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## **ADB Working Paper Series**

### **Adjustments of Capital Account Restrictions and Exchange Rate Regimes in East Asia**

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Naoyuki Yoshino, Sahoko Kaji,  
and Tamon Asonuma

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**Abstract**

This paper discusses adjustments of capital account restrictions and exchange rate regimes in East Asia. Monetary authorities have two options for these adjustments: gradual adjustments or rapid adjustments. We analyze the costs and benefits for both adjustment options in each area, i.e., capital account restrictions and exchange rate regime. The paper provides prominent country cases for each adjustment option to emphasize the benefits for policymakers. We then propose four transition policy options for East Asian countries aiming to relax capital account restrictions and increase flexibility in exchange rates from fixed regimes with capital account controls.

**JEL Classification:** F33, F41, F42

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# 1. INTRODUCTION

During the last two decades, East Asian countries have undergone developments in both capital account measures and exchange rate regimes. On the former, the Republic of Korea, Malaysia, and Thailand introduced measures on their capital account restrictions to immediately react in cases of exogenous shocks or surges in capital inflows, then relax gradually afterward. On the latter, some East Asian countries, such as the People's Republic of China (PRC) and Malaysia deviated from a conventional pegged arrangement associated with an increase in flexibility of exchange rates, while others, Indonesia and Thailand, departed from a managed floating regime by reducing the frequency of interventions.

Monetary authorities have to choose policy options on the two aforementioned areas. They have two options for adjustments to capital account restrictions: gradual adjustments or rapid adjustments. Similarly, for exchange rate regime adjustments, they must choose between gradual adjustments or rapid adjustments.

There are pros and cons for each option the monetary authorities must consider in the two areas. The desirable choice depends on the individual country's circumstances and policy targets, with the consequences reflected immediately in the welfare of the country.

Despite the importance of the choices in the two areas, there is limited discussion in the literature on the pros and cons of the options the monetary authorities have, and no detailed comparisons of case studies of these options.<sup>1</sup> The current paper attempts to fill in these gaps in the literature. In particular, we aim to answer the following two important questions for East Asian countries. What are the benefits and costs for options on (1) capital account adjustments, and (2) exchange rate regimes? What are the possible options for East Asian countries that are confronted by capital account restrictions and limited exchange rate flexibility?

Implications for the first question are as follows. For adjustments of capital account restrictions, gradual adjustments can provide a safeguard against further turbulence in international markets and create breathing space to pursue economic adjustments and accelerate other necessary reforms. The country can also benefit from the smaller welfare losses associated with the low volatility of its exchange rate. India in 1991–1999 attempted to benefit from these merits of gradual adjustment. However, authorities may alternatively enjoy the benefits of rapid adjustments, through which authorities can receive continuous capital inflows immediately after the removal of controls. Rapid liberalization can help to improve creditors' confidence and reestablish their credibility. Kenya in 1991–1995 and Peru in 1990–1991 are prominent cases of rapid adjustments in capital account restrictions.

For shifts in exchange rate regimes, gradual adjustments can allow monetary authorities to benefit from minimizing interest rate and exchange rate volatility. Moreover, there is less uncertainty in expected exchange rates following limited adjustments in exchange rates. Conversely, with rapid adjustments, the country can benefit from having no adjustment time or costs. The country can potentially receive the benefits of increased exchange rate flexibility immediately after it removes all measures on exchange rates. Clearly, it does not need to take several steps to relax measures or suffer the costs associated with relaxation.

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<sup>1</sup> Ariyoshi et al. (2000) summarize several case studies of capital account controls from the operational perspective.

On the second issue, we propose four transition policy options for East Asian countries aiming to relax capital account restrictions and increase flexibility in exchange rates from fixed regimes with capital account controls. For a shift to a basket peg, the authorities can take two approaches: gradual adjustments to capital account restrictions and exchange rates or rapid adjustments to capital account restrictions and exchange rates. In contrast, a shift to a floating regime involves two options: rapid adjustments of capital account restrictions and exchange rates without any interventions (toward a floating regime) or with interventions (toward a managed floating regime). Quantitative analysis of the PRC and Thailand by Yoshino, Kaji, and Asonuma (2015a) shows that the first-best solutions differ between the PRC and Thailand, even when both attempt to stabilize price levels; rapid adjustments of capital account restrictions and exchange rates toward a floating regime are desirable for the PRC, whereas gradual adjustments of capital account restrictions and exchange rates toward a basket peg are preferable for Thailand.

The rest of the paper is organized as follows. Section 2 overviews recent developments in capital account restrictions and exchange rate regimes in ASEAN+3 countries in the post-Asian financial crisis period. Section 3 compares gradual and rapid capital account adjustments. Gradual and rapid exchange rate adjustments are contrasted in Section 4. We propose transition policy options for the monetary authorities and show quantitative estimates for each policy for the comparison. A short conclusion summarizes our discussion.

## 1.1 Literature Review

This paper is related to studies by Ostry et al. (2010, 2011a, 2011b); Ariyoshi et al. (2000); Edwards and Rigobon (2011); Forbes (2007); Kawai and Takagi (2004, 2008); and Chamon and Garcia (2014), which examine adjustments of capital account restrictions in emerging market countries.<sup>2</sup> Ostry et al. (2010, 2011a, 2011b) focus in particular on the conditions under which controls may be justified. Ariyoshi et al. (2000) provide a detailed analysis of specific country cases to shed light on the potential costs or benefits of capital controls. On effectiveness of controls in country cases, Edwards and Rigobon (2009) find a stronger (but still modest) effect of Chilean controls on the exchange rate, while Forbes (2007) analyzes the potential costs of the Chilean controls, finding that they increased financing costs, particularly for small and medium-sized enterprises. Chamon and Garcia (2014) find that capital control measures in Brazil from late 2009 had some success in segmenting the Brazilian economy from global financial markets.<sup>3</sup>

The paper also contributes to the literature on adjustments of exchange regimes in emerging market countries, for instance, studies by Rogoff et al. (2003), Ghosh (2009), Duttagupta, Fernandez, and Karacadag (2004) and Yoshino, Kaji, and Asonuma (2014a, 2015a). Rogoff et al. (2003) argue that relatively developed emerging market economies with open capital accounts appear to gain from exchange rate flexibility. Ghosh (2009) finds that among emerging market countries, there is significant hollowing out of the intermediate regime classification and the proportion of both *de jure* and *de facto* floating exchange rate regimes has increased. In a similar manner,

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<sup>2</sup> Baba and Kokenyne (2011) show that controls in Brazil, Colombia, the Republic of Korea, and Thailand in the 2000s are generally associated with a decrease in inflows and a lengthening of maturities, but the relationship is not statistically significant in all cases and the effects are temporary.

<sup>3</sup> Clements and Kamil (2009) find that the 2007–2008 Colombian unremunerated reserve requirement (URR) did not have a significant impact on the volume of non-FDI flows or moderate exchange rate pressures.

Duttagupta, Fernandez, and Karacadag (2004) document that a growing number of countries have adopted more flexible regimes over the past decade and among the countries that voluntarily shifted to flexible regimes, the transitions have often been gradual. Lastly, Yoshino, Kaji, and Asonuma (2014a, 2015a) analyze the optimal transition path from a fixed regime to a basket peg or floating regime in East Asia.<sup>4,5,6</sup>

## **2. RECENT DEVELOPMENTS IN CAPITAL ACCOUNT RESTRICTIONS AND EXCHANGE REGIMES IN ASEAN+3**

This section overviews recent developments in capital account restrictions and exchange rate regimes adopted by the ASEAN+3 countries in the post-Asian financial crisis period. During the period, the Republic of Korea, Malaysia, and Thailand introduced measures on capital account restrictions to quickly react to exogenous shocks and surges in capital inflows, then relax gradually afterward.<sup>7</sup> Some East Asian countries, the PRC and Malaysia, deviated from a conventional pegged arrangement associated with an increase in flexibility of exchange, while others, Indonesia and Thailand, departed from a managed floating regime by reducing the frequency of interventions.

Table 1 reports capital account management measures in Malaysia, Thailand, and the Republic of Korea. The Malaysian authorities introduced capital controls in September 1998, aimed at eliminating offshore ringgit activities and restricting portfolio capital outflows. As the economy became more resilient and stabilized, however, controls on portfolio outflows were eased and eventually removed. The 12-month holding period restriction on portfolio capital was replaced by a two-tier, price-based exit system in February 1999, which was further eased and reduced in September 1999 and February 2001, and finally eliminated in May 2001. Offshore transactions in ringgit remained prohibited and relaxed in April 2004.

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<sup>4</sup> Several studies show that a basket peg is more desirable than a dollar peg, for instance Ito, Ogawa, and Sasaki (1998); Ito and Park (2003); Kawai (2004); Ogawa and Ito (2002); Yoshino, Kaji, and Suzuki (2004); Yoshino, Kaji, and Asonuma (2004); Shioji (2006a, 2006b); and Bird and Rajan (2002).

<sup>5</sup> Other literature discusses that a floating regime is also an option for East Asian countries. See Adams and Semblat (2004), Sussangkarn, and Vichyanond (2007), and Yoshino, Kaji, and Asonuma (2004).

<sup>6</sup> Yoshino, Kaji, and Asonuma (2014b) explore whether actual exchange rate policies implemented by East Asian countries follow or deviate from theoretically “desirable” policies over the medium and long terms.

<sup>7</sup> Appendix 1 summarizes capital account measures in other emerging market countries, Brazil and Colombia, in 2005–2013.



**Table 1: Changes in Capital Account Management Measures during 1998–2010**

Country	Period	Major Policy Measures
Republic of Korea	2001–2008	<p><b>Outflow Liberalization</b></p> <p>Limits on deposits abroad were eliminated. The limit on lending to nonresidents was increased and residents' personal capital transfers were liberalized in 2001. The ceiling on commercial credits was increased in 2002. The limit on individuals' foreign direct investment (FDI) was raised to \$3 million and on certain real estate purchases to \$500,000 in 2005. Following a further increase, they were eliminated in March 2006.</p> <p>The rules for the repatriation of proceeds from capital transactions were further eased, and all approval requirements for capital transactions were changed to notification requirements in January 2006. The threshold for prior notification of won-denominated loans to nonresidents was raised to W10 billion in 2006 and to W30 billion in 2007. Real estate purchases and establishment of bank branches abroad were further liberalized during 2007–2008.</p>
Malaysia	1998–2001	<p><b>Outflows Controls</b></p> <p>In September 1998, a 12-month waiting period was imposed for nonresidents to convert ringgit proceeds from the sale of Malaysian securities held in external accounts. This restriction excluded FDI flows, repatriation of interest, dividends, fees, commissions, and rental income from portfolio investment. No such restriction existed previously.</p> <p>In February 1999, the 12-month holding period rule for repatriation of portfolio capital was replaced with the imposition of a graduated system of exit levy on the repatriation on the principal of capital investments made prior to 15 February 1999. In September 1999, the two-tier levy system was replaced with a flat 10% levy on repatriation of profits on portfolio investment, irrespective of when the profits were repatriated. The 10% exit levy on profits repatriated after 1 year was abolished in February 2001. Profits repatriated within 1 year remained subject to the 10% levy. In May 2001, the 10% exit levy on the repatriation of portfolio profits was removed completely.</p>
	1998–2008	<p><b>Ringgit Transactions</b></p> <p>A requirement was introduced in September 1998 to repatriate all ringgit held offshore, including ringgit deposits in overseas banks, by 1 October 1998; this required approval by Bank Negara Malaysia thereafter. An approval requirement was imposed on transfers of funds between external accounts and for the use of funds other than for permitted purposes (i.e., the purchase of ringgit assets). Licensed offshore banks, which had previously been able to trade up to permitted limits, were prohibited from trading in ringgit assets.</p> <p>In September 1999, to provide foreign investors with more flexibility in managing their portfolios and risks, Bank Negara Malaysia relaxed controls on lending in ringgit to foreign stockbroking companies. In April 2004, resident companies with domestic borrowing were allowed to open non-export foreign currency accounts with licensed onshore banks in Malaysia to retain foreign currency receivables other than export proceeds with no limit on the overnight balances.</p> <p>Resident companies without domestic borrowing were allowed to open non-export foreign currency accounts (FCAs) in licensed offshore banks in Labuan up to an overnight limit of \$500,000 or its equivalent. Resident individuals with funds abroad (not converted from ringgit) were allowed to maintain non-export FCAs offshore without any limit imposed on overnight balances. The requirement to submit a monthly statement, Statement OA, by resident companies maintaining FCAs with licensed offshore banks in Labuan or overseas banks was abolished in January 2008.</p>

Thailand	2006–2008	<b>Unremunerated Reserve Requirement</b> A 1-year unremunerated reserve requirement (URR) of 30% was put in place for capital inflows, except for FDI and amounts not exceeding \$20,000, on 19 December 2006. Early repatriation was subject to a refund of only two-thirds of the URR. Equity investments traded on the stock exchange were exempted from the requirement from 22 December 2006. There were additional exemptions in early 2007. Certain investments in property funds and long-term foreign borrowing not exceeding \$1 million were made exempt from the URR in December 2007. The URR was eliminated on 3 March 2008.
	2003–2008	<b>Inflow Controls</b> Short-term baht borrowing from nonresidents was limited to B50 million, and a limit of B300 million was introduced on nonresidents' baht accounts in 2003. Nonresidents' accounts carried no interest except for fixed income accounts with maturities of at least 6 months. Banks were not allowed to issue or sell bills of exchange in baht of any maturity to nonresidents from 15 November 2006. Sell-and-buy-back transactions of debt securities were prohibited and a 3-month holding period on investments in government debt securities was introduced on 4 December 2006; a B50 million limit was placed on banks' borrowing of baht with maturities of less than 6 months from nonresidents. The limit on banks' baht borrowing and baht transactions comparable to borrowing from nonresidents without underlying trade or investment in Thailand was decreased to B10 million on 3 March 2008.
	2002–2008	<b>Outflow Liberalization</b> Investments in employee stock option plans and real estate up to a limit and lending to affiliated companies was allowed in 2002, and an aggregate limit was established on foreign investments of institutional investors in 2003. Foreign companies were allowed to issue baht-denominated bonds subject to approval by the Ministry of Finance in 2006. Significant outflow liberalization started in 2007 with gradual increases in the maximum Thai citizens could invest in foreign affiliates: \$50 million in January 2007 and \$100 million in February 2008. The ceiling on institutional investor foreign portfolio investments was increased to \$50 million in January 2007. In July 2007, the maximum for real estate purchases and other personal remittances abroad was increased to \$1 million and listed companies were allowed to make outward FDI of up to \$100 million. The limits on lending abroad were increased to \$100 million and its scope expanded in February 2008; the maximum on real estate purchases was increased to \$5 million. In March 2008, banks were allowed to lend baht to or engage in comparable transactions, i.e., swap with nonresidents up to B300 million, and portfolio investments by resident individuals were allowed through private funds and securities companies.

Sources: Ariyoshi et al. (2000); Baba and Kokenyne (2011); International Monetary Fund (2014); Kawai and Takagi (2004); Meesok et al. (2001).

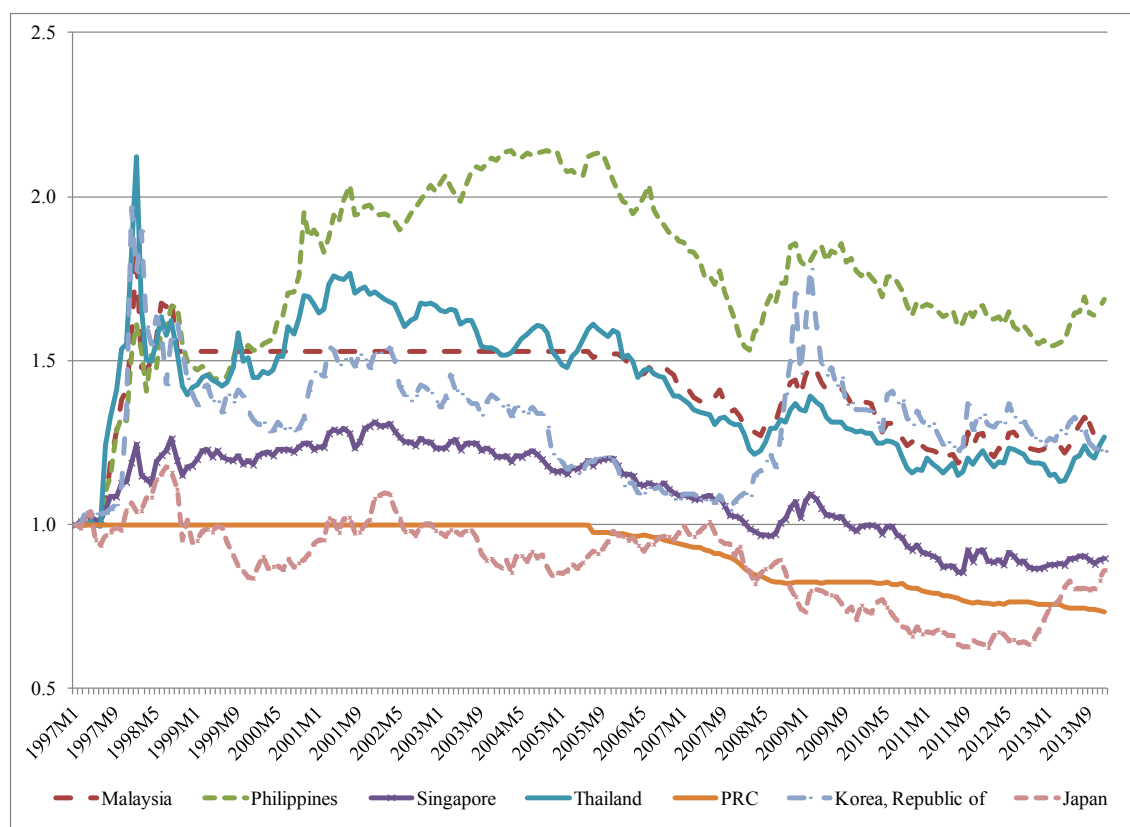
In the case of Thailand, limits on baht deposits for nonresidents were introduced in 2003 and some capital controls were also tightened in November and December 2006. The authorities introduced an unremunerated reserve requirement (URR) of 30%.<sup>8</sup> This was adjusted several times until it was finally eliminated in January 2008. In contrast, in the Republic of Korea, the authorities progressively liberalized capital outflows.

<sup>8</sup> Financial institutions were required to withhold 30% of all foreign currency purchased or exchanged against baht exceeding \$20,000. The amount withheld was refunded after 1 year on proof that the funds had been kept in Thailand for at least 1 year. To further discourage short-term inflows, funds transferred abroad within 1 year were effectively taxed at a rate of 10% because only two-thirds of the 30% withheld could be refunded. See more in Baba and Kokenyne (2011).

Relaxation of the controls on outward investments was accelerated, partially to stem appreciation pressures, resulting in the elimination of most of the controls by 2007.

Figure 1 portrays fluctuations of exchange rates of ASEAN+3 currencies against the US dollar, normalized with respect to pre-crisis (January 1997) values.<sup>9</sup> Clearly, most ASEAN+3 currencies except the Chinese renminbi, Malaysian ringgit, and Japanese yen depreciated during the post-crisis period.<sup>10</sup> With the onset of the Asian financial crisis, these countries abandoned their de facto dollar-peg regimes and allowed their currencies to fluctuate. Flexibility in exchange rates was necessary for these countries as they needed to mitigate the transmission of external shocks and allow their exchange rates to be determined at the appropriate levels, justified by macroeconomic fundamentals.

**Figure 1: Nominal Exchange Rates of ASEAN+3 Currencies against the US Dollar (January 1997=1)**



PRC = People's Republic of China.

Note: Indonesia has been excluded due to large fluctuations in its exchange rate during 1997–1998.

Source: IMF International Financial Statistics.

<sup>9</sup> Figure A1 includes exchange rate fluctuations in Indonesia.

<sup>10</sup> The Indonesian rupiah remained constant during the post-crisis period, but had already depreciated substantially during the crisis period (July 1997–December 1998).

On the contrary, the PRC and Malaysia, in particular, experienced gradual appreciations of their currencies following their departure from *de facto* dollar-peg regimes in July 2005.<sup>11</sup> They needed flexibility in their exchange rates for adjustments to external imbalances and opted to shift when most of the East Asian economies had already fully recovered from the crisis and global market conditions were fairly favorable.

Recent transitions of *de jure* exchange rate regimes in ASEAN+3 over 1999–2010 are summarized in Table 2.<sup>12</sup> According to IMF (2014), *de jure* exchange rate arrangements are those that authorities officially announce, and are differentiated from the *de facto* classification based on arrangements on market-determined exchange rates as in Ilzetzi, Reinhart, and Rogoff (2010). It is noteworthy that most countries in ASEAN+3, except Japan, shifted from one regime to another in the post-Asian Financial Crisis period or at least changed to some small degree. Among them, we see two patterns of regime changes. One is a deviation from a conventional pegged arrangement associated with an increase in flexibility of the exchange rate, as in the PRC and Malaysia. The other is a departure from a managed floating regime owing to a reduction in interventions, as in Indonesia and Thailand.

**Table 2: Transitions of *De Jure* Exchange Rate Regimes in ASEAN+3**

Country	1999 <sup>a</sup>	2005 <sup>a</sup>	2008 <sup>b</sup>	2010 <sup>b</sup>
Indonesia	Independently floating	Managed floating with no pre-determined path for the exchange rate	Floating	Stabilized arrangement <sup>c</sup>
Malaysia	Conventional pegged arrangement	Managed floating with no pre-determined path for the exchange rate	Floating <sup>d</sup>	Other managed arrangement <sup>e</sup>
Philippines	Independently floating	Independently floating	Floating <sup>f</sup>	Floating <sup>f</sup>
Singapore	Managed floating with no pre-determined path for the exchange rate	Managed floating with no pre-determined path for the exchange rate	Floating <sup>g</sup>	Other managed arrangement <sup>e</sup>
Thailand	Independently floating	Managed floating with no pre-determined path for the exchange rate	Floating <sup>f</sup>	Floating <sup>f</sup>
PRC	Conventional pegged arrangement	Conventional pegged arrangement	Stabilized arrangement	Crawl-like arrangement

<sup>11</sup> Ma and McCauley (2011) find that in the 2-year period from mid-2006 to mid-2008, the renminbi strengthened gradually against trading partner currencies within a narrow band.

<sup>12</sup> IMF (2009) explains in Article IV, Section 2(a) of the IMF's Articles of Agreement and Paragraph 16 of the 2007 Surveillance Decision No. 13919-(07/51) that each member is required to notify the fund of the exchange arrangements it intends to apply and to notify the fund promptly of any changes in its exchange arrangements.

Japan	Independently floating	Independently floating	Free floating <sup>f</sup>	Free floating <sup>f</sup>
Korea, Rep. of	Independently floating	Independently floating	Free floating <sup>f</sup>	Floating <sup>f</sup>

PRC = People's Republic of China.

Notes: <sup>a</sup> The categories of exchange rate arrangements over 1999–2007 are: (1) hard pegs comprising (a) exchange arrangements with no separate legal tender and (b) currency board arrangements; (2) soft pegs consisting of (a) conventional pegged arrangements, (b) pegged exchange rates within horizontal bands, (c) crawling pegs, and (d) crawling bands; and (3) floating regimes, under which the exchange rate is market determined and characterized as (a) independent floating or (b) managed floating with no pre-announced path for the exchange rate. See IMF (2008).

<sup>b</sup> The categories of exchange rate arrangements over 2008–2010 are: (1) hard pegs comprising (a) exchange arrangements with no separate legal tender and (b) currency board arrangements; (2) soft pegs consisting of (a) conventional pegged arrangements, (b) pegged exchange rates within horizontal bands, (c) crawling pegs, (d) stabilized arrangements, and (e) crawl-like arrangements; (3) floating regimes, under which the exchange rate is market determined and characterized as (a) floating or (b) free floating; and a residual category, other managed arrangements. See IMF (2014).

<sup>c</sup> The exchange rate is determined by supply and demand in the foreign exchange market. Bank Indonesia, however, may intervene in the foreign exchange market—as part of a policy mix—whenever necessary to achieve the inflation target, as well as the stability of the rupiah exchange rate. In conducting the intervention, Bank Indonesia does not target a specific level of rupiah exchange rate or maintain exchange rate movements in a specific band.

<sup>d</sup> The ringgit is managed with reference to a currency basket. The composition of the basket is not disclosed. Effective 2 February 2009, the classification of the de facto exchange rate arrangement was changed from managed floating with no predetermined path for the exchange rate to floating, retroactively to 30 April 2008, due to the revision of the classification methodology.

<sup>e</sup> Bank Negara Malaysia operates a de jure managed float for the ringgit with reference to a currency basket. The composition of the basket is not disclosed. As a result of the ringgit tracking a composite, although not closely enough to be classified as a stabilized arrangement against a composite, the de facto exchange rate arrangement is classified as other managed arrangement. For Singapore, the de jure exchange rate arrangement is floating. The Singapore dollar is allowed to fluctuate within a targeted policy band and is managed against a basket of currencies of the country's major trading partners and competitors.

<sup>f</sup> According to IMF (2009), a *floating* exchange rate is largely market determined, without an ascertainable or predictable path for the rate. In particular, an exchange rate that satisfies the statistical criteria for a stabilized or a crawl-like arrangement will be classified as such unless it is clear that the stability of the exchange rate is not the result of official actions. Foreign exchange market intervention may be either direct or indirect, and serves to moderate the rate of change and prevent undue fluctuations in the exchange rate. Furthermore, this floating exchange rate can be classified as *free floating* if intervention occurs only exceptionally and aims to address disorderly market conditions, and if the authorities have provided information or data confirming that intervention has been limited to at most three instances in the previous 6 months, each lasting no more than 3 business days.

<sup>g</sup> The Singapore dollar is allowed to fluctuate within a targeted policy band and is managed against a basket of currencies of the country's major trading partners and competitors. The various currencies are assigned weights in accordance with the importance of the countries to Singapore's trade relations with the world. The exchange rate policy is announced every 6 months in the Monetary Policy Statement, typically in terms of changes to the slope of the policy band. The US dollar is the intervention currency.

Source: IMF Annual Report on Exchange Rate Arrangements and Exchange Restrictions (2008, 2009, 2014).

### 3. ADJUSTMENTS ON CAPITAL ACCOUNT RESTRICTIONS

#### 3.1 Benefits and Costs for Gradual and Rapid Capital Account Adjustments

The monetary authorities have two options to relax capital account restrictions: (A) gradual liberalization and (B) rapid liberalization. There are both benefits and costs associated with each policy option as summarized in Table 3.

**Table 3: Benefits and Costs of Options for Capital Account Liberalization**

Option of Removal of Capital Account Restrictions	Benefits	Costs
<b>Gradual</b>	Safeguard against turbulence in the international capital markets (stabilizing interest rates)	Limited capital inflows during adjustment periods
	Breathing space to pursue economic adjustments and to accelerate other reforms	Adjustment (implementation) costs
	Low volatility of exchange rates	Loss in reputation from international creditors
	-	Externality on FDI flows
<b>Rapid</b>	Continuous capital inflows (associated with no adjustment period)	Lack of safeguard against turbulence in the international capital markets
	No adjustment (implementation) costs	No breathing space to pursue economic adjustments or accelerate reforms
	No reputation loss	High volatility of interest rates during rapid removal
	No externality on FDI flows	High volatility of exchange rates during rapid removal

FDI = foreign direct investment.

Source: Kawai and Takagi (2004) and authors.

Three benefits of gradual liberalization deserve attention. First, gradual adjustment of capital account measures provides a safeguard against further turbulence in international markets.<sup>13</sup> It ensures greater monetary policy autonomy to stabilize interest rates. Clearly, capital inflows and outflows are limited and at least under the control of the monetary authorities during the adjustment period. These flows do not endanger the scope of the monetary policy. Second, in line with the previous point, the gradual adjustments create breathing space to pursue economic adjustments and to accelerate other necessary reforms. Rather than reacting to exogenous shocks associated with shifts, the authorities are able to focus on implementing necessary reforms. Finally, given limited capital inflows and outflows, the exchange rate becomes less volatile and causes less disruption to the economy. Small open economies with large capital and trade accounts, in particular, enjoy the advantage of less volatility in exchange rates.

On the negative side, gradual adjustments entail some sources of costs: (1) During the adjustment period, capital inflows to the economy are limited, which negatively affects growth; (2) there are required implementation of relaxing some measures at each step

<sup>13</sup> Kawai and Takagi (2004) emphasize the benefits of controls on capital outflows in Malaysia and explain how they represented a national safeguard against further turbulence in international financial markets.

of the adjustment process; (3) leaving capital account restrictions in place creates uncertainty for foreign creditors, erodes confidence, and can cause creditors to form biased expectations; and (4) despite the explicit exemption of FDI from capital account restrictions, FDI inflows are negatively and indirectly influenced by restrictions on portfolio flows.<sup>14</sup>

In contrast, the authorities enjoy three sources of benefits through the rapid adjustments. First, instantaneously after the removal of the capital restrictions, the authorities receive continuous capital inflows that support growth. Second, as the authorities remove all capital control measures at once, there are no costs required for implementing remaining measures. Thirdly, the rapid liberalization helps improve the confidence and credibility of creditors since any uncertainty generated by capital restrictions is eliminated. Lastly, there are fewer spillovers to FDI inflows to the country as foreign firms are less skeptical of developments to capital accounts.

For the costs of the gradual adjustments, they lack a safeguard against turbulence in the international capital markets. In a similar vein, the gradual adjustments do not create any breathing space for the authorities to pursue economic adjustments or to accelerate reforms. In this regard, the authorities need to react immediately to exogenous shocks affecting the economy. Moreover, rapid adjustments of capital account measures trigger unexpected market uncertainty and facilitate immediate capital flows. As a consequence, interest rates and exchange rates become more volatile, which negatively affects the economy.

### **3.2 Country Experience of Gradual Capital Account Liberalization**

Next, we explore the case of gradual capital account liberalization in India over 1991–1999. Ariyoshi et al. (2000) summarize the sequences of reforms in India as follows. Trade, current payments, and foreign direct investment were liberalized first in 1991. Then the start of financial system reform and the liberalization of portfolio equity investment followed in 1992. Additional liberalization of portfolio and foreign direct investment was undertaken in 1993 and 1994, in parallel with further reforms of trade policies, current foreign exchange transactions, and the financial sector. The gradual reduction in the cash reserve requirement and statutory liquidity requirement that began in 1991–1992 continued, and government reliance on central bank financing was limited, *inter alia*, to support the move to indirect monetary policy instruments. There was a temporary tightening of restrictions on portfolio equity inflows in 1995, followed by a resumption of a gradual forward movement in financial sector restructuring and capital account liberalization, including most notably steps to loosen restrictions on external commercial borrowing and banks' foreign borrowing and lending in 1997 and 1998.

As pointed out in Ariyoshi et al. (2000), India's approach to capital account liberalization therefore emphasized loosening restrictions on longer-term and ownership-based inflows first, with shorter-term transactions and outflows being liberalized only once considerable progress had been made in financial sector reform. This approach reflected the lessons of the 1991 crisis.

In addition, aside from the bold measures taken in 1991–1992, India has eschewed a “big bang” approach to capital account liberalization and financial sector reform,

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<sup>14</sup> Kawai and Takagi (2004) point out that the imposition of selective controls may also have led foreign firms to take a more cautious approach toward making new direct investments when Malaysia implemented capital controls on outflows.

preferring instead to move simultaneously, cautiously, and steadily on many fronts at once. The cautious pace of capital account liberalization has been largely motivated by a desire to first put in place the appropriate preconditions, including sound macroeconomic policies and a stable financial system.<sup>15</sup> The reform of the largely state-controlled banking system has proven to be particularly difficult.

In short, India's approach in 1991–1999 aimed to take advantage of the merits of gradual capital account adjustments: maintaining a safeguard and have breathing space to pursue economic adjustments.

### 3.3 Country Experience of Rapid Capital Account Liberalization

Ariyoshi et al. (2000) document some country experiences of rapid capital account liberalization. Among them, the most prominent cases are (i) Kenya in 1991–1995 and (ii) Peru in 1990–1991.<sup>16</sup>

Kenya embarked on a wide-ranging liberalization program including relaxing restrictions on foreign currency transactions. A significant step toward liberalization of current and capital account transactions was made in 1991 with the introduction of foreign exchange bearer certificates of deposits (FEBCs), which were available to residents and nonresidents alike, traded in the secondary market with no need for licenses or registration. At the same time, some enterprises were permitted to hold foreign currency-denominated accounts abroad or with authorized banks domestically. As a consequence, banks were allowed to conduct business in foreign currency and buy and sell foreign exchange contracts at market-determined rates without any restrictions on the account or the period covered. In 1994, the Kenyan shilling became fully convertible and Kenya accepted the obligations of Article VIII.

Finally, in 1995, all remaining foreign exchange controls were eliminated and the authority to license and regulate foreign exchange transactions was transferred to the central bank. In the course of 1995, restrictions on investment by foreigners in shares and government securities were eliminated. All remaining restrictions on capital account transactions were removed with a few exceptions: a ceiling on purchases of equity by nonresidents (40% on aggregate, 5% for individual investors); approval from the Capital Markets Authority prior to the issuance of securities locally by non-residents or abroad by residents as well as derivative securities; and government prior approval for the purchase of real estate.

Despite the introduction of these liberalization measures, Kenya experienced a sharp economic downturn from late 1991 onward. GDP growth decelerated from 4.7% in 1990 to –0.8% in 1992, while inflation increased from 21.8% to 53.5% during the same period. Further deteriorations in economic conditions associated with abuse of public funds during the democratic elections brought Kenya into a full-fledged crisis in early 1993. The money supply continued to increase throughout the period, inflation

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<sup>15</sup> In 1997, a committee of experts (the Committee on Capital Account Convertibility, or “Tarapore Committee”) was appointed to undertake preparatory work toward full capital account convertibility. The report of the committee establishes a number of preconditions for liberalization. Fiscal consolidation, lower inflation, and a stronger financial system were seen as crucial.

<sup>16</sup> Similarly, Argentina initiated the process of eliminating restrictions on international current and capital payments and transfers in 1989 and completed the process in 1991 under the Convertibility Plan. The adoption of a currency board was followed by a remarkable increase in capital inflows in 1991–1994, reflecting the removal of legal restrictions, the privatization program, and the regularization of relations with external creditors through the Paris Club and Brady operations.



accelerated further, and external payments arrears emerged for the first time in late 1992. Several commercial banks were allowed to maintain overdrafts with the central bank, obtain export pre-shipment financing facilities, draw checks against insufficient funds, abuse the clearing system, and delay payments. A number of banks persistently violated the statutory cash and average reserve ratios. Following their liberalization, interest rates increased and became positive in real terms. Finally, the shilling depreciated rapidly.

Similarly, Peru implemented a wide-ranging program aimed at liberalizing most sectors, including liberalization of the capital account in 1990. The multiple exchange rate that had been put in place in the mid-1980s to protect the balance of payments was unified in 1990. The exchange rate was allowed to float, quantitative import restrictions were lifted, the previously complex tariff system was consolidated, and export subsidies were eliminated.

New legislation on foreign investment was subsequently introduced in August and November 1991 as part of the liberalization program. These changes were made part of the new constitution enacted in January 1994. The constitution subjected national and foreign investors to the same terms, although foreign investment was required to be registered with the National Commission on Foreign Investment and Technology. Foreign investors were allowed to freely remit profits or dividends (the previous system established a ceiling on remittance of profits equal to 20% of the investment, with exceptions granted to some sectors); freely re-export capital; access domestic credit; acquire shares owned by nationals; and contract insurance for their investment abroad. Exporters and importers were permitted to undertake foreign exchange transactions in the market without intermediation by the central bank, and full convertibility of the currency (the "sol") was guaranteed by the constitution. Residents and nonresidents were permitted to open foreign currency-denominated accounts in any financial institution offering such accounts, although differentiated (higher) reserve requirements on foreign currency deposits were maintained throughout. In subsequent years, foreign investment increased substantially, with a stock of foreign direct investment rising from \$1.3 billion in 1990 to \$6 billion in 1995.

Contrary to Kenya, capital account liberalization in Peru was undertaken when US interest rates were declining and domestic interest rates were high, reflecting an anti-inflationary monetary policy. These circumstances, together with a significant improvement in fundamentals resulted in sustained capital inflows and, with the adoption of the floating exchange regime, in a sharp appreciation of the currency: between 1990 and 1995 the real effective exchange rate appreciated by 25%. The current account deficit increased significantly from 3.8% of GDP in 1990 to 7.3% in 1995, before declining somewhat thereafter (between 5% and 6% of GDP during the period 1996–1998). Even so, strong private capital inflows helped to largely finance this deficit.

To summarize, both Kenyan and Peruvian authorities sought the benefits of rapid capital account adjustment, in particular continuous capital inflows with no adjustment costs. Through rapid capital account liberalization, a country is more likely to be exposed to different types of external shocks. As illustrated in the cases of Kenya and Peru, whether a country becomes vulnerable to exogenous shocks and suffers significant losses depends on the macroeconomic fundamentals of the country and the sound macroeconomic policies it implements, rather than the consequence of rapid removal of capital account restrictions itself.

## **4. ADJUSTMENTS ON EXCHANGE RATE FLEXIBILITY**

### **4.1 Benefits and Costs of Gradual and Rapid Increases in Exchange Rate Flexibility**

Similar to capital account linearization, there are two options that the monetary authorities can implement to increase flexibility in exchange rates: (A) gradual adjustments and (B) rapid adjustments. Both options entail benefits and costs for policymakers as reported in Table 4. For the former approach, the monetary authorities take advantage of minimizing negative influences due to limited volatility in interest rates and exchange rates through smooth adjustments. Moreover, there is less uncertainty in expected exchange rates following limited adjustments in exchange rates. The other side of the coin is that adjustments require lengthy periods and implementation costs. The policymakers face opportunity costs of not reaching the desired regime quickly, given the lengthy adjustments undertaken. Gradually adjusting exchange rate flexibility demands several steps to measures on exchange rates, i.e., upper or lower bands in exchange rates, weights on exchange rates in the currency basket.

For the rapid approach, the country benefits from having no adjustment time or costs. The country can potentially receive the benefits of increased exchange rate flexibility immediately after it removes all measures on exchange rates. It clearly does not need to take several steps to relax measures or suffer the costs associated with relaxing the measures. As the country's external environment, in particular its exposure and buffer to exogenous shocks, changes dramatically following rapid adjustment, the economy can be severely affected by interest rate and exchange rate fluctuations by functioning as an automatic stabilizer to exogenous shocks. Needless to say, expected exchange rates become more uncertain, which negatively affects the behavior of exporters and importers.

**Table 4: Benefits and Costs for Options of Increasing Flexibility of Exchange Rates**

Option of Increasing Flexibility of Exchange Rates	Benefits	Costs
Gradual	Limited interest rate volatility	Time to reach the stable regime
	Limited exchange rate volatility	Adjustment costs (setting bands, changing weights)
	Limited expected exchange rate volatility	
Sudden	No exchange rate adjustment period	High interest rate volatility
	No exchange rate adjustment costs	High exchange rate volatility
		High expected exchange rate uncertainty

Source: Authors' compilation.

## 4.2 Country Experiences of Exchange Rate Flexibility

### 4.2.1 Gradual Exchange Rate Adjustments

Some countries have experienced gradual adjustments of their exchange rates toward a free floating regime: for instance, Chile in 1982–2008, Israel in 1990–2004, and Poland in 1991–1998.

First, Chile deviated from a fixed regime to crawling bands in 1982. It gradually widened its crawling band regime over a period of more than 20 years (1982–2008) and finally reached a free floating regime in 2008.<sup>17</sup> During the adjustment period, the exchange rate against the US dollar was on a gradual depreciating trend as shown in Figure 2, Panel A. In a similar vein, Poland departed from a fixed regime to crawling bands in 1991 and gradually widened its crawling-band regime over 8 years (1991–1998) before reaching a free floating regime in 1999. Although Poland experienced a sharp depreciation before moving to crawling bands in January 1999, it followed a gradual depreciation over an adjustment period (1991–1998). The exchange rate depreciated from 1 zloty per US dollar in December 1990 to 3.7 zloty per US dollar as shown in Figure 2, Panel A.

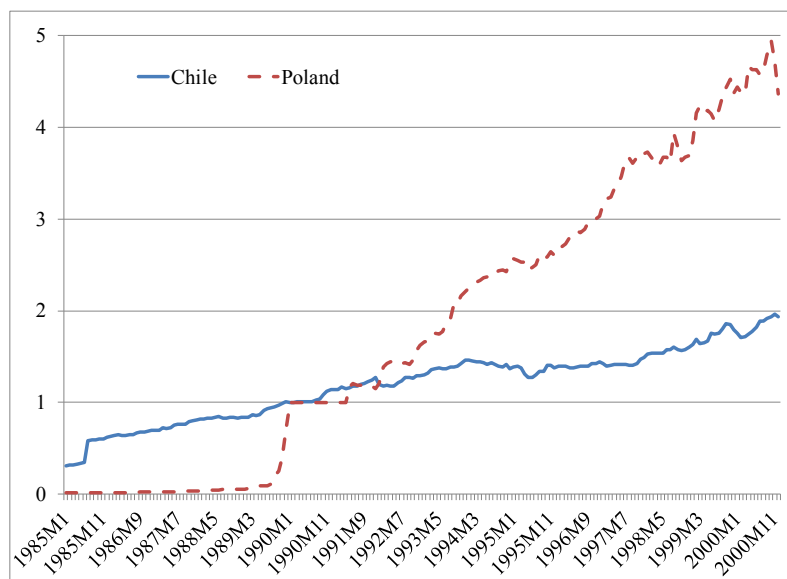
In general, Israel's experience resembles those of Chile and Poland, but with more gradual and limited adjustments during the transition. In 1990, Israel departed from a fixed regime to a crawling peg and moved further to crawling-band regime in 1991. Israel gradually widened and narrowed its crawling bands over the periods 1991–2001. After a temporary return to a crawling peg for a short period of time (2002–2004), it reached a floating regime in 2005. Panel B in Figure 2 illustrates how the nominal

<sup>17</sup> Regimes indicated in the text follow IMF classification in Ilzetzi, Reinhart, and Rogoff (2010). Contrary to this, Duttagupta, Fernandez, and Karacadag (2004) indicated that Chile shifted from crawling pegs to crawling bands and gradually widened their crawling-band regimes over 14 years, prior to adopting a floating regime.

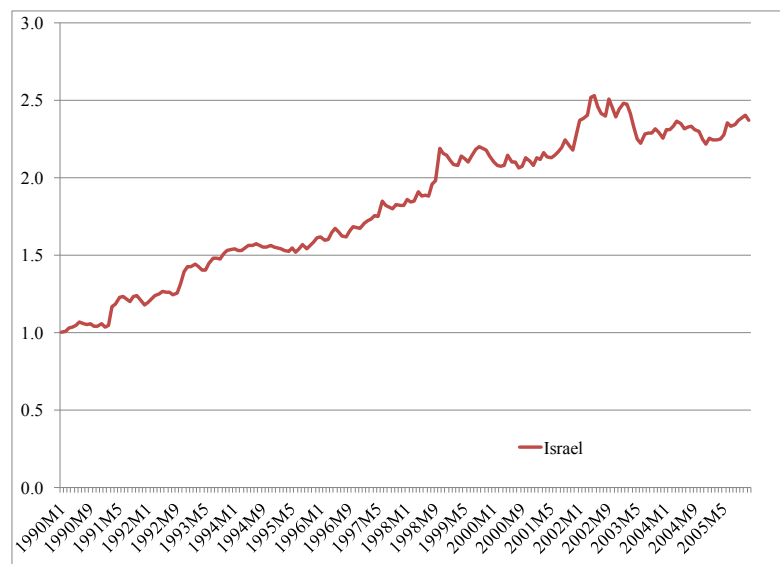
exchange rate against the US dollar depreciated gradually over the adjustment period (1990–2004).

**Figure 2: Nominal Exchange Rates against the US Dollar (January 1990 = 1)**

(A) Chile and Poland in 1985–2000



(B) Israel in 1990–2005



Source: IMF International Financial Statistics.

#### 4.2.2 Rapid Exchange Rate Adjustments

East Asian countries experienced rapid adjustments in exchange rates following the onset of the Asian financial crisis in 1997.<sup>18</sup> The most prominent was Thailand, which moved immediately from a fixed regime to a free floating regime in 1997, according to the *de jure* IMF classification. Although clear shifts in *de jure* regimes were not reported officially, Indonesia, the Philippines, and the Republic of Korea experienced rapid

<sup>18</sup> There were other emerging market countries experiencing rapid exchange rate adjustments around the Asian financial crisis: Argentina in 2002, Brazil in 1999, and Ecuador in 1997. All of them were associated with debt crises or currency crises.

exchange rate depreciations at the start of the crisis and exchange rates fluctuated considerably afterward. According to the *de facto* exchange rate regime classification by Ilzetzi, Reinhart, and Rogoff (2010), these countries shifted from pre-announced peg/currency board arrangements or no separable legal tender to a pre-announced crawling peg in Q3–Q4 1997, as shown in Table 5. Later, after countries recovered from the crisis, they decreased flexibility in exchange rates and reverted to a pre-announced horizontal band narrower than or equal to  $\pm 2\%$  after the crisis.

**Table 5: Changes in *De Facto* Exchange Rate Regimes in East Asia**

Country	Date	Original De Facto Regime	New De Facto Regime
Indonesia	August 1997	Pre-announced peg or currency board arrangement	Pre-announced crawling peg
Philippines	July 1997	No separate legal tender	Pre-announced crawling peg
Thailand	July 1997	No separate legal tender	Pre-announced crawling peg
Republic of Korea	December 1997	Pre-announced peg or currency board arrangement	Pre-announced crawling peg

Source: Ilzetzi, Reinhart, and Rogoff (2010)

## 5. TRANSITION POLICY OPTIONS FOR MONETARY AUTHORITIES

In this section, we propose four policy options for East Asian countries attempting to relax capital account restrictions and increase flexibility in their exchange rates from a fixed regime with capital account controls.<sup>19</sup> In particular, we consider possible paths toward a basket peg or floating regime under free capital mobility, as shown in Figure 3.<sup>20</sup> For the shift to a basket-peg regime, there are two possible processes the country can take. Policy (I) starts with a dollar-peg regime with strict capital controls (corresponding to A), proceeds to a basket-peg regime with loose capital controls (B), and finally reaches the basket peg with no capital controls (C), that is, a gradual adjustment of both capital controls and the exchange rate. Alternatively, policy (II) starts from a dollar-peg regime with strict capital controls (A), then suddenly shifts to a basket-peg regime without capital controls by removing the controls suddenly (C), that is, a sudden shift of both capital controls and the exchange rate. While policy (I) takes advantage of the gradual adjustment of capital controls and the exchange rate, policy (II) benefits from a sudden removal of capital controls and increase in flexibility in the exchange rate. Clearly, the transition period (shown by regime [B] in Figure 3) corresponding to the adjustment periods of the capital controls and exchange rate differentiates the two policies.

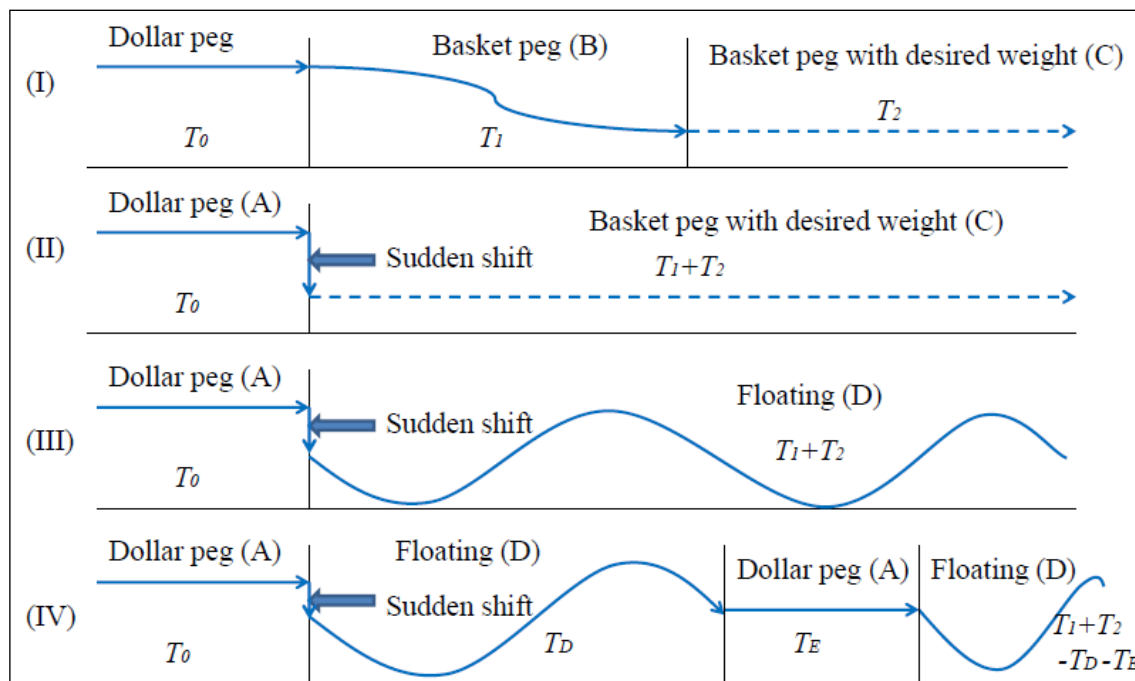
The shift to a floating regime also involves one of these two processes. Policy (III) starts with a dollar-peg regime with strict capital controls (A) and suddenly shifts to a

<sup>19</sup> Yoshino, Kaji, and Asonuma (2015b) consider a desirable transition path for East Asian countries given the PRC's transition to a new exchange rate regime.

<sup>20</sup> Yoshino, Kaji, and Asonuma (2012) analyze whether adopting a basket peg rather than a floating regime is optimal for East Asian countries under several instrument rules. They find that a commitment to the basket weight rule is superior to other instrument rules under a floating regime for small, open emerging market countries like Singapore and Thailand.

free floating regime by removing capital controls and adjusting the exchange rate (D). Policy (IV) starts with a dollar-peg regime with strict capital controls and suddenly shifts to a managed floating regime by removing capital controls. Under a managed floating regime, if the exchange rate fluctuates significantly, the monetary authority intervenes in the foreign exchange market to maintain its exchange rate at the fixed rate (E). Otherwise, it allows the exchange rate to fluctuate as long as it does not deviate substantially from the desired level (D). What differentiates policy (IV) from policy (III) is that the country intervenes in the foreign exchange market when large exchange rate fluctuations threaten to adversely affect the economy.

**Figure 3: Policy Options toward Desirable Regimes**



Source: Authors' illustration.

Based on simulation exercises on the PRC and Thailand, Yoshino, Kaji, and Asonuma (2015a) provide quantitative estimates of cumulative losses on each transition policy option when the monetary authorities attempt to stabilize inflation rates.<sup>21</sup> Two important findings emerge from Table 6. First for the PRC, the first-best policy option for the monetary authorities is to shift rapidly to a floating regime. In this case, the authorities implement rapid capital control and exchange rate adjustments. Advantages of reaching the desirable regime with free capital mobility outweigh the potential costs and disturbances to the economy associated with a rapid shift. The gradual shift to a basket peg comes as the second-best solution for the country. The authorities benefit from the breathing space provided by the gradual adjustments to both the capital account and exchange rate.

<sup>21</sup> Similarly, Yoshino, Kaji, and Asonuma (2014b, 2015a) report the case of output stability.

**Table 6: Comparison of Four Transition Policy Options****A. People's Republic of China**

	Policy (I)	Policy (II)	Policy (III)	Policy (IV) ( $T_E=5$ ) <sup>a</sup>
Stable regime	Basket peg	Basket peg	Floating	Managed floating
Capital account adjustment	Gradual	Rapid	Rapid	Rapid
Exchange rate adjustment	Gradual	Rapid	Rapid	Rapid
Cumulative loss (value)	0.020	0.021	0.013	0.033
Cumulative loss (% of $\bar{p}^2$ ) <sup>b</sup>	2.2	2.3	1.4	3.3

**B. Thailand**

	Policy (I)	Policy (II)	Policy (III)	Policy (IV) ( $T_E = 3$ ) <sup>c</sup>
Stable regime	Basket peg	Basket peg	Floating	Managed floating
Capital account adjustment	Gradual	Rapid	Rapid	Rapid
Exchange rate adjustment	Gradual	Rapid	Rapid	Rapid
Cumulative loss (value)	0.0022	0.0028	0.0038	0.0033
Cumulative loss (% of $\bar{p}^2$ ) <sup>d</sup>	2.8	3.6	4.8	4.2

<sup>a</sup> If  $T_E = 7$ , cumulative loss is 3.54 ( $m^* = 0.015$ ).

<sup>b</sup> We calculate the value of  $\bar{p}^2$  and obtain  $\bar{p}^2 = 0.91$ .

<sup>c</sup> If  $T_E = 5$ , cumulative loss is 0.0033 ( $m^{**} = 0.0024$ ).

<sup>d</sup> We calculate the value of  $\bar{p}^2$  and obtain  $\bar{p}^2 = 0.079$ .

Source: Yoshino, Kaji, and Asonuma (2015a).

In contrast, for Thailand, the gradual adjustment of capital controls and exchange rates is the most desirable option for the monetary authorities attempting to stabilize the price level. The benefits of having adjustment periods and breathing space to pursue consistent medium-term policy exceed the opportunity costs of receiving ample capital inflows and adopting the desirable regime. Countries like Thailand are more likely to suffer losses due to high exposure to exogenous shocks triggered by rapid adjustments of capital controls and exchange rates. The rapid shift to a basket peg follows the first-best option of rapid adjustments. The authorities implement rapid adjustments to both the capital account and the exchange rate regime.

## 6. CONCLUSION

The monetary authorities have to choose policy options for both adjustments of capital account restrictions and exchange regimes. They have two options for adjustments of

capital account restrictions: gradual adjustments or rapid adjustments. Similarly, for adjustments of exchange rate regimes, they can choose between gradual adjustments or rapid adjustments.

The current paper attempts to answer the following two important questions for East Asian countries: What are the costs and benefits for options on (1) capital account adjustments and (2) exchange rate regimes? What are the possible options for East Asian countries confronting capital account restrictions and limited exchange rate flexibility?

On the first issue, we consider the following benefits for adjustments of capital account restrictions and exchange rates. On adjustments of capital account restrictions, the gradual adjustments of capital account measures provide a safeguard against further turbulence in international markets and create breathing space to pursue economic adjustments and accelerate other necessary reforms. In contrast, the authorities enjoy benefits through the rapid adjustments of continuous capital inflows immediately after the removal and an improvement in creditor confidence.

For shifts in exchange rate regimes, under gradual adjustment, the monetary authorities can take advantage of minimizing negative influences because of limited exchange rate and interest rate volatility. On the contrary, for rapid adjustments, the country benefits from having no adjustment time or costs. The country could potentially receive benefits of increased exchange rate flexibility immediately after it removes all measures on exchange rates.

On the second issue, we propose four transition policy options for East Asia countries aiming to relax capital account restrictions and increase flexibility in exchange rates from a fixed regime with capital account controls. Quantitative analysis of the PRC and Thailand shows that the first-best solutions differ between these two countries even when both attempt to stabilize price levels.



## REFERENCES\*

- Adams, C., and R. Semblat. 2004. Options for Currency Arrangements and Their Policy Implications. In *Exchange Rate Regimes in East Asia*, edited by G. De Brouwer and M. Kawai. Routledge Corzon.
- Ariyoshi, A., K. Habermeier, B. Laurens, I. Ötoker-Robe, J. I. Canales-Kriljenko, and A. Kirilenko. 2000. Capital Controls: Country Experiences with Their Use and Liberalization. IMF Occasional Paper No. 190. Washington DC: International Monetary Fund (IMF).
- Baba, C., and A. Kokenyne. 2011. Effectiveness of Capital Controls in Selected Emerging Markets in the 2000s. IMF Working Paper WP/11/281. Washington, DC: IMF.
- Bird, G., and R. Rajan. 2002. Optimal Currency Baskets and the Third Currency Phenomenon: Exchange Rate Policy for Southeast Asia. *Journal of International Development* 14: 1053–1073.
- Chamon, M., and M. Garcia. 2014. Capital Controls in Brazil: Effective? Textos para Discussao 606. Department of Economics, Pontifical Catholic University of Rio de Janeiro.
- Clements, B., and H. Kamil. 2009. Are Capital Controls Effective in the 21st Century? The Recent Experience of Colombia. IMF Working Paper WP/09/30. Washington, DC: IMF.
- Cordero, J. A., and J. A. Montecino. 2010. *Capital Controls and Monetary Policy in Developing Countries*. Washington, DC: Center For Economic and Policy Research.
- Duttagupta, R., G. Fernandez, and C. Karacadag. 2004. From Fixed to Float: Operational Aspects of Moving Toward Exchange Rate Flexibility. IMF Working Paper WP/04/126. Washington, DC: IMF.
- Edwards, S., and R. Rigobon. 2009. Capital Controls on Inflows, Exchange Rate Volatility and External Vulnerability. *Journal of International Economics* 78(2): 256–267.
- Forbes, K. 2007. One Cost of the Chilean Capital Controls: Increased Financial Constraint for Smaller Traded Firms. *Journal of International Economics* 71(2): 294–323.
- Ghosh, A. R. 2009. Toward a Stable System of Exchange Rates: Implications of the Choice of Exchange Rate Regime. Manuscript. Washington, DC: IMF.
- Ilizetzi, E., C. Reinhart, and K. Rogoff. 2010. Exchange Rate Arrangements Entering the 21st Century: Which Anchor Will hold? Manuscript. London School of Economics.
- IMF. 2008. *Annual Report on Exchange Rate Arrangements and Exchange Restrictions*. Washington, DC: IMF.
- IMF. 2009. *Annual Report on Exchange Rate Arrangements and Exchange Restrictions (ARREAR) Compilation Guide*. Washington, DC: IMF.

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\* ADB recognizes China as the People's Republic of China.

- IMF. 2014. *Annual Report on Exchange Rate Arrangements and Exchange Restrictions*. Washington, DC: IMF.
- Ito, T., E. Ogawa, and Y. N. Sasaki. 1998. How Did the Dollar Peg Fail in Asia? *Journal of the Japanese and International Economies* 12: 256–304.
- Ito, T., and Y. C. Park. 2003. Exchange Rate Regimes in East Asia. In *Monetary and Financial Integration in East Asia: The Way Ahead Volume 1*. ADB and Palgrave Macmillan.
- Kawai, M. 2004. The Case for a Tri-polar Currency Basket System for Emerging East Asia. In *Exchange Rate Regimes in East Asia*, edited by G. De Brouwer and M. Kawai. Routledge Corzon.
- Kawai, M., and S. Takagi. 2004. Rethinking Capital Controls: The Malaysian Experience. In *East Asia's Monetary Future: Integration in the Global Economy*, edited by S. Chirathivat, E. M. Claassen, and J. Schroeder. Cheltenham, UK and Northampton, MA: Edward Elgar.
- Kawai, M., and S. Takagi. 2008. A Survey of the Literature on Managing Capital Inflows. Asian Development Bank Institute Discussion Paper No. 100. Tokyo: ADBI.
- Ma, G., and R. McCauley. 2011. The Evolving Renminbi Regime and Implications for Asian Currency Stability. *Journal of the Japanese and International Economies* 25: 23–38.
- Meesok, K., I. H. Lee, O. Liu, Y. Khatir, N. Tamirisa, M. Moor, and M. H. Krysl. 2001. Malaysia: From Crisis to Recovery. IMF Occasional Paper No. 207. Washington, DC: IMF.
- Ogawa, E., and T. Ito. 2002. On the Desirability of Regional Basket Currency Arrangements. *Journal of the Japanese and International Economies* 16: 317–334.
- Ostry, J. D., A. R. Ghosh, M. Chamon, and M. S. Qureshi. 2011a. Capital Controls: When and Why? *IMF Economic Review* 59(3): 562–580.
- Ostry, J. D., A. R. Ghosh, K. Habermeier, L. Laeven, M. Chamon, M. S. Qureshi, and A. Kokenyne. 2011b. Managing Capital Inflows: What Tools to Use? IMF Staff Discussion Note SDN/11/06. Washington, DC: IMF.
- Ostry, J. D., A. R. Ghosh, K. Habermeier, M. Chamon, M. S. Qureshi, and D. B. S. Reinhart. 2010. Capital Inflows: The Role of Controls? IMF Staff Position Note SPN/10/04. Washington, DC: IMF.
- Rogoff, K., A. H. Husain, A. Mody, R. J. Brooks, and N. Oomes. 2003. Evolution and Performance of Exchange Rate Regimes. IMF Working Paper 03/243. Washington, DC: IMF.
- Shioji, E. 2006a. Invoicing Currency and the Optimal Basket-Peg for East Asia: Analyzing Using a New Open Macroeconomic Model. *Journal of the Japanese and International Economies* 20: 569–589.
- Shioji, E. 2006b. Chinese Exchange Rate Regimes and the Optimal Basket Weights for the Rest of East Asia. RIETI Discussion Paper Series 06-E-024. Tokyo: RIETI.
- Sussangkarn, C., and P. Vichyanond. 2007. Ten Years After the Financial Crisis in Thailand: What Has Been Learned and Not Learned? *Asian Economic Policy Review* 2: 100–118.

- Yoshino, N., S. Kaji, and T. Asonuma. 2004. Optimal Exchange Rate System in Two Countries with the Rest of the World. *Keio Economic Studies* 41: 25–75.
- Yoshino, N., S. Kaji, and T. Asonuma. 2012. Choices of Optimal Monetary Policy Instruments under the Floating and the Basket-Peg Regimes. *Singapore Economic Review* 57(4): 1250024.
- Yoshino, N., S. Kaji, and T. Asonuma. 2014a. Dynamic Transition of Exchange Rate Regime in China. *China & World Economy* 22(3): 36–55.
- Yoshino, N., S. Kaji, and T. Asonuma. 2014b. Dynamic Analysis of the Exchange Rate Regime: Policy Implications for Emerging Countries in East Asia. Forthcoming in *Review of Development Economics*.
- Yoshino, N., S. Kaji, and T. Asonuma. 2015a. Dynamic Effect of Change in Exchange Rate System: From a Fixed Regime to a Basket-Peg or a Floating Regime. ADBI Working Paper 517. Tokyo: ADBI.
- Yoshino, N., S. Kaji, and T. Asonuma. 2015b. Dynamic Shift to a Basket-peg or Floating Regime in East Asian Countries in Response to the People's Republic of China's Transition to a New Exchange Rate Regime. ADBI Working Paper 514. Tokyo: ADBI.
- Yoshino, N., S. Kaji, and A. Suzuki. 2004. The Basket-Peg, Dollar-Peg and Floating—A Comparative Analysis. *Journal of the Japanese and International Economies* 18: 183–217.

## APPENDIX 1: CAPITAL ACCOUNT MANAGEMENT MEASURES IN EMERGING MARKET COUNTRIES

Similar to some East Asian countries, Brazil and Colombia introduced capital account measures in 2005–2013. For Brazil, changes in capital account managements lasted over two separate periods.<sup>1</sup> In 2005–2008, it introduced the IOF tax, which was eliminated in October 2008 along with some restrictions on the outflow account. Later in 2009–2013, it re-introduced taxes on inflows, particularly on equity and fixed income, and a URR on banks' gross foreign exchange liabilities beyond \$3 billion was put in place. In contrast, Colombia adjusted controls mainly on portfolio inflows in 2001–2007 and capital controls were re-introduced with a 40% URR on foreign borrowing in 2007–2008.<sup>2</sup>

**Table A1: Changes in Capital Account Management Measures in 2005–2013**

Country	Period	Major Policy Measures
Brazil	2005–2008	<p><b>Tax</b></p> <p>In March 2008, the IOF tax was raised to 1.5% on the entry of foreign funds in the settlement of investments in the financial and capital markets and extended in May 2008 to similar transactions made by means of simultaneous operations. Exemptions were applied to funds related to equities, equities derivatives, public offerings, and subscription of shares. The 1.5% tax was eliminated in October 2008.</p> <p><b>Outflow Liberalization</b></p> <p>Limits on employee stock option programs and on foreign direct investment (FDI) by nonfinancial private enterprises and the approval requirement on certain personal capital transactions were lifted in March 2005. Controls on transfers abroad by individuals and corporations were abolished in September 2006.</p>
	2009–2013	<p><b>Inflow Controls</b></p> <p>In October 2009, a tax of 2% was imposed on portfolio flows, covering both equities and fixed income. In November 2009 a 1.5% tax was imposed on the issuance of deposit receipts to discourage their use as a way to buy Brazilian equities without incurring the inflow tax. Taxes on equity flows were eventually removed (set to zero) in December 2011, although the 1.5% IOF tax on deposit receipts issuance still remains.</p> <p>The tax on fixed income flows, initially set at 2%, was raised to 4%, and shortly afterwards to 6%, in October 2010. In February and March 2012, the authorities introduced limits on payments to exporters before actual delivery of goods or services, akin to export credit, and extending the tax on foreign borrowing to loans with maturities up to 3 years, and then up to 5 years. The tax on foreign borrowing was limited to loans with maturities up to 2 years on June 2012, and eventually limited to loans with maturities up to 1 year in December 2012. In June 2013, the tax on fixed income flows was eliminated (set to zero) and the IOF tax on the notional amount of currency derivatives was also eliminated (set to zero).</p>

<sup>1</sup> Brazil implemented controls in capital inflows during 1992–1998. See Cordero and Montecino (2010).

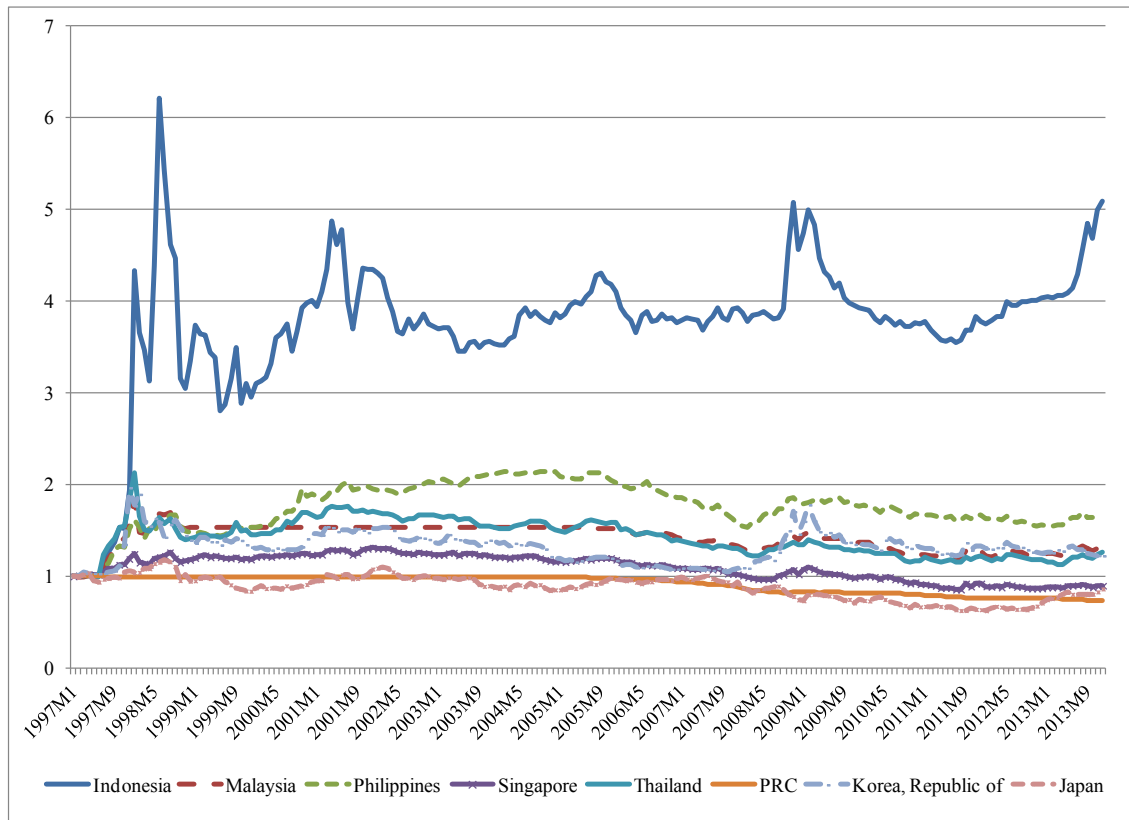
<sup>2</sup> Chile and Colombia placed restrictions on capital inflows during 1989–1998 and 1993–1998, respectively. See Cordero and Montecino (2010).

		<p><b>Unremunerated Reserve Requirement</b></p> <p>In January 2011 the central bank announced an unremunerated reserve requirement (URR) on banks' gross foreign exchange liabilities beyond \$3 billion (on the spot market only), which became effective in April 2011. In March 2011, Brazilian firms borrowing abroad became subject to a 6% tax on those flows if their maturity was less than 1 year (extended to 2 years shortly afterward).</p>
Colombia	2000–2008	<p><b>URR</b></p> <p>Foreign portfolio investments, advance payments of more than 4 months, financial credits, guarantees, sureties, and financial backup facilities to residents were made subject to a 6-month 40% URR on 6 May 2007. Foreign trade financing was made subject to a 12-month deposit of 11% in pesos or a deposit of 20% in US dollars. Penalties for early withdrawal of investments subject to the URR were reduced, and portfolio investments in the primary issuance of equities or in institutional funds were made exempt from the URR in December 2007. The penalties were later increased in June 2008. The URR on portfolio inflows was raised from 40% to 50% in May 2008. The URR was eliminated on 9 October 2008.</p> <p><b>Inflow Controls</b></p> <p>The deposit requirement on external financing was lifted in May 2000. Nonresidents' purchase of fixed income securities was limited to 20% of the issue in June; the issuance of securities index derivatives was permitted in 2002. Controls on the use of balances deposited in nonresident foreign currency accounts were lifted in 2003. A 1-year minimum holding period was introduced on nonresidents' portfolio investments from December 2004 through June 2006. A minimum stay of 2 years was imposed on FDI in May 2008. Limits on bank leverage were introduced in 2001. Banks' gross exposure in the foreign exchange derivative market was limited to 500% of capital in May 2007 and increased to 550% in May 2008.</p>

Sources: Baba and Kokenyne (2011); Chamon and Garcia (2014).

## APPENDIX 2: EXCHANGE RATE FLUCTUATIONS

**Figure A1: Nominal Exchange Rates of ASEAN+3 Currencies against the US Dollar (January 1997 = 1)**



PRC = People's Republic of China.

Source: IMF International Financial Statistics.