



Volatile Capital Flows: Assessment of the Current Policy Environment

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This paper reviews the international economic and financial situation currently and compares it to the 1990's and concludes that conditions are very different: it is unlikely that a crisis similar to those of the earlier period will occur now. Capital controls in the 1990s are examined in detail and two examples of the most highly regarded implementation of them – Chile and Malaysia – provide evidence that capital controls have a debatable and inconclusive effect on the variables policymakers are concerned with. Two types of policy interventions, “circuit breakers” and “bank holidays,” are described and used to define a spectrum of possible innovative controls to consider. This analysis concludes that innovative policies promising desired results different from those due to the types of capital controls tried in the past are difficult if not impossible to identify. The paper concludes that ABAC should advocate: (1) improvement in collection and dissemination of data useful in assessing potential liquidity problems and required by “early warning systems;” (2) possible controls on the flow of international capital should carefully weigh the short-term advantages, if any, against long-term costs, and if controls are implemented, implementation should be predictable and the controls transparent in application and neutral in impact; (3) policy discussions should focus reactions to the most likely crisis under current circumstances, for example a precipitous adjustment to the dollar in response to accumulating global imbalances.

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EXECUTIVE SUMMARY

The current economic and financial market situation among the APEC emerging economies is substantially different than it was in the crisis period of the 1990s. With the floating of the Chinese and Malaysian currencies in July 2005, few of the regional currencies have a fixed peg to the dollar and most exchange rates demonstrate substantial variability. International reserve accumulations by emerging market economies in general are large, trade and capital accounts are roughly in balance compared to the large capital inflows and trade deficits characteristic of the crisis economies in the 1990's. Market conditions are improved, with valuations of stocks in general and of the financial sector strong, and of course, substantial changes in the capitalization and regulation of the financial sector has been undertaken since the crisis years. Hedge funds are on average smaller, less highly leveraged, more carefully scrutinized by their lenders, and pursue more heterogeneous strategies than in the 1990's.

Based on a review of capital controls imposed by APEC emerging economies, with a particular focus on the most positively assessed use of controls by Chile and Malaysia, the conclusion is that capital controls have a limited effect on policy variables of interest in most economies. Even in the economies believed to have successfully used controls, the effects are difficult to detect and unintended consequences of controls are believed by many to have had negative long-term impacts and costs.

This study intended to identify possible innovations in capital controls useful in reducing costs and increasing the effectiveness of controls used in future international financial crises. Analysis of circuit breakers on organized exchanges reveals their limited usefulness in controlling international capital movements. Controlling payment flows through system-wide payment halts, as in bank holidays, reveals the large costs and indiscriminate impacts of these measures. Controls on specific transactions by halting certain payments are difficult to implement and have costly implications. The conclusion is that controls used in the past, combined with transparency in application and clarity upon invocation, are the least distorting and costly controls, but as always present challenges in definition and implementation. Further, growth in derivative markets makes controls based on domestic institution activity of limited impact on speculation.

Recommendations presented in the report aim at improving the ability to reduce the costs of financial crises. In short, recommendations are: (1) improve data collection in terms of coverage, timeliness, and quality; (2) limit the use of controls to pre-announced trigger levels using tried methods like specified transaction taxes, but understand the ease of evasion and the distortions such taxes cause over the long run and the damage they cause to market reputation; and (3) advocate concerted efforts to analyze likely future crises.

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I. Introduction and Assessment of Current Conditions versus Crisis Conditions

The possibility of a financial crisis like those of the 1990's in Latin America and Asia is a major focus of concern of market participants and policymakers in those regions and around the world. The costs of the crises were enormous: lost output, financial institution failures and bailouts, and loss of local policy flexibility due to commitments required by foreign and multilateral emergency lenders. This discussion paper addresses issues concerning the relevance of possible new policies that should be advocated by the APEC Business Advisory Council (ABAC) to minimize the likelihood of similar crises in the future and to mitigate them should they occur.

Not all international crises are financial crises. Economic "crises" have been or could be caused by disease (e.g. the SARS epidemic or disruptions from an Avian flu pandemic), dramatic and unexpected increases in raw material and energy prices (as with recent increases both), dangers to economic systems posed by terrorism (like September 11 or bomb attacks on tourist attractions), unanticipated loss of confidence in specific institutions or governments, or problems due to sudden changes in asset prices attributed to speculation, as with the current real-estate "bubble" in some economies. Unless linked to international financial markets by a systematic impact on economic fundamentals of several economies and consequent problems in their financial markets, this paper does not directly address these or other international crises affecting the environment within which financial markets function.

Sections I.1 to I.5 of Part I compare conditions in the crisis years of the 1990s with the current situation. In presenting these contrasts, standard international statistics are presented in graphical form. This evidence demonstrates conclusively that for most countries, the situation in 2005 has changed significantly from the conditions accompanying the earlier crises. However, the data themselves leave much to be desired, both as diagnostic tools and as input into forecasting: Section I.6 of this part assesses the data and provides a critique and contrast of the quality and timeliness of statistics that can be used to predict problems and concludes with some recommendations concerning reporting by creditor economies.

I.1 Foreign Exchange Rate Policies in the 1990's Crises and Current Period

International crises are most common in the presence of fixed exchange rates. A lack of confidence in any economy's ability to defend a fixed or managed rate causes speculative capital flows. For example, Hernandez and Montiel (2001) write:

The severe financial crises experienced over the past decade by many emerging market economies have been attributed to a variety of causes of which an important common one is the attempts by the crisis countries to maintain exchange rate regimes ("soft pegs") that were no longer viable in light of their greatly enhanced integration with international capital markets. (p. 4)

As another example, Glick and Hutchison (2002) write:

A growing conventional wisdom ... holds that liberalization of international capital flows, especially when combined with fixed exchange rates, is either an underlying cause or at least a contributing factor behind the rash of currency crises experienced in recent years. A common policy prescription under these circumstances is to impose restrictions on capital flows and other international payments with the hope of insulating economies from speculative attacks and thereby creating greater currency stability. (p. 1)

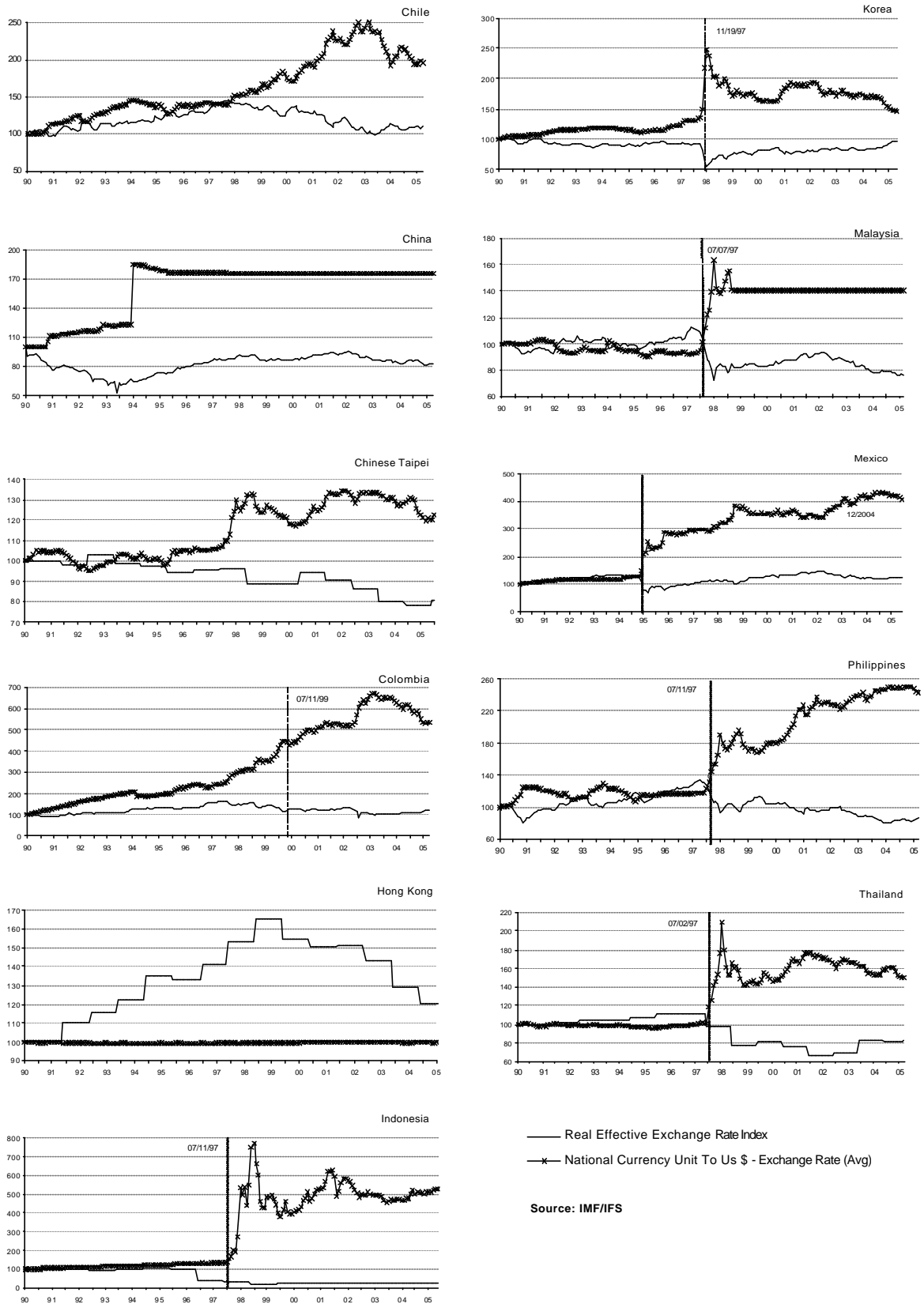
A central underlying problem in these crises has been that the exchange rate supported by governments or central banks appears unsustainable to non-official market participants.

Market participants, who include not just pure speculators but importers and exporters and financial firms transacting business in different currencies, take actions to minimize costs or maximize profits from exchange rate changes that are expected in the face of what are believed to be unsustainable exchange-rate pegs adopted by policymakers.

A glance at the nominal exchange rates for APEC economies shown with “x”s in Figure 1 (containing monthly graphs of nominal and real exchange rates for selected APEC economies indexed to 100 in 1990) demonstrates that, except for China, Chinese Hong Kong, and Malaysia, there has been substantially more variability in market exchange rates since the 1997 crisis. There is also more flexibility demonstrated in the Colombian and Mexican nominal exchange rates following their crises earlier in the 1990’s. The observation that the Asian Crisis economies of Indonesia, Korea, and Thailand, as well as the affected economies of Chinese Taipei and the Philippines, have been more variable is substantiated through 2001 by careful statistical analysis reported in Hernandez and Montiel (2001). Continued exchange-rate flexibility since 2001 is apparent from the graphs for the same economies that have loosened or abandoned pegs. Finally, China and Malaysia both adopted more flexible exchange rate policies relative to a basket of currencies, rather than pegging to the dollar, in July 2005.

The increase in exchange-rate flexibility since the 1990s, in line with the discussion above, suggests that the probability of a crisis is reduced. It is also interesting to note the results of Glick and Hutchison (2002), who use a careful statistical analysis of 69 countries over the years 1975 to 1997, when a total of 160 currency crises occurred. They find that capital controls increase the likelihood of a speculative attack, summarizing their results as follows:

Figure 1: Real and Nominal Foreign Exchange Rates



This evidence is supportive, of course, of previous work questioning the effectiveness of capital controls in insulating countries from speculative attacks on inconsistent policy regimes. It also indicates that, in the context of the sequencing literature on economic reform, an environment where the capital account is liberalized does not appear to be more vulnerable to exchange rate instability. Surprisingly, the opposite appears to be the case. Countries without capital controls appear to have greater exchange rate stability and few speculative attacks. (p. 19-20)

Emerging APEC economies would seem less likely to experience a financial crisis currently than in the 1990s due to more flexible exchange rates and fewer capital controls.

Another significant difference between the 1990s emerging market exchange rate environment and the situation today can be seen in the real exchange rates shown in Figure 1. During the crisis period in Asia, it was felt that many of the crisis economy exchange rates were overvalued and would depreciate eventually, inducing speculative attacks. Looking at real exchange rates shown in Figure 1, it is clear that real rates are below crisis period levels. For example, Korea, Malaysia, and the Philippines are currently below their 1997 levels. Calculations of real rates, of course, account for the change in nominal exchange rates and relative inflation domestically and internationally. The argument made in the pre-crisis period that exchange rates in those economies are overvalued can no longer be maintained. If anything, they are undervalued, suggesting primarily (as many people say), that the dollar is overvalued.

I.2 Emerging Economy Foreign Reserve Holdings in the 1990s and Currently

The financial crises of the 1990s were in part the result of speculation that some emerging market economies had insufficient foreign exchange reserves to defend an exchange rate at a given pegged level. The situation today is – as is widely known and discussed – precisely the opposite. Foreign exchange holdings, mainly dollar assets, in

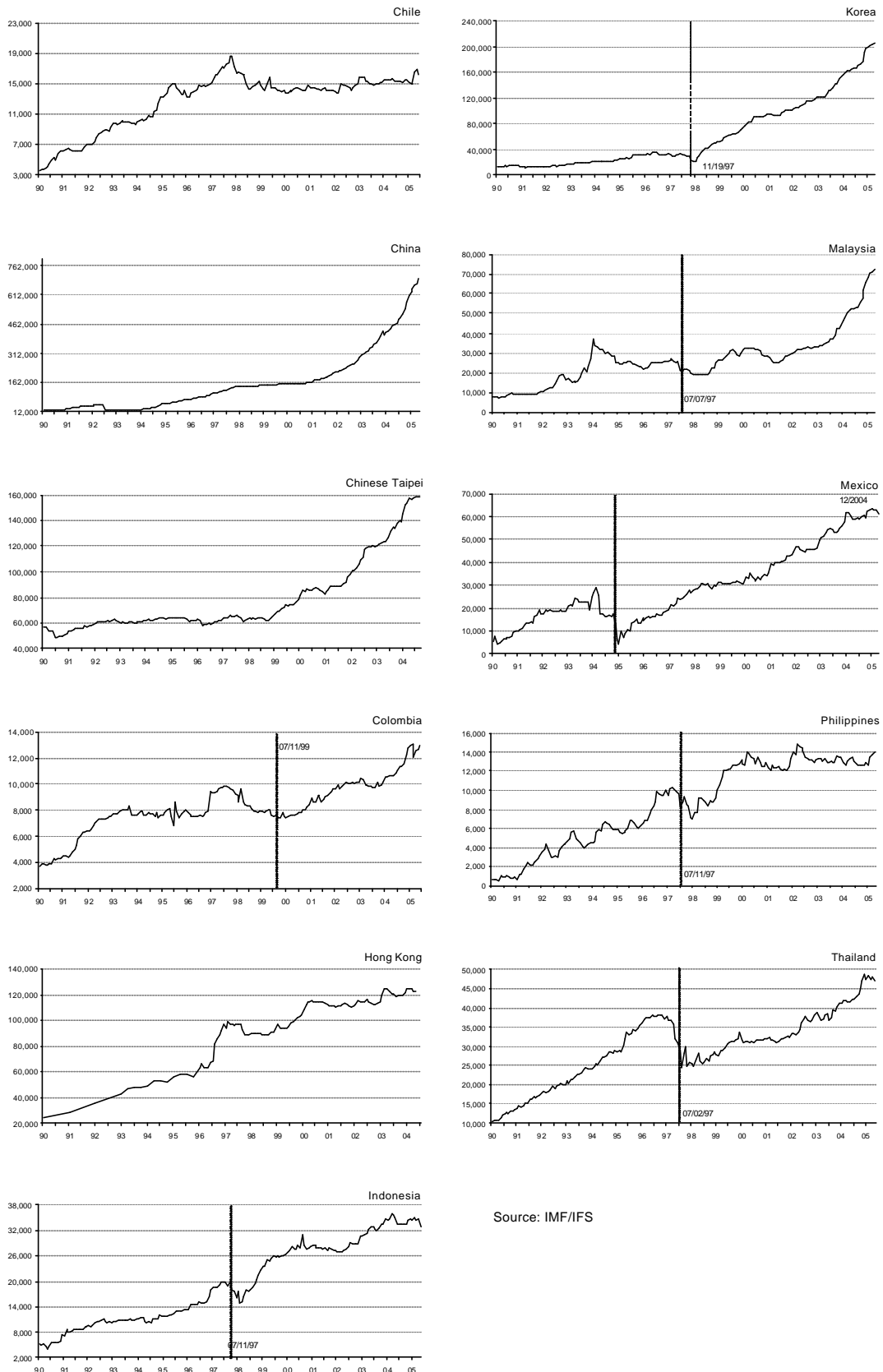
most emerging market economies are substantially above their 1990 levels. This is shown dramatically in Figure 2. In several of the Asian crisis economies, for example Indonesia, Korea, Malaysia, the Philippines, and Thailand, reserves are more than double their levels of the previous decade. In Latin America, Colombia's reserves are up over 50 percent and Mexico's have increased six-fold since the Latin American crises.

Large dollar asset holdings may present a different problem. The perception of an overvalued dollar may signal speculative capital flows opposite to those experienced in the 1990s. We explore some of the implications of the accumulation of dollars in Part IV of this study.

I.3 Current and Capital Account Balances in the 1990s and Now

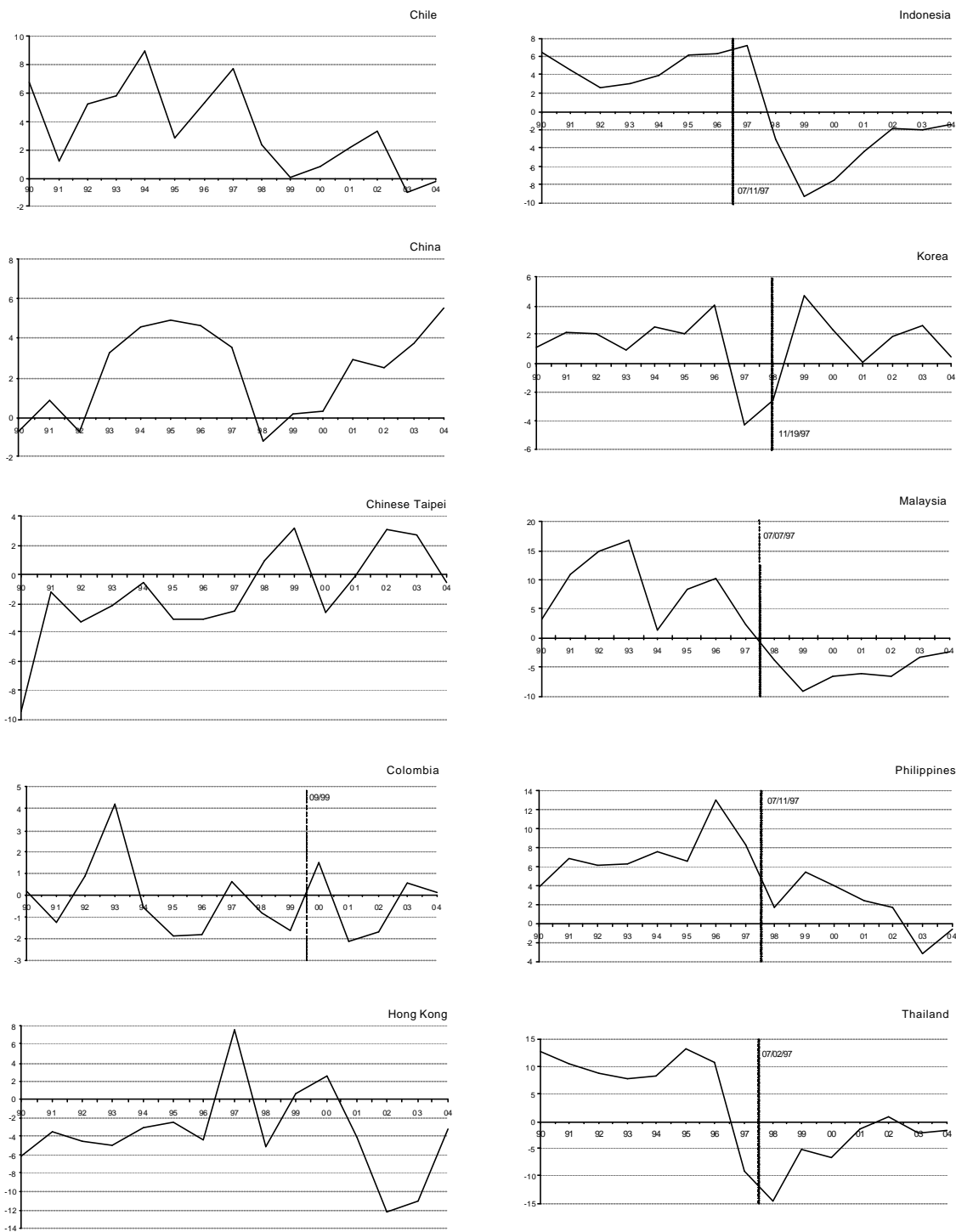
The crises of the 1990s were preceded by balance-of-payments difficulties. Figures 3 and 4 present graphs of measures that are often the focus of concern when assessing economies' international position. Figure 3 shows annual data on net private capital flows as a percent of gross domestic product (GDP). The graph clearly shows a shift in the pattern of these flows before and after the crises of the 1990s. For example, all the Asian Crisis economies experienced large private capital inflows prior to the crises, and in the crisis year (shown by the date of the currency devaluation in the graphs) a dramatic reversal. Since that time period, these economies (except for Korea in 1998) have experienced lower level of private capital inflows or net private outflows. This evidence suggests that a build-up of obligations to foreigners in these economies is either reversed or moderated since the 1990s.

Figure 2: Foreign Exchange Reserves



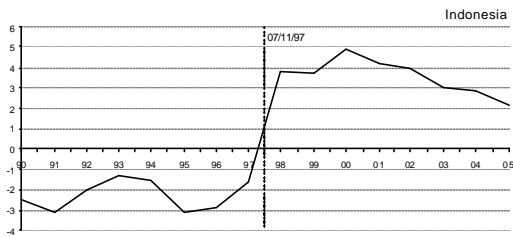
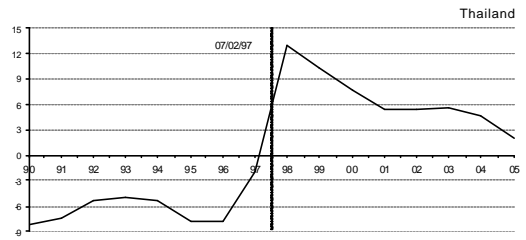
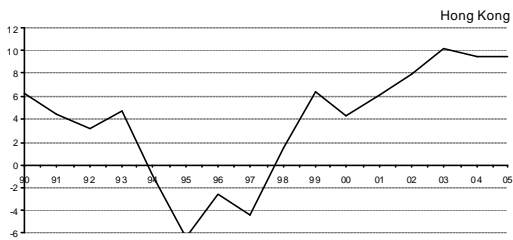
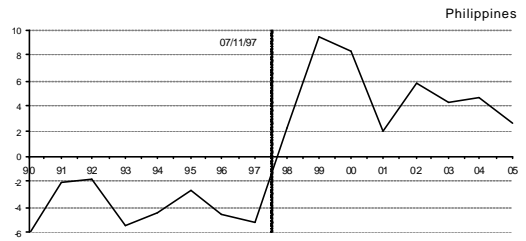
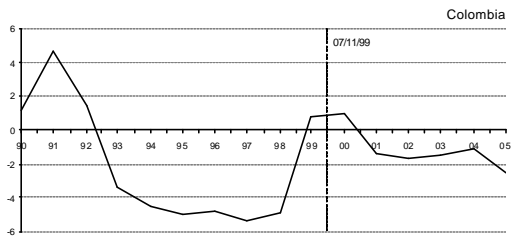
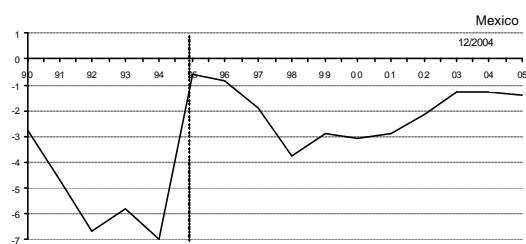
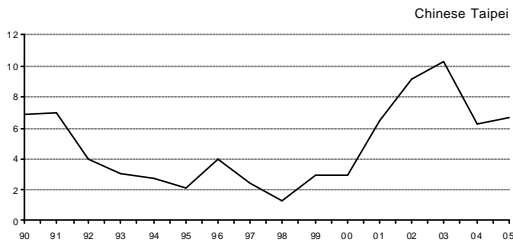
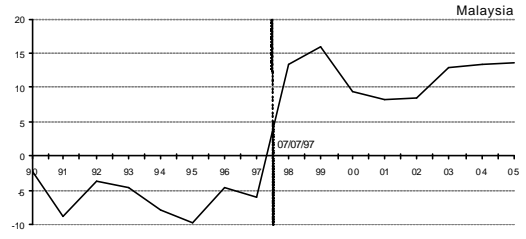
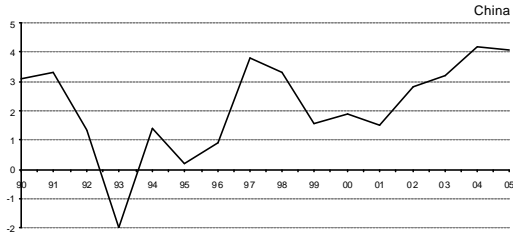
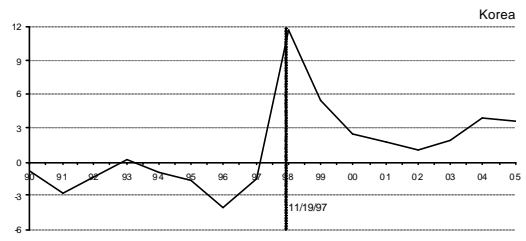
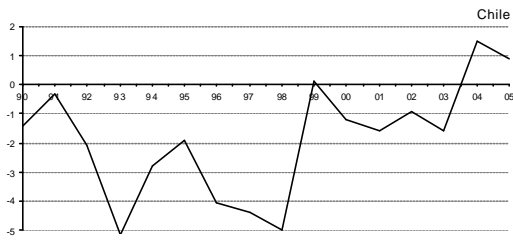
Source: IMF/IFS

Figure 3: Net Private Capital Flows
(in percent of GDP)



Source: WEO

Figure 4: Current Account Balance



Source: IMF/IFS

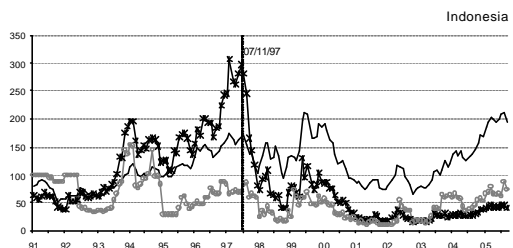
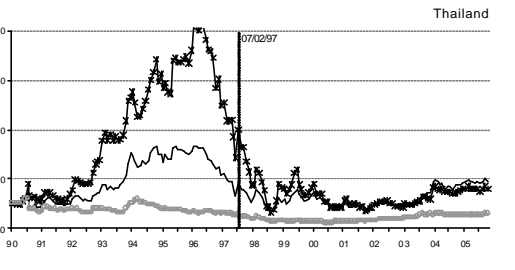
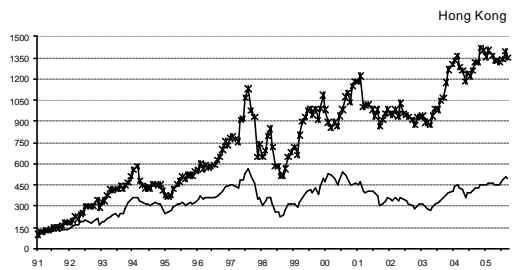
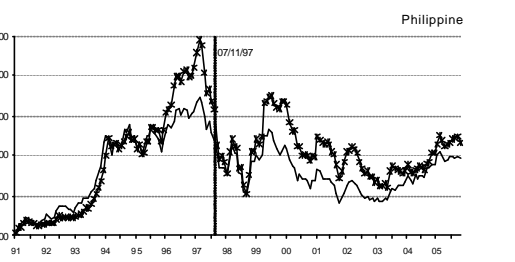
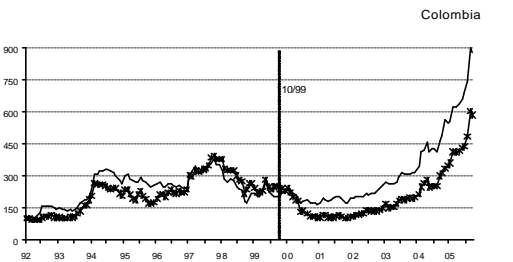
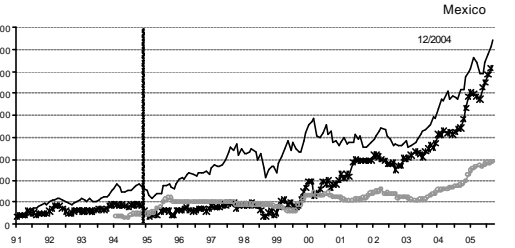
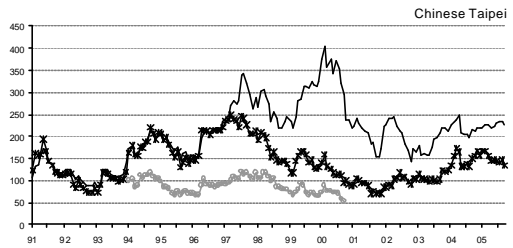
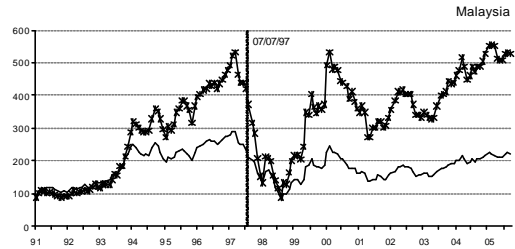
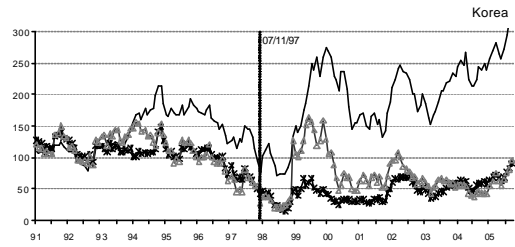
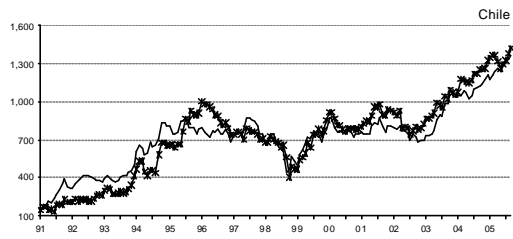
Current account balances as a percent of GDP for these economies also show clear shift since the period of the 1990s. All of the economies shown with the exception of China and Chinese Taipei have a current account deficit in the early 1990s. In the case of the Asian Crisis economies, their current accounts turned to surplus after the Crisis and remains so until the latest period available. Given the large accumulations of international reserves noted in the previous section, balance-of-payments difficulties can safely be ruled out as a source of liquidity problems for these economies under current conditions.

I.4 Stock Market Indices and Financial Market Conditions

Stock markets are forward looking, and as such can be used as signals concerning the future. As has been widely discussed, crises in the 1990s resulted in substantial restructuring of financial systems nearly all the APEC emerging markets. Some of this restructuring was the result of IMF conditionality contained in agreements with Indonesia, Korea, and Thailand. Other restructuring was a domestic policy initiative in response to the crisis (for example, Malaysia and the Philippines) or part of long-term strategic decisions (for example, China and Chinese Taipei). Figure 5 presents data available on general stock indices and, where available, for financial sector specific indices, for economies shown in previous figures.

Each graph in Figure 5 contains the overall stock market index as a benchmark (shown with the plain line) with 1990 set to 100 (as is true for all series shown). All of the graphs also contain a bank share-price index, where data points are marked with an

Figure 5: Local Stock Exchange Indices



Source: Data Stream

“x”. Finally, for one economy (Korea), a securities firm index is shown, and with several of the other economies, an insurance company index (gray line). The evidence from these graphs is not easy to interpret and coverage of series is different across economies. It is also important to interpret performance of these indices against the background of the global collapse in share prices starting in 2000. In this discussion, we focus on the bank and general market indices.

Looking first at the Asian Financial Crisis economies that made agreements with the IMF (Indonesia, Korea, and Thailand), experience varies. The Korea general index and bank index are both above levels experienced in 1998, with the general index at an all-time high since 1990. Indonesia and Thailand have not recovered to pre-Crisis highs, but both economies’ general market and bank stock indices have been steadily increasing since 2000, when markets collapsed globally. This evidence suggests that confidence in both the general economy and in bank performance has been improving in the face of substantial restructuring of banking systems. Indonesia and Thailand also have insurance company indices that have been improving in the last four years.

For all the economies shown in Figure 5, except China, general indices and financial institution indices are above the 2002 lows. We interpret this information to provide evidence that these emerging market financial systems, having undergone substantial restructuring in many cases (including large inflows of foreign direct investment), have good prospects producing improving share performance.

To the information in improving share prices in the financial sector, we can add common knowledge that there has been a substantial improvement in risk management in the financial sector. Accompanying foreign investment in banks and insurance

companies has been an emphasis by foreign investors, often other financial firms, in improving risk measurement and control in target firms. The Basel II process has also been accompanied by a concentration on improving risk measurement and management. The use of risk-management tools like derivatives has grown dramatically in the region with the development of the relevant markets for risk-management contracts. All of these developments point to a qualitatively different attitude towards risk and abilities to implement risk management assessment and management techniques by financial institutions in emerging market economies in the region.

In summary, the Global Financial Stability Report (2005) concludes:

Banking systems in emerging markets generally show improving capital positions, asset quality, and earnings... Most market-based measures, including market valuations of bank stock relative to the broader market indices and computations of distance to default derived from a standard valuation model ... also reveal a generally positive picture. In Asia, banks further improved their financial positions with the ongoing economic expansion, and banks in Latin American are showing stronger results, especially in countries that were not recently afflicted by crises. (p. 31)

While these observations are no grounds for complacency, they do suggest a substantial turnaround from the situation in the 1990s.

A last consideration in differences between current and past international financial market conditions is the recent evolution of the hedge-fund industry. Hedge funds were reviled as a precipitating factor in the Asian Financial Crisis, specifically the alleged speculation by George Soros' Quantum Fund against the Malaysian ringgit. The collapse of Long-Term Capital Management (LTCM) in 1998 focused attention on these highly leveraged institutions (HLIs) and their vulnerability of financial markets to a failure by one of them. The collapse also highlighted the HLIs' sensitivity to changes in economic fundamentals underlying their strategies.

A number of initiatives have been undertaken in response to the concerns about hedge funds in advanced economies: by regulators in developed markets, for example the Securities and Exchange Commission in the United States requiring registration of hedge funds starting in 2006; and by the private sector, as for example the Counterparty Risk Management Group, led by a former Federal Reserve official, reviewing hedge fund developments. The effect is to increase the monitoring of risks taken by hedge fund managers by lenders and it is generally assumed that leverage has been reduced – reducing the funds available for speculation by hedge funds. For example, Financial Stability Forum' (2002) reports:

On balance, concerns that HLIs could pose a systemic risk to the international financial system are less than before. Funds are smaller and are generally perceived to employ less leverage. Although the extent of improvements may be uneven, counterparty risk management with regard to hedge funds has improved as have HLI's own risk management practices. However, it is recognized that the information available to outside observers is not perfect, and there are always intangibles. There will be a need to ensure there is no backsliding in these broadly positive developments. (p. 11)

Many market observers, noting the withdrawal of some major hedge funds from the market and reduced returns, are less concerned about hedge funds than in 1990s.

Other changes in the hedge fund industry should be noted. While the total industry has grown in terms of assets (estimates suggest about \$1 trillion in assets in 2004¹), there are more funds and they have become smaller on average. More fund management is outside North America, mainly in Europe and Asia. Average fund returns are down, suggesting greater heterogeneity of speculative positions (as winners' gains are offset by losers' losses). Finally, the strategies of funds have shifted dramatically from year to year. As reported by the IMF (2005) for the most recent years, 2003 and 2004, global macro strategies – including currency speculation – have accounted for less than

¹ IMF (2005), p. 50)

15% of fund inflows. In search of higher returns, hedge fund managers seem to be pursuing strategies based on perceived opportunities in domestic equity and bond markets.

I.5 Conclusions from Review of Current Situation in Emerging Market Economies

The unavoidable conclusion from the above discussion is that the environment for emerging market economies in the APEC region is substantially different than in the crisis-ridden 1990s. First, with China and Malaysia now pegging to a basket of currencies rather than fixing to the U.S. dollar, all exchange rates for these economies are more flexible than in the pre-crisis period of the 1990s. Defending unsustainable fixed pegs is substantially less likely, and hence so are the speculative flows felt to be so important in the 1990s. Evidence reviewed suggests that the likelihood of crises is significantly reduced with flexible rates.

Macroeconomic data for emerging markets also presents a marked contrast with the pre-crisis period of the 1990s. All economies have amassed substantial foreign exchange reserves, and the flow of net private capital has fallen substantially. Moreover, current account balances have in general gone from negative to positive. Stock market data suggest growing confidence in economic conditions as well as improving prospects for financial institutions, most importantly, banks. Finally, the threat of speculative surges of risk capital into emerging markets by hedge funds seems reduced relative to the 1990s as these funds are more closely monitored by their lenders and the industry has matured with smaller average firm size and broader geographic dispersion of managers.

With this background, it seems that a discussion of policies concerning capital controls should be focused on problems that are possible in the current environment. One problem that is frequently discussed is the dollar glut associated with the large accumulations of reserves and continuing U.S. trade deficits. We return to this issue in our discussion of possible innovations in policies relevant to international capital flows for emerging market economies in APEC.

I.6 Predicting Financial Crises and Data Reporting

Speculative capital flows occur when there are differences in opinions between international investors' expectations, especially in the case where policymakers in an economy and market participants within and outside the economy differ concerning the sustainable equilibrium value of key economic values like exchange rates. Expectations are based on information. Inadequate information feeds speculation by increasing the dispersion of expectations that are held with little confidence by investors. In an environment of insufficient or suspect information disclosures, market participants may be susceptible to herd behavior based on the reliance on supposed information innovations with financial implications contained in widely repeated alleged facts or rumors. Reliable, timely, and adequate disclosure of critical economic variables can reduce the range of beliefs about future likely outcomes and dampen the tendency to base investment or speculative transactions on hearsay or rumors.

Many believe that closer attention to developments in the emerging market economies in the 1990s would have lead to earlier concerns about possible crises by

market participants and earlier reactions by policymakers averting divergent expectations. Predicting trouble could have led to earlier adoption of policies that might have avoided or reduced the costs of crises. Indeed, there is a substantial literature on the performance of crisis-prediction methods. For example, Berg, Borensztein, and Pattillo (2004) review a number of “early warning systems.” Their assessment is that the performance of early warning systems (EWS) is mixed, but conclude:

Overall, these results reinforce the view that EWS models are not accurate enough to be used as the sole method to anticipate crises. However, they can contribute to the analysis of vulnerability in conjunction with more traditional surveillance methods and other indicators. It is worth underlining the relatively high standard to which these models are being held. It is plausible to suppose that comprehensive assessments by informed analysts, based on all available qualitative and quantitative information, must be better than the inevitably simple EWS models. But the evidence we have examined with respect to this questions is not encouraging concerning these more comprehensive assessments. (p. 30)

While the valuation of models above is definitely cautious, it does seem that in the context of dealing with potential international financial crises and the enormous costs to economies directly involved and also to other economies in the global financial system, all avenues to anticipate and if possible to avoid problems should be explored.

In order for market participants to form unbiased expectations concerning future financial market conditions and the reactions of policy-makers, the data they rely on must be credible. The credibility of data may be impaired by lack of detail, tardiness in reporting, or the presumed bias of reporting agencies. In some cases, policy-makers may be suspected of managing the market’s supply of data to ease short-run policy implementation. History provides many examples of incomplete or unrepresentative disclosure of data by officials to facilitate political objectives or promote the success of controversial policy goals.

Clearly the accuracy of all formal and informal forecasting and surveillance systems depends on reliable data. The EWS evaluated in the above-cited study also require data. Timely, reliable, and detailed data in the hands of experts and financial market participants can be used to refine assessments of problems and improve estimates of equilibrium values of magnitudes like exchange rates, limiting the possibility of large speculative gains based on differing expectations. The Working Group on Capital Flows of the Financial Stability Forum (2000) has emphasized the availability of high quality and timely data.

The International Monetary Fund (IMF) and the World Bank have launched an online database offering access to “timely, quarterly external debt statistics for 41 countries”.² However, of the emerging market APEC economies, only Chile, Columbia, Korea, Malaysia, and Thailand participate in the project and, as of early November 2005, the latest data available was for the second quarter (i.e. June 30) of 2005.

A review of emerging market published data on short-term capital flows (by looking at statistical releases on website) reveals great differences in the detail and timeliness of coverage of short-term liabilities and assets. For example, currency denomination and precise type of liability are often not provided. Again, as of November 2005, many series are reported only through the end of 2004.

The point is that data availability severely limits the ability to assess the liquidity positions and currency exposures of most emerging market economies. Data timeliness and reliability may not be best guaranteed by relying on individual APEC economic agencies’ reporting. Improvements in crisis prediction and prevention and avoidance of harmful rumors and herd behavior among market participants require continued efforts to

² Financial Stability Forum (2005), p. 4.

standardize international financial statistics and to improve the timeliness and reliability of data releases. The activity of gathering and reporting credible and timely data may best be performed by multinational agencies like the Bank for International Settlements (BIS) or other highly regarded institutions that are relied on to enforce standards without bias in the production and dissemination of data. ABAC should consider restating its strong support for efforts to improve data collection, dissemination, and the development of early warning systems and sophisticated expert review of developments in international capital markets.

II. Summary of the Policy Debate, Country Experiences, Assessments

[Contributed by Carlos Budnevich, Professor of Economics,
Universidad Finis Terrae, Santiago, Chile]

II.1 Introduction and Background

This part of the paper presents a discussion of the debate concerning the value of imposing controls on the flow of capital between economies. This will provide a background for the discussion of innovations in capital account regulation in Part III and perspectives on recent experiences widely thought to have been successful with the use of capital flow regulation in the 1990's. The evidence to support policies interfering with the free flow of capital is reviewed in an effort to provide a framework for considering innovative policies introduced in the following section.

In reviewing the arguments and evidence related to the success of capital regulation, it is important to emphasize that many market observers have strong prior opinions concerning the success of using capital controls. There are at least two reasons why many observers accept the positive effect of controls without requiring more than anecdotal evidence: first is the growing sense that the multinational organizations like the International Monetary Fund are governed without adequate representation of smaller emerging economies and the perception that policy demands by those organizations are high-handed and insensitive or worse. Simply "standing up" to the IMF and other multinational institutions has broad popular appeal in many economies. The second reason is that policy-makers responsible for those controls have a ready audience of willing listeners among their counterparts in other economies and among those opposed for one reason or another to economic and financial market integration and/or

liberalization. For example, the success attributed to Chile and Malaysia in regulating capital flows is often seen as regulation versus the free market in the case of Chile or sovereignty versus the dictates of the IMF and the consensus policy prescriptions in the case of Malaysia. Assessing the success of these policies is furthermore rendered extremely difficult because of the complexity of the economic systems involved and the inadequacy of models and data to develop definitive evaluations against clear criteria.

Since the financial crises in Latin America and Asia in the 1990s, many economists and policy makers argue that globalization has gone too far and that free capital mobility has created a highly unstable international financial system. The idea of restricting capital mobility is not new in policy discussions. For example, James Tobin in 1978 argued that a global tax on foreign exchange transactions would reduce destabilizing speculation in international finance. However, it soon became evident for the effectiveness of the so-called “Tobin tax” to work; all economies would have to coordinate the introduction of such a tax, making it costly and politically infeasible because of the differences of opinions concerning controls among policy-makers globally. Clearly, the debate concerning the use of capital controls is of long standing among experts.

Economists have long debated whether capital mobility brings significant benefits to an economy. For example, Obstfeld and Rogoff (1996) present persuasive arguments that support the existence of gains from inter-temporal trade from open capital markets. In fact, an open capital account facilitates the flow of savings to their most productive uses, avoids financial segmentation and microeconomic distortions, brings efficiency gains in producing financial services, reduces the cost of capital in emerging markets,

stabilizes consumption, diversifies risks and promotes foreign direct investment (FDI), a key factor in growth. On the other hand, Cooper (1998) has argued that free capital mobility is likely to amplify existing distortions, encourage moral hazard and excessive risk taking, and may help develop major and costly crises. It may increase the vulnerability of a country to sudden capital flow reversals, deepen the business cycle due to the pro-cyclical nature of flows, destabilize the economy due to the emergence of wealth effects in aggregate demand, erode the tax base and reduce monetary policy autonomy.

Capital controls are not a natural or permanent feature of economic systems. Before 1914, private capital moved without restriction under the gold standard. Capital controls started to be used as emergency measures after World War II and survived thereafter. During the seventies and the eighties, exchange controls were meant to preserve monetary policy autonomy. A number of countries during the eighties and the nineties started to phase out capital controls as a recognition of their ineffectiveness.

Economies must adjust to changes in underlying market fundamentals. Economists frame the discussion in terms of three policy initiatives used by government to affect economic activity: exchange rates, monetary policy, and controls on capital flows. As Paul Krugman (1999) writes in describing Robert Mundell's contribution to economics:

The point is that you can't have it all: A country must pick two out of three. It can fix its exchange rate without emasculating its central bank, but only by maintaining controls on capital flows (like China today); it can leave capital movement free but retain monetary autonomy, but only by letting the exchange rate fluctuate (like Britain--or Canada); or it can choose to leave capital free and stabilize the currency, but only by abandoning any ability to adjust interest rates to fight inflation or recession (like Argentina today, or for that matter most of Europe)."

With capital mobility and the restriction imposed by Mundell's "impossible trinity," policy makers increasingly faced the choice between managing monetary policy and managing the exchange rate.

In the policy debate, the discussion usually centers on the speed and sequencing of capital account liberalization. McKinnon (1973) argues that opening of the capital account should be postponed until free trade of goods was consolidated to avoid in the first place substantial capital inflows and in the second an appreciation of the real exchange rate that could jeopardize trade reform.

A number of authors have argued that a successful sequencing of the capital account liberalization requires first establishing a sound banking system with adequate regulation and supervision. McKinnon (1991) argues that, because of the moral hazard associated with the financial sector, capital account liberalization should be postponed until the banking sector is well supervised and sound. One danger is that poorly regulated banks may intermediate significant capital inflows in an inefficient manner, raising the probability of a financial crisis.

Prerequisites for complete capital account liberalization are the previous adoption of best practices on disclosure standards, the prior establishment of sound accounting practices, bankruptcy and security laws, the removal of implicit government guarantees (exchange rate and interest rates), the development of risk management techniques and the soundness and adequate regulation and supervision of the banking system. It may also be wise to first liberalize FDI and then short run capital flows, and to have in place flexible arrangements for exchange rate and interest rates determination.

In particular, capital account liberalization requires strengthening the prudential framework for the banking system such as demanding capital charges for exchange rate risk and higher liquidity requirements for foreign currency liabilities. It may also require strengthening the dissemination of information to the market to enhance its disciplinary function.

When capital controls are selective, the private sector has found ways of evading controls. Typical mechanisms employed are over-invoicing imports, under-invoicing exports and mislabeling the nature of the capital flows. The historical tradition of the country to respect law and order is crucial to determine the extent of elusion of capital controls. Garber (1998) discusses other sophisticated mechanisms employed through the extensive use of derivatives contracts traded abroad. A major concern is that uneven application of controls by regulators, by design or due to political pressure or corruption, or the unequal ability among market participants to evade controls, will distort the flow of capital and the allocation of resources in economies imposing controls.

The following sections discuss the arguments concerning controls on capital inflows and outflows, followed in each instance by a detailed discussion of the cases most widely believed to have been successful implementation of capital controls, Chile and Malaysia. The cases review the range of assessments of the success of controls using complex statistical analysis of the impact of controls on economic variables of interest, augmented with expert observers' and market participants' views of the success of restrictive capital flow policies.

II.2 Controls on Inflows of Capital

Some analysts and policy-makers in the face of the crises of the 1990s have been inclined to view capital controls on inflows as prudential measures aimed at preventing a build-up of short-term foreign liabilities, particularly in lower-income countries that do not have the capacity to put in place sophisticated financial supervisory regimes. Openness to international capital flows, especially short-term credit flows, can be dangerous for countries with weak or inconsistent macro-economic policies or inadequately capitalized and regulated financial systems. According to Eichengreen (1999), imposition of controls on capital inflows may be viewed as a way of preventing a future currency crisis. These controls would in principle protect local currency from further appreciation, reduce capital inflows, allow central banks to undertake independent monetary policies, twist the time profile of external debt towards longer term, and may immunize a country from contagion. In summary, controls allow an economy to reduce its vulnerability to international financial instability.

On the negative side, costs of controls may be of microeconomic nature, such as creating segmentation of capital markets between large and small firms, increasing the cost of capital, particularly for small firms augmenting their difficulties in finding financial access. Imposition of controls may have long-term resource allocation effects due to these distortions that limit the efficiency of the economies imposing controls, thus impairing their long-term ability to grow in competitive internationally integrated markets for goods, services, and capital.

II.3 Chile's Experience with Controls on Capital Inflows

Chile introduced capital inflow regulations in June 1991, after an important surge of inflows. Originally, all portfolio inflows were subject to a 20% reserve requirement that earned no interest during the maturity of the inflow. In the case of maturities longer than one year, the reserve requirement lasted only one year. The private sector quickly found loopholes by misstating the purpose of the flow, labeling them as trade credits or loans supporting FDI. In July 1992, the rate of the reserve requirement was raised to 30%, and its holding period was set uniformly at one year. The coverage was extended to a subset of the trade credits and loans assigned to FDI projects. In 1995, in an effort to close additional loopholes, the controls were extended to Chilean stocks trading as American Depository Receipts (ADRs) in New York and to international bond issues. In order to apply or not the reserve requirement, FDI was subject to an analysis of the nature of the project to be financed, as portfolio flows began to be labeled FDI. Valdés-Prieto and Soto (1998) have argued that in spite of the authorities' efforts to close loopholes, Chile's controls have been subject to considerable evasion.

It is important to describe some characteristics of the reserve requirement applied in Chile. First, the shorter the maturity of the flow, the higher was the implicit rate of the tax (reserve requirement) in the form of foregone earnings on the reserves. Second, the tax equivalent of the reserve requirement varies not only with the rate of the reserve requirement but also with its opportunity cost. To counteract the excessive decline of capital inflows produced by the Asian Crisis, by mid 1998 and September of the same year, the reserve requirement was lowered to 10% and then zero, respectively.

There is some evidence that by regulating capital inflows, the Chilean authorities indeed affected the composition of inflows. During the period 1988-1998, flows with a maturity smaller than one year declined very steeply relative to longer-term capital. De Gregorio *et al* (1998) and Valdés-Prieto and Soto (1998) found that the tax on capital inflows indeed discouraged short-term flows. These studies also suggest that the reduction in short-term capital inflows was fully compensated by an increase in long-term capital inflows. However Le-Fort and Lehmann (2003) have recently challenged these results by showing that the reserve requirement was effective in reducing total capital inflows.

The analysis of the effects of capital account restrictions on the real exchange rate are mixed: Valdés-Prieto and Soto (1996) concluded that the reserve requirement did not affect in any way the long run level of the real exchange rate and De Gregorio *et al* (1998) found that Chile's capital inflows regulation had no effects on the behavior of the real exchange rate. However, Le-Fort and Lehmann (2003) found that the reserve requirement on average allowed a depreciation of the real exchange rate of 9%.

On the issue of the influence of the reserve requirement on interest rates, using a vector autoregression model, Soto (1997) found that a change in the implicit tax on capital inflows had a very small, positive short-term effect on interest rates. Edwards (1999) found similar results. De Gregorio *et al* (1998) found a large effect of capital inflows regulation on domestic rates, so that a 30% reserve requirement will allow interest rate to be higher by 140 basis points. According to Le-Fort and Lehmann (2003) the reserve requirement allowed a higher domestic interest rate between 90 and 300 basis points higher, giving monetary policy more room to act. Edwards (1998) found that

interest rate differentials became more sluggish after the imposition of controls, giving the Central Bank a greater ability to manipulate domestic interest rates in the short-term. Therefore, the accumulated evidence may suggest that controls allowed Chile to undertake a more independent monetary policy.

With respect to financial volatility, Edwards (1999) found that capital controls in Chile helped reduce stock market instability but did not help reduce short-term interest rate volatility. In addition, Edwards (1999) found that the controls in Chile may have been able to protect the economy from small shocks, but were not effective in preventing contagion originated in large shocks and had unexpected costs. Edwards writes:

The most important (cost) is that they have increased the cost of capital significantly, especially for those small and medium-size Chilean firms that find it difficult or impossible to evade controls on capital inflows... A country considering the adoption of Chile-style controls must compare this higher cost of capital, especially for small and medium firms, with potential benefits like a reduced macroeconomic vulnerability to short-term inflows of capital. (p. 82)

The lesson would seem to be that the economic and financial market impact of capital controls may be unexpected and costly in ways that are not immediately evident from the nature of the controls.

II.4 Controls on Capital Outflows

Controls on capital outflows are intended to constitute a policy that helps address a balance of payment and financial crisis. Preventive controls are imposed when an economy with a fixed exchange rate is facing a severe balance of payments deficit, without yet having experienced a devaluation crisis. These preventive controls can take a number of forms, including taxes on funds remitted abroad, dual exchange rates and outright prohibition of funds' transfers. These types of policy measures will help slow

down the drainage of international reserves, giving authorities time to implement the needed adjustment policies.

According to Edwards (1999), the empirical evidence suggests that these types of controls have been largely ineffective due to evasion and corruption. There is also evidence that controls on capital outflows may give a false sense of security, encouraging careless behavior on behalf of policymakers and market participants. For example, until late 1997, international analysts and local policymakers believed that, due to the existence of restrictions on capital mobility, Korea was largely immune to a currency crisis.

The use of capital controls on outflows as a crisis-resolution measure remains highly controversial, despite a clear-cut economic policy rationale. As emphasized in models of currency crises, a country can be faced with creditor panic and a run on reserves even when it has strong fundamentals. In these situations, a temporary suspension of capital-account convertibility can stop the rush towards capital flight and provide time for policy makers to take corrective action. But the risk is that capital controls can prove ineffective, undercut market confidence even further, and be used to delay needed adjustments.

A second type of capital controls on outflows has gained some support among economists. For example, Krugman (1998) argues that countries already facing a major crisis could benefit from the temporary imposition of controls on outflows. According to this view, this type of “curative” policy may allow the country to lower interest rates and put in place pro-growth policies. Restricting capital outflows would give crisis countries additional time to restructure their financial sector. Once the economy has recovered,

authorities may proceed to eliminate such controls. Malaysia followed this path in 1998-1999.

On these issues, Edwards (1999) believes that the imposition or tightening of capital controls on outflows have not been very helpful on average. According to Edwards (1989), half of the countries imposing controls failed to generate the needed devaluation and to improve the balance of payments, nor were successful in controlling capital flight. Moreover 66% of the countries that established capital controls experienced low GDP growth, while 35% of the countries that did not control outflows went through a period of slow growth.

II. 5 The Malaysian Experience with Controls on Capital Outflows

Malaysia entered the Asian financial crisis with relatively strong fundamentals, and a relatively small share of short-term external debt. Malaysia's short-term debt stood well below its foreign exchange reserves, which appeared to make it less prone to a run by foreign creditors. At the same time, as a country with a very high level of indebtedness overall, Malaysia was quite vulnerable to turnarounds in general market sentiment that would be reflected in an increase in interest rates or reduction in credit availability. Private sector indebtedness was higher than in Thailand and Korea. During periods of financial panic, all short-term liabilities, regardless of whether they are domestic or foreign, become potential claims against the Central Bank's liquid foreign assets. These high levels of debt suggest that Malaysia was not as well protected against financial turbulence as its external liquidity indicators would suggest.

Before the controls were established, Malaysian policymakers intended to provide a monetary stimulus to the economy through cuts in interest rates and credit expansion, but there was little effective change in monetary policies over the ensuing months. The attempt to reduce domestic interest rates was undercut by growing speculation against the ringgit in offshore markets. Offshore institutions, mainly in Singapore, borrowed ringgit at premium rates to purchase dollars and bet in favor of the ringgit's collapse. The economy's decline continued.

The primary objective behind Malaysian capital controls was to stop speculation against the ringgit. To shut down offshore trading, the government mandated that all sales of ringgit assets had to go through authorized domestic intermediaries, effectively making offshore trading illegal. All ringgit assets held abroad had to be repatriated. Worried that these measures would lead to an outflow of capital and further depreciation of the currency, the Malaysian government also banned for a period of one year all repatriation of investment held by foreigners.

In an attempt to revive aggregate demand, the Bank Negara Malaysia (its central bank) lowered its monetary policy rate as well as the liquid asset ratio required for financial intermediaries. During the month of February 1999, Bank Negara changed the regulations on capital account restrictions, shifting from an outright ban to a graduated levy and replacing the levy on capital with a profits levy on future inflows. Thus, in contrast to other Asian Crisis economies, Malaysia took a different path. Instead of implementing an IMF adjustment program, the Malaysian authorities imposed controls on capital-account transactions, fixed the exchange rate, cut interest rates, and embarked on a policy of monetary stimulus.

A medium-term goal of capital controls had broader economic significance than the ability to defend the exchange rate: Did capital controls combined with fiscal and monetary stimulus and a fixed exchange rate allow a faster recovery from the economic crisis and assure superior economic performance than would have been possible in their absence? This is where considerable controversy remains. The question is essentially whether Malaysia would have been better off in the immediate aftermath of the crisis following the orthodox, IMF-prescribed route that the other countries in the region followed. We explore the comparative performance of the Asian Crisis economies in the following section.

Another issue is whether the controls were effective in terms of their narrow objective of influencing the nature of capital flows. The possibility of corruption is mentioned frequently. In Malaysia's case, there is no indication of an increase in corruption as the controls were implemented transparently and with remarkable efficiency. With the controls in place, the Malaysian government had no difficulty in sharply lowering domestic interest rates, and making the fixed exchange rate stick without the appearance of a black-market premium for foreign currency. As Kochhar (1999) states, "there were only a few reports of efforts to evade controls, and no indications of circumvention through under-invoicing or over-invoicing of imports". Ariyoshi et al. (1999) concludes that the controls were effective in eliminating the offshore ringgit market and choking off speculative activity against the ringgit despite the easing of monetary and fiscal policies. Kaminsky and Schmukler (2000) and Edison and Reinhart (1999) found that the September 1998 controls were successful in lowering

interest rates, stabilizing the exchange rate, and reducing the co-movement of Malaysian overnight interest rates with regional interest rates.

Finally, in assessing the performance of the Malaysian capital controls, one needs also to maintain a long-term perspective. Even if controls are successful in the short-run, it is possible that their long-term economic consequences will prove damaging. The government was concerned about the impact of the controls on future capital inflows, particularly of FDI on which the Malaysian economy was highly dependent. The authorities therefore took care to ensure that the controls would not affect FDI or current account transactions. Repatriation of profits and dividends from FDI activities were freely allowed. Foreign currency transactions for current-account purposes, including the provision of up to 6 months of trade credit for foreigners buying Malaysian goods, were also not restricted.

An article in *Forbes International* predicted “Foreign investors in Malaysia have been expropriated, and the Malaysians will bear the cost of their distrust for years” (Roche 1998). Moody’s downgraded Malaysian securities. Spreads rose more than 200 basis points for Malaysian bonds in September 1998, while they declined for other East Asian countries. Moreover, in May 1999, Malaysia went back to the international capital market with a \$1 billion bond issue, paying a premium of 330 points above the U.S. Treasury rate. Some scholars, such as Noble prize winner Merton Miller, viewed the controls as a disaster. The mainstream view is that it is hard to attribute much success to the capital controls since Korea and Thailand also recovered around the same time without using capital controls (Lim (1999)).

II. 6 Benchmarking Malaysian Experience against Other Asian Crisis Economies

Comparisons between the recoveries of the Asian Crisis economies can be used to assess the value of Malaysia's imposition of controls on capital outflows. Malaysia recovered from the Asian financial crisis swiftly after the imposition of capital controls in September 1998. The fact that Korea and Thailand recovered in parallel has been interpreted as suggesting that capital controls did not play a significant role in facilitating Malaysia's rebound. Using a complex statistical analysis, Kaplan and Rodrik (2001) find that Malaysian policies produced faster economic recovery compared to economies following IMF programs, smaller declines in employment and real wages, and more rapid turnaround in the stock market. In summary, Malaysia has recovered nicely since the crisis, but so have Korea and Thailand, two countries that took the orthodox IMF path.

Did the controls help Malaysia recover faster? The answer remains unclear. The imposition of capital controls in Malaysia coincided with a general improvement in the business climate in the region. Most economic indicators for Thailand and, especially, South Korea turned upward sharply just as Malaysia was beginning its own recovery. Kaplan and Rodrik (2001) found that the Malaysian controls produced better results than the alternative on almost all dimensions. On the real side, the economic recovery was faster, and employment and real wages did not suffer as much. On the financial side, the stock market did better, interest rates fell more, and inflation was lower.

Capital controls advocates such as Krugman (1999), and Jomo (2001) have taken a cool attitude towards the success of Malaysian policies, as there was a recovery even in the countries that did not impose controls. Some economists believed that Malaysia may

have imposed its controls in a much more favorable environment than the one that prevailed at the time that Korea (or Thailand or Indonesia) implemented their IMF programs, and this in turn may account for a substantial part of the speedier recovery in the former country.

For Kaplan and Rodrik (2001), it is not at all obvious that the external environment was improving for Malaysia during the second half of 1998 in the way that it had been for Thailand and Korea. Pressure on the ringgit remained very strong, even though the Korean won and Thai baht had already started to appreciate. Interest rates in both Korea and Thailand had declined significantly, whereas offshore interest rates on ringgit deposits remained in double digits. The recession in Korea and Thailand had already bottomed out by September 1998, with Korea in particular exhibiting a healthy rebound; but there were no indications of a similar easing up in Malaysia. Second, it is not at all obvious that an improvement in the external environment, to the extent that it did take place, would have produced much benefit for a country that actually excluded itself from international financial markets by implementing capital controls. To the extent that the controls were effective, they would have insulated Malaysia from an improvement in market sentiment.

It is clear that the speculative attacks differed in their timing on the Asian Crisis economies. Thailand was hit first, with the peak of the crisis occurring in September 1997. Korea followed with a few months lag, reaching a peak in January 1998. Malaysia was behind both countries, and it began to experience a sustained pressure in the foreign exchange market only during the early months of 1998. The peak for such a pressure is reached in August 1998, just before the imposition of capital controls. Korean reserves

sharply rebounded in early 1998, while Malaysia's reserves continued to fall. In fact, Malaysian reserves started to recover only after September 1998. This is also reflected in currency values, as the ringgit continued to depreciate from the end of March 1998 while the won steadily appreciated.

Kaplan and Rodrik (2001) estimate that in Malaysia, the reduction in growth following the imposition of capital controls was 5.2 percentage points lower than in Korea. They found that compared to Korea, Malaysia suffered smaller reduction in manufacturing employment (a difference of 19.1 percent), smaller drop in real wages (a difference of 10.8 percent), smaller drop in the stock market (a difference of 22.3 percent), larger reduction in interest rates (a difference of 3.9 percentage points), less currency depreciation (a difference of 18.5 percent), and a smaller increase in inflation (a difference of 1.8 percent).

Critics of the IMF such as Krugman (1999), Radelet and Sachs (2000), Feldstein (1998), and Furman and Stiglitz (1998), and UNCTAD (2000), among others, have argued that the IMF programs in the region aggravated the crisis and exacerbated financial panic (at least during the initial months) by calling for excessively contractionary monetary and fiscal policies, by mandating bank closures, by overreaching in structural reforms, and by not putting enough pressure on creditors for an early standstill on debt repayment. The findings by Kaplan and Rodrik (2001) are consistent with these critiques and suggest that the Malaysian policy was more successful in accomplishing an immediate reduction in interest rates, stabilizing the currency, and stemming financial panic. The turnaround in market confidence was correspondingly

faster. In addition, fiscal policy was on balance more expansionary. All these in turn spurred consumption and economic activity.

Kaplan and Rodrik (2001) hypothesize that there were two channels through which the capital controls worked. One was the standard Keynesian policy of stimulating demand, implemented through expansionary monetary and fiscal policies. The other, and perhaps more operative channel, was the removal of the substantial uncertainty about the financial system and the exchange rate, which had previously depressed confidence and business activity. Some economists believed that Malaysia was not confronted with a serious economic crisis of the type faced by the other countries. Nevertheless, it is clear that Malaysia was in the midst of a very severe real economic crisis, one comparable with the crises experienced by Thailand and Korea, by the time the controls were implemented.

Another hypothesis is that Malaysia's recovery was essentially due to the IMF-style policies it had put in place in 1997. However, there is in fact scarce evidence that the real economy was about to turn around in Malaysia. If anything, the economy was sinking deeper as time went on. Would Malaysia have been wiser by going to the IMF in late 1997 instead of waiting for another year and reacting by imposing capital controls as it did in late 1998? Perhaps. But, on the basis of the evidence brought by Kaplan and Rodrik (2001), one might also argue that Malaysia would have behaved even better if it had imposed capital controls sooner—better than earlier IMF policies, and better than they did subsequently. There are indications that FDI into Malaysia may have slowed down, and that bond spreads have remained a bit higher in relation to other countries in the region (Liu 2000). On the other hand, Korea and Thailand are left with large debts to

the IMF and other international lending institutions; Malaysia did not accumulate such debts.

II. 7 Summary

We examine the debate concerning capital controls on both inflows of capital, using as an example the often-praised use of those controls by Chile, and outflows of capital, illustrated by the often favorably cited example of Malaysia's response to the Asian Financial Crisis. Despite the frequent favorable assessment of these two economy's reliance on capital controls, the effects of capital controls on the economy are still debated and the long-term costs still in question. Chile's policies, for example, are said to have limited funds to the extremely important small-business sector, and Malaysia's policies may have had an adverse effect on the quantity and cost of long-term foreign capital. Quantitative assessments of the costs and benefits to these economies rely on complex time-series econometric models and this evidence is conflicting, complex and contested, even in cases of widely praised use of controls like Chile and Malaysia.

Policy-makers responsible for capital controls and experts who supported the use of controls claim success. In two cases (Chile and Malaysia), it is clear from the evidence that the controls at least influenced behavior of participants in financial markets. Nonetheless, on balance one cannot rely even on often cited cases of success to unambiguously support the argument that the benefits to an economy from imposing capital controls outweigh the long-term costs in terms of their effect on economic and financial market performance and their impact on the risk-return expectations of long-term investors and other market participants in economies imposing controls.

III. Innovative Policy Initiatives to Control Volatile Capital Flows

III.1 Background on Liquidity Crises

Markets are valuable to market participants because they constitute an efficient way to bring buyers and sellers together. One assessment of market performance is how rapidly transactions can be completed. A market where buyers and sellers can reliably transact in a short period, even though the prices may not be the most desirable, provides liquidity services to market participants. Everything else equal, traders prefer to deal in liquid markets. Another important role of active markets is “price discovery,” that is, providing a reliable source of the latest valuation by market participants on the different kinds of claims on productive assets traded in a given market. Good value and return information guides the allocation of risk capital in an economy into the most productive investments. Active trading by many traders relying on a given market means transaction costs, seen most often in bid-ask spreads, can be low as fixed costs of markets can be spread over many transactions and market makers seeking business lower spreads to competitive levels. In efficient markets, prices are informative, transaction costs are low, and participants can rely on the market for liquidity services under almost any circumstances.

Trading halts are major events for markets. First, the valuable benefits of liquidity and price discovery to traders and the economy at large disappear. Second, traders are forced to find new markets if they can, and if those markets prove to be more reliable, they are reluctant to return to the market that halts trading. Finally, closed

markets can change the types of instruments traders buy and sell, moving for example from cash markets to derivative markets that are not controlled.

An enormous economic and finance literature has emerged in response to the international capital market events of the 1990's and it is important in thinking about innovative policies to consider the basics of a crisis in order to understand how best to deal with one. All financial crises have liquidity dimensions requiring liquidation of assets by those directly damaged by the crisis. Some parties in a crisis are harmed because of a lack of money, cash, or acceptable liquid assets to meet obligations to counterparties. The lack of liquidity may be in terms of official reserves necessary for a central bank to defend an exchange rate peg, or lack of dollars for a private domestic borrower to service contractual debt obligations to a foreigner. Inadequate liquid assets can result from the requirement to service or repay debt obligations that are financing investments, from loss of a source of financing for working capital for business activities, from loss in the ability of selling assets in a short time span and without much harm, or the inability of an intermediary to continue financing other businesses if a investor or depositor does not renew a short-term liability of a financial institution.

Lack of liquidity causes a crisis because losses from selling assets for those facing a liquidity crisis are high because prices must be discounted to induce a buyer to trade, often resulting in values being inadequate to meet obligations, i.e. liquidation of assets can result in insolvency. Lack of liquidity occurs when markets where assets normally trade are halted or shut down for regulatory reasons, forcing an expensive search for possible buyers. Assets may be worth less than liabilities because asset sales interfere with a business' going-concern value by interrupting operations, for example goods-in-

process inventories are not ready for sale and must be heavily discounted, or long-term investments are not finished and ready for sale so must be sold as incomplete. Asset values are less than the debt obligations due to errors in valuations by lenders or changes in market conditions. The point is simply that liquidity crises are caused by the need to liquidate assets at prices that cause sellers problems and these crises are made worse when the liquidity provided by the usual asset markets are closed or limited. Liquidity crises are not necessarily international and do not necessarily involve international capital flows.

Closing or restricting trading on markets reduces or eliminates normal sources of liquidity, making liquidity crises worse. Transactions arising from non-restricted activities in a crisis may be impaired due to lack of liquidity in a subset of an economy's markets: closing down a market or limiting its trading has a chain effect on an economy. The lack of liquidity and consequent lack of flexibility may distort short-run and long-run investment strategies. And, of course, it may force some traders into insolvency.

Volatile international capital flows are funds from abroad that can be reversed when foreign counterparties withdraw or do not renew investments in an economy. While it is presumed that short-term liabilities to foreigners are a bigger problem for domestic economies, maturing long-term liabilities or large scheduled debt-service commitments also can cause liquidity problems, for example due to the presence of prepayment options. Short-term investments are not the only source of liquidity problems.

A particularly sensitive topic is short-term investment made in order to speculate on possible price changes. Most of the attention concerning international capital flows

has been on exchange rates that speculators believe are unsustainable. Speculation is not limited to foreign exchange, however: speculation can occur with commodity prices in narrowly defined markets or in financial asset values in more broadly defined classes of debt or equity markets.

Speculators are reviled because they are felt to cause crises. However, speculators only profit if prices like exchange rates are being fixed at unsustainable levels and ultimately change. Some of the disgust generated by speculators is due to the fact that they are often right and profit from others' mistakes or futile pursuit of desirable but unsustainable objectives, like an exchange rate peg. In the Asian Financial Crisis of 1997 and 1998, speculators (especially in Thailand and Malaysia) were accused of profiting from speculating on overvalued currencies. Despite economists' general acceptance of the stabilizing influence on markets of speculation in line with Milton Friedman's analysis, speculation is popularly dismissed as predatory profit seeking.

Hedge funds have been a particular focus for criticism for their speculative activities. A single hedge-fund speculator was accused of having a major role in the pressure on the ringgit in 1998. Without addressing the issues of speculation by hedge funds in the 1990's, the hedge-fund industry has changed dramatically since then, as noted in Part I of this paper. Recalling that discussion, since the Long-Term Capital collapse, hedge funds are more closely monitored by institutional lenders and investors, and a number of initiatives by multilateral organizations have focused on improving counterparty risk management involving hedge funds. This has no doubt limited these funds' access to speculative funds from debt. Second, the enormous growth in hedge fund assets has been accompanied by greater heterogeneity of hedge-fund expectations

and varying speculative positions. The average size of hedge funds has declined with the expansion of this financial activity.

As is discussed in Section I, exchange rate variability has increased dramatically since the 1990's crises such that the risks and possibility of errors in anticipated exchange-rate adjustments (needed for speculation to work) are much higher. Finally, most emerging market exchange rates are felt, if anything, to be undervalued relative to the overvalued dollar. The fear today is a run on the dollar and the newly designated Federal Reserve Board chairman's ability to deal with that possibility³. If these fears are real, the current environment requires an approach in the face of revaluation of emerging market economies rather than reconsideration of policies considered in the 1990's. In the following discussion, we analyze the appropriateness of a number of capital controls in the context of current conditions.

Direct market interventions to control investment flows can be thought of as consisting of two basic types: (1) trading halts and (2) prohibitions concerning clearing and settlement. Conceptually these are qualitatively different in that trading can cease and clearing and settlement of trades before the halt can take place during the trading halt. Stopping clearing and settlement prevents any transactions from being completed, whether they have already occurred or were planned. We organize our discussion in terms of these two different aspects of capital controls. Trading halts, as discussed below, we associate with "circuit breakers," while stopping clearing and settlement are discussed in the form of "bank holidays."

³ *Wall Street Journal*, October 26, 2005, "Big Challenges Await Bernanke In Managing Fed, the Economy" by Gregory Ip.

The following sections discuss possible innovations in the regulation of international capital markets experiencing rapid inflows or outflows of capital. Of particular focus in the next section are “circuit breakers” or temporary trading halts on exchanges. Circuit breakers are a form of “trigger mechanism” since they are implemented automatically upon a predefined change in market outcomes, as defined and discussed in the following section. A complete market shutdown in terms of payments is discussed using the example of “bank holidays” in Section III.3. The following section, Section III.4, uses these two extreme interventions to analyze possible intermediate international capital market interventions that can be a framework for thinking about innovative policies for international capital markets and focuses attention on the likely sources of crisis in the near future and the types of controls most useful for dealing with them. The final section summarizes the discussion of Part III.

III.2 Circuit Breakers

Circuit breakers are a market intervention that was first advocated and described in detail in the report of the Brady Commission created in response to the Stock Market Crash of 1987 in the United States. The commission’s recommendations are limited to markets related to trading in common stocks and derivatives related to common stocks in the United States. As the report describes:

Circuit breaker mechanisms involve trading halts in the various market segments. Examples include price limits, position limits, volume limits, trading halts reflecting order imbalances, trading halts in derivatives associated with conditions in the primary marketplaces, and the like. To be effective, such mechanisms need to be coordinated across the markets for stocks, stock index futures and options. Circuit breakers need to be in place prior to a market crisis, and they need to be part of the economic and contractual landscape. The need for circuit breaker mechanisms reflects the natural limit to inter-market liquidity, the inherently limited capacity of markets to absorb massive, one-sided volume.

Circuit breakers have three benefits. First, they limit credit risks and loss of financial confidence by providing a “time-out” amid frenetic trading to settle up and ensure that everyone is solvent. Second, they facilitate price discovery by providing a “time-out” to pause, evaluate, inhibit panic, and publicize order imbalances to attract value trades to cushion violent movements in the market. [p. 66]

Several aspects of circuit breakers are clear from this description. First, a primary role of circuit breakers is to enhance the liquidity of markets by allowing the enforcement of margin requirements and to avoid trade failures, while also giving time to additional traders to enter the market (providing additional liquidity) if prices are attractive to long-term investors. Nothing in the rest of the commission’s report or clearly in the above quotation relates to the prices at which securities should trade.

The only example of circuit breakers currently in place in U.S. securities markets are the organized exchanges, namely the New York Stock Exchange (NYSE), the Chicago Board of Trade (CBOT), where stock index futures and options related to prices on the NYSE trade, and the Chicago Mercantile Exchange (CME), trading contracts related to stock price or stock index levels similar to those traded on the CBOT. Currently, for example, NYSE trading halts for one hour before 1:30pm or one-half hour after that time if the Dow Jones Industrial Average (DJIA) changes more than 1050 points (around 10% of its current level). CBOT trading in the corresponding index futures contracts halts if at opening the index changes by 1050 (the current limit) or if NYSE trading is stopped; trading on the CBOT does not open after two hours if trading is halted on more than half the shares in the index. The circuit breakers on the NYSE stop trading for two hours or the rest of the trading day if the change in the DJIA index is greater than 20% and for one trading day if more than 30%. Circuit breakers have also been adopted by other exchanges, for example by the Kuala Lumpur Stock Exchange, and are similar to those on the NYSE.

Circuit breakers in the case of organized exchanges like the NYSE, the CBOT, and the CME are enforced by the exchanges and are invoked under very clearly specified changes in market conditions. These trading halts are designed to give broker members and clearing houses time to enforce margin requirements for traders. Trading halts clearly ease potential liquidity problems for those holding losing positions, because they need to raise their cash margins but the increase required cash is limited to a maximum change due to the trading halt. Losers have more time to raise funds if the change is greater and trading halts longer.

Nothing in the regulation of U.S. securities markets prevents trading in securities or indices by non-members of exchanges in the over-the-counter markets or through proprietary trading systems. To place this observation into context, in the U.S. and globally, a significant volume of trading in listed securities is moving off regulated exchanges. Furthermore, the greatest growth in derivative markets for credit risk, interest rates, and other asset markets, has been in over-the-counter markets. Implementation of trading halts in a circuit-breaker fashion have not been discussed or implemented in U.S. securities markets other than in equity markets and with trading limits applied to specific contracts. Circuit breakers are probably not enforceable in highly developed economies with many alternatives to trading on organized exchanges.

Derivative markets have grown enormously in recent years and perform the socially useful role of redistributing the risks in financial markets more efficiently than can be achieved by other types of contracts. However, derivative markets can also be used to defeat standard capital controls by speculators. Garber (1998) describes in detail the use of over-the-counter derivatives markets to speculate in the presence of capital

controls and also provides many examples. He shows how offshore trading in derivative contracts (futures, forwards, options, swaps and various combinations) can be used by speculators, financial institutions and commercial firms, and wealthy individuals to perform pure speculation and to leverage speculative positions. Garber concludes:

From the explosion in the use of derivative products has emerged a blind spot in both national and international surveillance of capital markets. Through derivatives both individual institutions and financial systems can be put at risk in magnitudes and from directions completely unknown to regulators. This problem arises because derivatives are ideal means of avoiding prudential regulations, given the universally slow adjustment of accounting principles to the advent of these products. On a more parochial level, the accounting principles on which the balance of payments data gathering exercise is based are being made increasingly obsolete. For each country, the extent of the problem is unknown because comprehensive data on derivatives are gathered only at long intervals, and even the triennial BIS data are not broken down into those relevant for emerging market economies. (p. 34)

Attempting to control speculation when derivative strategies are readily available poses an enormous challenge to policymakers.

The above discussion raises two points about use of derivatives that are relevant to the design of mechanisms, like circuit breakers, to halt trading: first, they may not be reported to regulatory authorities since most are off balance sheet accounting entries; and second, if the markets are offshore, the only control domestic market regulators could possibly implement would be limitations on payments to satisfy cash settlements. As discussed in the next section, identifying and enforcing control over such cash flows would seem to require such a high level of monitoring and intense enforcement as to pose a threat to normal commercial transactions entailing international settlements.

The foregoing discussion suggests that circuit breakers as currently used are effective only in organized exchanges and their effectiveness may be limited if applied to trading in over-the-counter markets. Further, the rapid development of derivative markets has made domestic control on trading of limited value in preventing speculation

from influencing critical economic values like exchange rates. The basic idea of circuit breakers, a temporary halt under pre-specified conditions to allow liquidity issues stemming from large price changes, does have some appeal. In the next section, we discuss how more inclusive trading halts have been imposed in the past.

III.3 Financial System “Holidays” (Bank Holidays)

As discussed in the first section of this part, all crises have liquidity dimensions. The most dramatic example of a liquidity crisis is a run on deposits when bank assets are thought to be worth less than their deposit liabilities. During the Depression in the United States, “bank holidays” were declared. In that instance, state and local authorities limited banks’ ability to process transactions by closing them for specified periods of time (hence “bank holidays”) or by limiting the amount of transactions (e.g. deposit withdrawals) banks could perform. Finally, in 1933, President Roosevelt declared a bank holiday on Sunday, March 5, to start the next day and that lasted ultimately ten days. This period was used to pass bank legislation that reassured depositors and began a period of bank regulation that lasted until the end of the 20th century.

Rockoff (2003) draws the parallel between the inter-regional transfers of gold and reserves in the United States that preceded the banking crisis of the Depression and the “twin crises,” a term associated with the financial crises of the 1990’s associated with banking and balance of payments crises⁴. Rockoff is not advocating the use of bank holidays. He shows how, even in the United States with an effective exchange rate of regional currencies (actually issues of the twelve local Federal Reserve banks) of one-to-

⁴ See Kaminsky and Reinhart (1999).

one, that liquidity problems occurred as asset values fell differentially in different regions and that depositors moved funds to banks felt to be more secure (largely Eastern banks). This movement of reserves caused bank runs (liquidity crises) and the capital flows represented capital flight from distressed regions.

A banking or complete financial system “holiday” is conceivable as a means to stop volatile capital flows from eroding policy goals, like a pegged exchange rate. The effect of such an action is to stop all transactions within the region and any ability to settle cross-border transactions. Of course, it would have repercussions on counterparties outside the economy that had expected transactions to be completed. Such a dramatic policy of capital controls seems unrealistic. Nonetheless, it is illuminating to consider why such a complete economy-wide trading halt is impractical.

The reason why complete suspension of payments is impractical is that economic activity would be completely halted or at least severely limited. No transactions could be completed in the economy affected by such a holiday without careful agreed-upon arrangements being made between each buyer for substitute promises in place of payments to counter-parties who promised to deliver real goods or services. For example, credit between counter-parties could be arranged so that goods could be delivered or contracts completed, but payment (settlement) would be delayed to a possibly unknown date (when the holiday ended) and perhaps the values of payments would change (due to regulatory intervention in the system).

Bank holidays reinforce a complete lack of confidence by depositors in the financial system. After the end of the holiday, banks will have serious difficulties in attracting deposits. The costs of such a complete lack of liquidity are clearly enormous.

The act of declaring such a bank holiday in the United States in 1933 was justified by the perception that the banking system was faced with total collapse. The appropriateness of the move has been actively debated.

Another question is whether even a complete halt in all transactions as in a bank holiday would eliminate the possibility of speculation and movements of financial assets (i.e. capital flows). Unless all communication was simultaneously severed, it seems clear that domestic residents could enter into arrangements to minimize the costs or maximize the profits from the expected conditions following the end of the halt. In any case, off-shore activity could not be stopped unless the halt were extended to all trading partners. All of these possibilities are unthinkable.

We are left with the following challenge in identifying innovative controls on capital flows. How can we implement, enforce, and analyze the effects of partial shutdowns of the international financial system to achieve specific goals that are qualitatively different than the types of controls that have been used heretofore? The next sections investigate the possibility of partial shutdowns of the payment systems to achieve this objective.

III.4 Partial Controls and “Trigger Mechanisms” for Capital Flows

The discussion in Part II revealed that policies can be developed and implemented to influence specific capital inflows and capital outflows, although the results on the policy objectives of interest are controversial. To structure thinking about selective controls, we present a list of eleven types of transactions that can be restricted by capital controls presented by Glick and Hutchison (2002):

- (1) capital market securities;
- (2) money market instruments;
- (3) collective investment securities;
- (4) derivatives and other instruments;
- (5) commercial credits;
- (6) financial credits;
- (7) guarantees, sureties, and financial backup facilities;
- (8) direct investment;
- (9) liquidation of direct investment;
- (10) real estate transactions;
- (11) personal capital movements. (p. 7, fn. 10)

This list may not be exhaustive and it does not consider the time or maturity dimension of international contracts. The list is illustrative of the intrinsic problem of selective capital controls because specific choices have to be made. The related problem, of course, is the different challenge in enforcing each of these different types of transactions, the possibility of deception or corruption in declaring the intention in specific transactions, and the distorting effects of selectively limiting some transactions. We encountered these issues in our discussion of the experience of capital controls in the 1990s, because those controls were variants of innovative capital flow restrictions we can consider by proposing new subsets of the above list of transactions to control through the payments system.

In thinking about possible controls that minimally distort the flow of transactions and capital and minimize risk to market participants, one innovation is to preannounce under what circumstances controls would be imposed and what they would be. Here the use of “trigger mechanism” in the context of a narrow segment of transactions would be an improvement over mid-crisis invocation of unexpected controls, since market participants would know when controls would be implemented and could make plans limiting potential liquidity problems should controls be invoked. Market participants

could assess the likelihood of occurrence as market events develop and provide for the impact on them of possible international capital market interventions.

There are two key problems. The first is defining appropriate triggers. For example, the Counterparty Risk Management Policy Group report (2005) states:

With the benefit of hindsight, it is not difficult to draw distinctions between financial disturbances and financial shocks. Unfortunately, in real time it is virtually impossible to draw such distinctions. Indeed, neither financial market participants nor policy makers have a good track record of anticipating the specific triggers – or their timing – that will cause financial disturbances, much less distinguishing in advance which disturbances have the likelihood of taking on shock-like features with systemic properties. In fact, even when the threat of a major financial disturbance is recognized by many – as for example, recent concerns about a dollar crisis or a significant rise in credit spreads – such awareness of a threat provides little assurance that the marketplace in general will anticipate whether, when and with what degree of severity such a disturbance will actually occur, much less anticipate whether the face of the disturbance will have potential systemic implications. (p. 6)

In line with this discussion, any trigger mechanism would be subject to signaling false crises or missing an unexpected source of a crisis.

The second problem with pre-announced triggers is that the possibility of costly restrictions on trading and settlement would be increased for any economy announcing such a policy, thus increasing the expected costs of doing business in that economy.

Market participants assessing the costs of doing business in various markets would have to weigh the advantages of well-specified policy interventions known in advance in one economy against the lower probability of controls or imposition of unexpected controls with possibly lower costs in another economy. The costs of the intention to intervene by an economy announcing controls upon firing of a trigger could well disadvantage economies announcing these trigger mechanisms, making them a politically undesirable option.

An exercise in thinking about innovative capital controls is to think about policies appropriate to a dollar crisis mentioned as a possibility in Part I and in the above quotation. Given that the dollar floats freely and has devalued around 50% in the last two years, it is clear that large changes in dollar exchange rates are possible in short time periods without provoking crises. What would be the rationale for policy interventions and what kind of policies would be relevant and how would trigger mechanisms be used to invoke those controls?

The rationale for emerging market economies to limit capital inflows would be based on protecting domestic policy initiatives when confronted sharply increased demand for short-term domestic currency liabilities (to be traded for dollar assets after the dollar devaluation). This would have the effect of lowering domestic interest rates and possibly forcing the central bank to sterilize the resulting capital flows to maintain monetary policy goals. The central bank itself might wish to switch out of dollar reserve assets, but this of course would even make the situation worse in terms of domestic assets returns.

The impact of emerging market economies, in terms of capital inflows, however, would seem to be much less than on the developed economy world. Because of the size of the dollar market, most capital flows would flow to the Euro, yen, sterling, Swiss franc, and other large markets. Since all of these exchange rates float freely, the impact on emerging markets would most likely be indirect. Assume the policy goal, however, is to limit short-term inflows of capital caused by speculation of further depreciation of the dollar, increases in dollar interest rates and fall in dollar asset values, and/or a search for safe harbors.

To continue this experiment, assume for example that the central bank and regulators of an APEC emerging market economy wish to stop or slow the flow of short-term capital into an economy and announce a trigger mechanism that controls will be active if the dollar depreciates more than 5% in a day or U.S. Treasury securities decline in value by a percent depending on maturity, say 1.25% for three-month Treasury bills (a 5% drop in interest rates) in a day and corresponding amounts for longer maturity securities.

Since volatile capital flows are usually classified as short-term capital flows, selective trading halts could possibly be arranged as partial “bank holidays” limited to certain kinds of transactions. For example, banks could be instructed that payments involving U.S. Treasury securities or close substitutes, like dollar denominated short-term deposits or bankers’ acceptances, or any subset of the list of transactions presented above, are suspended. There would be no clearing of transactions involving the specified list of securities.

Imposition of this type of payment control has several disadvantages. It would be costly to implement and control. The system would necessarily leave substantial discretion to banks and other members of the clearing system in terms of enforcement. This would open the controls to evasion and abuse. Second, these controls would be much more selective than other controls. It would appear that the implication of narrowly defined trading or clearing halts are more difficult to administer and easier to evade than the types of controls reviewed in Part II of this paper. Third, it would be difficult to identify transactions not on the restricted transaction list that could achieve the same speculative purpose.

By using banks to eliminate clearing for specified transactions, even if invoked under clear rules like a trigger, the loss of liquidity and costs of monitoring and controlling the implementation of the policy would cause problems for all market participants. The substitutability of short-term assets and the requirement of close supervision of all declared purposes of transactions would have spillover effects on virtually all payments. It seems clear that using the payments system for capital controls would be extremely costly and have many unintended consequences for the economy.

Controlling cash settlements might seem particularly attractive in limiting the impact of derivative strategies as described above. However, since the derivative contracts would most likely be off shore, the ability to disguise settlements is apparently unlimited. Simple transfers of cash cannot be prohibited without substantial dislocations, and determining the reason for the transfer (e.g. settling a derivative contract) impossible to discern in the absence of substantial investigative powers.

The conclusion is that, in the face of volatile capital flows, there is a limit to possible methods of controls. We have discussed the range of alternatives on capital controls from limited trading halts like the circuit breakers on exchanges discussed in Section III.2, invoking policies prohibiting clearing of specific transactions (a partial “bank holiday” as discussed above), and a total payment system shutdown with a real bank holiday as discussed in Section III.3. These policies define a spectrum of possible innovative capital control measures that have not been used before. If we accept this analysis of policy options, there is not much room for innovation outside of controls based on trading or payment halts that look substantially different than the controls that have been implemented in the past, like those described in Part II.

While highly focused and selective innovative capital controls governing specific inflows or outflows of capital in an economy may seem like an attractive policy tool, implementation would require the involvement of institutions, like banks, that would open such controls to burdensome monitoring or ineffectiveness or abuse. If APEC emerging market economy policymakers believe that capital controls are desirable in the face of the current economic situation, the above discussion and recent experience would suggest that the policy should be contingent on a previously announced “trigger mechanism,” a given change in a market indicator widely observed and beyond manipulation, and that the control be implemented across the board. Since interfering with the payments system in line with the previous discussion is costly, would likely influence relative asset valuations across economies and in implementation would be impractical, capital control methods used in the past are probably the most realistic intervention tools.

In choosing a control policy, low costs of implementation and minimal distortion of markets are the most desirable attributes. Among these policies, a “Tobin” tax on certain types transactions, possibly designed like the Chilean system such that the controls are more costly for short-term capital movements than long-term capital investments, may have some appeal. However, policymakers should keep in mind that all such controls have now been removed and any economy implementing such a policy would place its financial markets at a disadvantage. Furthermore, the effectiveness of such controls, as discussed in Part II, is unclear. The usefulness of capital controls with in the current environment of likely market disturbances or shocks, focused on dollar

assets, is questionable given the size of the emerging market money markets and the ability to evade controls through the use of derivatives.

III.5 Summary of Innovative Policy Recommendations

Capital controls limit market performance by reducing liquidity and price discovery. The most important attributes of effective markets are liquidity and reliable price discovery. By limiting trading, the usefulness to some or many participants of the market is reduced. Furthermore, trading halts, bank holidays, or selective payments controls have both an immediate effect and long-term effects. The loss of confidence in the reliable provision of liquidity and price information from a market may drive participants away. The economy is less efficient and fewer potentially active market participants will rely on unreliable markets. A market's or an economy's reputation for being a reliable place to complete transactions is accumulated slowly over time and only rebuilt after disruptions by substantial and credible commitments to not repeat the imposition of controls in the future.

Emerging APEC markets appear to be less vulnerable to current market concerns, like a run on the dollar devaluation or an increase in interest rates, than large developed economies that can probably absorb larger shocks. Designing and implementing innovative international capital flow restrictions present many practical challenges and any policy innovations are likely to have questionable policy advantages, if any, over traditional practices. An analysis of costs of trading halts through different market regulation methods like circuit breakers and bank holidays demonstrates that these

approaches are costly, hard to implement, and can be evaded. We conclude, that outside of trading halt types of capital controls, only a limited range of alternatives can be considered. Future international capital market controls, if necessary, will resemble those used in the past but may be improved if the policies were announced before a crisis and would be imposed only under pre-specified conditions, i.e. they were invoked by a publicly known trigger mechanism.

IV. Summary: Proposal for ABAC Policy Recommendations

The goal of APEC and ABAC is to promote open and integrated capital markets. Capital controls, by their nature, interfere with this goal. This paper demonstrates that these controls rarely produce their desired objectives and are often accompanied by negative unintended consequences. However, the costs of past financial crises experienced by APEC emerging economies and presumed to result from volatile capital flows has been large and may justify consideration of innovative capital market interventions.

The analysis in this paper supports the conclusion that the likelihood of anticipating and avoiding likely crises would be enormously enhanced with better and more timely data on capital flows, financial institution assets and liabilities, and on activity in derivative markets. This fact is nearly universally accepted but there has been little progress in improving data available. Thus, the first and least controversial recommendation is:

International institutions, individual economy central banks, finance ministries, economic research bureaus, and regulators should be encouraged to cooperate in an effort to improve the quality, timeliness, availability, comparability and credibility of international financial capital flow statistics and related macroeconomic and financial market data.

The analysis of the use of capital controls in the 1990s and consideration of possible innovative methods of avoiding crises or mitigating the costs of financial crises leads to the conclusion that any future controls will probably resemble those used in the past. Capital controls, if imposed, are less costly if they are transparent in application and

capital flow restrictions ideally should be imposed only under conditions that market participants can anticipate and plan for. However, capital controls should be implemented reluctantly (if at all), and should be relatively straightforward in application. The second and substantially more controversial recommendation based on this analysis is:

Capital controls should be implemented reluctantly and temporarily and should be invoked only in the case of easily identified changes in market conditions (i.e. linked to readily observable market outcomes). The least costly and less distorting method is a transaction tax, but those implementing these taxes must be aware that attempting to limit specific types of capital transactions under current market conditions may have limited effectiveness and can entail large reputation costs for the market and the economy imposing capital controls.

Finally, policy makers should not focus on past conditions in assessing the types of crises that might occur. The current situation is very different than that of the 1990s, and the likely disturbances or shocks to financial markets will like come from different sources, like a dollar crisis. A crisis of this type will have very different global and regional implications than the assaults on APEC economy financial systems in the past. The last recommendation is:

A concerted effort should be made by policymakers in APEC and in the APEC economies to carefully analyze the likely types of financial crises in the future given current economic conditions and update these assessments with future economic changes, disseminate concerns about possible disturbances or shocks to officials and regulators in the region, and encourage policymakers to plan specific policy responses, if any, to the anticipated nature of possible future crises.

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