

*Gerald Epstein*

## Using Capital Management Techniques to Manage Disruptive Capital Flows

International capital flows are surging into many emerging markets, driven by the *push* of sluggish economic prospects for ailing developed economies, combined with relatively loose monetary policy and low interest rates, and *pulled* by the much stronger growth prospects in some “emerging market” economies, especially in Asia and Latin America. The IMF (2010, p. 67)<sup>1</sup> reports that in the past four quarters, inflows into Asia quadrupled relative to 2008 while total inflows in dollar terms stand at near record levels (Deutsche Bank, 2010, p. 4)<sup>2</sup>. Latin America has also experienced large swings in capital flows with major outflows in 2008 and then, in recent years, major capital inflows, much of it portfolio, as in Asia (IMF, 2010, p. 81).<sup>3</sup>

In both Asia and Latin America, authorities have responded with a mix of policies, most notably to sterilize the inflows, recognizing that such flows have a strong temporary component, and therefore, should not be allowed to interfere with longer term monetary policy and exchange rate objectives. In particular, some governments might want to raise interest rates to ‘lean against the wind’ with respect to inflation. But increased interest rates might only attract more inflows, and other countries might want to avoid real exchange rate appreciation, and therefore might not welcome “hot money” inflows that drive up the exchange rate. In addition,

authorities are concerned with asset bubbles being fed by inflows and the attendant debt accumulation that can severely harm the economy when the bubble bursts, leading to “sudden reversals” in capital flows.

But sterilization has become increasingly costly and also difficult, especially when the assets used for sterilizing flows have themselves become the objects of speculation involving capital inflows (Deutsche Bank, 2010, pp. 5-6).<sup>4</sup> And even effective sterilization will not necessarily suffice to address other problems associated with asset bubbles, currency mismatches, and excessive leverage. As a result, governments in these countries have turned to a variety of “capital management techniques” (Ocampo & Palma, 2008; Epstein *et al.*, 2004; Grabel 2003)<sup>5 6 7</sup> prudential regulations and capital controls – to address these problems (see Table 3 below and IMF, 2010, pp. 67, 81)<sup>8</sup> for a brief summary of some of these) including:

- Raising maximum loan-to-value ratios, increasing provisioning vis-à-vis real estate loans, and introducing other measures targeting the stock market or real-estate sector to deflate asset price bubbles.
- Tightening liquidity control and management, including holding periods for central bank certificates, and raising required reserve ratios.

- Limiting bank foreign exchange exposures, including setting limits on forward open positions.
- Imposing capital controls on inflows, including preventing non-residents from opening short-term time deposit accounts and setting limits on external borrowing operations.
- Further liberalizing selected outflows.
- Tightening financial supervision.

Many of these policies have been shown to be effective in driving a wedge between domestic and foreign interest rates (McCauley, 2010)<sup>9</sup> which gives governments more monetary policy autonomy. They have also been shown to alter the composition of flows in desirable ways (Epstein *et al.*, 2004 ; Magud *et al.*, 2006)<sup>10 11</sup>. In the cases of India, China, Taiwan Province of China and other countries, strong controls have also limited the degree to which these countries were infected by toxic assets, derivatives and investment behaviour which partly drove the financial meltdown of 2008 to 2009.

These techniques are numerous and sophisticated. They can and must be tailor-made to the particular goals of the authorities and to the context in which they find themselves. Dynamic techniques, which can be adjusted as situations evolve, are the most effective. The following brief overview of capital management techniques describes a variety of types of techniques and the goals for which they have been applied. Table 2 draws on experiences in the 1990s while Table 3 updates these experiences (see Epstein *et al.*, 2004; Epstein, 2009)<sup>7 13</sup>.

## Goals and Mechanisms for Controlling International Financial Flows

### *Types of Controls*

First, it is important to be aware of the techniques available for controlling and managing the quantity, type and impact of international financial flows. Table 1 presents a list and typology of controls. Controls are simply types of government regulations or taxes that affect inflows or outflows of capital, or the effects of the latter on the domestic economy. Types of capital flows affected are most easily thought of as the buying by domestic residents of foreign assets (outflows) or the selling of assets by domestic residents to foreigners (inflows). These assets are usually financial assets - stocks, bonds and securities of various types, currency, and bank deposits - but can also refer to real assets such as land. These securities and assets can be short-term and highly liquid, such as bank deposits and short-term government bonds, or they can be longer-term and less liquid, such as significant ownership of businesses (foreign direct investment), long-term government bonds, or real estate. Currency itself (dollars, euros, pounds, yen, renminbi, reals, rupees, rands, pesos, and so on) is the most short-term and liquid. Increasingly, complex financial assets and liabilities (debts), called derivatives, are involved in the flows of capital in and out of countries; these are harder to control, mostly because they are almost completely unregulated and relatively little is known about the roles of these securities in many financial transactions.

Typologies for understanding controls usually distinguish between controls on *outflows* (domestic buying of foreign assets, including foreign currency) and those on

*inflows* (buying by foreign residents of domestic assets, including domestic currency). Another key distinction is between controls that work mainly through price measures, such as taxing inflows or outflows, and those that work primarily through quantitative measures, such as placing a quota on buying or selling assets, restricting the types of assets that can be bought or sold, or placing an absolute ban on the buying or selling of particular assets. This distinction is similar to the distinction in international trade where economists distinguish between restrictive measures that rely on tariffs (price-based measures) and those that rely on quotas (quantity-based measures).

Finally, regulations that directly affect the inflows or outflows of capital can be distinguished from those that affect them and their impacts indirectly, by implementing *prudential regulations* on financial institutions. These prudential regulations can be capital regulations, regulations pertaining to maturity mismatches between short- and long-term assets and liabilities, regulations pertaining to derivative contracts, regulations pertaining to borrowing domestic currency from offshore banks, and so on. While such regulations might not affect the flows of foreign assets and liabilities directly, they will often affect them indirectly. For example, in many countries, derivative contracts are often entered into with foreign counterparties; maturity mismatches often involve foreign flows, and dealing with offshore banks often involve buying and selling foreign assets and liabilities. The term “capital management techniques” is used to refer to the combination of capital and exchange controls, plus the prudential financial regulations that indirectly affect these flows and their impacts.

In the discussion that follows, the terms “capital controls” and “capital management techniques” are used interchangeably for ease of reference.

Examples of controls that involve taxes are direct taxes on buying or selling foreign exchange. An example of this is the so-called “Tobin tax”, named after Nobel prize-winning economist James Tobin, who proposed such a tax in the 1970s. The Tobin tax would place a small tax on all foreign exchange transactions, thereby discouraging the buying and selling of foreign exchange for very short-term purposes, much of which tends to be for speculative purposes. The tax could raise significant amounts of revenue if implemented on an international scale. If that were to happen, many economists and policy makers have urged that any revenues generated be used for a variety of purposes, including aid for economic development. (A financial transaction tax would impose a small tax on all financial transactions and would serve similar purposes to the Tobin tax but at the national level.)

Another example of a tax-based control is the so-called “unremunerated reserve requirement” (URR), or *encaje*, used in Chile and Colombia. In Chile, this policy required foreign investors who wanted to invest in the country to place some of the funds in a bank account for a period of time for which they received no interest. This policy works like a tax, since the investors lose out on the interest they could have received if able to invest in interest-bearing securities or bank accounts.

Quantitative regulations include quotas on buying foreign exchange, limits on buying equity in certain industries, limits on ownership shares of firms, and restrictions on

borrowing money from offshore banks unless the funds are used for particular purposes.

Another important distinction is whether countries utilize controls in a rigid or flexible way. Importantly, countries often use controls in a *dynamic* fashion, tightening or loosening them as circumstances demand, rather than keeping them in place in a fixed - and therefore *static* - way. For example, when a crisis hits, countries may tighten controls; when the crisis eases, they may loosen them again.

### ***Objectives of Capital Management Techniques***

There are many ways to categorize the goals of capital management techniques (see Table 1 for a detailed list of goals). More generally, capital management techniques are used to achieve the following four objectives:

- Promote financial stability.
- Encourage desirable investment and financing arrangements.
- Enhance policy autonomy, including maintenance of stable and competitive exchange rates.
- Enhance national sovereignty [and democracy].

The more specific goals in Table 1 can be seen as particular means for achieving these objectives. Many of the goals, challenges and trade-offs associated with capital management techniques involve the so-called “trilemma” problem of international finance.

### ***Statistical Analysis of Capital Controls***

Magud, Reinhart and Rogoff (2006)<sup>14</sup> summarized and synthesized more than 30 statistical studies of the impact of capital controls. They distinguish between controls on inflows and on outflows, and find that while capital controls on inflows appear to “make monetary policy more independent; alter the composition of flows (to longer term); [and] reduce real exchange rate pressures [they] seem not to reduce the volume of net flows”.

As for outflows, the authors find that “there is Malaysia and there is everybody else. In Malaysia, controls limited outflows giving more room for independent monetary policy. There is little evidence of ‘success’ in other countries attempting to control flows, either in terms of altering the volume or regaining monetary independence” (Magud *et al.*, 2006, pp. 21-22)<sup>15</sup>.

For them, there is a great deal of evidence in support of the ability of inflow controls to help achieve important goals; evidence on the impacts of outflow controls is more diverse. One lesson from this is that capital management techniques that control the *quantity* - and especially the *quality* - of inflows are likely to reduce the necessity of countries engaging in outflow controls for lengthy periods of time if problems arise.

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<sup>1</sup> International Monetary Fund (IMF) (2010). *World Economic Outlook* (WEO), October.

<sup>2</sup> Deutsche Bank (2010). *Capital Controls in Emerging Markets. Global Economic Perspectives*. October 13.

<sup>3</sup> International Monetary Fund (IMF) (2010). *World Economic Outlook* (WEO), October.

<sup>4</sup> Deutsche Bank (2010). Capital Controls in Emerging Markets. *Global Economic Perspectives*. October 13.

<sup>5</sup> Ocampo, Jose Antonio, and Jose Gabriel Palma (2008). The Role of Preventive Capital Account Regulations. In J.A. Ocampo and J.E. Stiglitz [eds]. *Capital Market Liberalization and Development*. New York: Oxford University Press.

<sup>6</sup> Epstein, Gerald, Ilene Grabel and Jomo, K.S. (2004). Capital Management Techniques in Developing Countries: An Assessment of Experiences from the 1990s and Lessons for the Future. G-24 Discussion Paper No. 27, United Nations, Geneva (published in Ariel Buira [ed.]. *Challenges to the World Bank; Developing Country Perspectives*. Anthem Press, 2003; and in Gerald Epstein [ed.]. *Capital Flight and Capital Controls in Developing Countries*. Elgar Press, 2005.)

<sup>7</sup> Grabel, Ilene (2003). Averting Crisis: Assessing measures to manage financial integration in Developing Economies. *Cambridge Journal of Economics*, 27 (3), 317 - 336.

<sup>8</sup> International Monetary Fund (IMF) (2010). *World Economic Outlook* (WEO), October.

<sup>9</sup> McCauley, Robert N. (2010). Managing Recent Hot Money Inflows in Asia. In Masahiro Kawai and Mario B. Lamberte [eds]. *Managing Capital Flows; The Search For a Framework*. Asian Development Bank and Edward Elgar, Northampton, MA, chapter 5.

<sup>10</sup> Epstein, Gerald, Ilene Grabel and Jomo, K.S. (2004). Capital Management Techniques in Developing Countries: An Assessment of Experiences from the 1990s and Lessons for the Future. G-24 Discussion Paper No. 27, United Nations, Geneva (published in Ariel Buira [ed.]. *Challenges to the World Bank; Developing Country Perspectives*. Anthem Press, 2003; and in Gerald

Epstein [ed.]. *Capital Flight and Capital Controls in Developing Countries*. Elgar Press, 2005.)

<sup>11</sup> Magud, Nicolas, Carmen M. Reinhart and Kenneth Rogoff (2006). Capital Controls: An Evaluation. NBER Working Paper Series, Cambridge, MA.

<sup>12</sup> Epstein, Gerald, Ilene Grabel and Jomo, K.S. (2004). Capital Management Techniques in Developing Countries: An Assessment of Experiences from the 1990s and Lessons for the Future. G-24 Discussion Paper No. 27, United Nations, Geneva (published in Ariel Buira [ed.]. *Challenges to the World Bank; Developing Country Perspectives*. Anthem Press, 2003; and in Gerald Epstein [ed.]. *Capital Flight and Capital Controls in Developing Countries*. Elgar Press, 2005.)

<sup>13</sup> Epstein, Gerald (2009). Should Financial Flows be Regulated? Yes. DESA Working Paper No. 77, United Nations, New York. ST/ESA/DWP/77.

<sup>14</sup> Magud, Nicolas, Carmen M. Reinhart and Kenneth Rogoff (2006). Capital Controls: An Evaluation. NBER Working Paper Series, Cambridge, MA.

<sup>15</sup> Magud, Nicolas, Carmen M. Reinhart and Kenneth Rogoff (2006). Capital Controls: An Evaluation. NBER Working Paper Series, Cambridge, MA.

<sup>16</sup> Armstrong, Rachel (2010). Emerging Asia Looks to Control Hot Money. *Financial Times*, October 6.

**Table 1**  
**Objectives and Types of Capital Management Techniques**

	<b>Objectives</b>	<b>Price-based</b>	<b>Quantity-based</b>	<b>Prudential</b>
Inflows	<ul style="list-style-type: none"> <li>•Keep a stable and competitive real exchange rate.</li> <li>•Limit excessive debt and maturity or locational mismatch to limit financial instability.</li> <li>•Alter composition of inflows to attract desired inflows.</li> <li>•Limit foreign asset ownership for sovereign purposes or to protect domestic industries.</li> </ul>	<ul style="list-style-type: none"> <li>•Tobin tax (tax on foreign exchange transactions).</li> <li>•Reserve requirements on capital inflows (e.g., URR, unrequited reserve requirements).</li> <li>•Taxation of capital inflows.</li> </ul>	<ul style="list-style-type: none"> <li>•Quantitative limits on foreign ownership of domestic companies' assets.</li> <li>•Reporting requirements and quantitative limits on borrowing from abroad.</li> <li>•Limits on ability to borrow from offshore entities.</li> </ul>	<ul style="list-style-type: none"> <li>•Keynes tax (tax on domestic financial transactions).</li> <li>•Reporting requirements and limitations on the maturity structures of liabilities and assets.</li> <li>•Reserve requirements on deposits.</li> <li>•Capital requirements on assets and restrictions on off-balance-sheet activities and derivatives contracts.</li> </ul>
Outflows	<ul style="list-style-type: none"> <li>•Protect tax base by reducing capital flight.</li> <li>•Maintain exchange rate stability.</li> <li>•Preserve savings to finance investment.</li> <li>•Help credit allocation mechanisms support investments for industrial and social policy objectives.</li> <li>•Enhance monetary policy autonomy to reduce inflation or increase employment and economic growth.</li> </ul>	<ul style="list-style-type: none"> <li>•Tobin tax.</li> <li>•Multiple exchange rates.</li> </ul>	<ul style="list-style-type: none"> <li>•Exchange controls.</li> <li>•Restrictions on purchase of foreign assets including foreign deposits.</li> <li>•Limits on currency convertibility.</li> </ul>	<ul style="list-style-type: none"> <li>•Limits on asset acquisition.</li> <li>•Asset-backed reserve requirements.</li> </ul>
Inflows and Outflows	<ul style="list-style-type: none"> <li>•All of the above.</li> </ul>	<ul style="list-style-type: none"> <li>•“Trip wire and speed bump” approach (Gabel, 2004): identify a set of early warning signals and implement various qualitative and quantitative policies gradually and dynamically, with emphasis on controls on inflows.</li> </ul>		

SOURCE: Epstein, *et al.* (2005).

**Table 2**  
**Summary: Types and Objectives of Capital Management Techniques Employed**  
**During the 1990s**

Country	Types of capital management techniques	Objectives of techniques
Chile	<p><b>Inflows:</b>            -FDI and portfolio investments (PI): One year residence requirement.            -30 per cent URR.            -Tax on foreign loans: 1.2 per cent per year.</p> <p><b>Outflows:</b>            -No significant restrictions.</p> <p><b>Domestic financial regulations:</b>            -Strong regulatory measures.</p>	<ul style="list-style-type: none"> <li>•Lengthen maturity structures and stabilize inflows.</li> <li>•Help manage exchange rates to maintain export competitiveness.</li> <li>•Protect economy from financial instability.</li> </ul>
Colombia	Similar to Chile	Similar to Chile
Taiwan	<p><b>Inflows:</b>  <i>Non-residents</i>            -Bank accounts can only be used for domestic spending, not financial speculation.            -Foreign participation in stock market regulated.            -FDI tightly regulated.</p> <p><i>Residents</i>            -Regulation of foreign borrowing.</p> <p><b>Outflows:</b>            -Exchange controls.</p> <p><b>Domestic financial regulations:</b>            -Restrictions on lending for real estate and other speculative purposes.</p>	<ul style="list-style-type: none"> <li>•Promote industrialization.</li> <li>•Help manage exchange rates to maintain export competitiveness.</li> <li>•Maintain financial stability and insulate itself from foreign financial crises.</li> </ul>
Singapore	<p><b>Inflows:</b>            -“Non-internationalization” of Singapore dollar.</p> <p><b>Outflows:</b>  <i>Non-residents</i>            -Financial institutions cannot extend S\$ credit to non-residents if they are likely to use for speculation.            -If they borrow for use abroad, must swap first into foreign currency.</p> <p><b>Domestic financial regulations:</b>            -Restrictions on creation of swaps, and other derivatives that could be used for speculation against S\$.</p>	<ul style="list-style-type: none"> <li>•Prevent speculation against S\$.</li> <li>•Support “soft peg” of S\$.</li> <li>•Help maintain export competitiveness.</li> <li>•Help insulate itself from foreign financial crises.</li> </ul>
Malaysia (1998)	<p><b>Inflows:</b>            -Restrictions on foreign borrowing.</p> <p><b>Outflows:</b>  <i>Non-residents</i>            -12-month repatriation waiting period.            -Graduated exit levies inversely proportional to length of stay.</p> <p><i>Residents</i>            -Exchange controls.</p> <p><b>Domestic financial regulations:</b>  <i>Non-residents</i>            -Restrict access to Malaysian currency.  <i>Residents</i>            -Encourage domestic borrowing and investment.</p>	<ul style="list-style-type: none"> <li>•Maintain political and economic sovereignty.</li> <li>•Kill offshore ringgit market.</li> <li>•Shut down offshore trading of Malaysian shares.</li> <li>•Help reflate economy.</li> <li>•Help create financial stability and insulate economy from contagion.</li> </ul>
India	<p><b>Inflows:</b>  <i>Non-residents</i></p>	<ul style="list-style-type: none"> <li>•Support industrial policy.</li> <li>•Pursue capital account liberalization in</li> </ul>

	<p>-Strict regulation of FDI and PI.</p> <p><b>Outflows:</b>  <i>Non-residents</i>          -None.  <i>Residents</i>          -Exchange controls.</p> <p><b>Domestic financial regulations:</b>          -Strict limitations on development of domestic financial markets.</p>	<p>incremental and controlled fashion.</p> <ul style="list-style-type: none"> <li>•Insulate domestic economy from financial contagion.</li> <li>•Preserve domestic savings and foreign exchange reserves.</li> <li>•Help stabilize exchange rate.</li> </ul>
China	<p><b>Inflows:</b>  <i>Non-residents</i>          -Strict regulation of sectoral FDI.          -Regulation of equity investments: segmented stock markets.</p> <p><b>Outflows:</b>  <i>Non-residents</i>          -No restrictions on repatriation of funds.          -Strict limitations on borrowing Chinese renminbi for speculative purposes.  <i>Residents</i>          -Exchange controls.</p> <p><b>Domestic financial regulations:</b>          -Strict limitations on residents and non-residents.</p>	<ul style="list-style-type: none"> <li>•Support industrial policy.</li> <li>•Pursue capital account liberalization in incremental and controlled fashion.</li> <li>•Insulate domestic economy from financial contagion.</li> <li>•Increase political sovereignty.</li> <li>•Preserve domestic savings and foreign exchange reserves.</li> <li>•Help keep exchange rates at competitive levels.</li> </ul>

Source: Epstein *et al.* (2005, pp. 304-305)

**Table 3**  
**Recent Use of Capital Management Techniques, 2008 to 2010**

Country	Types of capital management techniques	Objectives of techniques
Argentina	<ul style="list-style-type: none"> <li>•Tax on capital inflows.</li> </ul>	<ul style="list-style-type: none"> <li>•Enhance domestic monetary policy autonomy.</li> <li>•Limit real exchange rate appreciation.</li> </ul>
Brazil	<ul style="list-style-type: none"> <li>•2.0 per cent tax on capital inflows (IOF tax); raised to 4 per cent on fixed income securities and investments in funds. Kept at 2 per cent on stock exchanges and futures markets</li> <li>•Government allowed to raise IOF tax to 25 per cent without Congressional approval (i.e. it is a dynamic management technique).</li> </ul>	<ul style="list-style-type: none"> <li>•Enhance domestic monetary autonomy.</li> <li>•Limit real exchange rate appreciation.</li> </ul>
China	<ul style="list-style-type: none"> <li>•Extended longstanding restrictions on the ability of domestic banks to borrow dollars abroad to fund dollar assets to foreign banks.</li> <li>•Increased reserve requirements on dollar deposits with central bank.</li> </ul>	<ul style="list-style-type: none"> <li>•Limit exchange rate appreciation.</li> <li>•Create more monetary policy autonomy.</li> </ul>
India	<ul style="list-style-type: none"> <li>•Liberalized capital outflows.</li> <li>•Tightened various other restrictions on inflows, limiting ability to convert borrowed funds abroad into rupees.</li> </ul>	<ul style="list-style-type: none"> <li>•Limit exchange rate appreciation.</li> <li>•Create more monetary policy autonomy.</li> </ul>
Indonesia	<ul style="list-style-type: none"> <li>•Minimum holding period for central bank bills (minimum of one month)</li> </ul>	<ul style="list-style-type: none"> <li>•Reduce foreign speculation on sterilization instruments.</li> <li>•Limit exchange rate appreciation.</li> <li>•Create more monetary policy autonomy.</li> <li>•Limit accumulation of currency mismatches in liabilities.</li> </ul>
South Korea	<ul style="list-style-type: none"> <li>•Limits on foreign bank holdings of derivatives.</li> <li>•Tightened limits on net open positions.</li> <li>•Tightened foreign exchange liquidity requirements.</li> <li>•Limited foreign bank lending to domestic non-financial companies in foreign currency to limit borrowing in foreign currency for speculative purposes.</li> <li>•Creation of new deposit facility open only to banks to facilitate sterilization.</li> <li>•Manipulated leverage restrictions with respect to borrowing from affiliates.</li> </ul>	<ul style="list-style-type: none"> <li>•Limit exchange rate appreciation.</li> <li>•Create more monetary policy autonomy.</li> <li>•Limit accumulation of currency mismatches in liabilities.</li> <li>•Enhance ability to sterilize capital inflows.</li> </ul>
Thailand	<ul style="list-style-type: none"> <li>•15 per cent withholding tax on new investments in Thai government and central bank bonds.</li> <li>•Relaxed controls on capital outflows including raising amount Thai residents can hold in dollars.</li> </ul>	<ul style="list-style-type: none"> <li>•Limit hot money outflows.</li> <li>•Balance currency composition of inflows and domestic holdings of foreign assets.</li> <li>•Limit speculation on assets used for sterilization.</li> </ul>
Taiwan Province of China	<ul style="list-style-type: none"> <li>•Banned foreign funds from investing in time deposits.</li> <li>•Central bank passed on names of foreign investors with substantial deposits in new Taiwan dollars to financial regulators who gave investors one week to pull their money out or invest in stocks.</li> </ul>	<ul style="list-style-type: none"> <li>•Limit exchange rate appreciation.</li> <li>•Create more monetary policy autonomy.</li> <li>•Limit accumulation of currency mismatches in liabilities.</li> </ul>

SOURCES: Armstrong (2010)<sup>16</sup>; Deutsche Bank (2010); McCauley (2010); IMF (2010)