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GLOBALIZATION, EROSION OF TAX BASE, AND THE REVENUE POTENTIAL OF DEVELOPING ASIA'S FOREIGN EXCHANGE RESERVE BUILD-UP

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FOREWORD

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ABSTRACT

A major side effect of globalization is the erosion of the tax base due to the growing mobility of capital and the consequent international tax competition for capital. The potential loss of revenues is encouraging developing Asia's governments to look for alternative, nonconventional, nontax sources of revenue. The central objective of this paper is to explore the extent to which one potential source of nonconventional revenue—the region's soaring excess foreign exchange reserves—can help to compensate regional governments for the erosion of their tax bases. The analysis indicates that more active management of excess reserves along the lines of profit-maximizing sovereign wealth funds can indeed make a significant contribution to the region's nonconventional fiscal revenues.

I. INTRODUCTION

In both developed and developing countries, tax systems should be designed so as to finance the required level of public spending as efficiently and equitably as possible. According to Tanzi and Zee (2000), tax policy plays a particularly sensitive role in the economies of developing countries that are well-integrated into the world economy, such as those in developing Asia. In those countries, the tax system should raise enough revenue to finance essential expenditure without resorting to excessive government borrowing, raise revenues in ways that minimize disincentives on economic activity, and do so in ways that do not deviate substantially from international practice. Developing countries face much bigger challenges than developed countries in setting up effective and efficient tax systems. Those challenges include, but are not limited to, the structure of the economy that makes it difficult to impose and collect certain taxes, limited institutional capacity of the tax authorities, scarcity and poor quality of basic data, and a political environment that disfavors rational tax policy. As a result, tax policy in developing countries is often the art of the possible, rather than the pursuit of the optimal (Tanzi and Zee 2000).

As difficult as life is for tax authorities in developing countries relative to their counterparts in developed countries, globalization is making life even more difficult. As pointed out by Asher and Rajan (2003), Lodin (2002), and Avi-Yonah (2001), globalization is increasing the relative influence of international factors on tax policy, which used to be determined mainly by domestic factors. Although the decline of trade barriers and growing cross-border of capital poses challenges for tax authorities in both developed and developing countries, the challenges are much more pronounced for the latter, due to their weak institutional capacity and traditionally high dependence on foreign trade taxes. Furthermore, given the scope, scale, and speed of globalization that developing Asia has experienced, the fiscal pressures arising from globalization are likely to be more severe for the region than for other parts of the developing world.¹ For example, import liberalization and reduction of foreign trade taxes is forcing developing countries to raise more revenues from domestic taxes. Furthermore, in the context of capital inflows, transfer pricing and other tax-avoiding practices by foreign investors are emerging as new issues for institutionally ill-prepared tax authorities.

A major tax policy challenge facing all countries in a world of growing capital mobility is the issue of international tax competition. Technological progress and the removal of exchange controls have led to a sharp growth in the cross-border flows of both portfolio and foreign direct investment (FDI). In particular, FDI is widely perceived as beneficial for economic growth, and contested intensely by governments. Among developing countries, tax competition is an especially relevant issue for developing Asia in light of the region's track record in attracting capital inflows and using them to power its industrialization and development. Indeed some regional countries such as Malaysia and Singapore have been exceptionally successfully in attracting FDI through conscious and active government policies. In connection with tax competition, a key concern for developing

¹ Throughout this paper, developing Asia refers to the 44 developing member countries of the Asian Development Bank (see www.adb.org). Developing Asia does not include Japan, Iran, and Middle Eastern countries, but includes East Asia, Southeast Asia, South Asia, former Soviet republics in Asia, and the island-states of the Pacific.

countries in Asia and elsewhere is that governments may concentrate too much on competing for foreign investments via a wide range of tax incentives. Doing so may lead to a serious neglect of more fundamental tax reforms such as strengthening institutional capacity.

International tax competition for FDI illustrates the fact that under globalization, some sources of revenues, particularly taxes on highly mobile factors, are increasingly coming under pressure. Although extensive immigration restrictions in developed countries render labor much less internationally mobile than capital, this is becoming less true for skilled labor. The underlying reason is the growing international competition for the limited global supply of skills, which is best evidenced by more selective developed-country immigration regimes that favor skilled workers over unskilled workers. One possible policy response to the pressure on revenues from relatively mobile factors such as capital and skilled labor is to shift the tax burden on relatively less mobile factors such as unskilled labor. Unfortunately, such a reorientation of tax policy may be politically difficult and, in any case, of limited effectiveness in raising revenues. For one, taxing labor rather than capital and unskilled labor rather than skilled labor is likely to arouse opposition on equity grounds in highly unequal developing countries. Taxing the least mobile factors also amounts to taxing those least able to pay taxes, which limits the amount of revenues that can be collected.

Aizenman and Jinjark (2006) find some empirical support for the notion that globalization erodes the tax bases of developing countries. Their central hypothesis is that globalization shifts the tax base from taxes that are relatively easy to collect, such as tariffs, seigniorage and financial repression, toward taxes that are more difficult to collect, such as value added tax (VAT) and income taxes.² The underlying intuition is that globalization is a process that moves developing countries toward higher levels of trade and financial integration as well as greater macroeconomic stability. The implicit corollary of a relative shift toward "hard to collect" taxes, especially given the weak institutional capacity of developing-country tax authorities, is that the total tax base of developing countries will shrink as a result of globalization. Aizenman and Jinjark confirm their central hypothesis, that the revenue/gross domestic product (GDP) ratio of "easy to collect" taxes fell in developing countries between the early 1980s and the late 1990s, whereas the ratio/GDP ratio of "hard to collect" taxes rose. More relevantly for this paper's purposes, they also find that although higher revenues from "hard to collect" taxes partly offset the lower revenues from "easy to collect" taxes, the net result was a drop in total tax revenue/GDP ratio due to the small initial base of "hard to collect" taxes in developing countries.

Although one should not exaggerate the impact of globalization on the taxation capacity of national governments, it is equally important to note that globalization, which increases the mobility of some factors and hence reduces their taxability, will unleash some pressure on tax revenues.³ Asher (2005) argues that a significant means for governments to ease those fiscal pressures is to seek unconventional nontax sources of revenues. The central objective of this paper is to look at one potential source of unconventional fiscal resource mobilization, foreign exchange reserves. One significant current macroeconomic trend in developing Asia is the rapid build-up of foreign exchange reserves it has experienced since the Asian crisis. The issue of fundamental interest is the extent to which this trend can help to provide the region with the fiscal resources it needs for its short-term and long-term fiscal needs.

² Studies explaining developing countries' traditional reliance on easy-to-collect taxes include Cukierman et al. (1992), Aizenman and Guidotti (1994), Emran and Stiglitz (2005), and Gordon and Li (2005).

³ According to Hobson (2003), neither the capacity of national governments to tax, nor the welfare state in rich countries, is likely to wither away as a consequence of globalization.

The remainder of this paper is organized as follows. Section II explores developing Asia's tax competitiveness, overall fiscal situation, and trends in the relative importance of nontax revenues as a source of government revenues. Section III briefly looks at the basic facts about the region's post-crisis foreign exchange reserves build-up, and analyzes the extent to which the region's reserves exceed the amounts required for traditional liquidity purposes. Section IV discusses whether such excess reserves constitute a free fiscal asset at the disposal of the region's governments. Section V provides some quantitative estimates of the fiscal dividend that can be generated in the form of investment income from more active management of excess reserves. Section VI wraps up the analysis with the key messages and broad themes emerging from the analysis.

II. DEVELOPING ASIA'S TAX COMPETITIVENESS, OVERALL FISCAL POSITION, AND RELATIVE IMPORTANCE OF NONTAX REVENUES AS A SOURCE OF GOVERNMENT REVENUES

Before delving into the central issue of fiscal implications of developing Asia's foreign exchange reserve build-up, it is worthwhile to take a look at the broader fiscal landscape of the region. More specifically, in this section, the international competitiveness of developing Asia's tax systems, overall fiscal position and long-term fiscal resource requirements, and trends in the share of nontax revenues in total government revenues are examined. A brief overview of these issues will help to more clearly define the context in which to explore the potential contributions of the region's soaring foreign exchange reserves to the fiscal resources of regional governments. For example, a large budget deficit indicates that the government faces short-term pressures to mobilize revenues in order to reduce the deficit.

A. Developing Asia's Tax Competitiveness

As noted earlier, globalization is increasing the cross-border mobility of capital and some other factors of production. As a result, governments are vigorously competing with each other to attract and retain capital, which is vital for generating economic growth and jobs. An integral component of the intense international competition for capital is tax policy. In particular, governments have been wary about raising corporate income tax rates and have often reduced them in order to make their countries more attractive for foreign and domestic investors (see, for example, Devereux and Sorensen 2005). While corporate income tax rate is only one part of the overall tax burden, it is highly visible and serves as a powerful signal about the attitude of the government toward business and the private sector. Other things being equal, companies will prefer countries that impose a lighter overall tax burden than those that impose a heavier burden. The relative attractiveness of developing Asia's tax regimes to companies is interesting for the following reason: a high overall tax burden suggests strong competitive pressure for governments to reduce corporate income tax and other taxes in the future, while a low burden implies weak competitive pressures.

1. Joint Study by the World Bank and PricewaterhouseCoopers

In a comprehensive international comparison of tax systems entitled "Paying Taxes 2008: The Global Picture", which was jointly carried out by the World Bank and PricewaterhouseCoopers

(2008),⁴ the results of a survey conducted as part of the World Bank Doing Business report examined and compared tax regimes around the world. The central objective of the study was to compare the ease of paying taxes for businesses in 178 countries. The background survey involved collecting information on the tax-related activities of a standard modest-sized company in each of the 178 countries, by reviewing financial statements and list of transactions. The information was used to compute three tax-related indicators: number of tax payments, time spent on complying with tax obligations, and tax cost. The three indicators were then equally weighted to produce a ranking for each country for the overall ease of paying taxes.

Table 1 reports the rankings of selected developing Asian economies, as well as those of selected industrialized countries and non-Asian developing countries. The rankings indicate a great deal of heterogeneity across the region in terms of tax competitiveness. Economies that have a long tradition of liberal economic policies, such as Singapore and Hong Kong, China, score highly both in tax rate and overall ease of paying taxes. At the other end, the two giants of the People's Republic of China (PRC) and India, along with the Philippines, score poorly in both areas. The other five economies—Indonesia; Republic of Korea (henceforth Korea); Malaysia; Taipei, China; and Thailand—are somewhere in the middle between the giants and Singapore and Hong Kong, China. With the exception of Singapore and Hong Kong, China, the region's tax environment is not noticeably more attractive for businesses than that of other regions. This suggests that the region will not be immune from the general global trend of tax competition for capital and lower taxes on capital.

TABLE 1
EASE OF PAYING TAXES, RANK OUT OF 178 ECONOMIES, 2007

ECONOMY	OVERALL RANK	NUMBER OF TAX PAYMENTS	TIME TO COMPLY	TOTAL TAX RATE
PRC	168	104	167	163
India	165	162	105	159
Korea	106	141	114	44
Taipei, China	91	65	126	78
Thailand	89	104	93	66
Singapore	2	5	3	14
Malaysia	56	104	54	54
Indonesia	110	146	95	63
Hong Kong, China	3	3	13	15
Philippines	126	138	64	135
Japan	105	29	131	133
US	76	21	122	102
Germany	67	39	65	124
Brazil	137	24	177	158
Russia	130	58	151	131
Mexico	135	74	155	127
South Africa	61	24	131	62
Turkey	54	35	79	96

Source: World Bank and PricewaterhouseCoopers (2008).

⁴ An earlier edition of the study, *Paying Taxes: The Global Picture*, was published in 2006 (World Bank and PricewaterhouseCoopers 2006).

2. Report by C. D. Howe Institute

The report by the C. D. Howe Institute (2006) entitled "The 2006 Tax Competitiveness Report: Proposals for Pro-Growth Tax Reform" also looks at and compares tax rates on businesses around the world.⁵ The report is less comprehensive than the World Bank–PricewaterhouseCoopers study in that it focuses solely on the tax cost rather than the overall ease of paying taxes. Furthermore, its computed tax rate is more narrowly defined and excludes some taxes that had been included in the World Bank–PricewaterhouseCoopers study. Finally, the C. D. Howe Institute report covers 81 countries, whereas the World Bank–PricewaterhouseCoopers study covers a much larger sample of 178 countries. Nevertheless, the two studies are fundamentally similar in that they seek to compare different countries in terms of the attractiveness of their tax systems to companies, business activities, and investment. It is also useful to look at another comparison of tax competitiveness across countries based on a different measure of tax competitiveness.

To highlight the fact that corporate income tax is only one component, albeit a significant component, of the tax rate firms actually face, the C. D. Howe Institute distinguishes between corporate income tax rate and the effective tax rate on capital. The latter rate is defined as the amount of corporate income and other capital-related taxes such as sales tax on capital purchases paid by a business as a percentage of pretax profits for marginal investment projects.⁶ Table 2 reports both tax rates for economies in Table 1 for which data are available. For some economies, there are large differences between the two tax rates, for example, the effective tax rate on capital is almost twice the corporate income tax rate in the PRC. Nevertheless, broadly speaking, Table 2 confirms the main implication of Table 1, which is that the corporate tax burden in developing Asia is, by and large, comparable to other parts of the world, and hence the region will not be immune from international tax competition.

TABLE 2
EFFECTIVE TAX RATE ON CAPITAL AND CORPORATE INCOME TAX RATE, 2006 (PERCENT)

ECONOMY	EFFECTIVE TAX RATE ON CAPITAL	CORPORATE INCOME TAX RATE
PRC	46.9	24
India	30.2	33
Korea	31.5	27.5
Thailand	19.1	30
Singapore	11.5	20
Malaysia	20.3	28
Indonesia	28.7	30
Hong Kong, China	6.1	17.5
Japan	32.2	41.9
US	38	39.2
Germany	38.1	38.4
Brazil	38.8	34
Russia	37.6	22
Mexico	13.8	30
South Africa	15.3	29
Turkey	5.2	30

Source: C. D. Howe Institute (2006).

⁵ An earlier edition of the study, *The 2005 Tax Competitiveness Report: Unleashing the Canadian Tiger*, was published in 2005 (C. D. Howe Institute 2005).

⁶ Chen (2000) defines the marginal effective tax rate on capital.

B. Developing Asia's Overall Fiscal Position and Long-Term Fiscal Needs

Taxation is only one half of the equation in assessing the fiscal pressure a government faces. Even if a government is ineffective at collecting revenues, it may not face much fiscal pressure if it spends little. The overall fiscal deficit is a pretty good indication of the short-term budget constraint that a government faces, since borrowing requirements and costs will increase as the deficit rises. The budget constraint is especially tight under globalization since international financial markets will impose higher risk premiums and other costs on governments and countries that run large budget deficits. A higher government budget deficit implies strong pressure to collect more revenues in order to reduce the deficit. On the other hand, a government enjoying a healthy fiscal position faces much less pressure to collect more revenues.

Table 3 reports overall government budget balance as percentage of GDP, along with total government expenditures as percentage of GDP, for 10 developing Asian economies for 1990, 2000, and 2006. For the most part, the countries of the region enjoy a strong fiscal position. Table 3 confirms the conventional wisdom that fiscal discipline and the ensuing macroeconomic stability is one of the region's main comparative advantages relative to other parts of the developing world. Even the few regional exceptions where chronic fiscal deficits have been a source of macroeconomic instability, such as India and the Philippines, have improved their fiscal performances in recent years largely due to their improved growth performance. The public debt-to-GDP provides a more accurate picture of the long-term fiscal position and sustainability. Table 4 below reports the public debt-to-GDP ratio for the same economies for 2005 and 2006, except Hong Kong, China; Singapore; and Taipei, China, which effectively do not carry any public debt. Table 4 shows that the figures are generally well below dangerous levels and declining quite rapidly for some economies. The trends in the public debt-to-GDP ratio confirm the story told by trends in the government budget balance, i.e., the region is fiscally in good health.

TABLE 3
OVERALL GOVERNMENT BUDGET BALANCE IN SELECTED ASIAN ECONOMIES
AS PERCENTAGE OF GDP, 1990, 2000, AND 2006

ECONOMY	1990	2000	2006
PRC	-2.8 (18.5)	-2.8 (16.3)	-0.7 (19.2)
India	-7.8 (18.5)	-5.7 (15.5)	-3.7 (14.1)
Korea	-0.6 (15.5)	1.1 (18.9)	0.4 (23.5)
Taipei, China	1.8 (14.5)	-4.6 (22.9)	-0.3 (15.9)*
Thailand	4.8 (13.9)	-2.2 (17.3)	1.1 (16.4)
Singapore	10.8 (21.3)	10.0 (18.8)	7.0 (15.8)*
Malaysia	-2.9 (27.7)	-5.5 (22.9)	-3.3 (24.9)
Indonesia	-0.9 (19.6)	-1.1 (15.8)	-1.0 (20.1)
Hong Kong, China	0.7 (14.3)	-0.6 (17.7)	3.7 (15.8)
Philippines	-3.5 (20.4)	-4.0 (19.3)	-1.1 (17.3)

* 2005 figures; 2006 figures are not available.

Note: Numbers inside parenthesis show total expenditure/GDP ratio.

Source: Asian Development Bank (2007).

TABLE 4
PUBLIC DEBT AS A PERCENTAGE OF GDP IN
SELECTED ASIAN ECONOMIES, 2005 AND 2006

ECONOMY	2005	2006
PRC	17.9	17.3
India	83.9	82.2
Korea	36.4	32.3
Thailand	47.4	42.3
Malaysia	62.5	56.5
Indonesia	45.6	38.6
Philippines	86.3	77.4

Note: Hong Kong, China; Singapore; and Taipei, China do not carry substantial debt.
 Source: International Monetary Fund (various years).

The preceding discussion should not lead us to ignore the region's huge long-term fiscal requirements. To the contrary, precisely because the overall fiscal situation is strong at the present, regional policymakers have the luxury of taking a good look at and start planning for future fiscal requirements. In particular, two key trends should disabuse regional policymakers from any complacency about the need for adequate fiscal resources in the long run. First, developing Asia in general and East Asia in particular is experiencing a secular demographic transition toward older populations. Falling birthrates and rising life expectancy, driven by higher living standards, will significantly raise the share of the elderly in the region's population. The inevitable implication is that pension and health care expenditures will rise substantially in the future.⁷ Second, although social protection and social insurance have generally been low-priority fiscal areas in developing Asia, they are bound to grow, and hence take up more fiscal requirements in the long run. The immediate catalyst of this change is globalization and the structural changes it brings about. There will be growing calls for governments to build stronger social safety nets to minimize the ensuing dislocations and insecurities.

Implicit pension debt is a good concrete example of the daunting long-run fiscal challenges that lie ahead for the region. Implicit pension debt can be broadly defined as the present value of promised pension benefits. Those promises are unfunded or partially funded in a majority of countries since funds are not set aside to cover pension liabilities or are inadequate to fully cover them. According to Holzmann et al. (2004) and Sin (2005), in 1999/2000 the implicit pension debts of PRC, Korea, and Philippines amounted to 141%, 57%, and 185% of GDP, respectively. In addition to common needs, each country has its own long-term fiscal needs that require ample fiscal space in the long run. For example, it is well known that inadequate physical infrastructure is one of the main reasons why India cannot achieve even higher growth rates than the impressive rates it has achieved. However, building, improving and maintaining roads, railways, ports, utilities, water facilities, and other infrastructure in India will be an immensely costly long-run endeavor. For middle-income countries such as Malaysia and Thailand, a long-run fiscal priority must be to improve their educational systems to produce enough skilled workers to move up the value chain toward more knowledge-intensive industries. In short, the current fiscal health notwithstanding, the region faces a wide range of long-run development challenges that will require massive resources to address effectively.

⁷ See, for example, Heller (2003) and Clark (2002).

C. Relative Importance of Nontax Revenues

Tax reform is the main strategic response to the threat to tax revenues posed by the growing mobility and hence declining taxability of capital and other factors. Unfortunately, revenue-increasing tax reform such as improving compliance through stronger enforcement is theoretically appealing but administratively difficult in the absence of adequate institutional capacity. The same can be said for the broadening of the tax base from direct taxes toward indirect taxes. Raising tax rates is inconsistent with the high priority given to attracting investment among policymakers. According to Asher (2005), even relatively successful tax reform can generate between 1.5% and 2.5% of GDP in additional revenue. Such an increase is much needed in the face of the erosion of the tax base due to globalization but unlikely to be sufficient to meet developing Asia's long-run fiscal challenges.

In view of the above considerations, Asher (2005) argues that Asian governments will have to make greater use of nonconventional sources of revenue to meet their fiscal needs in the 21st century. These sources include utilizing existing state assets more productively, creation of property rights and regulations, auctions, land, emissions trading, fees and user charges, asset-related taxes, treasury management, accessing financial and capital markets, and revenues from oil and mining concessions. It should be noted that many of these nonconventional revenues are nontax revenues. The analysis suggests that there is a compelling rationale behind a shift from tax revenues to nontax revenues in the context of globalization. The erosion of the tax base due to the growing mobility of factors and the consequent difficulty of collecting taxes increases the relative attractiveness of nontax revenues.

Table 5 below examines the share of nontax revenues in total government revenues in selected Asian economies in 1990, 2000, and 2006. This share is inevitably subject to some volatility due to the inherent volatility of nontax revenues. For example, the amount of privatization revenues will jump when a large state-owned enterprise is sold. Nevertheless, in general, the relative importance of nontax revenues seems to have grown over time across the region. Furthermore, nontax revenues have become significant revenue sources in all the countries, even though their relative share varies a lot across countries. Nontax revenues are least important in the PRC, where they accounted for 10.2% of total revenues in 2006, although this is significantly higher than the share of 3.9% in 1990. The share of nontax revenues is much higher in other countries, especially Indonesia; Malaysia; Singapore; and Taipei, China, where the share reached 30% or higher in 2006. The fact that nontax revenues have now become familiar and well-established revenue sources should give the regional governments a degree of comfort in seeking new sources of nontax revenues in response to the adverse impact of globalization on the tax base.

Another worldwide trend in tax policy is the shift from direct tax to indirect tax. Developing Asia is no exception to this trend, and governments throughout the region are reducing their reliance on corporate and personal income taxes while increasing their reliance on goods and services tax (GST) and VAT. While the primary rationale behind the global and regional shift from direct taxes to indirect taxes is to encourage investment and work, the shift also reflects international tax competition for capital and, to a lesser extent, skilled labor. For example, the main strategic thrust of Singapore's recent tax reform is to reduce corporate and personal income tax rates in order to attract foreign capital and talent, and compensating for the revenue losses by raising GST rates. While income taxes have a more direct impact on companies and individuals than GST and VAT, the latter also add to the overall tax burden they face.

TABLE 5
PERCENTAGE SHARE OF NONTAX REVENUES IN TOTAL GOVERNMENT REVENUES,
SELECTED ASIAN ECONOMIES, 1990, 2000, AND 2006

ECONOMY	1990	2000	2006
PRC	3.9	6.1	10.2
India	21.8	29	18.3
Korea	9.5	19.9	20.5
Taipei, China	19.7	24.3	31.8*
Thailand	6.3	10.1	11.3*
Singapore	42.6	41.0	36.3*
Malaysia	28	23.7	29.9
Indonesia	5.3	43.5	35.7
Hong Kong, China	24.9	27.2	19.9
Philippines	13.1	9.6	11.7

*2005 figures; 2006 figures are not available.

Notes: For some countries, total government revenues are the sum of current revenues and capital receipts.

Source: Asian Development Bank (2007).

Therefore, from a broader perspective, increasing the share of nontax revenues and correspondingly reducing the share of tax revenues may be a more effective means of creating a more conducive tax environment for work and investment. Furthermore, according to conventional wisdom, the shift from direct taxes to indirect taxes worsens income inequality since the poor bear a disproportionately high share of the burden of indirect taxes. A shift from taxes to nontaxes can mitigate the need to raise indirect taxes to compensate for lower direct taxes, and thus mitigate the adverse equity effects. In this paper, a possible source of nontax revenues for developing Asia is explored, namely the region's foreign exchange reserves, which has grown rapidly since the Asian crisis. But before discussing the revenue-yielding potential of reserves, the facts of their post-crisis build-up are analyzed.

III. ARE DEVELOPING ASIA'S FOREIGN EXCHANGE RESERVES EXCESSIVE?

This section briefly looks at the region's foreign exchange reserve accumulation for the period 1990–2006.⁸ The key background facts about the region's reserve build-up sets out the context to explore the potential role of reserves as a source of nontax revenues. In this paper, foreign exchange reserves refer solely to foreign currency assets recorded on central banks' balance sheets, and exclude gold, Special Drawing Rights, and International Monetary Fund (IMF) reserve positions. Figure 1 shows that developing Asia's total foreign exchange reserves grew from \$203 billion to \$2,295 billion in nominal terms, and from \$267 billion to \$1,960 billion in real terms between 1990 and 2006. Figure 2 shows that developing Asia's share of global reserves rose from 23.8% to 44.0% during the same time period. In both absolute and relative terms, the region has been experiencing a remarkably rapid build-up of reserves.

⁸ Park (2007) provides a comprehensive overview of the causes and policy implications of developing Asia's foreign exchange reserve accumulation.

FIGURE 1
NOMINAL AND REAL FOREIGN EXCHANGE RESERVES OF DEVELOPING ASIA,
1990–2006

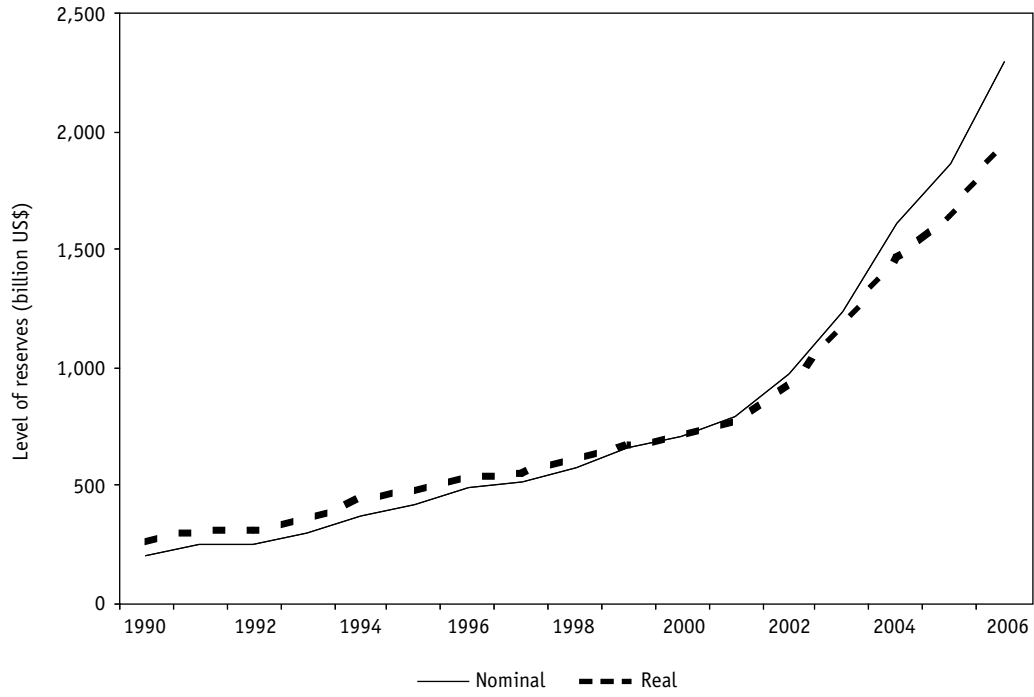
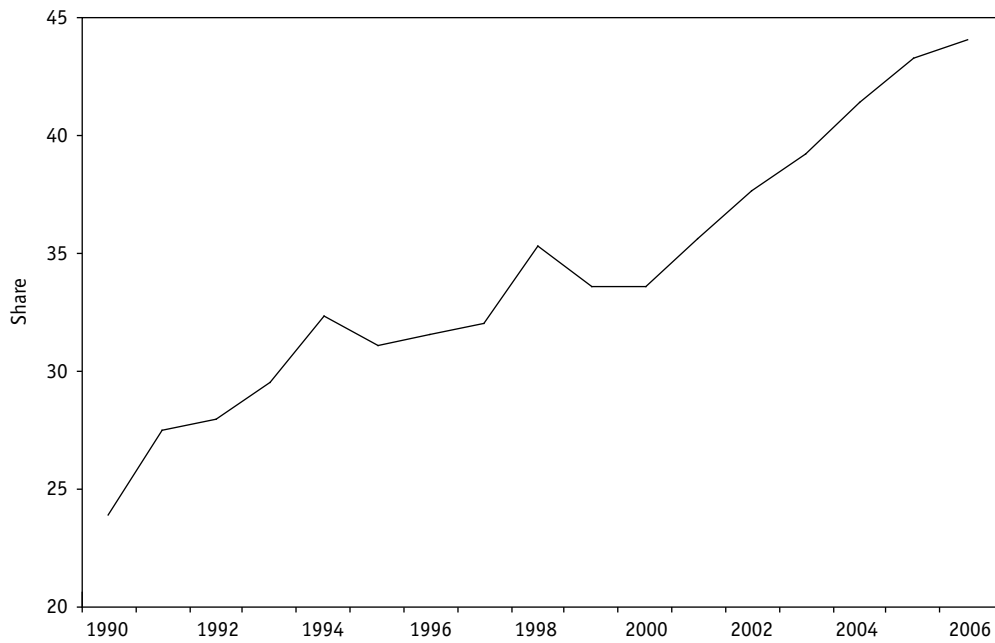


FIGURE 2
SHARE OF DEVELOPING ASIA IN WORLD FOREIGN EXCHANGE RESERVES,
1990–2006 (PERCENT)



Developing Asia's reserves continued to grow strongly in 2007, as is evident in Table 6. The table shows that region's 12 largest reserve holders are, in descending order: PRC; Taipei, China; Korea; India; Singapore; Hong Kong, China; Malaysia; Thailand; Indonesia; Philippines; Kazakhstan; and Viet Nam. The 12 economies jointly account for more than 98% of the region's reserves and highlight the pan-regional nature of developing Asia's reserve buildup. The region's reserves are predominantly central bank reserves originating from the central bank's purchase of foreign exchange, as opposed to fiscal reserves arising from fiscal surplus, government ownership of natural resources, or other government net income.⁹

TABLE 6
DEVELOPING ASIA'S FOREIGN EXCHANGE RESERVES (\$ BILLION)

ECONOMY	STOCK AS OF DECEMBER 2007	STOCK AS OF DECEMBER 2006	PERCENT INCREASE
PRC	1,528.25	1,066.34	43.32
Taipei, China	270.31	265.14	1.95
India	264.73	170.19	55.5
Korea	261.77	238.39	9.8
Singapore	162.96	135.81	20.0
Hong Kong, China	152.70	133.17	14.7
Malaysia	101.3	81.72	24.0
Thailand	85.24	65.15	30.8
Indonesia	54.56	40.70	34.1
Philippines	30.07	19.89	51.2
Kazakhstan	19.25	17.75	8.5
Viet Nam	17.16	13.38	28.3

Source: International Financial Statistics online database, downloaded 1 February 2008.

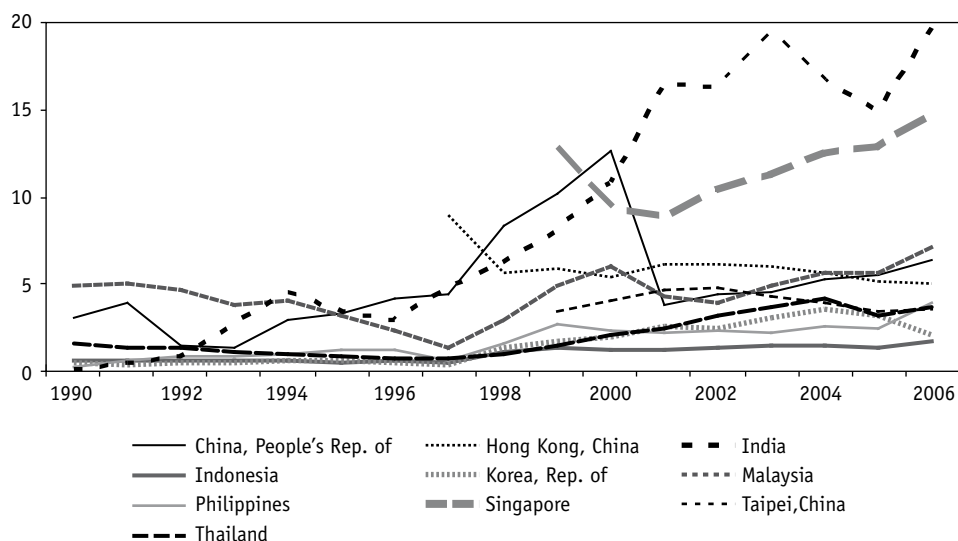
Turning now to the extent to which the region's reserves exceed adequate levels, just as commercial banks can harm its profits by holding excessive cash reserves, countries can harm their welfare by holding excessive foreign exchange reserves. Central banks typically hold foreign exchange reserves for precautionary insurance purposes, to protect the country from sudden shortages of international liquidity. However, there is widespread concern among both policymakers and the general public that the region's reserves now exceed all plausible estimates of what it needs for precautionary liquidity purposes.

Although the concept of excess reserves is neither precise nor well-defined, there are some well-known measures of reserve adequacy to gauge the magnitude of developing Asia's excess reserves, as those discussed in Edison (2003) and European Central Bank (2006). Empirical studies find one rule of thumb—the ratio of reserves to short-term external debt—to be a particularly significant determinant of an economy's vulnerability to financial crisis. The well-known Greenspan-Guidotti rule stipulates that the critical value of this ratio is 1, i.e., a country with reserves equal to or more than all external debt falling within 1 year should be able to service its immediate foreign

⁹ Hildenbrand (2007) introduced the critical distinction between fiscal reserves, which are free fiscal assets, and central bank reserves, which are not. Central bank reserves have counterpart liabilities in the central bank's balance sheet, in the form of either money or bonds issued to purchase foreign exchange.

exchange obligations even during a crisis. Figure 5 reveals that developing Asia comfortably passes the Greenspan-Guidotti test of reserve adequacy, lending support to the notion that the region's reserves now substantially exceed its requirements.

FIGURE 5
RATIO OF FOREIGN EXCHANGE RESERVES TO SHORT-TERM EXTERNAL DEBT IN
DEVELOPING ASIA'S TOP 10 RESERVE HOLDERS, 1990-2006



Turning to estimation of the magnitude of developing Asia's excess reserves, two other well-known reserve adequacy measures are used here, the reserves-M2 ratio, and the months of imports that reserves can pay for. The higher the M2 ratio, the greater the degree to which the risks of crisis-provoking domestic capital flight are covered. The critical values usually range from 5% to 20%. Figure 6 shows that the reserves-M2 ratio is either above or close to the upper limit of the 5-20% range for Asia's biggest reserve holders. The intuition behind the import cover measure is that reserves help to reduce vulnerability to current account shocks. The critical value is typically 3-4 months. Figure 7 shows that the number of months that imports can cover is well above 4 in the region's biggest reserve holders.

FIGURE 6
RATIO OF FOREIGN EXCHANGE RESERVES TO M2 IN
DEVELOPING ASIA'S TOP 10 RESERVE HOLDERS, 1990-2006

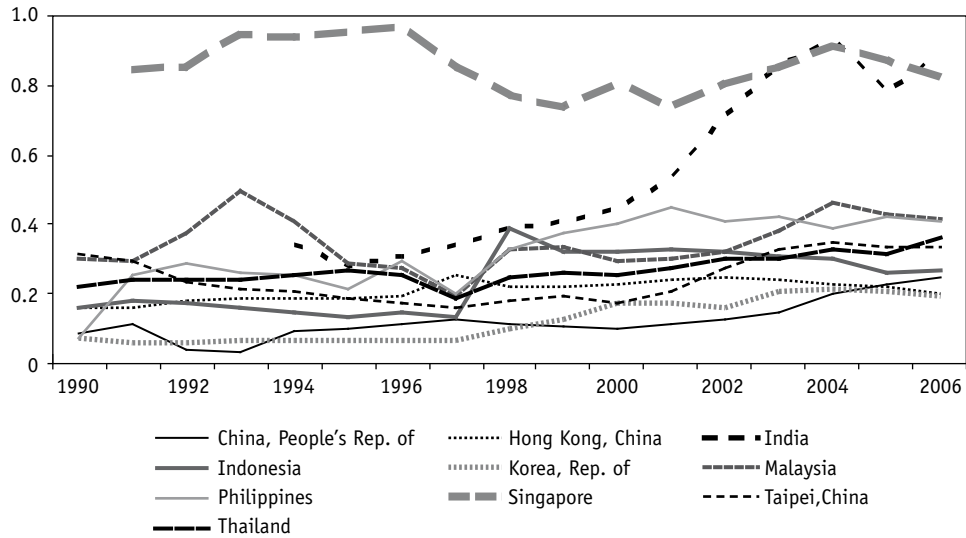
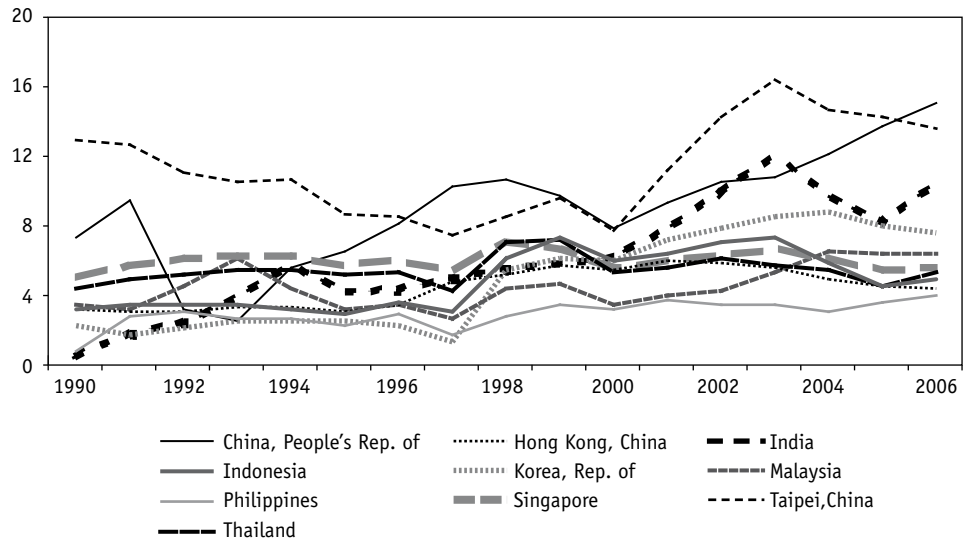


FIGURE 7
IMPORTS COVERED BY FOREIGN EXCHANGE RESERVES IN DEVELOPING
ASIA'S TOP 10 RESERVE HOLDERS, 1990-2006 (MONTHS)



IV. HOW BIG ARE THE FISCAL DIVIDENDS FROM MANAGING DEVELOPING ASIA'S EXCESS RESERVES MORE ACTIVELY?

The investment income from developing Asia's excess reserves is a fiscal resource. This fact gives ample justification for the popular notion that continuing to invest the region's excess reserves in safe and liquid but low-yielding traditional reserve assets such as United States government securities is a costly waste of valuable resources. Suppose the central bank earns a rate of return of 3% by investing a dollar of excess reserves on traditional reserve assets but could have earned a rate of return of 10% by investing it instead in higher-return assets. Then the central bank is incurring a loss of 7% of foregone fiscal dividend. This suggests that the first-best use of the region's excess reserves is to invest them abroad with the objective of maximizing risk-adjusted returns. Such an active, profit-oriented reserve management strategy will help to maximize the fiscal dividend available for the region's governments.

A group of state-owned financial institutions known as sovereign wealth funds (SWF) have a long history of using publicly owned foreign exchange to pursue commercial profits.¹⁰ As such, they provide a natural institutional model for more active, profit-oriented management of developing Asia's excess reserves. While there is no single authoritative definition of an SWF, SWFs share two defining characteristics: ownership and control by the government, and pursuit of risk-adjusted returns rather than liquidity as the central objective. Some sovereign funds, most notably Singapore's Temasek Holdings and Government of Singapore Investment Corporation, have been highly successful investors.¹¹ Not surprisingly, new Asian SWFs such as the Korea Investment Corporation and the China Investment Corporation are seeking to replicate Singapore's success.

Given their lack of financial sophistication, institutional capacity, and investment experience, it is highly unrealistic for the Asian sovereign funds to target rates of return like that of Temasek or Government of Singapore Investment Corporation in the short run. It is nevertheless interesting to get some quantitative idea of what Asian countries can expect to gain by shifting toward more active management of their excess reserves. Summers (2007) provides an excellent point of departure for analyzing this issue in a simple, straightforward, yet intuitively plausible and appealing way. Table 7 shows the annualized risk and return of four types of investment portfolios for long-term historical data.

What is most relevant for this analysis is the typical central bank portfolio and the typical pension portfolio. Central banks traditionally invest in short-maturity, high-grade government securities and money markets instruments, whereas pension funds tend to invest in a diversified portfolio of stocks and bonds. The specific assumptions are that central bank portfolios consists of 0–3-year, dollar-denominated Treasuries, while pension portfolios consist of 60% stocks and 40% bonds. The average annual real return on central bank portfolios is 0.98%; the average annual real return on pension portfolio is 5.75%. Although the annualized standard deviation for pension portfolio (12.45%) is much higher than for central bank portfolio (1.24%), Summers (2007) shows that the probability of a negative return as well as average real loss in periods of negative real return is higher for central bank portfolios.

¹⁰ Johnson-Calari and Rietveld (2007) provide an excellent overview of sovereign wealth management. The oldest sovereign wealth fund, the Kuwait Investment Authority, was set up way back in 1953. Despite such a long history, the term sovereign wealth fund was coined only very recently, by Andrew Rozanov in 2005 (see Rozanov 2005a and 2005b).

¹¹ For example, the market value of Temasek grew on average by a remarkable 18% per year on a compounded basis between 1974 and 2006.

TABLE 7
ANNUALIZED RISK/RETURN OF INVESTMENT PORTFOLIOS, 1926-2004 (PERCENT)

INVESTMENT PORTFOLIO	AVERAGE ANNUAL REAL RETURN (GEOMETRIC)	ANNUALIZED STANDARD DEVIATION OF RETURN
100% US 1-month deposits	0.65	0.89
Typical central bank portfolio	0.98	1.24
Typical pension portfolio	5.75	12.45
100% US stocks	7.11	19.37

Source: Summers (2007).

A more active investment strategy is analytically equivalent to shifting from a typical central bank portfolio to a typical pension portfolio. Conceptually, sovereign funds and pension funds are alike in that they both have resources available for the long run, and can thus afford to take a long-run investment horizon. Table 8 provides some quantitative estimates of those benefits for the 10 largest reserve holding countries of the region for 2006. Excess reserves are computed on the basis of the Greenspan-Guidotti rule as the difference between foreign exchange reserves and short-term external debt. The gains from more active reserve management is computed as the product of multiplying the excess reserves by the difference in rate of return between pension portfolio and central bank portfolio (i.e., 5.75% – 0.98% = 4.77%). The gains are also expressed as a percentage of GDP to put them in better perspective. The above numbers indicate that the fiscal dividend from investing excess reserves more actively is quite large. For example, in the case of PRC, shifting from a central bank portfolio to a pension portfolio would yield a fiscal dividend of 1.63% of GDP. It should also be remembered that this is not a one-off windfall like privatization revenues, but a fiscal dividend that would be available for the government every year.

TABLE 8
EXCESS RESERVES^a AND THE BENEFIT OF INVESTING EXCESS RESERVES MORE ACTIVELY
IN DEVELOPING ASIA'S TOP 10 RESERVE HOLDERS, 2006

ECONOMY	EXCESS RESERVES (BILLION US\$)	BENEFIT FROM INVESTMENT OF EXCESS RESERVES	
		IN BILLION US\$	AS PERCENT OF GDP
PRC	898.94	42.88	1.63
Taipei, China	190.90	9.11	2.56
Korea	124.75	5.95	0.67
India	161.49	7.70	0.86
Singapore	126.51	6.03	4.57
Hong Kong, China	106.37	5.07	2.68
Malaysia	70.34	3.36	2.25
Thailand	47.36	2.26	1.09
Indonesia	16.80	0.80	0.22
Philippines	14.88	0.71	0.61

^a Defined as the difference between foreign exchange reserves and short-term external debt.

The above computational exercise is repeated for two alternative definitions of excess reserves. First, in Table 10, excess reserves is defined as the difference between foreign exchange reserves and 12.5% of M2 or broad money supply. As noted earlier, the suggested reserve adequacy critical value in terms of the reserves–M2 ratio ranges from 5% to 20%, hence, the intermediate value of 12.5% is taken. Second, in Table 11, excess reserves is defined as the difference between foreign exchange reserves and the value of 3.5 months' worth of imports. As noted earlier, the suggested reserve adequacy critical values in terms of the number of months that reserves can cover ranges from 3 months to 4 months, so the intermediate value of 3.5 months is taken. For both alternative definitions of excess reserves, the fiscal dividend from more active reserve management is quite high. For example, in the case of the PRC, in terms of M2 and import cover definitions, the annual fiscal dividend is 0.95% of GDP and 1.48% of GDP, respectively. It is worth repeating that the fiscal dividends are recurrent incomes rather than one-off windfalls.

TABLE 9
EXCESS RESERVES^a AND THE BENEFIT OF INVESTING EXCESS RESERVES MORE ACTIVELY
IN DEVELOPING ASIA'S TOP 10 RESERVE HOLDERS, 2006

ECONOMY	EXCESS RESERVES (BILLION US\$)	BENEFIT FROM INVESTMENT OF EXCESS RESERVES	
		IN BILLION US\$	AS PERCENT OF GDP
Taipei,China	166.02	7.92	2.23
Korea	87.93	4.19	0.47
India	146.18	6.97	0.78
Singapore	115.17	5.49	4.16
Hong Kong, China	51.70	2.47	1.30
Malaysia	57.25	2.73	1.83
Thailand	42.63	2.03	0.99
Indonesia	21.84	1.04	0.29
Philippines	13.80	0.66	0.56

a Defined as the difference between foreign exchange reserves and 12.5% of M2.

TABLE 10
EXCESS RESERVES AND THE BENEFIT OF INVESTING EXCESS RESERVES
MORE ACTIVELY IN DEVELOPING ASIA'S TOP 10 RESERVE HOLDERS, 2006

ECONOMY	EXCESS RESERVES (BILLION US\$)	BENEFIT FROM INVESTMENT OF EXCESS RESERVES	
		IN BILLION US\$	AS PERCENT OF GDP
PRC	817.62	39.00	1.48
Taipei,China	196.87	9.39	2.64
Korea	129.52	6.18	0.70
India	112.40	5.36	0.60
Singapore	50.66	2.42	1.83
Hong Kong, China	25.77	1.23	0.65
Malaysia	37.13	1.77	1.19
Thailand	22.73	1.08	0.53
Indonesia	11.77	0.56	0.15
Philippines	2.63	0.13	0.11

a Defined as the difference between foreign exchange reserves and value of 3.5 months' worth of imports.

V. CONCLUDING OBSERVATIONS AND REMARKS

A major side effect of globalization is the erosion of the tax base due to growing factor mobility. In particular, the combination of technological progress and liberalizing government policies has fuelled a phenomenal growth in cross-border flows of both portfolio investment and FDI. The ability of capital to relocate from jurisdictions with high tax burdens to those with lower tax burdens limits the ability of governments to impose taxes. Not only that, since there is widespread perception that foreign capital in general and FDI in particular are important sources of jobs, technological progress, and economic growth, governments are vigorously competing with each other to lower corporate income tax rates and provide a more favorable tax environment for foreign investors. While fears of a “race to the bottom” and the withering away of the nation-state are exaggerated, globalization has nevertheless precipitated a worldwide trend toward lower tax burdens on capital.

The erosion of the traditional tax base as a result of growing factor mobility under globalization is encouraging governments of developing Asia to seek alternative, nonconventional sources of revenues. Although much of the region currently seems to enjoy superficially fiscally healthy positions, the region as a whole faces daunting long-run fiscal challenges arising from demographic transition and globalization, in addition to country-specific challenges. This makes it more imperative for regional governments to secure alternative, nonconventional revenue sources. It is true that tax reform designed to improve taxpayer compliance and tax base broadening through greater use of indirect taxes are possible policy responses to the erosion of the traditional tax base. However, such policy shifts are administratively difficult in light of inadequate institutional capacity in many regional countries, which is why nonconventional revenues are an especially attractive means of raising revenues.

One potential source of nonconventional government revenues that is receiving a lot of attention and interest throughout the region is foreign exchange reserves. A key macroeconomic trend in the region is a rapid build-up of foreign exchange reserves, which have now reached levels that exceed all plausible estimates of what is required for traditional liquidity purposes. The build-up is largely the consequence of foreign exchange market interventions by the central bank within the context of current account surplus derived from exports of manufactured goods and services. There is a widespread and growing perception that the region’s soaring reserves are somehow a free fiscal asset at the disposal of the region’s governments. This paper thus lies at the intersection of two topical issues facing Asian policymakers—how to compensate for the loss of revenues due to growing factor mobility, and how to make good use of the region’s growing mountain of excess foreign exchange reserves.

The central issue that was addressed is the extent to which reserve management can in fact provide valuable fiscal resources for the government. Income from investing Asia’s excess reserves represents a potentially valuable fiscal dividend for the region. Therefore, instead of passively investing excess reserves in traditional reserve assets, the region’s governments should invest them more actively with the goal of maximizing risk-adjusted returns. Simple calculations based on long-term historical data on rates of return suggest that the fiscal dividend from such a shift can be quite substantial. However, the realization of the fiscal dividend is neither automatic nor guaranteed. As such, the region’s governments would do well to adopt a prudent gradualist investment approach of first building up the required institutional capacity for profit-seeking overseas investment, including risk management capacity, and starting out as portfolio rather than direct investors. With this caveat

in mind, the potential fiscal dividend from managing developing Asia's excess foreign exchange reserves more actively will be large enough to be of significant value to the region's governments in their quest for alternative, nonconventional sources of revenue.

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