

# Capital Management Techniques In Developing Countries: An Assessment of Experiences from the 1990's and Lessons For the Future

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## I. INTRODUCTION<sup>1</sup>

Following the Asian crisis of the late 1990's, there has been a renewed interest in the role of capital controls in developing countries within both policy and academic circles. The reasons for this interest are not hard to find. Even strong proponents of capital account liberalization have acknowledged that many countries that avoided the worst effects of recent financial crises were also those that used capital controls, including China, India, Malaysia and Chile. Consequently, prominent mainstream economists and even the IMF have relaxed their insistence that immediate capital account liberalization is the best policy for all countries in all circumstances [IMF, 2000; Fischer, 2002; Eichengreen, 2002a].<sup>2</sup> Adding momentum to the discussion over the last several years, a number of highly respected economists have actively argued in favor of capital controls [e.g., Bhagwati, 1998; Stiglitz, 2002; Krugman, 1998; Rodrik, 1998].

Despite this apparent increase in the tolerance for capital controls, most mainstream academic and policy economists remain quite skeptical about the viability and desirability of controls, at least in two specific senses. Whatever increased tolerance for capital controls exists applies to controls on inflows, not on outflows. Moreover, controls on inflows are generally seen as a “temporary evil,” useful *only* until all of the institutional pre-requisites for full financial and capital account liberalization are in place.

More generally, there are three principal lines of argument advanced by those who remain skeptical of capital controls. First, the benefits of capital controls have been overstated or misunderstood by their proponents [Edwards, 1999, 2001]. Second, capital controls impose serious costs on developing economies (e.g., they raise capital costs and induce corruption). Third, capital controls cannot work in today's liberalized environment because of the likelihood of evasion.

In this study we show that critics often overstate the costs of capital controls and fail to acknowledge their numerous important achievements. In fact, our study demonstrates that capital controls in many developing countries have recently achieved numerous important objectives. We argue that policymakers in the developing world can and should draw upon these achievements in their discussions of policy design.

At the outset we emphasize that a thorough understanding of the policy options

available to developing countries necessitates that we expand the discussion of capital

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<sup>1</sup> This paper presents a condensed version of our case studies and arguments. See Epstein, Grabel, and Jomo [2003] for details.

<sup>2</sup> Of course, doctrinaire hold-outs on capital account liberalization still exist. For instance, some members of the US Treasury took this stance in recent negotiations with Chile and Singapore over free trade agreements (see section V).

controls to include what we term “capital management techniques.” Capital management techniques include the traditional menu of capital controls but add a set of policies that we term “prudential financial regulations.” We argue that certain types of prudential financial regulations actually function as a type of capital control; moreover, capital controls themselves can function as or *complement* prudential financial regulations. Our research demonstrates that there is often a great deal of synergy between prudential financial regulations and traditional capital controls.

We also find that it can be difficult (and sometimes impossible) to draw a firm line between prudential domestic financial regulation and capital controls. For instance, domestic financial regulations that curtail the extent of maturity or locational mismatches may have the effect of influencing the composition of international capital flows to a country, even those these types of regulations are commonly classified as prudential domestic financial regulations and not as capital controls.

The paper presents seven case studies of the diverse capital management techniques employed during the 1990s. There are eight principal findings that follow from our case studies. 1.) Capital management techniques can enhance overall financial and currency stability, buttress the autonomy of macro and micro-economic policy, and bias investment toward the long-term. 2.) The efficacy of capital management techniques is highest in the presence of strong macroeconomic fundamentals, though management techniques can also improve fundamentals. 3.) The nimble, dynamic application of capital management techniques is an important component of policy success. 4.) Controls over international capital flows and prudential domestic financial regulation often function as complementary policy tools, and these tools can be useful to policymakers over the long run. 5.) State and administrative capacity play important roles in the success of capital management techniques. 6.) The macroeconomic benefits of capital management techniques outweigh the often scant evidence of their microeconomic costs. 7.) Capital management techniques work best when they are coherent and consistent with a national development vision. And 8.) there is no single type of capital management technique that works best for all developing countries. Indeed our cases, demonstrate a rather large array of effective techniques.

This paper is organized in the following manner. In section II we briefly survey the literature on capital account liberalization and capital controls. In section III we discuss capital management techniques in some depth, focusing on types of techniques, achievements and costs. In section IV we present seven case studies of the capital management techniques employed in developing countries during the 1990s. In Section V we summarize our chief findings and discuss broad policy relevance. We also discuss the political prospects for building on our chief policy lessons.

## **II. A BRIEF REVIEW OF THE LITERATURE**

In recent years, economists have produced an enormous body of empirical literature on capital controls and capital account convertibility. There is a large literature on the effect of capital account liberalization on economic and productivity growth, investment, income distribution and financial crises [e.g., recent surveys appear in Kangkook Lee, 2002; Eichengreen, 2001; Arteta et. al., 2001]. This research uses primarily cross sectional or panel techniques, and attempts to assess "broad brush" claims about regimes of capital controls versus regimes of capital account liberalization. This literature suggests quite clearly that the road to successful capital account liberalization is rocky at best, and that full capital account liberalization need not be a goal for all developing countries.

A second strand of the literature looks more specifically at the effects of controls themselves via cross-sectional econometric analysis [e.g. Epstein and Schor, 1992; Grilli and Miles-Ferreti, 1995; Edwards, 1999, 2001] or case studies [e.g. Ariyoshi, et. al. 2000; Kaplan and Rodrik, 2001; Rajamaran, 2001].<sup>3</sup> Several findings emerge from these analyses. Capital controls can reduce the vulnerability of developing countries to financial crises. Controls over capital inflows can be effective (at least in the short run) in changing the composition and maturity structure of flows. Through their effects on composition and maturity structure, controls on inflows can reduce the vulnerability to crisis [e.g., Montiel and Reinhart, 1999; references in section IV.B.1]. Capital controls can drive a wedge between onshore and offshore interest rates. This wedge can provide monetary authorities with limited policy autonomy at least in the short-run [eg., Dooley, 1996; Crotty and Epstein, 1996].

Despite the emergence of consensus in the areas discussed above, there nevertheless exists much debate in the academic and policy community as concerns capital controls and capital account convertibility. The intensive case studies in section IV aim to overcome the inherent limitations of panel and cross-sectional econometric studies by providing a nuanced, rigorous analysis of the achievements and limitations of capital management techniques.

### **III. CAPITAL MANAGEMENT TECHNIQUES: TOOLS, OBJECTIVES AND COSTS**

#### **A. What are Capital Management Techniques?**

We use the term capital management techniques to refer to two complementary (and often overlapping) types of financial policies: policies that govern international private capital flows, called "capital controls," and those that enforce prudential management of domestic financial institutions. Regimes of capital management take diverse forms and are multi-faceted. Moreover, some capital management techniques are static while others are dynamic.

#### ***1. Complementary policies: Capital controls and prudential financial regulation***

Capital controls refer to measures that manage the volume, composition, or allocation of international private capital flows (see Neely [1999]). Capital controls can target inflows or outflows. Inflow or outflow controls generally target particular flows

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<sup>3</sup> Recent surveys appear in Dooley [1996], Ariyoshi et. al. [2000], and Edwards [2001].

(such as portfolio investment (PI), based on their perceived risks and opportunities. Capital controls can be tax-based or quantitative. Reserve requirement taxes against certain types of investments are an example of a tax-based control. Quantitative capital controls involve outright bans on certain investments (e.g., the purchase of equities by foreign investors), restrictions or quotas, or license requirements.

“Prudential domestic financial regulations” are another type of capital management technique. These refer to policies, such as capital-adequacy standards, reporting requirements, or restrictions on the ability and terms under which domestic financial institutions can provide capital to certain types of projects.

A strict bifurcation between capital controls and prudential regulations often cannot be maintained in practice (as Ocampo [2002] and Schneider [2001] observe). Policymakers frequently implement multi-faceted regimes of capital management as no single measure can achieve diverse objectives (as we will see in section IV). Moreover, the effectiveness of any single management technique magnifies the effectiveness of other techniques, and enhances the efficacy of the entire regime of capital management. For example, certain prudential financial regulations magnify the effectiveness of capital controls (and vice versa). In this case, the stabilizing aspect of prudential regulation reduces the need for the most stringent form of capital control. Thus, a program of complementary capital management techniques reduces the necessary severity of any one technique, and magnifies the effectiveness of the regime of financial control.

## ***2. Static versus dynamic capital management techniques***

Capital management techniques can be static or dynamic (though here, too, the strict distinction is not always maintained in practice). Static management techniques are those that authorities do not modify in response to changes in circumstances. Examples of static management techniques include restrictions on the convertibility of the currency, restrictions on certain types of activities (such as short-selling the currency), or maintenance of minimum-stay requirements on foreign investment.

Capital management techniques can also be dynamic, meaning that they can be activated or adjusted as circumstances warrant. Three types of circumstances trigger implementation of management techniques or lead authorities to strengthen or adjust existing regulations.

First, capital management techniques are activated in response to changes in the economic environment (e.g., changes in the volume of international capital flows or the emergence of an asset bubble).<sup>4</sup> For example, the Malaysian government implemented stringent temporary inflow controls in 1994 to dampen pressures associated with large capital inflows. The Chilean government changed its capital management techniques several times during the 1990s in response to fluctuations in the volume of capital flows to the country. Second, capital management techniques are activated to prevent identified vulnerabilities from culminating in a financial crisis or to reduce the severity of a crisis.<sup>5</sup> For example, the Malaysian government implemented stringent capital controls in 1998 to stabilize the economy and to protect it from the contagion effects of the regional crisis. Both China and Taiwan POC strengthened existing capital management techniques and added new measures to insulate themselves from the emerging regional crisis. Third, capital management techniques are strengthened or modified as authorities attempt to close loopholes in existing measures. For example, authorities in Taiwan POC, Chile and China

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<sup>4</sup> Ocampo [2002] proposes dynamic, counter-cyclical domestic financial regulation as a complement to permanent, adjustable capital controls. Palley [2000] proposes counter-cyclical, variable asset-based reserve requirements.

<sup>5</sup> Grabel [1999, 2003a] proposes “trip wires and speed bumps” as a framework for dynamic capital management. This approach aims to identify the risks to which individual countries are most vulnerable, and to prevent these risks from culminating in crisis.

adjusted their capital management techniques several times during the 1990s as loopholes in existing measures were identified.

## **B. Objectives of Capital Management Techniques**

Policymakers use capital management techniques to achieve some or all of the following four objectives—to promote financial stability; to encourage desirable investment and financing arrangements; to enhance policy autonomy; and to enhance democracy.<sup>6</sup>

### ***1. Capital management techniques can promote financial stability***

Capital management techniques can promote financial stability through their ability to reduce currency, flight, fragility and/or contagion risks. Capital management can thereby reduce the potential for financial crisis and attendant economic and social devastation.

Currency risk refers to the risk that a currency will appreciate or depreciate significantly over a short period of time. Currency risk can be curtailed if capital management techniques reduce the opportunities for sudden, large purchases or sales of domestic assets by investors (via controls on inflows and outflows, respectively). Capital management can protect the domestic currency from dramatic fluctuation via restrictions on its convertibility. Finally, capital management can provide authorities with the ability to engage in macroeconomic policies that sterilize the effects of sudden, large capital inflows or outflows on the currency.

Investor flight risk refers to the likelihood that holders of liquid financial assets will sell their holdings *en masse* in the face of perceived difficulty. Lender flight risk refers to the likelihood that lenders will terminate lending programs or will only extend loans on prohibitive terms. Capital management can reduce investor and lender flight risk by discouraging the types of inflows that are subject to rapid reversal (namely, PI, short-term foreign loans, and liquid forms of FDI). Capital

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<sup>6</sup> Discussion of objectives and costs draws on Chang and Grabel [forthcoming: ch.10] and Grabel [2003b]; discussion of the means by which capital management techniques attain their objectives draws on Grabel [2003a].

management can also reduce investor and lender flight risk by reducing or discouraging the opportunities for exit via outflow controls.

Fragility risk refers to the vulnerability of an economy's private and public borrowers to internal or external shocks that jeopardize their ability to meet current obligations. Fragility risk arises in a number of ways. Borrowers might employ financing strategies that involve maturity or locational mismatch. Agents might finance private investment with capital that is prone to flight risk. Investors (domestic and foreign) may over-invest in certain sectors, thereby creating overcapacity and fueling unsustainable speculative bubbles. Capital management techniques can reduce fragility risk through inflow controls that influence the volume, allocation and/or prudence of lending and investing decisions.

Contagion risk refers to the threat that a country will fall victim to financial and macroeconomic instability that originates elsewhere. Capital management techniques can reduce contagion risk by managing the degree of financial integration and by reducing the vulnerability of individual countries to currency, flight and fragility risks.

***2. Capital management techniques can promote desirable types of investment and financing arrangements and discourage less desirable types of investment/financing strategies***

Capital management techniques can influence the composition of the economy's aggregate investment portfolio, and can influence the financing arrangements that underpin these investments. Capital management techniques (particularly those that involve inflow controls) can promote desirable types of investment and financing strategies by rewarding investors and borrowers for engaging in them. Desirable types of investment are those that create employment, improve living standards, promote greater income equality, technology transfer, learning by doing and/or long-term growth. Desirable types of financing are those that are long-term, stable and sustainable. Capital management can discourage less desirable types of investment and financing strategies by increasing their cost or precluding them altogether.

***3. Capital management can enhance the autonomy of economic and social policy***

Capital management techniques can enhance policy autonomy in a number of ways. Capital management techniques can reduce the severity of currency risk, and can thereby allow authorities to protect a currency peg. Capital management can create space for the government and/or the central bank to pursue growth-promoting and/or reflationary macroeconomic policies by neutralizing the threat of capital flight (via restrictions on capital inflows or outflows). Moreover, by reducing the risk of financial crisis in the first place, capital management can reduce the likelihood that governments may be compelled to use contractionary macro- and micro-economic and social policy as signal to attract foreign investment back to the country or as a precondition for financial assistance from the IMF. Finally, capital management techniques can reduce the specter of excessive foreign control or ownership of domestic resources.

***4. Capital management techniques can enhance democracy***

It follows from point three that capital management can enhance democracy by reducing the potential for speculators and external actors to exercise undue influence over domestic decision making directly or indirectly (via the threat of capital flight). Capital management techniques can reduce the veto power of the financial community and the IMF, and create space for the interests of other groups (such as advocates for the poor) to play a role in the design of economic and social policy. Capital management techniques can thus be said to enhance democracy because they create the opportunity for pluralism in policy design.

### **C. Costs of Capital Management Techniques**

Critics of capital management techniques argue that they impose four types of costs—they reduce growth; reduce efficiency and policy discipline; promote corruption and waste; and aggravate credit scarcity, policy abuse, uncertainty and error. Critics argue that the benefits that derive from capital management (such as financial stability) come at an unacceptably high price.

#### ***1. Capital management techniques reduce growth***

Critics of capital management techniques argue that they dampen the volume of international private capital inflows, and thereby reduce economic growth. Note that some economists argue that a liberal stance toward international capital flows is only beneficial once a country reaches a certain threshold level of economic and financial development [e.g., Edwards, 2001]. Advocates of sequencing liberalization generally find their case strengthened following financial crises, as these are seen as a consequence of premature financial liberalization. However, the case for sequencing is controversial within neoclassical theory because some argue that it introduces problems (such as corruption, inertia in reform, slow growth, high capital costs) that are far worse than any financial instability associated with the liberalization of financial flows.

Critics of capital management techniques also argue that they raise capital costs, and thereby undermine investment and growth.<sup>7</sup> The argument is that the rate of return necessary to attract international capital flows will increase since investors demand a

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<sup>7</sup> Miller [1999] applies the capital cost argument to Malaysia.

premium in order to commit funds to an economy wherein liquidity or exit options are compromised.<sup>8</sup>

## ***2. Capital management techniques reduce efficiency and policy discipline***

Many critics of capital management techniques argue that they undermine efficiency and policy discipline. The need to attract international private capital flows and the threat of capital flight (by domestic and/or foreign investors) are powerful incentives for the government and firms to maintain international standards for policy design, macroeconomic performance and corporate governance. For example, governments that seek to attract international private capital flows will be more likely to pursue anti-inflationary economic policies and anti-corruption measures because investors value price stability and transparency.<sup>9</sup>

Moreover, the liberalisation of international capital flows means that these flows will be allocated by markets rather than by governments. Most critics of capital management assume that a market-based allocation of capital increases efficiency and ensures that finance will be directed towards those projects that promise the greatest net contribution to social welfare.

## ***3. Capital management techniques promote corruption and waste***

Critics argue that capital management techniques necessitate the creation of elaborate and expensive bureaucracies. Additionally, critics argue that capital management techniques stimulate corruption and other wasteful activities as agents seek to evade restrictions through off-shore or disguised transactions, trade misinvoicing, lobbying efforts and the bribery of officials.<sup>10</sup> Critics argue that these evasion efforts ultimately frustrate regimes of capital management.

## ***4. Dynamic capital management techniques aggravate problems of credit scarcity and policy abuse, uncertainty and error***

Critics argue that dynamic capital management techniques have the potential to introduce or aggravate several problems of their own. Though he is by no means a critic of dynamic capital management, Ocampo [2002] acknowledges that some capital management techniques have the potential to harm small- and medium-sized enterprises (SMEs) in developing countries. This may occur if dynamic capital management force domestic lenders to raise lending costs during an economic boom. Higher domestic capital costs may have a disproportionate effect on SMEs because they tend to raise their funds on domestic capital markets.

Ocampo [2002] also notes that dynamic capital management techniques can introduce concerns about the abuse of discretionary authority by domestic policymakers. There are also inherent technical difficulties involved in distinguishing between cyclical and long-run trends. Investor confidence may suffer if the criteria used for activation of dynamic capital management techniques are not consistent and transparent.

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<sup>8</sup> However, there is no strong evidence that growth is reduced by capital management techniques [Rodrik 1998; Eichengreen, 2002].

<sup>9</sup> However, during the Latin American and Asian crises of the 1990s large amounts of capital went to countries with fundamentals that critics found wanting *after* the crisis ensued. Thus, the "disciplinary" role of international capital flows seems far less significant than some economists assume.

<sup>10</sup> A strong version of this view is captured in "Goodhart's law." It states that "financial regulations that seek to raise the costs of certain kinds of financial activity tend to be circumvented over time" [appears in Wilson, 2000:275].

In sum, many critics argue that there are significant costs associated with capital management techniques. However, there is little consensus in the empirical literature on the size (or even the existence) of these costs. More importantly, researchers have largely failed to investigate the relative weight of costs and benefits. The seven case studies presented below address these important lacunae.

#### **IV. CASE STUDIES: CAPITAL MANAGEMENT TECHNIQUES IN DEVELOPING COUNTRIES SINCE THE 1990s**

##### **A. Objectives and Case Selection**

In this section of the paper we present seven case studies that analyze the capital management techniques employed during the 1990s in Chile, China, Colombia, India, Malaysia, Singapore and Taiwan Province of China (POC). The presentation of the case studies is guided by five principal goals. First, to provide a detailed institutional guide to the capital management techniques pursued in diverse areas of the world from the 1990s to the present. Second, to examine the extent to which these management techniques achieved the objectives of their architects. Third, to elaborate the underlying structural factors that explain the success or failure of the techniques employed. Fourth, to examine the costs associated with these measures. And fifth, to draw general conclusions about the desirability and feasibility of replicating or adapting particular techniques to developing countries outside of our sample.

We have limited our examination to the 1990s because this period is distinguished by the *combination* of high levels of financial integration, a global norm of financial and economic liberalization, an increase in the power and autonomy of the global financial community, and by significant advances in telecommunications technology. It is commonly held that any one of these factors (let alone their combined presence) frustrates the possibility for successful capital management. We have selected these seven cases because policymakers employed diverse capital management techniques (in line with levels of state capacity and sovereignty) with different objectives and disparate degrees of success.

##### **B. Case Studies**

Each case study will include the following seven components. (1) The context in which authorities decided to implement capital management techniques (i.e., historical considerations, past problems, etc.); (2) objectives of policy architects; (3) description of the capital management techniques employed; (4) assessment of the extent to which they achieved the objectives of their architects; (5) consideration of the structural factors that contributed to policy success or failure; (6) costs or unintended consequences of capital management; and (7) discussion of any unintended achievements of the policies. Table 1 presents a summary of the major capital management techniques and their objectives for each of our cases.

## ***1. The ‘Chilean model’ of the 1990s: Capital management techniques in Chile and Colombia***<sup>11</sup>

In the aftermath of the Asian crisis, heterodox and even prominent mainstream economists [e.g., Eichengreen, 1999] focused a great deal of attention on the ‘Chilean model,’ a term that has been used to refer to a policy regime that Chilean and Colombian authorities began to implement in June 1991 and September 1993, respectively.

### Context in Chile and Colombia

During the 1990s, policymakers in Chile and Colombia sought to improve investor confidence and to promote stable, sustainable economic and export growth. The capital management techniques of the 1990s were an integral component of the overall economic plan in both countries. Capital management techniques in Chile and Colombia can perhaps be best understood in the context of the economic challenges that confronted the region’s economies during the 1970s and 1980s. These problems included high inflation, severe currency and banking instability, financial crises, high levels of external debt and capital flight, and low levels of investor confidence.

### Chilean context

Chile experienced a “boom-bust cycle” in the two decades that preceded the capital management techniques of the 1990s. During the neo-liberal experiment of the 1970s, surges in foreign capital inflows led to a consumption boom and created significant pressure for currency appreciation. Experience with the “Dutch disease” in the 1970s reinforced policymaker’s commitment to preventing the fallout from surges in private capital inflows in the 1990s. The financial implosion, reduction in international capital flows, and the deep recession of the early to mid-1980s also played a powerful role in the design of capital management techniques in the 1990s. Thus, the experiences of the 1970s and 1980s created a consensus around the idea that it was necessary to insulate the economy from volatile international capital flows.

Preventing the Dutch disease was of paramount importance in the 1990s because of the government’s commitment to an export-led economic model. Chilean economic policy in the 1990s is difficult to characterize. In some senses, it was rather strongly neo-liberal. For instance, the country’s status as a pioneer in the area of pension fund privatization earned it much respect in the international investment community. The government also pursued a vigorous program of trade liberalization and privatization of state-owned enterprises. But at the same time, the government also provided education and income support to the poor and unemployed and maintained a stringent regime of capital management techniques. It should also be noted that the health of the country’s banking system improved significantly during the 1990s, thanks to a number of prudential banking and regulatory reforms.

### Colombian context

As in Chile, the architects of Colombia’s capital management techniques in the 1990s were influenced by the economic problems of the previous two decades. The promotion of investor confidence was a far more daunting task in Colombia than in Chile because of the country’s political and civil uncertainties. Inflation was also a severe problem in Colombia in the 1970s and 1980s (and indeed, remained a problem during the

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<sup>11</sup> This case study draws heavily on Grabel [2003a]. Details and assessment of Chilean and Colombian capital management techniques are drawn from Agonsin [1998], Eichengreen [1999], Ffrench-Davis and Reisen [1998], LeFort and Budenvich [1997], Ocampo [2002] and Palma [2000].

1990s as well). The 1990s was a time of far-reaching economic reform in Colombia. Authorities sought to attract international capital flows and promote trade and price stability through a number of structural reforms. These reforms included trade liberalization, increased exchange rate flexibility, tax reductions, labor market liberalization, partial privatization of social security and state-owned enterprises, and central bank independence. Most of the economic reforms in the 1990s were in the direction of neo-liberalism; however, the capital management techniques and the increases in public expenditure were important exceptions in this regard.

#### Objectives

Though there were national differences in policy design, Chilean and Colombian policies shared the same objectives. The policy regime sought to balance the challenges and opportunities of financial integration, lengthen the maturity structure and stabilize capital inflows, mitigate the effect of large volumes of inflows on the currency and exports, and protect the economy from the instability associated with speculative excess and the sudden withdrawal of external finance.

#### Capital management techniques in Chile, 1991-9

Financial integration in Chile was regulated through a number of complementary, dynamic measures (the most important of which are described here). During the lifetime of the Chilean model, authorities widened and revalued the crawling exchange rate band that was initially adopted in the early 1980s. The monetary effects of the rapid accumulation of international reserves were also largely sterilized.

Central to the success of the Chilean model was a multi-faceted program of inflows management. Foreign loans faced a tax of 1.2 per cent per year. FDI and PI faced a one-year residence requirement. And from May 1992 to October 1998, Chilean authorities imposed a non-interest bearing reserve requirement of 30 per cent on all types of external credits and all foreign financial investments in the country. Note that the level and scope of the reserve requirement ratio was, in fact, changed several times during the lifespan of this policy regime in response to changes in the economic environment and to identified channels of evasion. The required reserves were held at the Central Bank for one year, regardless of the maturity of the obligation.

The Central Bank eliminated the management of inflows (and other controls over international capital flows) in several steps beginning in September 1998. This decision was taken because the country confronted a radical reduction in inflows in the post-Asian/Russian/Brazilian crisis environment (rendering flight risk not immediately relevant). Chilean authorities determined that the attraction of international private capital flows was a regrettable necessity in light of declining copper prices and a rising current account deficit. Critics of the Chilean model heralded its demise as proof of its failure.

But others viewed the dismantling of the model as evidence of its success insofar as the economy had outgrown the need for protections. For example, Eichengreen [1999:53] notes that by the summer of 1998 it was no longer necessary to provide disincentives to foreign funding because the Chilean banking system was on such strong footing following a number of improvements in bank regulation.<sup>12</sup> In our view, the decision to terminate inflow and other controls over international capital flows was imprudent given the substantial risks of a future surge in capital inflows to the country and the risk that the country could experience contagion from financial instability in

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<sup>12</sup> Nevertheless Eichengreen [1999] makes clear that authorities erred in terminating inflows management.

Argentina, Brazil, Paraguay and Uruguay. It would have been far more desirable to maintain the controls at a low level while addressing the current account deficit and the need to attract inflows through other means. Indeed, flexible deployment of the inflows policy was a hallmark of the Chilean model (consistent with the dynamic approach to capital management in section III.A), and it is regrettable that authorities moved away from this strategy at the present juncture.

#### Capital management techniques in Colombia, 1993-9

Colombia's inflows management policies relating to foreign borrowing were similar to (though blunter than) those in Chile. This difference is perhaps attributable to limitations on state capacity in Colombia. Beginning in September 1993, the Central Bank required that non-interest bearing reserves of 47 per cent be held for one year against foreign loans with maturities of eighteen months or less (this was extended to loans with a maturity of up to five years in August 1994). Foreign borrowing related to real estate was prohibited. Moreover, foreigners were simply precluded from purchasing debt instruments and corporate equity (there were no comparable restrictions on FDI). Colombian policy also sought to discourage the accretion of external obligations in the form of import payments by increasing the cost of import financing. Authorities experimented with a variety of measures to protect exports from currency appreciation induced by inflows. These measures ranged from a limited sterilization of inflows, to maintenance of a managed float, to a crawling peg. As in Chile, regulations on international capital flows were gradually eliminated following the reduction in flows after the Asian crisis.

#### Assessment

The array of capital management techniques that constitute the Chilean model represent a highly effective means for achieving the economic objectives identified by the architects of these policies. The capital management techniques achieved these objectives via their effect on currency, flight, fragility and contagion risks.

Chilean authorities managed currency risk via adjustments to its crawling peg, sterilization and inflows management. Taken together, these measures greatly reduced the likelihood that the currency would appreciate to such a degree as to jeopardize the current account, and the policies made it difficult for investor flight to induce a currency collapse. Indeed, the appreciation of the Chilean currency and the current account deficit (as a share of GDP) were smaller than in other Latin American countries that were also recipients of large capital inflows [Agosin, 1998]. Moreover, the currency never came under attack following the Mexican and Asian crises.

Colombian efforts to manage currency risk were less successful than those in Chile. This is the case for three reasons. There was a lack of consistency in the exchange rate regime in Colombia as a consequence of the frequent changes in the exchange rate strategy employed (managed float, crawling peg, etc.) Inflow sterilization was rather limited in scope when compared to sterilization in Chile. And inflation continued to be a problem in Colombia during the 1990s. Nonetheless, currency and inflows management offered some protection to exports in Colombia when the country was receiving relatively large capital inflows. The currency also held up fairly well following the Mexican crisis.

Chilean and Colombian policies reduced the likelihood of a sudden exit of foreign investors by discouraging those inflows that introduce the highest degree of flight risk. The reserve requirement tax in Chile was designed to discourage such flows by raising

the cost of these investments. The Chilean minimum stay policy governing FDI reinforced the strategy of encouraging longer-term investments while also preventing short-term flows disguised as FDI. Colombian policy precluded the possibility of an exit of foreign investors from liquid investment by prohibiting their participation in debt and equity markets (while maintaining their access to FDI). The reduction in flight risk in both countries complemented efforts to reduce currency risk, particularly in Chile where policy effectively targeted currency risk.

Chilean and Colombian inflows management also mitigated fragility risk. The regime reduced the opportunity for maturity mismatch by demonstrating an effective bias against short-term, unstable capital inflows. In Chile, taxes on foreign borrowing were designed precisely to discourage the financing strategies that introduced so much fragility risk to Asian economies and Mexico. In Colombia, the rather large reserve requirement tax on foreign borrowing and the prohibition on foreign borrowing for real estate played this role as well.

Numerous empirical studies find that inflows management in Chile and Colombia played a constructive role in changing the composition and maturity structure (though not the volume) of net capital inflows, particularly after the controls were strengthened in 1994-5 [e.g., French-Davis and Reisen, 1998; LeFort and Budenvich, 1997; Ocampo and Tovar, 1998; Palma, 2000]. These studies also find that leakages from these regulations had no macroeconomic significance. Following implementation of these policies in both countries, the maturity structure of foreign debt lengthened and external financing in general moved from debt to FDI. Moreover, Chile received a larger supply of external finance (relative to GDP) than other countries in the region, and FDI became a much larger proportion of inflows than in many other developing economies. Colombia's prohibition on foreign equity and bond market participation dramatically reduced the relative importance of short-term, liquid forms of finance. More strikingly, FDI became a major source of finance in the country despite political turbulence and blunt financial controls.

The move toward FDI and away from short-term, highly liquid debt and PI flows is a clear achievement of the Chilean model. However, it is important to note that FDI is not without its problems. It can and has introduced sovereignty risk in some important cases (such as Chile's earlier experience with ITT) and can introduce other problems to developing countries [see Chang and Grabel, forthcoming: ch. 10; Singh, 2002].

The Chilean model also reduced the vulnerability to contagion by fostering macroeconomic stability. It is noteworthy that the transmission effects of the Asian crisis in Chile and Colombia were quite mild compared to those in other Latin countries (such as Brazil), let alone elsewhere. The decline in capital flows in Chile and Colombia following the Mexican and Asian crises was rather orderly, and did not trigger currency, asset and investment collapse. Contra the experience in East Asia, the decision to float the currency in Chile and Colombia (in the post-Asian crisis environment) did not induce instability.

Some analysts challenge the generally sanguine assessment of the Chilean model. Edwards [1999], for example, argues that the effectiveness of the model has been exaggerated. However, in a paper published a year later, De Gregorio, Edwards and Valdés [2000] conclude that Chilean controls affected the composition and maturity of inflows, though not their volume. The De Gregorio *et al.* [2000] result is confirmed for

Chile in other studies that claim to demonstrate the failure of the model, even though their reported results show just the opposite [Ariyoshi *et al.*, 2000; Valdés-Prieto and Soto, 1998]. As Eichengreen aptly remarks, the controls affected only the composition and maturity and not the volume of inflows is “hardly a devastating critique” [1999:53], since this was precisely their purpose.

#### Supporting factors

Capital management techniques in both Chile and Colombia were able to achieve the economic objectives of their architects for several reasons. The policies were well designed, consistent and reasonably transparent throughout their life. Policymakers in both countries were “nimble” in the sense that they dynamically modified capital management techniques as the economic environment changed<sup>13</sup> and as loopholes in the policies were revealed (see Massad [1998:44] for discussion of the Chilean case).<sup>14</sup> Both countries offered investors attractive opportunities and growing markets, such that investors were willing to commit funds despite the constraints imposed by the capital management regime.

Chile certainly had advantages over Colombia. The greater degree of state capacity in Chile may well explain why its policies (particularly in regards to exchange rate management) were more successful. Moreover, Chile’s status as a large developing economy certainly rendered it more attractive to foreign investors, and may have granted the country a greater degree of policy autonomy than was available to Colombia. The general soundness of its banking system and macroeconomic policy, the maintenance of price stability and the high level of official reserves were important sources of investor confidence in Chile. Finally, international support for the neo-liberal aspects of Chile’s economic reforms provided the government with the political space to experiment with capital management techniques.

#### Costs

At this point, compelling evidence on the costs of capital management techniques in Chile and Colombia is not available. Indeed, the two most comprehensive studies of this issue deal only with Chile (and in an unsatisfactory manner).

Forbes [2002] is the most extensive study available on the micro-economic costs of Chilean capital management techniques. Using a variety of empirical tests (and sensitivity analysis thereof), Forbes shows that capital management techniques in Chile resulted in an increase in capital costs to small-sized enterprises.<sup>15</sup> Forbes is careful to note that the results themselves must be treated cautiously because of limitations on data availability.

In a broad study of the macro-economic effects of the Chilean capital management techniques, Edwards [1999] notes in passing that capital management techniques increased capital costs for the SMEs that had difficulty evading controls on capital inflows. He reports that the cost of funds to smaller enterprises in Chile was more than 21% and 19% per year in dollar terms in 1996 and 1997, respectively. Edwards

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<sup>13</sup> E.g., Chile’s reserve requirement was adjusted several times because of changes in the volume of capital flows.

<sup>14</sup> Ocampo [2002:7] points out that the frequency with which authorities changed the rules pertaining to exchange rates in Chile and reserve requirements in Colombia were not without cost, however.

<sup>15</sup> To date, Forbes’ [2002] findings have not been challenged in the literature. This, however, is not surprising given that the draft paper only became available in November 2002.

does not, however, place these data into the necessary comparative context, rendering them entirely unpersuasive as an indictment of the Chilean capital management techniques.

Both Forbes and Edwards conclude their studies with the argument that the cost to smaller firms of Chilean capital management techniques is far from a trivial matter because these enterprises play an important role in investment, growth, and employment creation in developing countries. Neither study provides empirical support for the argument that these firms do, in fact, play a significant role in macro-economic performance. And neither study provides unambiguous evidence that the macro-economic benefits of Chilean capital management techniques fail to outweigh even the modest evidence of their microeconomic costs (and much the same could be said of Colombian experience).

On the issue of costs versus benefits, it should be noted that Forbes [2002] remains agnostic on the relative importance of micro-economic costs versus macro-economic benefits. Edwards [1999], by contrast, is entirely clear on this matter. He argues that proponents of Chilean capital management techniques vastly overstate their macroeconomic benefits and fail to acknowledge their microeconomic costs. On this basis, he argues that the Chilean capital management techniques should not serve as a model for other developing countries. We find the empirical basis for this conclusion entirely unconvincing.

#### Other achievements

As discussed above, the capital management techniques associated with the Chilean model achieved the most important goals of its architects (though to a greater extent in Chile than in Colombia). Additionally, the capital management techniques in both countries can be credited with enhancing the sovereignty of macro- and micro-economic and social policy. The importance of this achievement warrants discussion.

The capital management techniques of the Chilean model afforded policymakers insulation from potential challenges to macro- and micro-economic and social policy sovereignty through the reduction in various types of risks (particularly, through reduction in flight and fragility risks). Both countries were able to maintain relatively autonomous, somewhat restrictive monetary policies because of the protections afforded by the capital management techniques [LeFort and Budenvich, 1997].<sup>16</sup> Moreover, the protection from flight risk afforded by the capital management techniques made it possible for policymakers to implement some growth-oriented fiscal policies [LeFort and Budenvich, 1997]. Finally, as LeFort and Budenvich [1997] argue, the protections and advantages conferred on both countries by their capital management techniques were essential to the success of the entire regime of macro- and micro-economic policy.<sup>17</sup> For instance, the attraction of certain types of international capital flows promoted economic growth in both countries, and the protection from currency appreciation (to a large extent

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<sup>16</sup> Even Edwards [1999:77], a prominent critic of capital management techniques in Chile, shows that they increased the autonomy of monetary policy in the country. However, he argues the extent of increased autonomy was trivial insofar as the small benefit accruing from increased monetary policy autonomy was outweighed by the increase in capital costs that were associated with the capital management techniques.

<sup>17</sup> Though note that capital management techniques and macroeconomic policy did not succeed in promoting price stability in Colombia [LeFort and Budenvich, 1997].

in Chile, and to a modest extent in Colombia) contributed to success in current-account performance.

The insulation afforded to both countries by the capital management techniques also meant that monetary authorities were able to navigate the transition to a floating exchange rate far more smoothly. In many other countries (such as in East Asia), the transition to a floating rate involved significant currency depreciations and financial instability.

The capital management techniques employed in both countries also reduced the risk of financial crisis, and thereby buttressed the sovereignty of economic and social policies in both countries. Capital management techniques reduced the potential for IMF involvement in both countries. Policymakers were therefore never pressed to change the direction of (macro- or micro-) economic or social policy to satisfy the demands of the IMF or to calm investors.

## ***2. Taiwan Province of China (POC)***

### Context

The capital management techniques employed in Taiwan POC can only be understood in the context of a “developmentalist state” and an extended notion of national security that includes economic and financial stability.<sup>18</sup> That is, capital management techniques are an integral component of the macroeconomic and security objectives of Taiwan POC (see below for discussion of objectives). These economic and security objectives were and largely still are the guiding forces behind extensive regulation of domestic financial institutions and credit flows, monetary and exchange rate policy and controls over international capital flows. Taiwan POC built its industrial base on the basis of restrictive policies toward FDI in “strategic sectors” [for details, see Chang and Grabel, forthcoming]. Capital management techniques played a critical role in promoting industrialization and export performance.

### Objectives

Prior to the mid-1980s, Taiwan POC’s policymakers employed a multi-faceted set of capital management techniques in the service of three aims: to promote industrialization and export supremacy, economic growth, and economic stability. Since the goal of industrialization had been achieved by the mid-1980s, capital management techniques are directed towards growth and stability objectives. Capital management techniques that restrict investment in unproductive assets are critical in this regard.

Extensive capital management techniques are still in use, though policymakers began to liberalize aspects of the financial sector and to loosen some controls over international capital flows in 1995 as part of the Asia Pacific Regional Operations Center Plan (APROC) and the goal of joining the WTO. The APROC aimed at making Taiwan POC a regional center for high value-added manufacturing, transportation, finance, telecommunications, and several other areas. However, as Chin and Nordhaug [2002:82] make clear, financial liberalization in Taiwan POC in the 1990s in no way weakened prudential financial regulation in the country.

### Capital management techniques in Taiwan POC

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<sup>18</sup> See Chin and Nordhaug [2002] on the extended notion of security in Taiwan POC and, more generally, for a rich discussion of the broader context of its economic and financial policies.

As discussed above, Taiwan POC maintains an extensive set of capital management techniques that are tied to economic and security objectives.<sup>19</sup>

Policymakers maintain rather tight reins on the domestic currency, the New Taiwan dollar (NT dollar), and on currency risk more generally. Most important among the capital management techniques that relate to currency risk is the lack of convertibility of the NT dollar. There are a number of other ways that the Central Bank of China (the CBC) manages the NT dollar. Prior to September 1994, foreign nationals (without residency visas) were prohibited from opening NT dollar accounts. But as of September 1994, the CBC has permitted non-resident foreign nationals and corporations to hold savings accounts denominated in NT dollars, although the use of these is limited to domestic spending or to the purchase of imports. These accounts may not be used to purchase foreign exchange or for securities trading. The CBC also adjusts the reserve ratios that must be held against foreign currency deposits in order to prevent inflows of foreign investment from leading to an appreciation of the NT dollar.

The domestic banking system is highly regulated by the state. Indeed, domestic banks in Taiwan POC were primarily owned by the state until the early 1990s. In 1995 71.9 per cent of Taiwan POC 's total banking assets were housed in banks that were controlled fully or partly by the government; in the same year, 62.2 per cent of overall credit was provided by government-controlled credit and financial institutions [Chin and Nordhaug, 2002:81]. Authorities maintain restrictions on bank participation in speculative activities. Bank involvement in securities holdings is limited. In 1989, the Central Bank imposed a 20% ceiling on bank lending to the real estate sector for six years following problems associated with a real estate bubble in the 1980s [Chin and Nordhaug, 2002].

Authorities also regulate foreign borrowing. Foreign-owned companies must apply to the CBC and the Investment Commission of the Ministry of Economic Affairs to secure government approval for borrowing from abroad. Control over foreign borrowing aims to concentrate most private foreign borrowing from international banks in Taiwan POC 's banks rather than in the hands of individuals. In fact, at the end of June 1997, 62% of all private foreign borrowing in the country went to its banks [Chin and Nordhaug, 2002:93].

Foreign investment in Taiwan POC remains tightly regulated. During the 1990s certain strategic sectors were off-limits to foreign investors. These restrictions have been loosened considerably beginning in March 1996. However, authorities retain the ability to manage foreign investment: at present what are termed "qualified foreign institutional investors" are subject to a ceiling on maximum investment; foreign individual investors are also subject to a ceiling on maximum investment and must receive approval from the CBC.

The stock market and PI are closely regulated as well. Chin and Nordhaug [2002:89] point out that Taiwan POC 's stock bubble in the 1980s exposed some regulatory weaknesses, leading authorities to improve the quality of capital market regulation and to increase control over PI inflows. They also note that a number of events in the 1990s reinforced the CBC's regulatory caution toward the stock market and PI inflows. These events also encouraged the CBC to develop new strategies for

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<sup>19</sup> The description of capital management techniques draws heavily on Chin and Nordhaug [2002]. Details are also drawn from the EIU [2002] and the US Commercial Service [2002].

discouraging speculation and channeling capital toward developmentally productive uses. The CBCs power to regulate the stock market and PI inflows increased following the country's stock market crash in 1990, and following its interventions to support the currency and the stock market in the aftermath of the cross-strait tensions and the ensuing missile crisis from August 1995-March 1996. The CBC also monitored evasion of its regulations and had the political will to enforce penalties when malfeasance was uncovered. For example, in 1995 the CBC closed Taiwan POC's foreign exchange market for one year when it was discovered that a major share of the foreign inflows that it had approved for equity investment had been used to speculate against the currency [Chin and Nordhaug, 2002:88]. During the Asian financial crisis, Taiwan POC's authorities also took steps to prevent illegal trading of funds by financier George Soros (because these funds were blamed for causing the stock market to fall).

Taiwan POC's stock market was not very "internationalized" during the 1990s as a direct result of its policies toward PI. In 1997, foreign investors held only 4 per cent of stocks on the domestic exchange [Chin and Nordhaug, 2002:94]. Moreover, authorities maintained firm entry and exit barriers and high withholding taxes on dividends (in 1996 the tax rate on dividends was 35%) [Chin and Nordhaug, 2002:87]. Today, buying stocks on margin and short-selling are still prohibited.

#### Assessment

It is clear that Taiwan POC's capital management techniques have achieved the objectives of its architects. The regime of capital management clearly plays an essential role in Taiwan POC's industrialization, export performance, economic growth and economic and financial stability. The strategic stance toward FDI was critical to industrialization.

Capital management techniques are central to Taiwan POC's financial stability. The restrictions on currency convertibility mean that it is difficult for Taiwan POC to experience a currency collapse (and related currency-induced fragility risk). Investors have little reason to fear a collapse of currency values, and they behave accordingly (as was evident during the regional crisis of 1997-8). Thus, even a decline in asset values (e.g., stocks) is unlikely to translate into a currency crash.

Taiwan POC's exposure to currency, fragility and flight risks is reduced by the restrictions on foreign investors' ability to use the currency for speculation. The regulation of the stock market (e.g., prohibitions on buying on margin and short-selling) and the cautious stance toward PI curtail the fragility and flight risks to which Taiwan POC is exposed. It is notable that regulatory authorities have responded to the evasion of financial controls and the appearance of regulatory gaps by dynamically refashioning their capital management techniques.

The regulations that govern banks and foreign lending support the objective of promoting financial and economic stability. Banks in Taiwan POC do not have a high exposure to securities and real estate transactions. As a consequence, banks do not hold a large portfolio of non-performing or under-collateralized loans. Curbs on foreign lending also reduce fragility in the economy and render the risk of lender flight not terribly important.

Taiwan POC's resilience during the Asian financial crisis is no small part due to the economic and financial stability fostered by its capital management techniques. It

was simply not vulnerable to the currency, flight, or fragility risks that proved so devastating to many countries in the region.

#### Supporting factors

The achievements of Taiwan POC 's capital management techniques were facilitated by a number of structural and geopolitical factors.<sup>20</sup> Critical among these are the high degree of regulatory capacity and the independence of the CBC from political bodies. This independence allowed the CBC to exercise its authority to curb speculation, close loopholes in policy, and to resist international and external pressures to liberalize the financial system imprudently. The policy independence of the CBC stemmed from its Presidential backing and the government's historic commitment to financial stability. National security concerns and geopolitical uncertainties reinforced the commitment to financial stability, as stability is seen as essential to the task of withstanding diplomatic, military, and/or economic shocks. The reaction of the CBC to several events in the 1990s "served as an unplanned rehearsal for the subsequent 1997-98 regional financial crisis" [Chin and Nordhaug, 2002:91].

As part of its national development vision, the Taiwan POC channeled rents to promote exports and upgrade industry. These efforts were accompanied by strict performance criteria and disciplinary measures. In this context, stringent and dynamic capital management techniques were essential to the promotion of productive investment and industrial dynamism.

#### Costs

There is scant evidence available on the costs of Taiwan POC's capital management techniques. A report by the for International Economics [1998], for instance, reports that capital management techniques in Taiwan POC have created a concentration of credit in large firms and an illiquid financial system, have provided incentives for a rather large informal financial sector to flourish, and have reinforced conservatism on the part of its banks. Chin and Nordhaug [2002:83] report that this conservatism leads banks to favor short-term lending backed by tangible collateral, such as real estate. This study also reports that banks are limited in their ability to engage in project, company and credit assessments, and do not have reliable accounting and auditing systems.

Clearly, the evidence on costs reviewed here is limited and anecdotal. Even if one were to accept this evidence fully, these costs in no way outweigh the macroeconomic benefits afforded to Taiwan POC by its capital management techniques.

#### Other achievements

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<sup>20</sup> This discussion draws heavily on Chin and Nordhaug [2002]. See this work for an in-depth historical examination of relevant structural considerations.

Capital management techniques afforded Taiwan POC insulation from the Asian financial crisis. This insulation from crisis, coupled with China's vast resources, meant that Taiwan POC did not confront challenges to the sovereignty of macro- and microeconomic and social policy associated with IMF involvement or with the need to regain investor confidence.

### *3. Singapore*<sup>21</sup>

Singapore is widely believed to have a completely free and open capital account, a "fact" that is often cited as an essential component of Singapore's outward-oriented economic policy and its rapid post-war economic growth.<sup>22</sup> It is true that Singapore eliminated its exchange controls in 1978, and since that time, both residents and non-residents have been free to engage in a broad range of international financial market activities. However, it is less well known that the "Monetary Authority of Singapore (MAS) has a long-standing policy of not encouraging the internationalization of the Singapore Dollar (S\$)" [MAS, 2002:1]. The S\$ "non-internationalization policy" limits the borrowing of S\$ by residents and non-residents for "currency speculation" [MAS, 2002: 13. fn 9]. This policy is clearly a type of capital management technique, and evidently has been successful in the sense of contributing to Singapore's macroeconomic and industrial policy and economic stability.

#### Context

By virtually any measure, Singapore's economy has been a major success story of post-war economic development. To just cite one statistic, the per capita income in Singapore has more than quadrupled in less than twenty years, growing from US\$5,200 in 1981 to US\$23,000 in 1999. Moreover, Singapore's economy has been relatively stable for the last twenty years, notably escaping the worst ravages of the Asian financial crisis of the late 1990's. [See MAS, 2001]. The government of Singapore has used a creative mix of macroeconomic tools and other government policies to achieve these outcomes. Macroeconomic policy has been rather conservative in a number of ways. The government has sought to maintain fiscal surpluses and low rates of inflation and has sought to attract large amounts of foreign direct investment. Few would deny the success of these policies. To take just one example, between 1981 and 1999, Singapore attracted

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<sup>21</sup> This section draws heavily on MAS [2001; 2002], Errico and Musalem [1999], IMF [1999, 2001], McCauley [2001] and Ishi et. al., [2001].

<sup>22</sup> See IMF [1999; 2001] for useful surveys of the Singapore economy during this period.

FDI in an amount of over 9% of its GDP, far higher than any of its neighbors [MAS, 2001, p. 11].

At the same time, the government of Singapore has projected an image of greater adherence to economic orthodoxy than is actually the case. For example, Singapore has pursued a very successful industrial policy, huge infrastructure investments and large investment in public housing for its population, all of which have contributed to a rapid growth of living standards. Most important for our purposes, the government has pursued a managed exchange rate policy designed to stabilize the exchange rate and maintain the competitiveness of Singapore's industry. It turns out that Singapore's capital management techniques have played an important, but little understood role, in many of these successful policies.<sup>23</sup>

#### Objectives

According to the MAS, the aim of the policy of non-internationalization of the S\$ "is to prevent the exchange rate from being de-stabilized and to ensure the effective conduct of our monetary policy" (ibid.) The policy is also designed to help Singapore maintain the "soft peg" that has been crucial for its export-led strategy of development. Singapore's successful maintenance of its soft peg defies the conventional wisdom that soft-pegs are not viable [Eichengreen, 1999].

#### Capital management techniques in Singapore

Singapore progressively dismantled exchange controls in the 1970's until virtually all restrictions were removed in 1978. In 1981, the MAS moved to an exchange rate-centered monetary policy. As the MAS put it: "the absence of exchange or capital controls, coupled with the small size and openness of our economy, made the conduct of monetary policy that much more difficult when Singapore shifted to an exchange rate-centered monetary policy in 1981". [MAS, 2002, p. 2].

To support this policy, the MAS instituted an explicit policy of discouraging the internationalization of the S\$ by discouraging "the use of the S\$ outside Singapore for activities unrelated to its real economy". In 1983, when the policy was first codified, financial institutions located in Singapore were forbidden to lend S\$ to any residents or non-residents that planned to take the S\$ outside of the country. Moreover, there were restrictions on equities and foreign bond listings by foreign companies in S\$ to limit the development of an internationally connected domestic capital markets denominated in S\$'s. After nine years, in 1992, the policy was loosened somewhat, when it was amended to allow the extension of S\$ credit facilities of any amount to non-residents provided that the S\$ funds were used for real activities in Singapore. [MAS, 2002: 4]. Under that amendment, non-residents can only borrow S\$ to finance their activities outside Singapore provided the S\$ proceeds are swapped into foreign currency. [MAS, 2001:13, fn. 9]. In addition, some restrictions were placed on inter-bank S\$ derivatives, such as FX, currency and interest rate swaps and options, which could facilitate the leveraging or

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<sup>23</sup> Since 1981, monetary policy in Singapore has been centered on exchange rate management. First, the exchange rate is managed against a basket of currencies of Singapore's major trading partners. The composition of the basket is revised periodically to take account of Singapore's trade patterns. Second, the MAS operates a managed float. The trade-weighted exchange rate is allowed to fluctuate within an undisclosed policy band. If the exchange rate moves outside the band, the MAS will step in, buying or selling foreign exchange to steer the exchange rate back within the band. In conducting this policy, the MAS has generally given up control over domestic interest rates in order to maintain its exchange rate within its target band. McCauley [2001] argues that the main target of this policy is inflation.

hedging of S\$ positions. [MAS, 2002: p. 2]. As the SMA puts it, "These restrictions made it harder for potential speculators to short the S\$ and signaled unambiguously our disapproval of such speculation". [ibid.]

In response to pressures from the domestic and foreign financial sectors for more liberalization, the MAS has reviewed the non-internationalization policy four times since 1998, and has liberalized it to some extent during these years. In August 1998, the MAS issued a new directive, MAS 757, reaffirming the basic thrust of the non-internationalization policy, but establishing clearer and more explicit provisions than previously. These more explicit regulations reduced the need for banks to consult MAS, and then, to some extent, reduced the ability of MAS to implement "moral suasion" and "supervision". Moreover, some activities, specifically in relation to the arrangement of S\$ equities listings and bond issues of foreign companies were relaxed to foster the development of the capital market in Singapore [MAS, 2002, p. 4].

In late 1999, there was further liberalization of S\$ interest rate derivatives. Moreover, foreign companies were allowed to list S\$ equity, provided the proceeds are converted into foreign currency before being used outside Singapore. And in late 2000, key changes were made to MAS 757 to allow banks to lend S\$ to non-residents for investment purposes in Singapore. These changes to MAS 757 were intended to allow non-residents to obtain S\$ funding for investment in S\$ equities, bonds and real estate and broaden the investor base for S\$ assets, and to extend S\$ credit facilities to non-residents to fund offshore activities, as long as the S\$ proceeds were first swapped into foreign currency before being used outside Singapore. Finally, in March of 2002, the policy was further liberalized, exempting individuals and non-financial entities from the S\$ lending restrictions, "recognizing...that such entities were not usually the prime drivers of destabilizing currency speculation" [MAS, 2002. p. 5]. Moreover, the amendments significantly loosened up restrictions on non-resident financial entities, to: transact freely in asset swaps, cross currency swaps and cross-currency *repos*; and end any amount of S\$-denominated securities in exchange for both S\$ or foreign currency-denominated collateral. Previously, lending of S\$ securities exceeding \$5 million had to be fully collateralized by S\$ collateral; transact freely in S\$ FX options with non-resident entities. Previously, such transactions had been allowed only if they were supported by underlying economic and financial activities in Singapore [MAS, 2002].

Thus, following the revisions of March 2002, only two core requirements of the policy remain. First, financial institutions may not extend S\$ credit facilities in excess of S\$ 5 million to non-resident financial entities, where "they have reason to believe that the proceeds may be used for speculation against the S\$. This continues to be necessary to prevent offshore speculators from accessing the liquidity in Singapore's onshore FX swaps and money markets. [MAS, 2002: 5]. Second, for a S\$ loan to a non-resident financial entity exceeding S\$ 5 million, or for a S\$ equity or bond issue by a non-resident entity, that is used to fund overseas activities, the S\$ proceeds must be swapped or converted into foreign currency before use outside Singapore.

#### Assessment

Observers attribute at least part of the success of Singapore's macroeconomic policy to the significant capital management techniques that have hindered speculation against the S\$ and allowed authorities to pursue a managed exchange rate. The MAS itself finds its capital management techniques extremely useful. A recent report states

that: "The S\$ has served Singapore well. The strength and stability of the S\$ have instilled confidence and kept inflation low. These have in turn provided the foundation for sustained economic growth as well as continued strengthening of the S\$." [ibid]

According to the MAS, interest rates in S\$ instruments have generally been lower than corresponding US dollar rates. This has helped to keep the cost of capital low in Singapore. Moreover, as a result, domestic banks and corporations did not suffer from the currency and maturity mismatches that existed in other emerging-market economies. [MAS, 2001:13]. Part of the reason that it was able to keep lower interest rates was an expectation of exchange rate appreciation. It is important to note that Singapore avoided the familiar problems associated with expectations of appreciation: namely massive capital inflows, overvaluation, and then crash [see e.g. Taylor, 2002]. It seems likely that Singapore's capital management techniques, which discouraged speculation against the currency, helped the country avoid that all too familiar malady. It also helped to support Singapore's export-led model by keeping the exchange rate from becoming excessively overvalued.

#### Supporting factors

The success of this policy is partly due to the ability of the MAS to use "moral suasion" to discourage banks and other financial institutions from using the S\$ for purposes of speculating against (or in favor) of the local currency. Close, ongoing interaction between the MAS and international and domestic financial institutions has allowed the MAS to shape and monitor implementation of what appear to be deliberately vague formal regulations. Moral suasion allows the MAS to make sure that loans are "tied to economic activities in Singapore." Singapore's "strong fundamentals" are often cited as the key to its policy success. These include low inflation, fiscal surpluses, stable unit labor costs and current account surpluses -- factors that are undoubtedly important.<sup>24</sup> But often ignored is the role of capital management techniques in enhancing these fundamentals. In short, Singapore's experience demonstrates that there is two-way causation between capital management techniques and fundamentals.

#### Costs

There has been no systematic analysis of the costs of Singapore's capital management techniques; hence only qualitative guesses exist. Some have argued that the restrictions have hindered the development of Singapore's capital markets, especially the bond markets, and may have also reduced the inflow of foreign investment, though there is little hard evidence to support these assertions [MAS, 2001]. Another possible cost is that the government of Singapore forgoes the opportunity to earn seignorage from the international use of the S\$; but there have been no quantitative estimates of these costs to date.

#### Other achievements

Singapore has been able to maintain a high level of foreign direct investment and political stability. Singapore's capital management techniques have contributed to this success by allowing the MAS to maintain a stable exchange rate and avoid the financial crises that have generated so much instability elsewhere in the region.

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<sup>24</sup> IMF [2001] emphasizes the role of fundamentals and discounts the importance of capital management.

## 4. Malaysia<sup>25</sup>

### Context

In the first two-thirds of the 1990s, Malaysia experienced rapid economic growth due to growth in spending on infrastructure, FDI and exports. During this period, the Malaysian capital account was so liberalized that there was an offshore market in ringgit, perhaps the only case of an offshore market in an emerging-market currency [Rajaraman, 2001] Indeed, by most conventional measures, Malaysia had had one of the longest running open capital accounts in the developing world [Rajaraman, 2001].

Rapid economic growth in Malaysia came to a halt with the Asian financial crisis of 1997. The Malaysian government bucked trends in the region and, rather than implement an IMF stabilization program, implemented capital controls and adopted an expansionary monetary policy 14 months after September 1998. Malaysia's introduction of capital controls was widely seen as a major departure from its long reputation for a liberal capital account. The Malaysian government, of course, had implemented capital controls in 1994, but these were eliminated within a few months.

### Objectives

The 1994 controls sought to reduce the threat of capital flight and protect the exchange rate by reducing the volume of highly reversible capital inflows [see Ariyosi, *et al.* 2000; Jomo, 2001]. The 1998 controls had somewhat different goals. These were to facilitate expansionary macroeconomic policy while defending the exchange rate, reduce capital flight, preserve foreign exchange reserves and avoid an IMF stabilization program [Kaplan and Rodrik, 2002].

### Capital management techniques in Malaysia

*Capital management in 1994.* The 1994 measures sought to deter volatile capital inflows by taxing them. This contrasts with the 1998 measures that restricted capital outflows. Had the 1994 controls not been withdrawn so soon, it is quite likely that the magnitude of capital flight from mid-1997 would have been much less, and the 1997-98 crisis would have been far less catastrophic.

The following measures sought to manage excess liquidity, especially to contain speculative inflows, restore stability in financial markets and control inflationary measures.<sup>26</sup> The eligible liabilities base for computing statutory reserve and liquidity requirements was redefined to include all funds inflows from abroad, thus raising the cost of foreign funds compared to domestic funds; limits on non trade-related external liabilities of banking institutions were introduced; sale of short-term monetary instruments was only limited to Malaysian residents to prevent foreigners from using such investments as substitutes for placements of deposits (this measure was lifted on 12 August 1994); commercial banks were required to place ringgit funds of foreign banks in non-interest bearing vostro accounts; commercial banks were not permitted to undertake non-trade-related swaps (including overnight swaps) and outright forward transactions on the bid side with foreign customers to prevent offshore parties from establishing speculative long forward ringgit positions while the ringgit was perceived to be undervalued (this measure was lifted from 16 August 1994); the statutory reserve

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<sup>25</sup> This section draws mainly on Jomo [2001]; BNM, various years; Kaplan and Rodrik [2002]; Rajaraman [2001]; Mahathir [2001].

<sup>26</sup> For a fuller account, see BNM's *1994 Annual Report* (especially the Foreword, Boxes A to J and pp. 42-44).

requirements of all financial institutions were raised thrice during 1994 — by one percentage point each time — to absorb excess liquidity on a more permanent basis, absorbing an estimated RM4.8 billion from the banking system.

The controls—introduced after the sudden collapse of the Malaysian stock market in early 1994—were withdrawn after about six months. The central bank saw the problem as one of excess liquidity due to the massive inflow of short-term funds from abroad due to higher interest rates in Malaysia, the buoyant stock market and expectations of ringgit appreciation.

*Capital management in September 1998.* The policy package is generally recognized as comprehensive and well designed to limit foreign exchange outflows and ringgit speculation by non-residents as well as residents, while not adversely affecting foreign direct investors. The offshore ringgit market had facilitated exchange rate turbulence in 1997-98. Thus, the measures were designed to eliminate this source of disturbance.

The measures introduced on 1 September 1998 were designed to achieve the following objectives [Rajaraman, 2001; BNM; Mahathir; Jomo 2001]:

- *eliminate the offshore ringgit market*, by prohibiting the transfer of funds into the country from externally held ringgit accounts except for investment in Malaysia (excluding credit to residents), or for purchase of goods in Malaysia. The offshore ringgit market could only function with externally held ringgit accounts in correspondent banks in Malaysia because offshore banks required freely usable access to onshore ringgit bank accounts to match their ringgit liabilities, which the new ruling prohibited. Holders of offshore deposits were given the month of September 1998 to repatriate their deposits to Malaysia. This eliminated the major source of ringgit for speculative buying of US dollars in anticipation of a ringgit crash. Large-denomination ringgit notes were later demonetized to make the circulation of the ringgit currency outside Malaysia more difficult.
- *eliminate access by non-residents to domestic ringgit sources* by prohibiting ringgit credit facilities to them. All trade transactions now had to be settled in foreign currencies, and only authorized depository institutions were allowed to handle transactions in ringgit financial assets.
- *shut down the offshore market in Malaysian shares* conducted through the Central Limit Order Book (CLOB) in Singapore.
- *obstruct speculative outward capital flows* by requiring prior approval for Malaysian residents to invest abroad in any form, and limiting exports of foreign currency by residents for other than valid current account purposes.
- *protect the ringgit's value and raise foreign exchange reserves* by requiring repatriation of export proceeds within six months from the time of export.
- *further insulate monetary policy from the foreign exchange market* by imposing a 12-month ban on the outflow of external portfolio capital (only on the principal; interest and dividend payments could be freely repatriated).

The September 1998 measures imposed a 12-month waiting period for repatriation of investment proceeds from the liquidation of external portfolio investments. To pre-empt a large-scale outflow at the end of the 12 month period in September 1999 and to try to attract new portfolio investments from abroad, a system of graduated exit levies was

introduced from 15 February 1999, with different rules for capital already in the country and for capital brought in after that date. For capital already in the country, there was an exit tax inversely proportional to the duration of stay within the earlier stipulated period of 12 months. Capital that had entered the country before 15 February 1998 was free to leave without paying any exit tax. For new capital yet to come in, the levy would only be imposed on profits, defined to exclude dividends and interest, also graduated by length of stay. In effect, profits were being defined by the new rules as realized capital gains.

Credit facilities for share as well as property purchases were actually increased as part of the package. The government has even encouraged its employees to take second mortgages for additional property purchases at its heavily discounted interest rate.

The exchange controls, still in place, limit access to ringgit for non-residents, preventing the re-emergence of an offshore ringgit market. Free movement from ringgit to dollars for residents is possible, but dollars must be held in foreign exchange accounts in Malaysia, e.g. at the officially approved foreign currency offshore banking center on Labuan.

#### Assessment

Did Malaysia's September 1998 selective capital control measures succeed? They clearly succeeded in meeting some of the government's objectives. The offshore ringgit market was eliminated by the September 1998 measures. By late 1999, international rating agencies had begun restoring Malaysia's credit rating, e.g., the Malaysian market was re-inserted on the Morgan Stanley Capital International Indices in May 2000.

But, did these controls succeed in the sense of allowing more rapid recovery of the Malaysian economy? The merits and demerits of the Malaysian government's regime of capital controls to deal with the regional currency and financial crises will continue to be debated for a long time to come. Proponents claim that the economic and stock market decline came to a stop soon after the controls were implemented [Kaplan and Rodrik, 2002; Jomo, ed. 2001; Palma, 2000; Dornbusch, 2002]. On the other hand, opponents argue that such reversals have been more pronounced in the rest of the region. Kaplan and Rodrik present strong evidence that the controls did have a significant positive effect on the ability of Malaysia to weather the 1997 crisis and reflate its economy. While this debate is likely to go on for some time, our reading of the evidence suggests that Kaplan and Rodrik are correct: controls segmented financial markets and provided breathing room for domestic monetary and financial policies; and they allowed for a speedier recovery than would have been possible via the orthodox IMF route.

#### Supporting factors

In the other cases we discuss in section IV, prior experience with capital management techniques have been important to the success of capital management in the 1990s. However, the case of Malaysia seems quite different: the country had a highly liberalized capital account prior to the 1990s. Nonetheless, the government was able to implement numerous capital management techniques, all under rather difficult circumstances. This suggests that a history of capital management is not a necessary prerequisite for policy success.

#### Costs

It is difficult to identify any significant costs associated with the short-lived 1994 controls. The most important cost of the 1998 controls was the political favoritism associated with their implementation. It is difficult, however, to estimate the economic

costs of political favoritism [Jomo, 2001; Kaplan and Rodrik, 2002; Johnson and Mitton 2002]. Moreover, these costs (if quantified) must be weighed against the significant evidence of the macroeconomic benefits of the 1998 controls.

#### Other achievements

The Malaysian experience in 1994 and 1998 enriches debate on the policy options available to developing countries. The experience of 1998, in particular, demonstrates that it is possible for outflow controls to achieve their objectives.

### **5. India<sup>27</sup>**

Following Independence from Britain, India had for many decades a highly controlled economy, with exchange and capital controls an integral part of the developmental state apparatus. Over time, and partly in response to economic crisis, India gradually liberalized and with respect to the capital account, this process of liberalization greatly accelerated in the 1990's. Most mainstream observers have suggested that the pace of liberalization is far too slow. However, supporters of gradual liberalization point to the relative success India has had in insulating itself from the excesses of the international financial markets which led to the crises of some of its neighbors in 1997.

#### Context

The Indian financial system and Indian approach to capital management are best understood in the context of its history of colonization, and the subsequent developmentalist plan that it pursued following independence in 1947. Given the history of British colonialism, policy makers were understandably guarded in terms of their openness to foreign capital. In terms of the external account, in the first few years following independence, an intricate set of controls evolved for all external transactions. Equity investments were further restricted in 1977 when many multinational companies left India, rejecting the government's effort to enforce a law that required them to dilute their equity in their Indian operations to 40 percent. Although the eighties saw the beginning of new industrial reforms, the general consensus was still that export orientation and openness could not provide a reasonable basis for growth.

Like many other developing countries, India's decision to dramatically liberalize its intricately planned economy in 1991 was necessitated by a balance of payments crisis. By March 1991, the crisis had reached severe proportions. India turned to the IMF for an emergency loan, and the resultant conditionalities led to the adoption of extensive liberalization measures.

#### Objectives

The goals of India's capital management techniques are to foster financial development (through gradual capital account liberalization) and attract foreign investment. Prudential financial regulations aim to reduce the likelihood of speculative crises driven by excessive foreign borrowing and to help authorities manage the exchange rate. To further this goal, capital management has attempted to shift the composition of

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<sup>27</sup> This section draws mainly on Rajaraman [2001] and Nayyar [2000].

capital inflows from debt to equity. In addition, capital management techniques have been oriented towards maintenance of domestic financial stability by limiting foreign equity and foreign currency deposit investments in the financial sector. In addition, the government has sought to retain domestic savings, stabilize the domestic financial sector by limiting the deposits of foreign currencies, and allocate foreign equity investment to strategic sectors, such as information technology.

#### Capital management techniques in India

India has had significant controls on both inflows and outflows. These controls have applied to a broad spectrum of assets and liabilities, applying to debt, equity and currency. These capital management techniques have involved strict regulation of financial institutions, as well as controls of external transactions. Although the Indian economy has moved towards a progressively freer capital market, this has been an extremely gradual process<sup>28</sup>. In particular, the management of integration into the world financial market has been based, until very recently, on fundamental asymmetries between residents and non-residents, and between corporates and individuals. While non-resident corporates enjoy substantial freedom to repatriate funds, until recently this has been severely limited in the case of individual non residents. Resident corporates have had to obtain approval of various sorts before exporting capital, and resident individuals are, for all practical purposes subject to very strict and low limited with respect to these. Moreover, there have been restrictions on debt accumulation as well as foreign currency deposits and loans by domestic financial institutions.

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<sup>28</sup> Rajaraman calls this the ‘ incremental dribble’ of Indian policy making.

*Controls on outflows.* As mentioned above, the liberalization process has maintained a clear distinction between residents and non-residents: it has maintained strict controls on outflows by residents, while giving significant latitude to non-residents to repatriate funds. In the most recent budget, however, this fundamental tenet of India's recent capital management techniques, has been changed, at least on an experimental basis. Restrictions on individuals and domestic corporates have been loosened to allow substantial investments abroad. Most significantly, mutual funds in India are now permitted to invest up to 1 billion dollars abroad. Moreover, individuals are now permitted to invest abroad without limit. In addition, companies can now invest in foreign companies too, but there is a quantitative restriction on the amount (less than 25% of the company's worth). If this recent liberalization is retained on a permanent basis, it will represent a fundamental change in India's capital management techniques.

*Borrowing and short-term debt accumulation and prudential regulation.* Prudential regulations having capital account implications are widespread in India. Responding to the lessons of the 1997 Asian crisis, commercial borrowing in foreign currencies has remained significantly curtailed. Commercial banks, unlike in some East Asian countries, have not been and are still not allowed to accept deposits or to extend loans which are denominated in foreign currencies. As Nayyar [2000] describes the crisis context of India's initial reform: "It prompted strict regulation of external commercial borrowing especially short-term debt. It led to a systematic effort to discourage volatile capital flows associated with repatriable non-resident deposits. Most important, perhaps, it was responsible for the change in emphasis and the shift in preference from debt creating capital flows to non-debt creating capital flows" [Nayyar, 2000].

*Foreign direct investment.* Before liberalization, FDI and equity investments were strictly controlled in virtually all sectors. By the early 2000's, however, these restrictions have been significantly lifted. The first steps in liberalization involved lifting restrictions on FDI. By 1993 when there were far reaching changes in the Foreign Exchange Regulation Act (FERA) of 1973. Some of these reforms may have been used as a tool of industrial policy, guiding FDI into certain industries, including computer hardware and software, engineering industries, services, electronics and electrical equipment, infrastructure projects, chemical and allied products, and food and dairy products. Recent changes have meant that by 2001-2002, most sectors are open to FDI. Still, important restrictions remain. In particular, FDI is severely restricted in banking, finance, real estate and infrastructure.

*Portfolio investment.* The attitude towards portfolio investment liberalization has been equally gradual. India's first attempt to capture part of the growing funds being channeled into emerging markets came during the second half of the 1980s, as India opened five closed-end mutuals for sale on offshore markets. They also reformed the structure of equity regulations on the Stock Exchanges. By the late 90's, the limits on foreign institutional investor ownership of share capital had been lifted almost up to the level of majority stakes.

#### Assessment

India has had some successes and a few question marks in this decade of capital account management. On the credit side, India has had consistent net inflows (a legacy of its discrimination between residents and non residents) and has not had any major financial meltdowns in a decade that saw three serious crises around the world (and one

literally next door). Some of this has certainly been due to the prudential discrimination between various types of flows.

Another major element on the credit side has been India's success in increasing the share of non-debt creating inflows. There has been a particularly impressive reduction in short-term loans. However, India has had only limited success in attracting foreign direct investment instead of portfolio investment. In fact, the decade has seen a marginally greater percentage of foreign inflows being accounted for by FPI than by FDI (52% to 48%)

India's exchange rate policy seems to have worked. Although there has been a steady decline in the external value of the rupee, there have been relatively few periods of volatility, and the only really difficult period (in 1997) saw the external value fall by 16%.

#### Supporting factors

Among the contributing factors to the success of India's partial liberalization process and continuing use of capital management techniques, three are most important. First is the widespread institutional experience of the Indian authorities in managing controls, including long-standing experience with regulating Indian financial institutions. Second, the controls themselves were well-designed, clearly demarcating the distinction between resident and non-resident transactions. Finally, liberalization of FDI and the very success of the controls themselves contributed to the ability of India to accumulate foreign exchange reserves and limit the accumulation of foreign debt, both of which reduced the vulnerability of the Indian economy.

#### Costs

In India's case, this is a complex question because the Indian economy has been undergoing a dramatic liberalization process, which is only ten years old. It is hard to disentangle the costs of the controls from the costs of previous controls, or indeed, from the costs of the liberalization process itself and other factors, both internal and external. For example, many observers still point to the relatively underdeveloped financial markets in India compared to other semi-industrialized economies. But these are certainly due to many factors, including previous controls, and cannot be necessarily attributed to the current controls, which fall mostly on residents, and, in any case, have been in place for a relatively short time. In short, assessing the costs of the current system will undoubtedly have to wait for more information.

#### Other achievements

As suggested above, India's capital management techniques clearly helped to insulate India's economy from the ravages of the 1997 Asian financial crisis [Rajamarn, 2001]. By limiting capital flight by residents, they have also helped to retain domestic savings that are critical for domestic investment.

## 6. China<sup>29</sup>

Among the cases we study in this paper, the People's Republic of China (PRC) has, the most comprehensive foreign exchange and capital controls, by far. At the same time, China's record of economic growth and development in the last several decades, as well as its ability to attract high levels of foreign direct investment has been greatly admired by many countries both in the developed and developing world. Finally, like its neighbor India, China was able to avoid highly significant negative repercussions from the Asian financial crisis of the late 1990's. The relatively strict capital controls along side enviable economic growth and the ability to attract large quantities of foreign capital starkly calls into question the common view among economists that capital controls necessarily hinder economic growth and deter capital inflows. Indeed, China's policies suggest that, under the right conditions, strong capital management techniques might be useful in protecting macroeconomic stability and enhancing economic growth and development.

### Context

As is well known, the People's Republic of China has achieved an admirable record of success in terms of economic growth and development in the last decade or more, averaging an annual growth rate of GDP of 8 percent or more, depending on one's view of the accuracy of the PRC's government statistics. This record has been associated with a high savings rates, 40% of GDP or more, a long record of current account surpluses, a large inflow of foreign direct investment (even discounting for the fact that half or more of it may really be 'domestic investment' which is 'round-tripped' through Hong Kong or elsewhere in order to take advantage of preferential treatment afforded to foreign investors), a huge stock of foreign exchange reserves, and, even in light of a substantial foreign debt, a likely net creditor status [see for example, Icard, 2002]. After a short period of high inflation and interest rates in the mid-1990's, China has experienced low domestic interest rates and, more recently, deflation.<sup>30</sup> In terms of exchange rate management, China has maintained a fairly consistent U.S. dollar peg. Whether this is a "hard" or "soft" peg is a matter of some controversy.

### Objectives

Capital management techniques in China are an integral part of China's development strategy, implemented by its "developmental state." The objectives of the controls evolved over time, but generally have included the following: to retain savings; to help channel savings to desired uses; to help insulate China's pegged exchange rate in order to maintain China's export competitiveness; to reduce the circumvention of other controls such as tariffs; to protect domestic sectors from foreign investment; to strengthen China's macroeconomic policy autonomy; and to insulate the economy from foreign financial crises.

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<sup>29</sup> This section is based on Icard [2002], Haihong [2000], Fernald and Babson [1999], Jingu [2002], Lardy [1998], Naughton [1996].

<sup>30</sup> Of course, the Chinese economy and society also face significant problems and challenges, including high unemployment and underemployment, significant environmental destruction, and the perceptions, if not reality, of wide-spread government corruption.

### Capital management techniques in China

China has followed a fascinating pattern of economic liberalization since the early 1980's, one that does not conform to any simplistic view of sequencing commonly found in the economics literature. The typical, currently prescribed liberalization sequence starts with liberalizing the trade account, then relaxing foreign exchange restrictions, then the long term capital account, then the short term capital account [eg. Johnston, 1998]. Instead, China has liberalized quite selectively within each of these categories, often on an experimental basis, and sometimes moving a step or two backwards before moving once again forward. This complex pattern of experimentation and liberalization thus defies easy description, and makes over-simplification in a short summary such as this almost inevitable.

When China, under the leadership of Deng Xiao Ping embarked on its experimentation with liberalization and integration into the world economy, it had comprehensive controls over foreign exchange, current account and capital account transactions. In its experimentation with Special Economic Zones it began to allow foreign investment in foreign minority owned joint-ventures, and liberalized to some extent controls over necessary imports for these "foreign invested enterprises". (See Braunstein and Epstein, 2001, for a brief summary and references).

Many of these restrictions were loosened over time and a major change in capital management techniques occurred in 1996 with China's acceptance of IMF Article VIII and the consequent liberalization of foreign exchange controls with respect to current account transactions. Moreover, since that time, controls over inflows and outflows by non-residents have been significantly loosened. Still, strict foreign exchange controls have been retained; in addition controls over foreign ownership of domestic assets have been retained to allow industrial policy tools with respect to foreign investment to be effective. In addition, strict controls over outflows and inflows of capital by domestic residents have been retained. Still, significant exceptions have been made, partly by choice and partly by necessity, to allow a somewhat porous capital account, and thereby facilitating some capital outflows (capital flight) and round tripping of foreign direct investment.

China's current capital management techniques have the following characteristics [Icard, 2002; IMF, 2000; Haihong, 2000]<sup>31</sup>: strict exchange controls on the capital account but few restrictions on the current account; some liberalized sectors for equity inflows and outflows by non-residents accompanied by some sectors of quite strict controls on non-resident equity inflows, eg. banking, insurance and the stock market; strict controls on foreign borrowing by residents, including on currency denomination and maturity structure of debt inflows; strict but porous controls on inflows and outflows by residents; tight regulations over domestic interest rates.

### Assessment

The system of capital and exchange controls has been an integral part of China's development strategy of the last twenty years. The Chinese government could not have pursued its policy of incremental liberalization based on exports, extensive infrastructure spending, and labor-intensive FDI, expansionary monetary and fiscal policy and competitiveness oriented exchange rate policy without its system of exchange and capital

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<sup>31</sup> This list is a very short summary of a very long and complex set of controls. See the references cited above for much more detail.

controls. Given that China's growth record in the past twenty years is the envy of much of the world, and the important role played by the capital management techniques, one must deem them a success in terms of reaching the Chinese government's objectives.

Most recent commentary has focused on the role that the controls may have played in insulating the Chinese economy from speculative excesses. More specifically, this system of controls is widely credited with helping China avoid the boom- bust cycle associated with the Asian financial crisis [eg. Fernald and Babson, 1999; Eichengreen, 2002; Haihong, 2000]. Controls on foreign debt accumulation prevented the excessive accumulation of unsustainable amounts and maturities of foreign debt by resident institutions; controls on equity inflows prevented a speculative bubble in the stock market from spilling over into over sectors of the economy, and limited, to some extent, the fall out from bubbles in real estate and other assets; controls on outflows prevented devastating surges of capital flight; exchange controls and the control over derivative and futures markets limited the desirability and feasibility of domestic and foreign residents speculating on the renminbi.

At the same time, we note the paradox of tight controls with large amounts of "capital flight" and "round-tripped" investment. The Chinese authorities have clearly tolerated a degree of flexibility in the controls. Some of this is undoubtedly related to possible corruption and unwanted evasion. But some of it reflects a "safety valve", allowing some evasion at the margins in order to protect the average effectiveness of the controls; and some of the "evasion" is allowed in order to allow other objectives. This ebb and flow of capital flight thus to some extent reflects, the "dynamic" nature of the controls, with the Chinese authorities tightening enforcement during periods of perceived need, including during crisis periods and then loosening them when the crisis subsides.

#### Supporting factors

The most important factors supporting the success of capital management techniques in China are: the government's extensive experience with implementing economic controls; the comprehensive nature of the controls; the success in building foreign exchange reserves through exports and FDI; and the flexibility of policy.

#### Costs

Capital management in China is not without cost. China's financial system does not have the breadth and depth of financial systems in more advanced economies, such as the USA. Capital management, while facilitating China's industrial policies, has also facilitated the accumulation of bad debts at China's state banks [Lardy, 2000]. Capital management (as with other aspects of China's state-guided policies) has facilitated credit allocation and industrial policies. But it has also created opportunities for corruption by government officials. These costs are likely to have been outweighed by the significant contributions that capital management has played in China's highly successful economic development over the past several decades.

#### Other achievements

Even though there has been significant capital flight from China, most observers have suggested that capital flight would have been significantly greater in the absence of the capital management techniques employed. Further, capital management policies have allowed the Chinese government to follow an expansionary monetary policy to try to counter the strong deflationary forces pressures facing the Chinese economy. Finally, China is the largest recipient of FDI among developing countries. While some argue that

capital management discourages FDI inflows [Wei, 2000], the econometric evidence on this point lacks robustness. Moreover, interviews on this subject do not suggest that capital management has been an obstacle to FDI. Indeed, sound capital management appears to encourage FDI inflows [Rosen, 1999].

## **V. LESSONS AND OPPORTUNITIES FOR CAPITAL MANAGEMENT IN DEVELOPING COUNTRIES**

### **A. Lessons**

What lessons can we learn from these case studies about capital management techniques and their possible use to developing countries that are trying to navigate the often-treacherous waters of the world economy? To clear the field for the *positive* lessons that we draw from our cases, we first consider six commonly held mistaken claims about capital management techniques.

One common view of capital management is that it can only work in the "short run"

but not the "long-run." However, with the exception of Malaysia all of our cases show that management can achieve important objectives over a significant number of years.

Taking China and Singapore as two cases at different ends of the spectrum in terms of types of controls, we have seen that both countries effectively employed capital management techniques for more than a decade in the service of important policy objectives.

A second common view is that for capital management to work for a long period of time, measures have to be consistently strengthened. In fact, the reality is much more complex than this. As the cases of Malaysia, Chile and China show, at times of stress, it may be necessary to strengthen controls to address leakages that are exploited by the private sector. However, as these same cases demonstrate, controls can be loosened when a crisis subsides or when the international environment changes, and then reinstated or strengthened as necessary. More generally, looking at a broad cross-section of country experiences, one finds that the use of dynamic capital management means that management evolves endogenously according to the situation and the evolution of government goals [Cardoso and Goldfajn, 1999].

We see that in the case of Chile, for example, capital management techniques were adjusted several times (and ultimately abandoned) during the 1990's in response to changes in the economic environment. Chilean policymakers sought and won the right to reinstate these controls during its bilateral trade negotiations with the USA. In Malaysia, capital management was strengthened to address evasion during the Asian financial crisis, and then were eventually loosened. In Singapore, the government strengthens enforcement and moral suasion during times of stress, and then steps away from this strategy when the situation changes. In China, the enforcement of capital management is loosened or tightened depending on exchange rate pressures or reserve levels. In short, dynamic capital management techniques have been successfully utilized in a range of countries.

A third common, but misleading view, is that for capital management to work, there must be an experienced bureaucracy in place. It is certainly true that having experience helps. China, India, Singapore are all examples of countries that have long-term experience with government direction of the economy. Malaysia, however, is an important counter-example: it was a country that was able to successfully implement capital management even without having had a great deal of experience in doing so. In the case of Chile, to take another example, the central bank had had no obvious previous experience implementing the reserve requirement scheme, though it had had some negative experiences in trying to implement capital controls in the 1970's. In short, having experience is no doubt helpful, but it does not seem to be a pre-requisite for implementing successful capital management techniques. What is more important is *state capacity* and *administrative capacity* as discussed in sections III and IV.

Fourth, a recent view that has gained currency is that controls on capital inflows work, but those on outflows do not. However, in our sample we have seen examples of policy success in both dimensions. For example, Chile and Colombia maintained controls on inflows, while China, India and Malaysia maintained controls on outflows. In addition, Singapore and Taiwan POC maintain controls on the ability of residents and non-residents to use domestic currency offshore for purposes of "speculating" against the home currency. This is a control on outflows that has successfully insulated these countries from crises and has helped governments to manage their exchange rates.

Fifth, a common view is that capital management techniques impose significant costs by leading to higher costs of capital, especially for small firms. As we have seen, in

some cases there may be some merit to these arguments. But much more evidence needs to be presented before this is established as a widespread cost.<sup>32</sup>

We turn, now, to the positive lessons that we draw from our case studies of capital management techniques. Tables 1 and 2 summarize our findings.

First and most generally, we find that capital management techniques can contribute to currency and financial stability, macro and micro-economic policy autonomy, stable long-term investment and sound current account performance. There are some costs associated with capital management techniques: for instance, there is evidence that in some countries the cost of capital to small firms is increased; and capital management can create space for corruption.

Second, successful implementation of controls over a significant period of time depends on the presence of a sound policy environment and strong fundamentals. These include a relatively low debt ratio, moderate rates of inflation, sustainable current account and fiscal balances, consistent exchange rate policies, a public sector that functions well enough to be able to implement coherent policies (i.e., *administrative capacity*), and governments that are sufficiently independent of narrow political interests so that they can maintain some degree of control over the financial sector (i.e., *state capacity*).

But, third, as our cases show, causation works both ways: from good fundamentals to successful capital management techniques, and from successful capital management techniques to good fundamentals. Good fundamentals are important to the long-run success of capital management techniques because they reduce the stress on these controls, and thereby enhance their chance of success. On the other hand, these techniques also improve fundamentals. Thus, there is a synergy between capital management techniques and fundamentals.

Fourth, the dynamic aspects of capital management techniques are, perhaps, their most important feature. Policymakers need to retain the ability to implement a variety of management techniques and alter them as circumstances warrant. Nimble and flexible capital management is very desirable. Chile and Taiwan POC's experience with these techniques is a good example of this type of flexibility. Countries with successful experiences with controls must maintain the option to continue using them as circumstances warrant.

Fifth, capital management techniques work best when they are coherent and consistent with the overall aims of the economic policy regime, or better yet, when they are an integral part of a national economic vision. To be clear, this vision does not have

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<sup>32</sup> In any case, this observation is just the beginning of the analysis since it says nothing about the balance of costs and benefits. As economists are fond of pointing out, there are always trade-offs. Our cases demonstrate that capital management techniques can have important macroeconomic or prudential benefits. Of course, these benefits must be weighed against the micro costs. But as James Tobin was fond of remarking, "It takes a lot of Harberger Triangles to fill an Okun Gap".

to be one of widespread state control over economic activity. Singapore is a good example of an economy that is highly liberalized in some ways, but one where capital management techniques are an integral part of an overall vision of economic policy and development.<sup>33</sup>

Sixth, prudential regulations are often an important complement to capital controls, traditionally defined, and vice versa. In Singapore, for example, government moral suasion aimed at discouraging banks from lending to firms or individuals intending to speculate against the currency is an example of an effective prudential regulation. In Chile, taxes on short-term inflows that prevent maturity mismatches is an example of a capital control that also serves as a prudential regulation. Our case studies present many such examples.

Seventh, there is not one type of capital management technique that works best for all countries: in other words, there is no one "best practice" when it comes to capital management techniques. We have found a variety of strategies that work in countries with very different levels of state and administrative capacities, with financial systems that differ according to their depth and degree of liberalization, with different mixes of dynamic and static controls, and different combinations of prudential financial regulations and capital controls.

Many countries that have had extensive controls in the past are now liberalizing them. Do our case studies offer any insight as to whether countries that employ extensive capital management techniques should begin to abandon them? Our research suggests, that in many cases, it is not in the interests of developing countries to seek full capital account liberalization. The lesson of dynamic capital management is that countries need to have the flexibility to both *tighten* and *loosen* controls.

However, if countries completely liberalize their capital accounts, they might find it very difficult to re-establish any degree of control when the situation warrants or even demands it. This is because market actors might see the attempt to re-establish capital management as *abandonment* of a liberalized capital account, and then might react rather radically to this perceived change. By contrast, if investors understand that a country is maintaining a system of dynamic capital management they will expect management to tighten and loosen over time. It is therefore less likely that investors will over-react if management techniques are tightened.

In sum, we have shown that the capital management techniques employed in seven developing countries during the 1990's have achieved many important objectives. The

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<sup>33</sup> See Nembhard, 1992, for an excellent discussion of these issues.

achievements of these capital management techniques therefore warrant close examination by policymakers in developing countries

## **B. Opportunities**

Clearly, there are many obstacles confronting efforts to pursue the most stringent forms of capital management in developing countries. However, we submit that at present there are many reasons for *cautious optimism* regarding the ability of developing countries to pursue various capital management techniques.

1.) All capital management techniques are not equally controversial or potentially costly to countries that pursue them. Our cases show that rather stringent regimes of capital management are often consistent with economies that are largely liberalized. Moreover, we are unable to find convincing evidence that investors have penalized countries with attractive investment opportunities *and* well-designed regimes of capital management.

2.) There is growing recognition of the achievements of certain capital management techniques [Eichengreen, 1999; Kaplan and Rodrik, 2001; Krugman, 1999; Ocampo, 2002; Rodrik, 1999;] and of the costs of premature capital account liberalization [Bhagwati, 1998; Edwards, 2001; Eichengreen, 1999, 2002; Krugman, 1999; Rodrik, 1998, 2002].

3.) The recent deliberations during the US' bilateral trade negotiations with Chile and Singapore revealed interesting fractures within the US Treasury and the US business community over the right of developing countries to impose capital controls as they are deemed necessary. In the reporting on these negotiations it appeared that prominent members of the US manufacturing and export community and various Treasury department officials were not in support of the hard-line stance against capital controls initially held by the US negotiating team [see WSJ, 12/9/02:A4; NYT, 12/12/02:C1]. The shape of the final agreements signed with Chile and Singapore suggest that those favoring at least a degree of national autonomy on the matter of capital controls have more influence than was initially apparent [see NYT,

1/9/03:C3; 1/17/03, p. C19]. The commitment of the negotiators from Chile and Singapore to maintain their right to impose controls is a stance that other countries may wish to build upon.

4.) There is a clear softening in the stance on capital controls (and acknowledgement of their achievements in some countries) in the US business press since the Asian crisis [WSJ, 10/24/02]. The IMF, too, appears to be softening its stance toward capital controls [e.g., Prasad, Rogoff, Wei, and Kose, 2003]. Reports by some staff economists and statements by key decision makers at the institution have acknowledged that capital management techniques explain the resilience of some countries during the Asian crisis [Ariyoshi et al., 2000; Fischer, 2002; WSJ, 10/24/02].<sup>34</sup> It may also be the case that there is increased tolerance for administrative controls over capital movements in the post-September 11<sup>th</sup> environment. In this context, security concerns and new regulations aimed at reducing money laundering may make capital controls far easier to enforce and far easier to defend.

Recent events suggest that this may be a propitious time for policymakers in developing countries to build on the successful experiences with capital management in some countries, and to avail themselves of their Article 6 right to pursue them. It is important to recognize that the greater the number of developing countries that pursue capital management, the easier and less costly it will be for others to follow this path. In this connection, it might also be a fruitful time for those countries that have had success with particular techniques to play a larger role in financial policy discussions in the developing world. In this connection, we believe that the G-24 can play an important role in providing a forum for such discussions.

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<sup>34</sup> For instance, Stanley Fischer [2002] writes: “The IMF has cautiously supported the use of market-based capital inflow controls, Chilean style. These could be helpful for a country seeking to avoid the difficulties posed for domestic policy by capital inflows.” Eduardo Aninat, Deputy Managing Director of the IMF, recently stated that: “In certain scenarios and in some circumstances, these controls on capital inflows can play a role in reducing vulnerability created by short-term flows...The investment restrictions appear to have served Chile well...” [WSJ, 10/24/02]

**Table 1**

**Summary: Types and Objectives of Capital Management Techniques Employed During the 1990's\***

Country	Types of Capital Management Techniques	Objectives of Capital Management Techniques
Chile	<p><b>Inflows</b>            FDI and PI: One year Residence Requirement            30% URR            Tax on foreign loans: 1.2% per year  <b>Outflows:</b> No significant restrictions  <b>Domestic financial Regulations:</b>            strong regulatory measures</p>	<p>-Lengthen maturity structures and stabilize inflows             -help manage exchange rates to maintain export competitiveness             -protect economy from financial instability</p>
Colombia	<b>Similar to Chile</b>	<b>Similar to Chile</b>
Taiwan POC	<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  <i>residents</i>            regulation of foreign borrowing  <b>Outflows</b>            Exchange controls  <b>Domestic Financial Regulations</b>            -restrictions on lending for real estate and other speculative purposes</p>	<p>-Promote industrialization             -Help manage exchange for export competitiveness             -Maintain financial stability and insulate from foreign financial crises</p>
Singapore	<p><b>"Non-Internationalization" of Singapore \$ inflows</b>   <b>outflows</b>  <i>non-residents</i>            -financial institutions can't extend S\$ credit to non-residents if they are likely to use for speculation             -non-residents: if they borrow for use abroad, must swap first into foreign currency   <b>Domestic Financial Regulations</b>            -restrictions on creation of swaps, and other derivatives that could be used for speculation against S\$</p>	<p>-to prevent speculation against Singapore \$             -to support "soft peg" of S\$             -to help maintain export competitiveness             -to help insulate Singapore from foreign financial crises</p>
Malaysia (1998)	<p><b>Inflows</b>            -restrictions on foreign borrowing</p>	<p>-to maintain political and economic sovereignty</p>

	<p><b>Outflows</b>  non-residents  -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 ringgit  <i>residents</i>  encourage to borrow domestically and invest</p>	<ul style="list-style-type: none"> <li>- kill the offshore ringgit market</li> <li>-shut down offshore share market</li> <li>-to help reflate the economy</li> <li>-to help create financial stability and insulate the economy from contagion</li> </ul>
India	<p><b>Inflows</b>  <i>non-residents</i>  Strict Regulation of FDI and PI</p> <p><b>Outflows</b>  <i>non-residents</i>  -none</p> <p><i>residents</i>  exchange controls</p> <p><b>Domestic Financial Regulations</b>  -strict limitations on development of domestic financial markets</p>	<ul style="list-style-type: none"> <li>-support industrial policy</li> <li>-pursue capital account liberalization in an incremental and controlled fashion</li> <li>-insulate domestic economy from financial contagion</li> <li>-preserve domestic savings and forex reserves</li> <li>-help stabilize exchange rate</li> </ul>
China	<p><b>Inflows</b>  <i>non-residents</i>  -strict regulation on sectoral FDI investment  -regulation of equity investments: segmented stock market</p> <p><b>Outflows</b>  <i>non-residents</i>  -no restrictions on repatriation of funds  -strict limitations on borrowing Chinese Renminbi for speculative purposes</p> <p><i>residents</i>  exchange controls</p> <p><b>Domestic Financial Regulations</b>  -strict limitations on <i>residents</i> and <i>non-residents</i></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>

\*Sources: See Section IV.

**Table 2**

**Summary: Assessment of the Capital Management Techniques Employed During the 1990s\***

Country	Achievements	Supporting Factors	Costs
Chile	-altered composition and maturity of inflows -currency stability -reduced vulnerability to contagion	-well-designed policies and sound fundamentals -neoliberal economic policy in many domains -offered foreign investors good returns -state and administrative capacity -dynamic capital management	-limited evidence of higher capital costs for SMEs
Colombia	-similar to Chile, but less successful in several respects	-less state and administrative capacity than in Chile meant that blunter policies were employed -economic reforms in the direction of neoliberalism	No evidence available
Taiwan POC	-debt burdens and financial fragility are insignificant -competitive exchange rate and stable currency -insulated from financial crises -enhanced economic sovereignty	-high levels of state and administrative capacity --policy independence of the CBC -dynamic capital management	-limited evidence of concentration of lending to large firms, conservatism of banks, inadequate auditing and risk and project assessment capabilities -large informal financial sector -limited evidence of inadequate liquidity in financial system
Singapore	-insulated from disruptive speculation -protection of soft peg -financial stability	-strong state capacity and ability to use moral suasion -strong economic fundamentals	-possibly undermined financial sector development -loss of seignorage
Malaysia 1998	-facilitated macroeconomic reflation	-public support for policies	-possibly contributed to

	-helped to maintain domestic economic sovereignty	-strong state and administrative capacity -dynamic capital management	cronyism and corruption
India	-facilitated incremental liberalization -insulated from financial contagion - helped preserve domestic saving -helped maintain economic sovereignty	-strong state and administrative capacity -strong public support for policies -experience with state governance of the economy -success of broader economic policy regime -gradual economic liberalization	-possibly hindered development of financial sector  -possibly facilitated corruption
China	-facilitated industrial policy -insulated economy from financial contagion -helped preserve savings -helped manage exchange rate and facilitate export-led growth -helped maintain expansionary macro-policy -helped maintain economic sovereignty	-strong state and administrative capacity -strong economic fundamentals -experience with state governance of the economy -gradual economic liberalization -dynamic capital management	-possibly constrained the development of the financial sector -possibly encouraged non-performing loans -possibly facilitated corruption

\*Sources: See Section IV.

## References

Akyuz, Yilmaz, 2000. "The Debate on the International Financial Architecture: Reforming the Reformers". UNCTAD.

Angosin, Manuel and Ricardo Ffrench-Davis, 1996. "Managing Capital Inflows in Latin America", in Mahbub ul Haq, et. al. *The Tobin Tax*. New York: Oxford University Press 1996.

Angosin, Manuel R., 1998. "Capital Inflows and Investment Performance: in the 1990's" in Ffrench Davis, et. al., "Capital Flows and Investment Performance: Lessons From Latin America in the 1990's". America. Santiago: ECLAC.

Ariyoshi, Akira, Karl Habermeier, Bernard Laurens, Inci Otter-Robe, Jorge Ivan Canales-Kriljenko, and Andrei Kirilenko, 2000. "Capital Controls: Country Experiences with their Use and Liberalization," *IMF Occasional Paper* no. 190.

Arteta, Carlos, Barry Eichengreen and Charles Wyplosz, 2001. "Do the Effects of Capital Account Liberalization Depend on the Stage of Financial and Institutional Development?" unpublished manuscript, University of California, Berkeley, and Graduate Institute of International Studies, Geneva.

Bank Negara Malaysia. various years. *Annual Reports*. Kuala Lumpur: Bank Negara Malaysia.

Bhagwati, J., 1998. "The Capital Myth: The Difference Between Trade in Widgets and Dollars," *Foreign Affairs*. vol. 77, n. 3, pp. 7-12.

Braunstein, Elissa and Gerald Epstein, 2001. "Bargaining Power and FDI In China: Can 1.3 Billion Consumers Tame the Multinationals?" Political Economy Research Institute (PERI) Working Paper, no. 45. [www.umass.edu/peri](http://www.umass.edu/peri)

Cardosa, Eliana and Ilan Goldfajn, 1997. "Capital Flows To Brazil: The Endogeneity of Capital Controls", IMF Working Paper, WP/97/115.

Carlson, Mark and Leonardo Hernandez, 2002. Determinants and Repercussions of the Composition of Capital Inflows. IMF Working Paper. WP/02/86.

Chang, Ha-Joon and Ilene Grabel, forthcoming. *Reclaiming Development* (provisional title), London: Zed Press.

Chin, Kok Fay and Nordhaug, Kristen, 2002. "Why are there differences in the resilience of Malaysia and Taiwan to financial crisis?" *European Journal of Development Research*, 14(1), pp. 77-100.

Crotty, James and Gerald Epstein, 1996. "In Defense of Capital Controls". *Socialist Register*.

De Gregorio Jose, Sebastian Edwards and Rodrigo Valdes, 2000. "Controls On Capital Inflows: Do they Work?", NBER Working Paper, No. 7645.

De Gregorio and Rodrigo O. Valdes, 2000. "Crisis Transmission: Evidence from the Debt, Tequila and Asian Flu Crises". *World Bank Economic Review*, 15(2), 2001, pp. 289-314.

Dooley, Michael P., 1996. "A Survey of the Academic Literature on Controls over International Capital Transactions," *IMF Staff Papers* 43, pp.639-687.

Dornbusch, R. 2002. "Malaysia's Crisis: Was it Different?", in Sebastian Edwards and Jeffrey A. Frankel, eds. *Preventing Currency Crises in Emerging Markets*, Chicago: The University of Chicago Press, pp. 441-460.

- Economist Intelligence Unit (EIU), 2002. Country report: Taiwan, <http://biz.yahoo.com/afc/tw/forex.html>
- Edwards, S., 1999. "How effective are capital controls?" *Journal of Economic Perspectives*, vol. 13, no. 4.
- Edwards, S., 2001. "Capital mobility and economic performance: Are emerging economies different?" NBER Working Paper, No.8076.
- Eichengreen, Barry. 1999. *Toward a New International Financial Architecture*, Washington, DC, Institute for International Economics.
- Eichengreen, Barry, 2002a. *Financial Crises and What to Do About them?* New York: Oxford University Press.
- Eichengreen, B, 2002b. 'Capital Account Liberalization: What Do Cross-Country Studies Tell Us?', *World Bank Economic Review*, vol. 15, no. 3, 341-65.
- Eichengreen, Barry and David Leblang, 2002c. "Capital Account Liberalization and Growth: Was Mr. Mahathir Right?", NBER Paper, no. 9427.
- Epstein, Gerald and Juliet Schor, 1992. "Structural Determinants and Economic Effects of Capital Controls in OECD Countries," in Tariq Banuri and Juliet Schor (eds), *Financial Openness and National Autonomy*, Oxford: Clarendon Press, pp. 136-162.
- Epstein, Gerald, Ilene Grabel and Jomo, K.S. 2003 (forthcoming). "Capital Management Techniques for Developing Countries in the 1990's: Seven Success Stories and Lessons for the Future", [www.umass.edu/peri/](http://www.umass.edu/peri/) or [www.networkideas.org](http://www.networkideas.org) .
- Errico, Luca and Alberto Musalem. 1999. "Offshore Banking: An Analysis of Micro – and Macro – Prudential Issues", IMF Working Paper, WP/99/5.
- Felix, David, 2001. "Why International Capital Mobility Should Be Curbed, and How it Could be Done." Political Economy Research Institute (PERI). [www.umass.edu/peri/](http://www.umass.edu/peri/)
- Fernald, John G and Babson, Oliver D., 1999. Why Has China Survived the Asian Crisis So Well? What Risks Remain? International Finance Discussion Papers . Board of Government of the Federal Reserve System.
- Ffrench-Davis, R. and Reisen, H. (eds) 1998. *Capital Flows and Investment Performance*, Paris, UN/ECLAC Development Centre of the OECD.
- Fischer, S, 1998. "Capital Account Liberalization and the Role of the IMF", in 'Should the IMF Pursue Capital-Account Convertibility', *Princeton Essays in International Finance*, No. 207, 1-10.
- Fischer, S., 2002."Financial Crises and Reform of the International Financial System". NBER Working Paper, No. 9297.
- Forbes, Kristin, 2002. One cost of the Chilean capital controls: Increased financial constraints for small firms, MIT-Sloan School of Management and NBER, unpublished paper, November.
- Grabel, Ilene, 1999. "Rejecting exceptionalism: Reinterpreting the Asian Financial Crises", in J Michie and J G Smith, 1999, eds, *Global Instability: The Political Economy of World Economic Governance*, London, Routledge, 37-67.
- Grabel, Ilene, 2003a. "Averting crisis: Assessing measures to manage financial integration in emerging economies". *Cambridge Journal of Economics*, vol. 27, forthcoming.

Grabel, Ilene, 2003b. "International private capital flows and developing countries", Papers from the Cambridge Advanced Programme on Rethinking Development Economics, Ha-Joon Chang editor, London: Anthem Press.

Gregorio, Edwards and Valdes, 2000. "Controls on Capital Inflows: Do They Work?" NBER Working Paper, No. 7645.

Grilli, Vittorio and Milesi-Ferretti, Gian Maria, 1995. "Economic Effects and Structural Determinants of Capital Controls," *IMF Staff Papers* 42, pp. 517-551.

Haihong, Gao. 2000. "Liberalising China's Capital Account: Lessons Drawn from Thailand's Experience". Institute of Southeast Asian Studies. Visiting Researchers Series, No. 6.

Icard, Andre, 2002. "China's Capital Account Liberalization in Perspective". Paper presented to BIS/SAFE Seminar on *Capital Account Liberalization in China: International Perspectives*, Beijing China, 12-13 September.

Institute for International Economics (IIE), 1998. Financial services liberalization in the WTO: Taiwan, Washington, DC, [www.iie.com/CATALOG/CaseStudies/DOBSON/dobtaiwa.htm](http://www.iie.com/CATALOG/CaseStudies/DOBSON/dobtaiwa.htm)

International Monetary Fund, 1999. "Singapore: Selected Issues". IMF Country Report No. 99/35.

International Monetary Fund, 2000. *Annual Report on Exchange Arrangements and Exchange Restrictions*. Washington, D.C:

International Monetary Fund, 2001. "Singapore: Selected Issues, October, IMF Country Report No. 01/177.

Ishi, Shogo, Inci Otker-Robe, and Li Cui, 2001. "Measures to Limit the Offshore Use of Currencies: Pros and Cons". IMF Working Paper, WP/01/43.

Jianping, Ding, 2001. "Liberalization of Capital Account With China's Characteristics". mimeo.

Jingu, Takeshi, 2002. "Moving Forward in Reforming China's Capital Market". Nomura Research Institute, NRI Papers, No. 40.

Johnson, Simon and Todd Mitton, 2003. "Cronyism and Capital Controls: Evidence from Malaysia", *Journal of Financial Economics*. 67, pp. 351-382.

Johnston, R. Barry, with Mark Swinburne, Alexander Kyei, Bernard Laurens, David Mitchem, Inci Otker, Susana Sosa and Natalia Tamerisa, 1999. *Exchange Rate Arrangements and Currency Convertibility: Developments and Issues*, Washington, D.C.: International Monetary Fund.

Jomo, K.S. ed., 2001. *Malaysian Eclipse*. Zed Press.

Kaplan, E and Rodrik, D, 2002. "Did the Malaysian Capital Controls Work?", in Sebastian Edwards and Jeffrey A. Frankel, eds. *Preventing Currency Crises in Emerging Markets*, Chicago: The University of Chicago Press, pp. 393-441.

Krugman, P., 1998. "Open letter to Mr. Mahathir", *Fortune*. September 28.

Lardy, Nicholas R. 1998. *China's Unfinished Economic Revolution*. Washington, D.C.: Brookings Institution Press.

Le Fort, V.G. and C. Budenich, 1997. "Capital Account Regulations and Macroeconomic Policy: Two Latin American Experiences", *International Monetary and Financial Issues for the 1990's*, Research Papers from the Group of 24, Vol. VIII.

Lee, Kang-kook, 2001. "What We Have Learned from Studies on Capital Account Liberalization: survey of empirical studies on capital account opening and economic growth", mimeo, University of Massachusetts, Amherst, Department of Economics.

Mahathir, Mohamed. 2001. *The Malaysian Currency Crisis: How and Why it Happened*. Pelanduk, Petaling Jaya.

Massad, Carlos, 1998. "The liberalization of the capital account: Chile in the 1990s", in "Should the IMF Pursue Capital-Account Convertibility?", *Princeton Essays in International Finance*, No. 207, pp. 34-46.

McCauley, Robert N. 2001. "Setting Monetary Policy in East Asia: Goals, Developments and Policies", Basel: Bank for International Settlements.

Miller, M. 1999. "Malaysian capital controls a failure, says Nobel Prize winner Merton Miller," *Asian Wall Street Journal*, July 9, p. A18.

Monetary Authority of Singapore (MAS), 2001. "Singapore's Exchange Rate Policy", February.

Monetary Authority of Singapore, (MAS), 2002. "Singapore: Policy of Non-Internationalization of the S\$ and the Asian Dollar Market", Paper presented to the BIS/SAFE Seminar on Capital Account Liberalization, 12-13 September, Beijing, China.

Montiel, Peter and Carmen Reinhart, 1999. "Do Capital Controls and Macroeconomic Policies Influence the Volume and Composition of Capital Flows? Evidence from the 1990s," *Journal of International Money and Finance*, 18, pp. 619-635.

Naughton, Barry. 1996. "China's Emergence and Prospects as a Trading Nation." *Brookings Papers on Economic Activity* 2: 273 – 344.

Nayyar, Deepak, 2000. "Capital Controls and the World Financial Authority: What Can We Learn from the Indian Experience", CEPA Working Paper, Series III, No. 14.

Neely, C., 1999. "An Introduction to Capital Controls," *Federal Reserve Bank of St. Louis*, Nov-Dec. 81, pp. 13-30.

Nembhard, Jessica Gordon, 1996. *Capital Control, Financial Policy and Industrial Policy In South Korea and Brazil*. New York: Praeger Press.

*New York Times* (NYT), 2003, January 17, US reports a final deal for Singapore trade pact, p. C19.

---2003, January 9, Rift on capital controls snags Singapore trade deal, p. C3.

---2002, December 12, US and Chile reach free trade accord, p. C1.

Ocampo, J. A., 2002. Capital-account and counter-cyclical prudential regulations in developing countries, UNU/WIDER Discussion Paper, August.

Padmanabhan, G., 2002. "Operationalising Capital Account Liberalisation: The Indian Experience". paper presented to the BIS/SAFE Seminar on Capital Account Liberalisation in China: International Perspectives", Beijing, China.

Palma, Gabriel, 2000. "The Three Routes to Financial Crises: The Need for Capital Controls", CEPA Working Paper Series III. No. 18.

Prasad, Eswar, Kenneth Rogoff, Shang-Jin Wei and M. Ayhan Kose, 2003. *Effects of Financial Globalization on Developing Countries: Some Empirical Evidence*. <http://www.imf.org/external/np/res/docs/2003/031703.htm>.

Rajaraman, Indira. 2001. "Capital Account Regimes in India and Malaysia", mimeo, National Institute of Public Finance and Policy, New Delhi, India.

Rodrik, Dani, 1998. "Who Needs Capital-Account Convertibility?", in "Should the IMF Pursue Capital-Account Convertibility", *Princeton Essays in International Finance*, No. 207, 55-65.

Rodrik, Dani, 1999. The new global economy and developing countries: Making openness work, Washington, DC, Overseas Development Council, Policy essay No. 24.

Rodrik, Dani, 2002. "After neo-liberalism," talk to the conference of the Coalition for "New Rules for Global Finance," May 22-23, 2002, Washington, DC.

Rosen, Daniel H. 1999. *Behind the Open Door; Foreign Enterprises in the Chinese Marketplace* Washington, D.C.: Institute for International Economics.

Schneider, Benu, 2000. "Conference Report: Conference on Capital Account Liberalization; A Developing Country Perspective", Overseas Development Institute.

Schneider, Benu, 2001. Issues in Capital Account Convertibility in Developing Countries, *Development Policy Review*, 19(1), pp. 31-84.

Singh, Ajit. 2002. "Capital Account Liberalization, Free Long-Term Capital Flows, Financial Crises and Economic Development", paper presented to IDEAS Conference, Chennai, India.

Stiglitz, J., 2002. *Globalization and Its Discontents*, NY, W. W. Norton & Co.

Taylor, Lance, 2002. "External Liberalization In Asia, Post-Socialist Europe and Brazil." [www.networkideas.org](http://www.networkideas.org)

US Commercial Service, 2002. Taiwan country commercial guide FY2002, Washington, DC, [www.usatrade.gov/Website/CCG.nsf/CCGurl/CCG-TAIWAN2002-CH-7:-00443](http://www.usatrade.gov/Website/CCG.nsf/CCGurl/CCG-TAIWAN2002-CH-7:-00443)

Valdes-Prieto, S. and Soto, M., 1998. "The Effectiveness of Capital Controls: Theory and Evidence from Chile" *Empirica*, Vol. 25, No. 2.

Wall Street Journal (WSJ), 2002. December 9, "Capital controls stall US pursuit of free-trade pacts—Chile, Singapore object to Treasury's demand for unimpeded cross-border flow of money", p. A4.

---. 2002. October 24. "Some warm to the use of capital controls", p. A14.

Wilson, D., 2000. *Managing capital flows in East Asia, in Reform and Recovery in East Asia: The role of the state and economic enterprise*. London and NY: Routledge, pp. 255-82.