 1963). The powerful policy prescriptions yielded by the elegantly simple model have maintained their influence even as the original, comparative-static, fixed-price, aggregate model with static expectations has been superseded by dynamic models derived from agents' optimising behaviour (Obstfeld and Rogoff, 1995, 1996). Most relevant to the policy discussions engaging South Africa is the model's implication that a small open economy without restrictions on external capital flows cannot have a monetary policy that targets both a domestic interest rate and nominal exchange rate. More precisely, the simplified model demonstrates the impossibility of combining three elements that countries might desire: (1) participation in an international capital market characterised by

perfect capital mobility, (2) an autonomous monetary policy and (3) a fixed exchange rate.

South Africa's policy regime has been the subject of vigorous public debate, with a monetary policy regime based on inflation targeting and a floating exchange rate being opposed by demands for a monetary policy to achieve (employment-promoting) exchange rate targets. For example, the trade union confederation, the Congress of South African Trade Unions' (COSATU) position in 2006/07 was:

We believe the Rand is currently valued at an inappropriate level, and has resulted in massive job losses in many sectors, including manufacturing, mining, and tourism. We believe that the policies of the [South African] Reserve Bank [SARB] has contributed to the over-valued exchange rate. We will campaign to have an exchange rate that is more compatible with the goal of creating and saving jobs in South Africa. We will engage the SARB and government on interest rates, short-term speculative and portfolio flows, the mandate of the Reserve Bank, and policy tools to ensure a more appropriately valued Rand. (COSATU, 2006.)

Similarly, Pollin, Epstein, Heintz and Ndikumana (2006) argue for the active use of capital controls to support an expansionary monetary (and fiscal) policy with stabilised exchange rates.

Such proposals for change in the South African monetary and exchange rate policy regime accord with arguments elsewhere on the potential role for capital controls. In the belief that unrestricted capital accounts permit a high degree of capital mobility in modern international financial markets, the 'impossible trinity' proposition leads some to focus on whether freedom of external capital flows can or should be restricted, as Joshi (2003) does, using India as an example.

In this paper I look at evidence from experiments elsewhere on the feasibility of restrictions on capital flows. Focusing on the medium-term macroeconomic policy problem, I have flows of portfolio capital in mind rather than foreign direct investment, although conventional distinctions between 'short-term' and 'long-term' capital flows are just that, conventional and not necessarily realistic indicators of a country's exposure to volatile capital flows. Countries that have experimented with capital account restrictions have had one or more of a range of objectives:

1. Achieving autonomy for monetary policy while maintaining a fixed or pegged nominal exchange rate
2. Protecting domestic financial institutions and markets from balance-sheet instability, and volatile asset values resulting from volatile capital flows and exchange rates

3. Obtaining emergency protection from capital outflows in a crisis that comprehensively threatens macroeconomic stability and growth
4. Exerting influence over economic activity through capital controls as one element in a set of 'developmental state' interventions.

That is quite apart from countries that have used comprehensive exchange controls as one of the control instruments in a fully centrally planned economy.

Before examining those experiences, I put forward some general considerations that are useful for evaluating them and their relevance to South Africa.

## General considerations

Like similarly powerful models, the Mundell–Fleming model is highly simplified. Consequently, it does not fit the real circumstances of South Africa or other countries and its policy prescriptions cannot be assumed to apply directly. The model's assumption of perfect capital mobility measured against a domestic and foreign interest rate does not represent market reality, even in the world of linked financial markets before the 2008 turmoil. What are the important sources of deviations and what are their implications for policy?

A potential deviation from perfect capital markets is the existence of transaction costs in currency transactions. Measuring transaction costs by bid–ask spreads in spot and forward currency markets, Burnside, Eichenbaum and Rebelo (2007) find that failure to take transaction costs into account would lead investors to make negative risk-adjusted returns from a carry trade strategy, while taking them into account would lead them to make positive returns, but would cause trades to be concentrated on a few currencies. Based on data from October 1997 to November 2006, optimal strategies in the presence of their constructed portfolio spreads showed that higher transaction costs diminished the frequency of trades. Since their data series show that trading emerging-market currencies against the US dollar involves bid–ask spreads up to four times greater than for major currencies, it is plausible to assume that such transaction costs create a significant imperfection, which modifies the applicability of the 'impossible trinity' to South Africa, especially since bid–ask spreads are not the only component of transaction costs.

The Keynesian simplification used by Mundell–Fleming represents all asset returns by a risk-free market interest rate and does not incorporate realistic expectations formation explicitly. In today's world large international capital flows appear to respond to relative expected returns in a number of distinct markets, including different countries' equity market

returns and returns in real-estate markets. To analyse international investor choices when a range of assets is available to domestic and international investors, new models of portfolio choice are required and, since capital flows are of concern, they have to address portfolio switches and simultaneous two-way flows of capital rather than steady state portfolio allocation. Dynamic models with portfolios diversified across asset classes and foreign and domestic markets suggest that the behaviour of net capital inflows responds to changes in variables in complex ways (Tille and van Wincoop, 2008).

One common-sense conclusion is that capital flows are sensitive to the differential between domestic and foreign investors' responses to shocks or endogenously time-varying parameters. To extrapolate, the effect on net capital inflows of a monetary policy innovation which, say, lowers South African money-market rates relative to the US, depends on its effect on the returns distributions (not simply expected rates of return) of South African equities and other assets, and upon differences between South African and foreign investors' responses. Net capital flows are not reducible to differentials in money-market interest rates.

Even if one recognises that international capital flows are directed into equities as well as fixed-income assets, a complication limiting the applicability of simple models is that deviations from the assumption of perfect international capital mobility arise from the well-documented existence of 'home bias' in equity portfolios (Tesar and Werner, 1995). While this can be partly explained by transaction costs, its roots are more fundamental and, as Karlsson and Norden (2004) find, can be related to individual savers' tastes, demographics and information imperfections.

In sum, if policies to restrict or manage external capital flows are regarded as a means to increase the scope for combining an interest rate target with an exchange rate target, I believe their marginal impact is reduced by the lack of perfect capital mobility without them.

Any marginal gains capital controls might offer monetary policy and have to be weighed against the direct costs of administering such policies. Any case for them is weakened further to the extent that such policies are evaded. Evasion can be expected to be higher, together with the administrative costs of countering it, if restrictions on capital flows are designed to be part of a long-term monetary policy regime (in contrast to temporary emergency measures).

In addition to administrative costs, capital controls may have long-term costs in terms of economic growth, although, in a world of imperfect markets they might be positively associated with growth. Either effect will depend on the institutional structure of the economy (free capital flows

being relatively beneficial within a supportive legal environment, while any benefit from controls over capital flows are likely to depend on the strength of 'developmental state' policies) and historical evidence from other countries offers no absolute conclusions (Eichengreen, 2003; Rodrik, 1998).

Facilitating monetary policy has not been the only objective of actions to manage external capital flows. Another objective that is sometimes cited is protecting the stability of financial-sector balance sheets from shocks arising from external capital flows. South Africa's existing capital controls, restricting that proportion of institutional funds' portfolios that can be invested overseas, may have had a positive effect, helping to insulate the country's financial institutions from the international instability caused by unsound financial innovation, although strong and relatively conservative supervision by the South African Reserve Bank (the Bank) has been the prime intervention giving protection from international banking and market turmoil. Another possible objective can be to provide emergency protection for macroeconomic stability in a currency crisis, as was practised in the 1980s under South Africa's 'debt moratorium' in response to the 'sudden stop' of external financing.

In the following sections I consider experience elsewhere in the use of capital controls (direct and indirect) and related measures. The examples chosen are those that have been the focus of most of the attention in the past decade.

## China

At the beginning of China's series of reforms eventually leading to a substantial market economy, a comprehensive and complex bureaucratic regime of exchange controls covering both current and capital transactions existed. Starting in 1979 and continuing over several decades, a series of reforms has considerably liberalised the regime. In December 1996 China informed the International Monetary Fund (IMF) of its effectively full current-account convertibility, but important capital controls remain. The two linked motives for retaining controls have been the priority the government gives to avoiding instability of financial institutions and markets (i.e., mitigating the effects of international market volatility) and the desire to manage both the exchange rate and internal monetary policy.

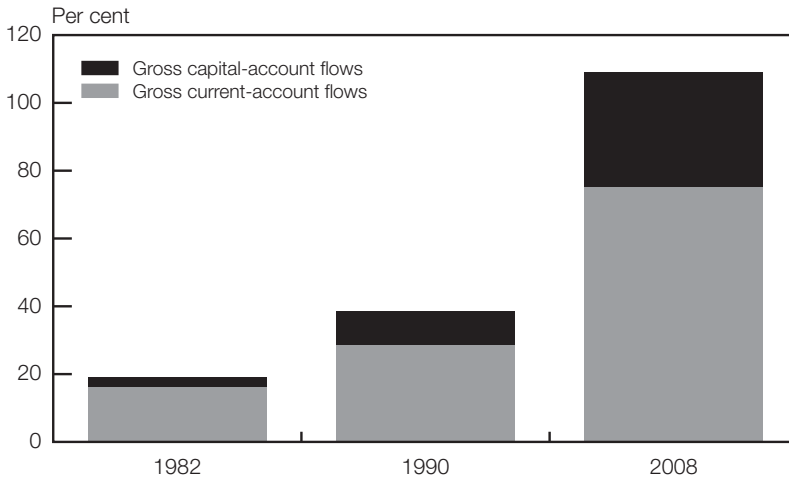
Although in 1993 China announced its intention to move steadily towards full convertibility, the 1997 Asian and 1998 Russian currency crises led to the postponement of moves to liberalise the capital account. In 2003 the Central Committee of the Communist Party promulgated liberalisation of the capital account as a goal, but the degree of openness, whether all direct and portfolio flows are to be liberalised, and what the timetable is to be are not known definitively.

In practice, steps taken towards capital account liberalisation have been partial and experimental. For foreign investors the most significant has been the creation in 2002 of the Qualified Foreign Institutional Investors (QFII) scheme. Under this scheme, strictly regulated and licensed foreign asset management companies are permitted to make portfolio investments within quotas allocated by the State Administration of Foreign Exchange (SAFE) and subject to some partial regulation of repatriation, which is designed to maintain orderly flows.

For residents, the establishment in April 2006 of the Qualified Domestic Institutional Investor (QDII) scheme enabled licensed private institutions to make foreign portfolio investments. For individuals, permission to transfer funds freely (within individual annual quotas) between renminbi and foreign currencies within China, and since January 2007 using offshore accounts, enables large flows to occur.

China's system of capital controls attempts to distinguish between short- and long-term flows, and has moved from focusing on the restriction of outflows towards permitting both inflows and outflows within a managed framework. As illustrated by Figure 1 the annual sum of inflows and outflows on capital (as well as current) account grew rapidly between 1990 and 2005.

**Figure 1: Capital flows: China**



Source: Ma and McCauley (2007: 3)

China's authorities believe that capital controls have helped to cushion China's financial sector from the shocks arising elsewhere in international

markets. Have they also freed China from ‘the impossible trinity’ and enabled the country to have an autonomous monetary policy and a managed exchange rate (pegged with an increasingly wide band)? If so, have the capital flows grown while controls, albeit liberalised, remain undermined by that monetary autonomy?

Ma and McCauley (2007) find that monetary autonomy was significant throughout the period 1998–2006. That conclusion is supported by evidence of a sustained differential between onshore and offshore renminbi yields, indicating imperfections in arbitrage or, in other words, cross-border market segmentation which they judge to be due to controls. They find that, although external capital flows do respond to interest rate differentials and exchange rate expectations, China’s administered domestic interest rate follows US interest rates less closely than does the rate in the eurozone, which has flexible exchange rates.

## Chile

The main policy instrument used by Chile in attempting to manage external capital flows is the *encaje*, applied between 1991 and 1998 to control capital inflows by indirect means. The rule imposed financial costs on foreign investments in Chile by imposing unremunerated reserve requirements (URR) of 20 per cent, which was raised to 30 per cent in 1992, on borrowing from foreign creditors.

The URR acted as a tax on foreign investors, the rate of which (expressed as a percentage of the amount invested) was approximated by

$$t = [r(i^* + s) T / (1 - r)] / D$$

where  $t$  represents the implied tax rate;  $r$ , the URR rate;  $i^*$ , the nominal interest rate for the currency in which the URR is constituted;  $s$ , the premium applied to the investor when borrowing funds to cover the URR (i.e., country risk premium plus specific credit risks for the investor);  $T$ , the duration of the URR; and  $D$ , the duration of the foreign investment (Ariyoshi et al., 2000: 79).

The URR was designed principally to overcome the ‘impossible trinity’ problem, permitting high interest rates to meet domestic objectives, without generating high inflows which would undermine monetary policy. In other words, the objective was to establish a ‘wedge’ between domestic and foreign interest rates. Other objectives were to incentivise a switch of financing from short- to long-term finance, particularly equity finance. It was also seen as helping to cushion financial institutions’ balance sheets from external shocks.

Initially applied to all foreign loans except trade credit, the range of investments covered was extended by successive measures until 1996. The extensions were stimulated by continual innovations by borrowers and lenders seeking to avoid the URR. In 1991 the URR covered almost 50 per cent of total capital inflows, but the proportion declined to 24 per cent as a result of such innovation before being raised to over 30 per cent, following the extension of the URR's coverage to a wider range of investment instruments.

Whether the URR succeeded in creating an interest rate wedge, giving a degree of freedom to monetary policy, has been widely analysed. The Chile–US interest rate differential widened from 3,5 per cent to 7,0 per cent in 1992 and 1993, before declining to 3,5 per cent in 1995 and then climbing to 5,0 per cent in 1996, and these movements mirrored the initial impact followed by increasing avoidance and then broadening of coverage of the URR. However, that does not demonstrate a causal relationship. Econometric studies suggest a statistical relationship, but they, in turn, suffer from various sources of bias and data limitations.

## Malaysia

After the 1997 depreciation of the Thai bhat and ensuing financial market turmoil in other Asian countries, Malaysia initially managed its exchange rate. However, in September 1998, following Russia's financial crisis of August and faced with increased downward pressure on its currency, which the authorities attributed to speculation against the ringgit in the offshore market, Malaysia adopted extensive direct controls on outflows of capital. In February 1999 they were modified, replacing direct restrictions on the repatriation of portfolio investments with a graduated exit levy. These controls were designed to bring about the closure of the offshore market, and to enable the country to adopt a fixed exchange rate (RM3,80 to the US dollar), a low interest rate policy and fiscal expansion, in order to stimulate the economy's recovery from the low growth induced by the Asian crisis.

Malaysia's controls were successful in their immediate objectives in creating a wedge. The authorities were able to peg the exchange rate successfully and without the development of a parallel market. It appears that widespread evasion through such devices as under- or over-invoicing of current transactions did not occur. Low interest rates were maintained and movements of overnight rates in the domestic market were not correlated with those in Malaysia's regional neighbours.

Within a year of the imposition of controls, Malaysia resumed strong economic growth. Did the policy also enable Malaysia to achieve macroeconomic recovery from the 1997 Asian crisis faster than it would



have without such controls? Debate over that question has led to a predominant view that it did not or, at best, that the jury is still out. One argument in support of such judgments is that by September 1998 Malaysia had already begun its recovery from the downturn initiated by the 1997 Asian crisis. Another is that other countries that had suffered downturns in the crisis, especially South Korea and Thailand, also recovered strongly – by some measures more strongly – and Malaysia would have shared that experience without capital controls. A contrary view was reached by Kaplan and Rodrik (2001) on the basis of a regression of economic performance on country-specific and time-varying dummy variables representing policy (time-shifted). Their method led them to conclude that Malaysia's controls were superior to alternative, IMF-prescribed, strategies for economic recovery.

## Tobin tax

Although this paper is concerned with capital flows and policy in actual countries' experience, there is one policy that, since first proposed by James Tobin in 1978, has recurrently been suggested, but has not been implemented as such anywhere and therefore cannot be judged by historical evidence. Tobin proposed a tax (up to 1 per cent) on spot currency transactions as a way to manage external capital flows. Its infeasibility results from the understanding that to be effective and to prevent tax regime arbitrage by trading through tax-free jurisdictions, it would have to be adopted and enforced universally. Moreover, evasion through financial engineering would be easy (Ul-Haq, Kaul and Grunberg, 1996).

Despite the absence of historical evidence, laboratory experiments within the paradigm of behavioural economics may yield useful insights. Kaiser, Chmura and Pritz (2007) report that in their experimental foreign-exchange markets, a low Tobin tax reduces exchange rate volatility without influencing the volume of transactions significantly.

## Conclusion

In the salient cases summarised here the benefits of policies to affect capital flows are difficult to judge. The picture is not clearer if one were to widen the examples considered. Moreover, any lessons that could be drawn from any one country's experiences are not generalisable, as the effectiveness and effect of such policies are specific to the particular circumstances of that country in the relevant period. Consequently, I believe that useful conclusions cannot be drawn for South Africa from the experiences of emerging economies reviewed here.

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