Chapter 2 Changes in economic fundamentals and growth strategy in emerging economies

In this chapter, we first compare changes in the economic fundamentals in emerging economies in the 2000s. Based on the comparison, we look at structural reforms and policies which were implemented by ROK, Mexico, Brazil, Thailand and India following major shocks such as currency crises in order to strengthen long-term growth fundamentals and which led to the differences in their fundamentals.

Section 1 Economic fundamentals in emerging economies

When conducting business in emerging economies, it is necessary to consider their inherent political, economic and social risks, their vulnerabilities, and their fundamentals for future economic growth. With this in mind, we start by briefly looking back at the causes of past currency and financial crises and their evolution (spread and contagion) as well as policy measures taken by individual countries. Next, we conduct comparable evaluation of the risk tolerance and growth fundamentals of countries, mainly emerging economies that suffered heavy damage from past currency and financial crises, by giving scores based on various statistics and data concerning economic fundamentals. Finally, we take up ROK as an example case and provide a qualitative evaluation of the contents and results of the various structural reforms carried out by the country in order to overcome its crisis.

1. Past economic crises and policy response

Here, we take up three past currency and financial crises – the Mexican currency crisis, the Asian currency crisis and the global economic crisis triggered by the collapse of Lehman Brothers. Figure II-2-1-1 shows changes in the Global Market Volatility Index (GMVI), which is calculated and published by the Institute for International Monetary Affairs[153]. This index indicates the volatility in the stock, bond and exchange markets and represents the level of risks and stress in the global financial and capital markets. From this graph, we can see that the composite indexes of the GMVI rose steeply during or immediately after past crises, indicating greatly increased market instability.

(1) Mexican currency crisis

In August 1982, before its currency crisis, Mexico experienced a debt crisis. Mexico, where large oil reserves were discovered in the mid-1970s, saw its foreign debts grow because it became easier to borrow funds from abroad due to the country's enhanced creditworthiness in the international financial market. Against the background of the discovery of oil fields and the oil price upsurge (the second oil crisis), Mexico implemented development investments, mainly for public works projects, financed by foreign debt, and achieved high economic growth. However, when oil prices dropped, an interest rate

[153] For information on how to interpret the Global Market Volatility Index and the compilation method of the index, refer to the reference material published by the Institute for International Monetary Affairs at the following site: http://www.iima.or.jp/Docs/ppp/index/kaisetsu.pdf
(http://www.iima.or.jp/Docs/newsletter/2013/NL2013No_28_e.pdf)

rise in the United States and a plunge in the Mexican peso due to a capital outflow increased Mexico's burden of foreign debt repayment, resulting in a declaration of a default on foreign debts.

Figure II-2-1-2 shows changes in Mexico's debt service ratio[154] and net transfer ratio[155] at that time. In 1981, the year prior to the debt crisis, the debt service ratio stood at 51.6%, meaning that foreign debt repayment took up more than half of export revenues. The net transfer ratio in the same year stood at 15.7%, meaning that only around 15% of the new borrowing could be used without restriction, with around 85% taken up by the repayment of debt servicing (repayment of principal and interest on debts). This indicates how heavy Mexico's burden of foreign debt repayment was at that time.

Figure II-2-1-3 shows changes in the ratio of Mexico's foreign debt to gross national income (GNI). In 1982, the amount of Mexico's foreign debt was equal to more than 50% (53.4%) of GNI, and it peaked at 82.9% in 1986, when oil prices dropped and a major earthquake occurred in Mexico.

As mentioned earlier, Mexico, where large oil reserves were discovered in the mid-1970s, saw its foreign debt grow because it became easier to borrow funds from abroad due to the country's enhanced creditworthiness in the international financial market. Figure II-2-1-4 shows changes in Mexico's primary balance as a percentage of GDP and its fiscal balance as a percentage of GDP. From 1982 to 1987, the primary balance as a percentage of GDP remained positive (the primary balance continued to record a surplus) except in 1982. Meanwhile, the fiscal balance as a percentage of GDP diverged far from the primary balance as a percentage of GDP and remained negative (the fiscal balance continued to record a deficit), indicating the heavy burden of interest repayment.

After experiencing the debt crisis, Mexico accepted the IMF's recommendation and got on the path of reform and opening up in an effort to shift away from the policy of import substituting industrialization. In 1986, Mexico acceded to the General Agreement on Tariffs and Trade (GATT; currently the World Trade Organization (WTO)). The government of President Carlos Salinas de Gortari, which was inaugurated in 1988, promoted the privatization and sale of state-owned enterprises, liberalization of the financial system, infrastructure development and liberalization of the domestic economy, laying the foundation for the effectuation of the North American Free Trade Agreement (NAFTA) on January 1, 1994.

During the few years before the Mexican currency crisis that occurred in December 1994, when the debt crisis was subsiding, a massive amount of capital flowed into Mexico. In particular, in 1990-1993, while the inflow of direct investments (on a net basis) remained mostly stable, the inflow of securities and other investments increased significantly (Figure II-2-1-5, Panel A). This was

[154] The debt service ratio, which is calculated by dividing the value of debt repayments with the value of exports, is an indicator of the ability to repay foreign debts. The higher a country's debt service ratio is, the heavier its burden of debt repayment is.

[155] The net transfer ratio, which is calculated by dividing the difference between the value of new loans and the value of debt service (repayment of principals and interest on debts) with the value of new loans, is an indicator of the burden of principal repayments. The smaller a country's net transfer ratio is, the heavier its debt service burden is.

equivalent to around 5% of GDP. In 1993, the amount of capital that flowed into Mexico came to approximately 30 billion dollars, accounting for around half of the capital inflow into all Central and South American countries.

Reflecting this situation, Mexico's capital account balance as a percentage of GDP came to 6.6% in 1993. On the other hand, the current account balance as a percentage of GDP was minus 4.8%, indicating that the amount of capital inflow was larger than the amount of the current account deficit (Figure II-2-1-6, Panel A). As a result, Mexico's foreign currency reserves increased (Figure II-2-1-6, Panel B[156]). As Ito (2007) pointed out, it was presumed at that time that economies with increasing foreign currency reserves were sound. However, if currency intervention is conducted in order to maintain a fixed exchange rate at the time of a sudden capital outflow, it will eventually become impossible to do so as a result of depletion of foreign currency reserves.

The Mexican currency crisis was triggered by the Mexican government's announcement on December 20, 1994 of a steep devaluation of the Mexican peso. The effects of the financial unrest that originated in Mexico spread to Central and South American countries, including Brazil and Argentina, Asian countries, including Hong Kong, Thailand, the Philippines, Malaysia and Indonesia, and some European countries, and this phenomenon was called the "Tequila Effect." The Mexican currency crisis was different from past crises arising from current account deficits in that it was caused by massive, rapid capital inflow and outflow due to the liberalization of the movement of capital in the 1980s, so it was described as a capital account-type financial crisis of the 21st century[157].

Following the announcement of the currency devaluation, investors started to withdraw capital at once. Although the government of Mexico tried to maintain the value of the currency through exchange intervention, there were insufficient foreign currency reserves, so Mexico was forced to shift to a floating exchange rate system on December 22 of the same year. As a result, the Mexican peso significantly depreciated (Figure II-2-1-7). Eventually, on January 31, 1995, an aid package for Mexico, worth a total of 50 billion dollars, was formulated mainly by the United States, the IMF and G-10 countries, and the Mexican currency crisis subsided[158].

Based on the lesson of the currency crisis, Mexico has implemented domestic structural reforms and has improved its economic fundamentals. As shown in Panels A and B in Figure II-2-1-6 (presented earlier), Mexico has been recording a current account deficit, but the deficit as a percentage of GDP was only 1.8% in 2013 (Panel A). By 2012, the amount of total reserves increased to approximately 160 billion dollars, equivalent to the value of five months' worth of imports of goods and services (Panel B).

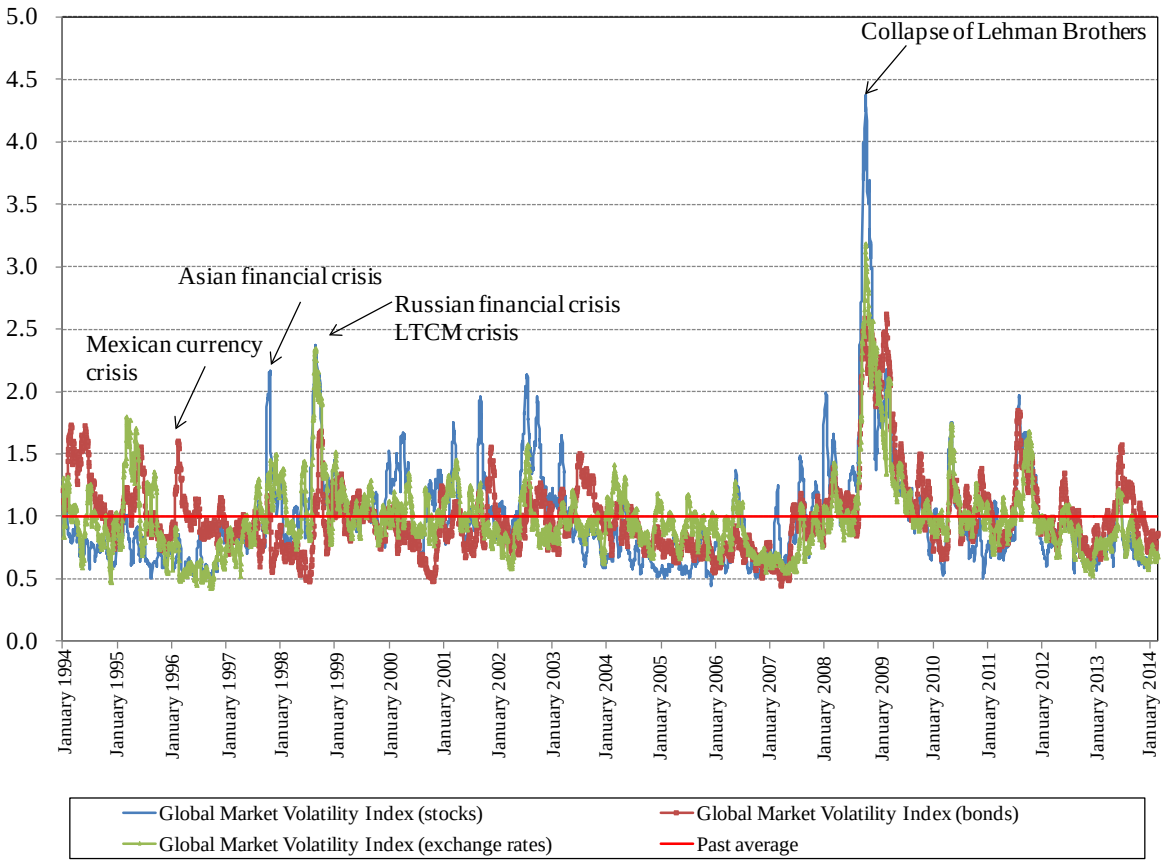
As for capital inflow, the inflow of securities and other investments has grown since around 2010 but the inflow of direct investments was larger than the inflow of securities and other investments in 2013, as shown in Panels A and B in Figure II-2-1-5 (presented earlier).

There has also been a change in the structure of foreign debt. Figure II-2-1-8 shows Mexico's debt

[156] The figure shows changes in total reserves (excluding gold reserves).
[157] Ito (2007) and Ito and Ito and Orii (2006). Michel Camdessus, who was the IMF's Managing Director at that time, called the Mexican currency crisis a "crisis of the 21st century."
[158] Ito (1997).

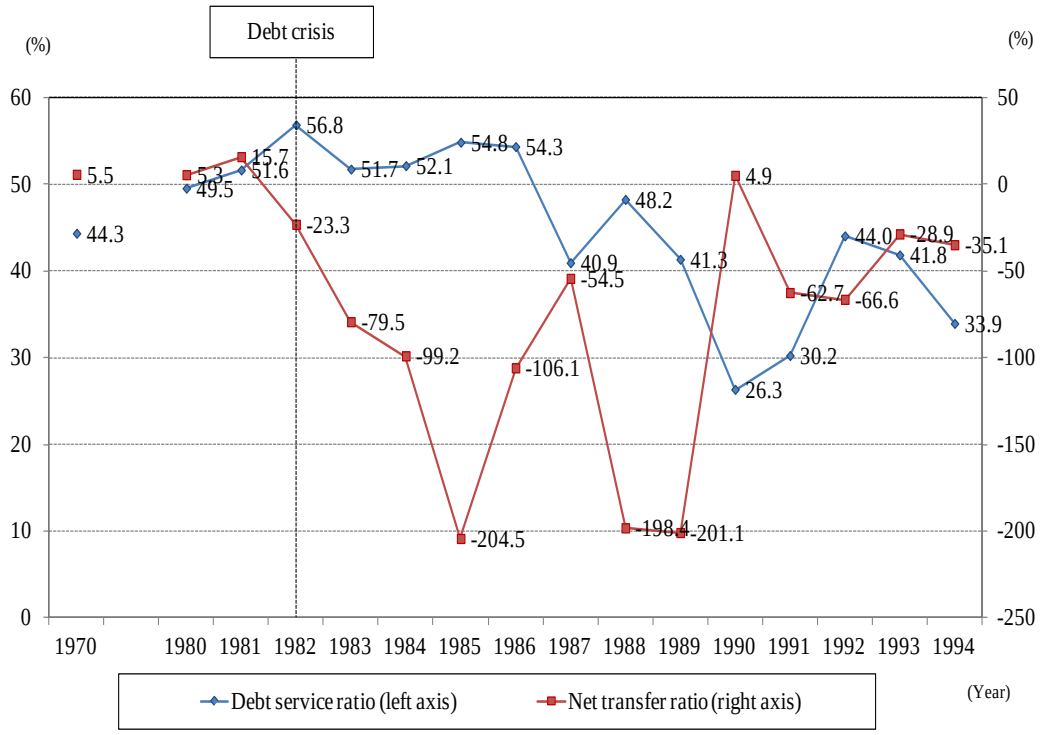
structure (public debts as a percentage of GDP, the ratio of foreign debt to public debt, and the ratio of short-term foreign debt to overall foreign debt) at the time of the debt crisis, the currency crisis and the global economic crisis. At the time of the currency crisis, the ratio of foreign debt to public debt was higher than at the time of the debt crisis in the 1980s, indicating that government's increased dependence on foreign debt for finance. Compared with the status at the time of the Mexican currency crisis, the ratio of foreign debt to public debt and the ratio of short-term foreign debt to overall foreign debt at the time of the global economic crisis showed a decline. This indicates that since the Mexican currency crisis, the government of Mexico has reduced the ratio of foreign debt and raised funds domestically. The decline in the ratio of short-term foreign debt to overall foreign debt (reduced dependence on short-term funds) indicates that the government of Mexico is relying on longer-term funds more than before.

Figure II-2-1-1 Trends in the global market volatility index (January 28, 1994 – March 14, 2014)



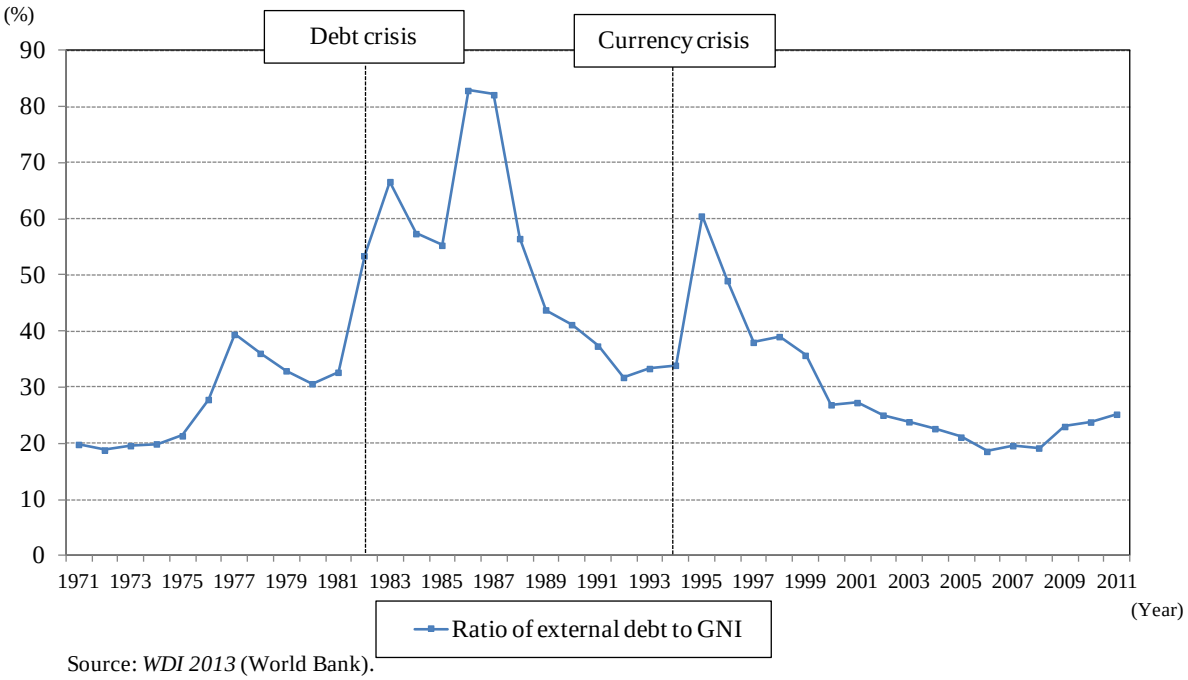
Source: Institute for International Monetary Affairs

Figure II-2-1-2　Trends in Mexico's debt service ratio and net transfer ratio



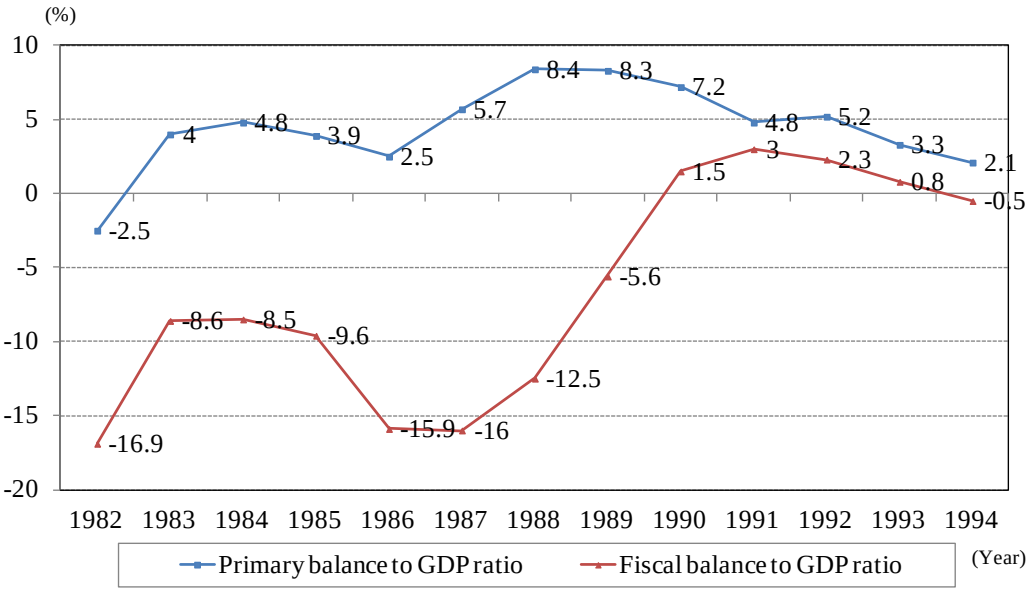
Source: Kataoka (1998a).

Figure II-2-1-3　Trends in Mexico's external debt as a share of GNI



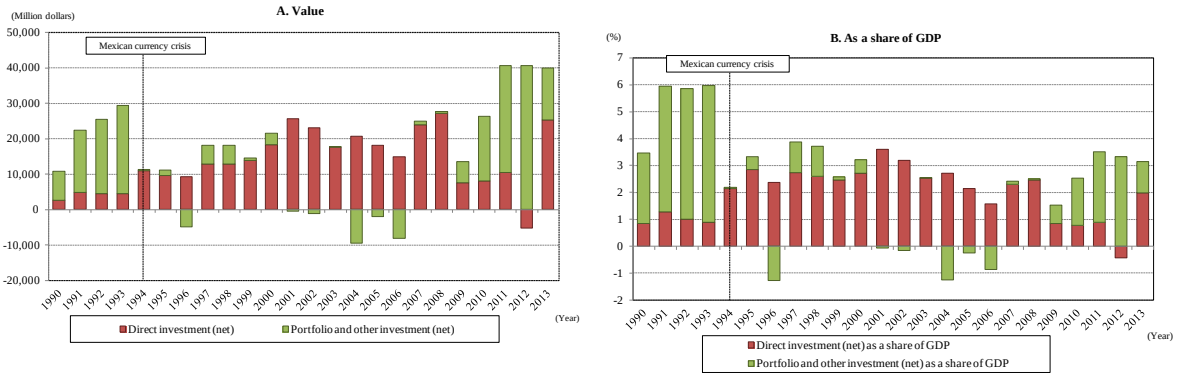
Source: *WDI 2013* (World Bank).

Figure II-2-1-4　Trends in Mexico's primary balance and fiscal balance to GDP ratios



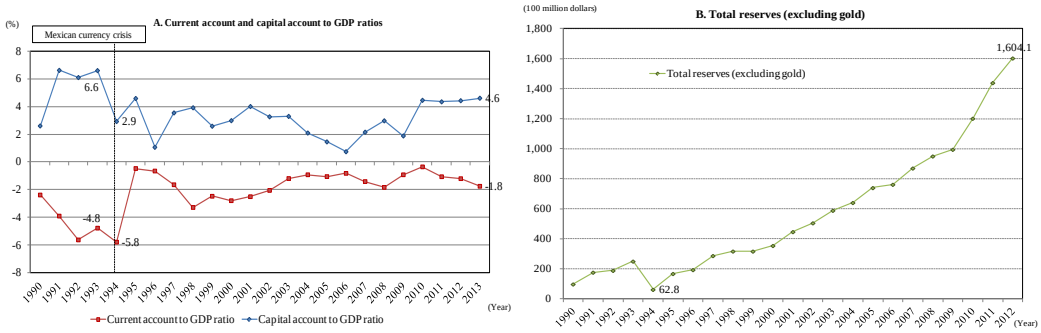
Source: Kitajima (2003). Originally from *The Mexican Economy (1996, 1999)* (Banco de Mexico)

Figure II-2-1-5 Trends in Mexico's net inflows of direct investment and of portfolio and other investment



Notes: "Other investment" includes provision of short- and long-term credit, bank deposits, and accounts receivable and payable.
Source: *Latin American and Caribbean Macro Watch* (Inter-American Development Bank).

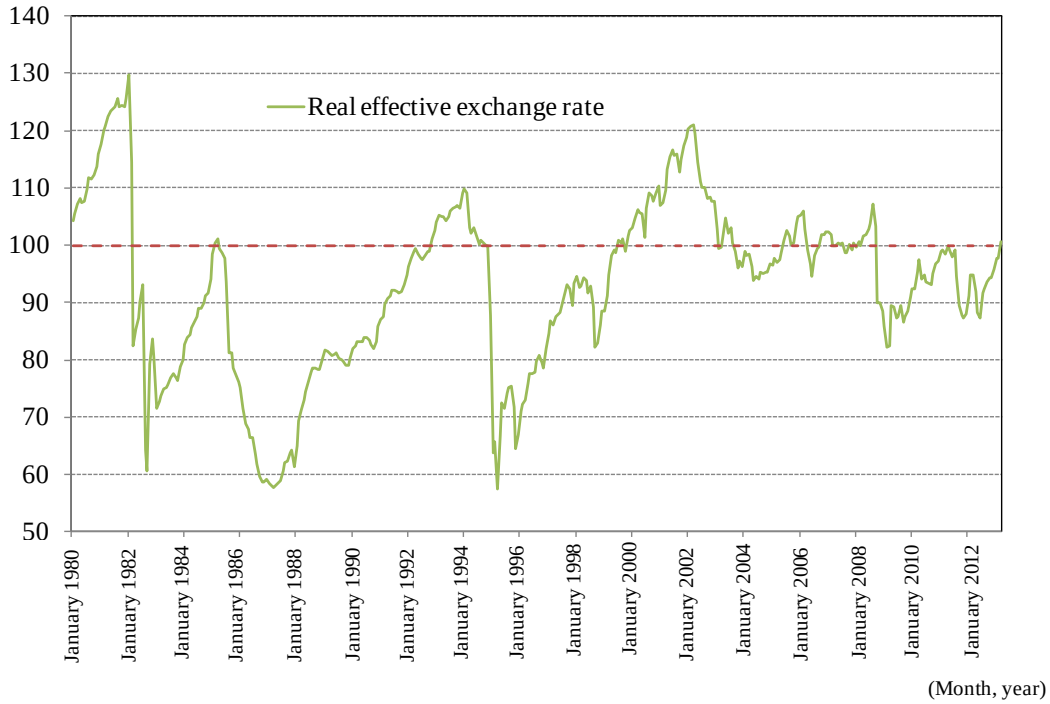
Figure II-2-1-6　Trends in Mexico's current account and capital account balances as a share of GDP and total reserves (excluding gold)



Source: *Latin American and Caribbean Macro Watch* (Inter-American Development Bank), *WDI 2013* (World Bank).

Figure II-2-1-7　Trends in the real effective exchange rate (narrow basis) of the Mexican peso

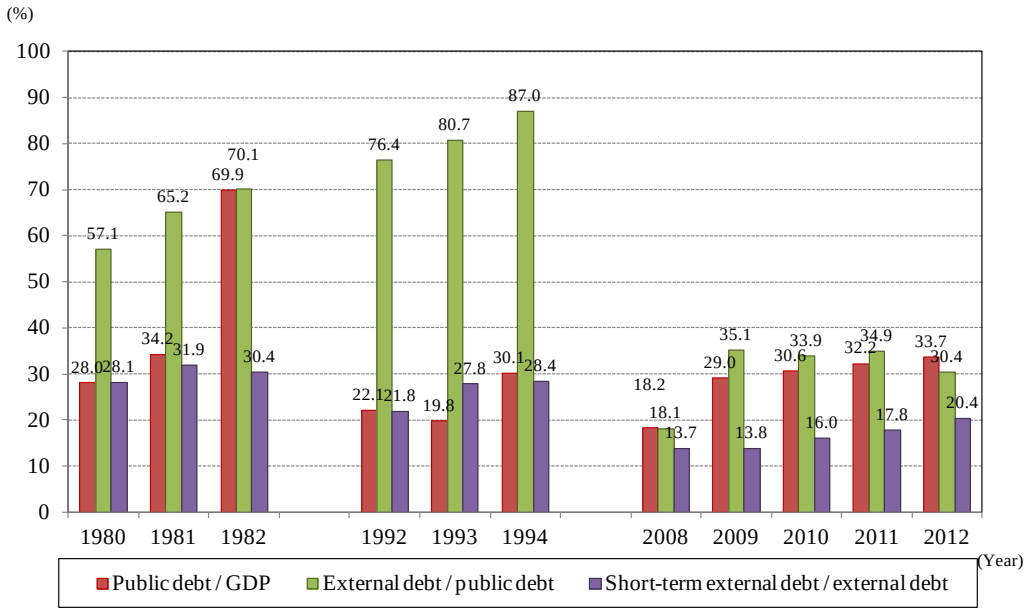
(Index, November 1994 = 100)



Notes: The real effective exchange rate on a narrow basis is calculated as the geometric mean of exchange rates against the currencies of 26 countries (excluding the home country), after adjusting for prices weighted by the volume of trade[159].
Source: BIS

[159] For details, refer to the website of the Bank for International Settlements: http://www.bis.org/statistics/eer/

Figure II-2-1-8 Change in Mexico's debt structure



Source: Banco de Mexico (central bank), INEGI (the National Institute of Statistics and Geography), *WDI 2013* (World Bank).

(2) Asian currency crisis

The Asian currency crisis was triggered by a plunge of the Thai currency, the baht, in July 1997, and financial unrest spread not only to other Asian countries (Indonesia, ROK, Malaysia, the Philippines, Hong Kong, etc.) but also to Russia, Central and South American and Eastern European countries (Figure II-2-1-9)[160]. In the first half of the 1990s, many Asian countries achieved high growth, development that was called the "East Asian Miracle." However, in the second half of the 1990s, those countries experienced economic crises associated with the Asian currency crisis. Below, regarding countries that experienced serious financial crises due to the Asian currency crisis, we look back at how the crises arose, spread and subsided, with attention focused on the common and individual factors of those countries' risks and vulnerabilities.

Countries affected by the Asian currency crisis faced steep drops in the exchange rates of their currencies. Figure II-2-1-10 shows changes in the real effective exchange rates of the currencies of Indonesia, ROK, Malaysia, the Philippines and Thailand (hereinafter referred to the "Asian 5") that were severely affected by the Asian currency crisis. While all of the five countries experienced a steep fall in the real effective exchange rate of their currencies, the fall was particularly extreme for Indonesia. In July 1998, Indonesia's currency was some 80% lower than the level in June 1997. For the four countries other than ROK, the real effective exchange rate of their currencies has until now remained almost the same as the level at the time of the Asian currency crisis. Although the real effective exchange rate of ROK's currency continued to rise moderately after the Asian currency crisis,

[160] As is mentioned by the Economic and Social Research Institute of the Cabinet Office (2002), the cause-and-effect relationship regarding the contagion of the crisis is not necessarily clear. However, it is generally presumed that the steep fall of the Thai baht was the trigger of the crisis.

it fell steeply again due to the global economic crisis triggered by the collapse of Lehman Brothers in September 2008.

Figure II-2-1-9 The Contagion Effect: Propagation of the effects of the Asian financial crisis

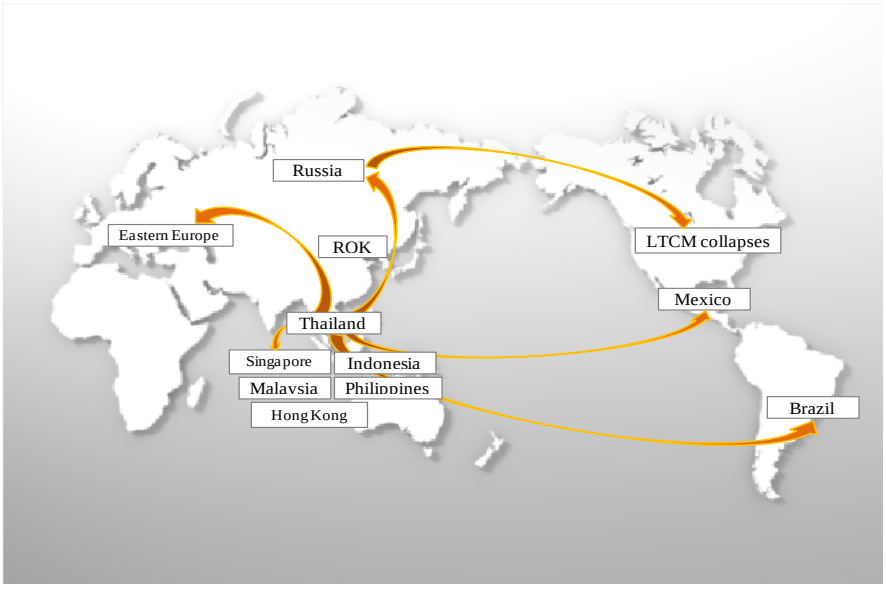
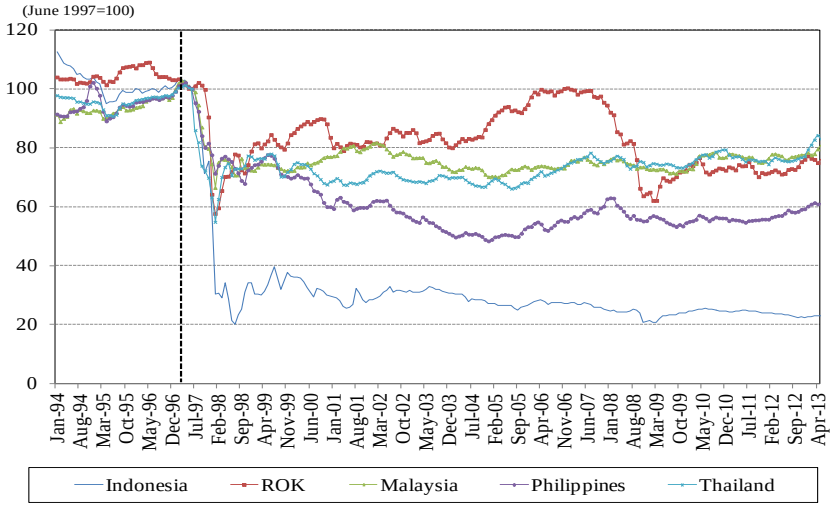


Figure II-2-1-10 Trends in the real effective exchange rates (broad basis) of five Asian countries



Notes: The real effective exchange rate on a broad basis is calculated as the geometric mean of exchange rates against the currencies of 60 countries (excluding the home country), after adjusting for prices weighted by the volume of trade[161].
Source: BIS

Figure II-2-1-11 shows the results of analysis by Ito and Hashimoto (2002) explaining which country was the likely origin of the currency rate volatility and to which countries within Asia it spread at the time of the Asian currency crisis. In this figure, the thicker the line is, the more credible

[161] For details, refer to the website of the Bank for International Settlements: http://www.bis.org/statistics/eer/

the analysis is statistically. According to the analysis results, although the Thai baht's fall was the trigger of the Asian currency crisis, this currency did not produce statistically significant effects on other currencies' exchange rates during the currency crisis. Rather, the Indonesian rupiah (which produced effects on all other currencies) and the ROK's won (which produced effects on all other currencies except for the New Taiwan dollar) were the sources of exchange rate volatility in the region[162].

Before the Asian currency crisis, Asian countries experienced massive capital inflows as did Mexico before the Mexican currency crisis. Figure II-2-1-12 shows changes in the investment account balance of all of the Asian 5. Before the Asian currency crisis, all of the five countries recorded a net capital inflow. In Indonesia, ROK and the Philippines, inward portfolio investments accounted for a large proportion of the capital inflow, while direct investments accounted for a large proportion in Malaysia. In Thailand, other investments accounted for a large proportion. Although the breakdown of investments differed from country to country, the proportion of securities and other investments was larger compared with the proportion of direct investments in the Asian 5 at the time of the Asian currency crisis, as was the case with Mexico at the time of the Mexican currency crisis. After 1997, when the Asian currency crisis broke out, Indonesia, Malaysia and Thailand continued to experience capital outflows for the following several years. Although ROK experienced a net capital outflow briefly in 1998, it soon started to record a net capital inflow again. In the Philippines, the impact of the Asian currency crisis was negligible in terms of movement of capital.

Figure II-2-1-13 shows changes in the current account balance as a percentage of GDP in the Asian 5. The state of the current account deficit continued in all of the five countries until the Asian currency crisis except for a surplus recorded by ROK in 1993. In particular, Thailand and Malaysia recorded a current account deficit equivalent to more than 8% of GDP in some years.

Next, Figure II-2-1-14 shows changes in indicators related to the balance of foreign debts of the Asian 5. Panel A indicates the ratio of the balance of overall foreign debts to GNI, and Panel B indicates the ratio of short-term foreign debts to the balance of overall foreign debts. Panel C indicates the ratio of foreign currency reserves to the balance of short-term foreign debts. First, Panel A shows that in 1997, when the Asian currency crisis broke out, Thailand had the highest ratio of the balance of overall foreign debts, 74.6%, among the Asian 5, followed by Indonesia with 65.1% and the Philippines with 58.3%. These ratios are higher than the ratio for Mexico at the time of the Mexican debt crisis, which was mentioned earlier. Meanwhile, Panel B shows that in 1997, Thailand also had the highest ratio of the balance of short-term foreign debts, 34.5%, followed by Malaysia (31.6%) and ROK (30.4%). Finally, Panel C shows that in 1997, all countries except for Malaysia had a foreign currency reserve ratio lower than 100%. In particular, ROK's ratio was only around 30%, and this, coupled with Panel B, indicates that ROK depended heavily on short-term debts[163].

[162] Refer to Ito and Hashimoto (2005) as well.

[163] Although this is not relevant to the argument of this paragraph, the balance of ROK's overall foreign debts has been rising since 2005 as shown in Panel A. However, as shown in Panel B, the ratio of the balance of short-term debts has been declining, indicating that foreign debts have come to be financed

Figure II-2-1-15 shows the debt service ratio of the Asian 5 at the time of the Asian currency crisis, just as Figure II-2-1-2 (presented earlier) shows Mexico's debt service ratio at the time of the Mexican debt crisis. The debt service ratio reached 30.3% in Indonesia in 1997, although it was lower than the ratio for Mexico at the time of the Mexican debt crisis.

Asian countries affected by the Asian currency crisis had common and individual factors. First, Table II-2-1-16 provides a summary of the key points of the Asian currency crisis and the contents of IMF programs with regard to Thailand, Indonesia and ROK, which were affected by the crisis particularly severely.

Next, Table II-2-1-17 shows common and individual factors observed in the countries affected by the Asian currency crisis. Among the common factors are (i) overvaluation of the currency due to pegging to the dollar, (ii) weak supervision of banks and non-banks and (iii) excessive inflows of short-term capital. Among the individual factors were mismanagement of foreign currency reserves in Thailand and ROK and weak corporate governance in ROK and Indonesia[164].

Table II-2-1-18 shows the results of the scoring of the vulnerabilities of countries affected by the Asian currency crisis as analyzed by Summers[165] (2000)[166]. Regarding the pegged exchange system and foreign currency reserves, all countries are rated as "very serious" (or worse). Regarding the current account deficit, Thailand was rated as "very serious," Indonesia was rated as "serious" and ROK was rated as "not central," each of which shows differences. Unlike in the case of the Mexican currency crisis, the fiscal deficit did not become much of a problem. Meanwhile, regarding banking and financial sector weakness, all countries were rated as "very serious." Although only Thailand was in a serious situation regarding government short-term debt, all countries were rated as "serious" or "very serious" with regard to total short-term foreign indebtedness and general governance.

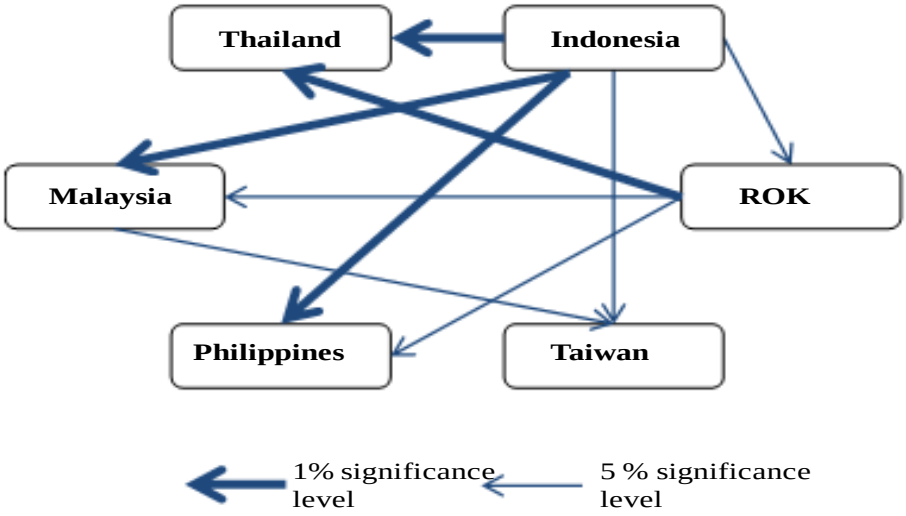
through long-term debts.

[164] Refer to Ito (2001).

[165] Lawrence Summers is a former president of Harvard University. He also served in such posts as U.S. Treasury Secretary and Director of the National Economic Council.

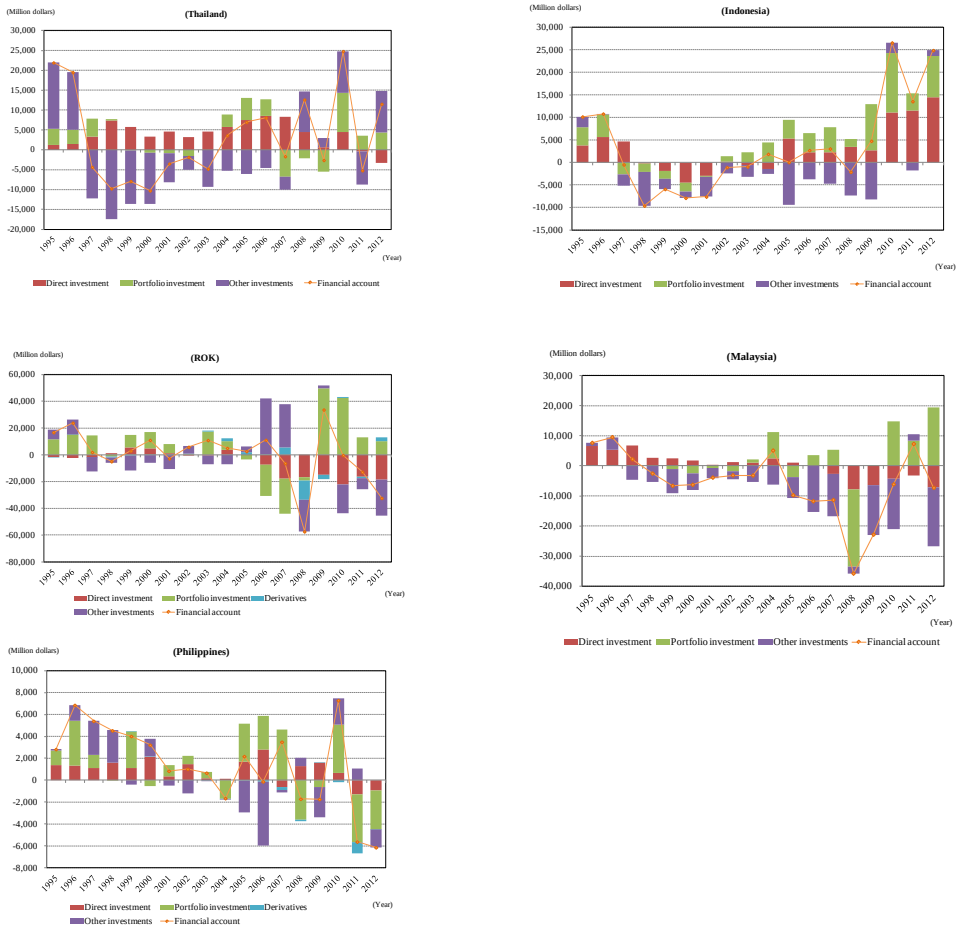
[166] The analysis by Summers (2000) also covered the situation of Mexico at the time of the Mexican currency crisis and the situation of Russia and Brazil, both of which faced a crisis following the Asian currency crisis.

Figure II-2-1-11　Causal relationships in the propagation of exchange rate fluctuations in Asian countries



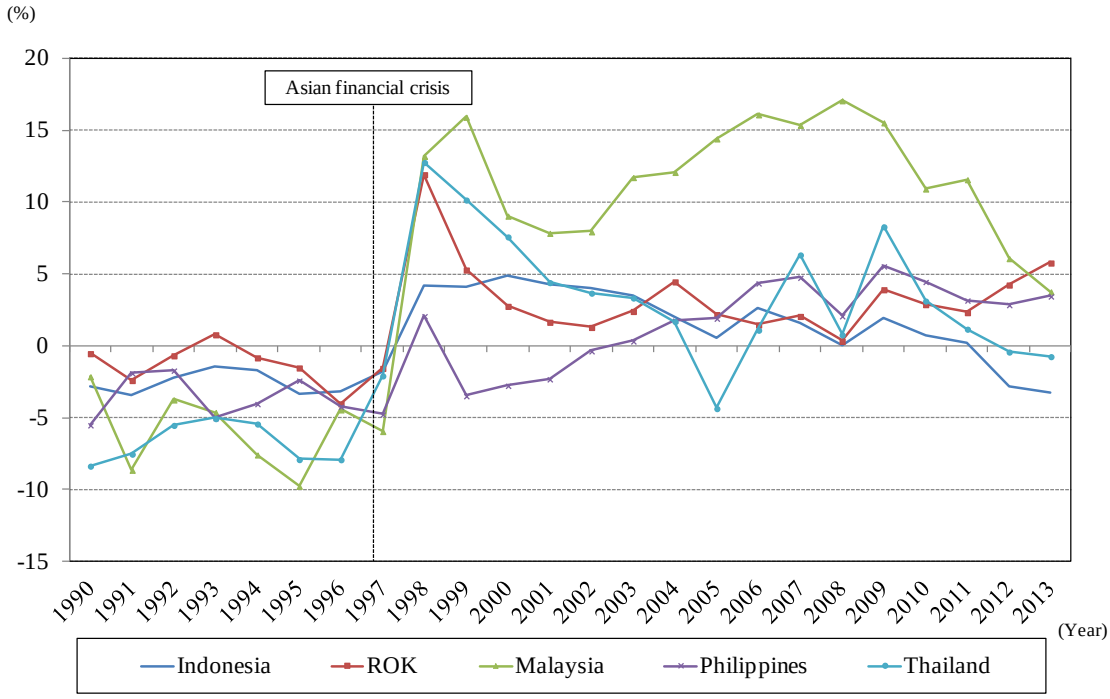
Source: Ito and Hashimoto (2002)

Figure II-2-1-12　Trends in the financial account of five Asian countries



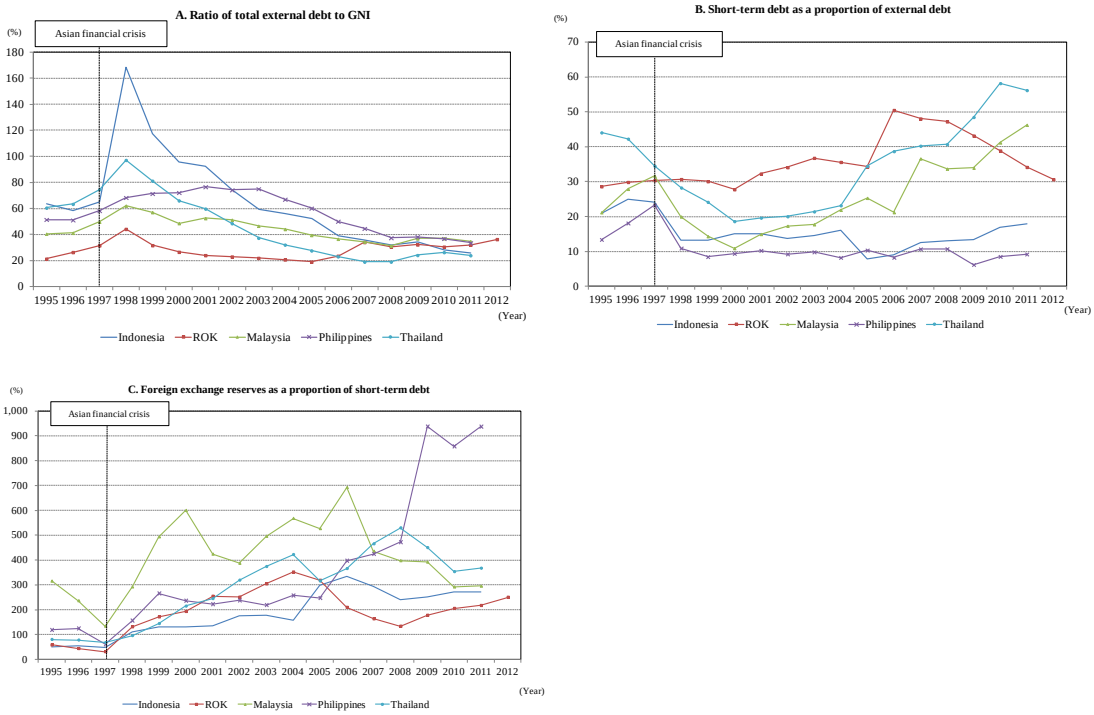
Notes: There are no data on the portfolio investment of Malaysia before 1998.
Sourse:*Key Indicators for Asia and the Pacific 2013* (ADB).

Figure II-2-1-13　Trends in the current account to GDP ratios of five Asian countries



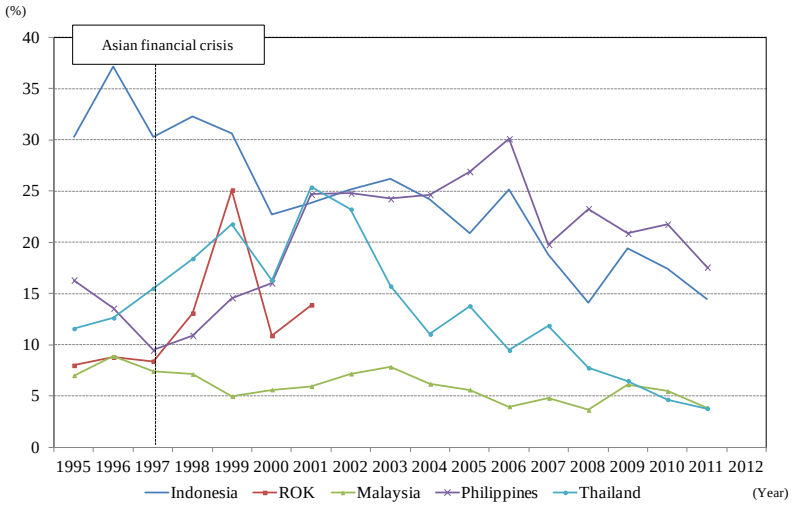
Source: *WEO, April 2014* (IMF).

Figure II-2-1-14　Trends in the external debt indicators of five Asian countries



Notes: All the data are terminal values.
Sourse:*Key Indicators for Asia and the Pacific 2013* (ADB).

Figure II-2-1-15　Trends in the Debt Service Ratios of Five Asian Countries



Notes: No data available for ROK from 2002 onward.
Source: *Key Indicators for Asia and the Pacific 2013* (ADB)

Table II-2-1-16 Overview of the Asian financial crisis and comparison of IMF programs

	Thailand	Indonesia	ROK
Critical period	July 2 – December 1997	October 1997 – June 1998	November 1997 – January 1998
Macroeconomic structural problems	Current account deficit and vulnerable financial system (bubble)	Vulnerable banking system	Overinvestment by chaebol conglomerates and vulnerable banking system
Short-term external debt	Banking sector borrowing	Corporate sector borrowing	Banking sector borrowing
Foreign exchange reserves	Lost on future positions, in order to maintain a fixed exchange rate	No loss	Lost through loans in order to repay debt in the banking sector
Catalyst of crisis	Hedge fund speculation	Capital flight and the contagion effect	Denial of rollover and the contagion effect
IMF support program formulated	August 20, 1997	November 5, 1997 Additional agreement January 15, 1998	December 3, 1997 Additional agreement December 24
IMF support	Total: $17.2 billion	Total: $40.0 billion	Total: $58.0 billion
Breakdown of IMF support package	IMF $4.0 billion Japan $4.0 billion World Bank $1.5 billion, ADB $1.2 billion, China $1.0 billion, Australia $1.0 billion, Hong Kong $1.0 billion, Malaysia $1.0 billion, Singapore $1.0 billion, ROK $0.5 billion, Indonesia $0.5 billion, Brunei $0.5 billion (joint financing) ($16.7 billion when initially announced)	IMF $10.0 billion World Bank $4.5 billion, ADB $3.5 billion, Indonesia itself $5.0 billion Total: $23.0 billion Second-line reserves Total in excess of $16.2 billion, including Japan $5.0 billion, Singapore $5.0 billion, the U.S. $3.0 billion, Australia $1.0 billion, Malaysia $1.0 billion, and Brunei $1.2 billion	IMF $21.0 billion World Bank $10.0 billion, ADB $4.0 billion Total: $35.0 billion Second-line reserves Total second-line reserves $23.0 billion, including Japan $10.0 billion, the U.S. $5.0 billion, and Europe $5.0 billion
IMF conditionality	Create a current account surplus Create a budget surplus Implement monetary policy to achieve a specified inflation rate Build up foreign exchange reserves Carry out financial reforms	Create a current account surplus Create a budget surplus Curb inflation Tighten monetary policy Build up foreign exchange reserves Carry out financial reforms Liberalize markets	Create a current account surplus Improve the fiscal balance Curb inflation Tighten monetary policy to achieve fiscal targets Build up foreign exchange reserves Carry out financial reforms

Source: Ito (1999a), Nakamura, Nagae and Suzuki (2011).

Table II-2-1-17 Common and individual factors behind the Asian financial crisis

Cause	Country
Currency overvaluation	All countries pegged to the dollar
Weak supervision of both banking & non-banking sectors	All countries
Excessive short-term capital inflows	All countries
Failures in foreign exchange reserve management	Thailand and ROK
Excessive foreign-currency-denominated interbank loans	Thailand and ROK
Weak corporate governance	ROK and Indonesia

Source: Ito (2001).

Table II-2-1-18 Factors in the vulnerability of each country involved in the Asian financial crisis

Factor	Country		
	Thailand	Indonesia	ROK
Fixed exchange rate system (foreign exchange reserve depletion)	1	0.5	0.5
Current account deficit	1	2	3
Budget deficit	3	3	3
Vulnerability of banks/financial institutions	1	1	1
Short-term government debt	2	3	3
Total short-term external debt	1	1	1
Governance problems	2	1	2

Notes: The figures represent the following: 1=very serious, 2=serious, 3=not serious.
Source: Tirole (2007). The original source is Summers (2000).

Individual countries' circumstances

(Thailand)

The crisis in Thailand was predicted in advance to some degree. The IMF was calling on Thailand to adopt a more flexible exchange rate system (expand the floating band or shift to a floating exchange rate system) due to concerns over risks contained in the Thai economy[167]. In Thailand, exports slowed down suddenly at a time when the current account deficit as a percentage of GDP was more than 8%, fueling speculation over a devaluation of the Thai baht. On May 12-14, 1997, hedge funds conducted massive sales of the Thai baht, and in order to defend the currency, the government of Thailand conducted exchange intervention (dollar sales and baht purchases in the futures market) and introduced capital controls. However, on July 2 of the same year, Thailand shifted to a floating exchange rate system (a managed floating exchange rate system).

Subsequently, the government of Thailand requested assistance from the IMF and reached a broad agreement on an IMF program on August 13 of the same year. However, when the dollar sales positions of the Bank of Thailand (the Thai central bank) were published, the market judged that the agreed measures under the IMF program would not be sufficient. As a result, the Thai baht continued to fall after the announcement of the IMF program. As far as the exchange rate was concerned, the IMF program did not function effectively.

After the government of Thailand announced realignment of domestic financial institutions in December 1997, the value of the Thai baht against the U.S. dollar stopped falling at a level around 50% lower than at the time of the outbreak of the crisis. After appreciating somewhat later, the Thai baht started to show stable movement around April 1998. Due to the steep fall of the Thai baht and the serious recession, Thailand's current account balance improved considerably, resulting in a significant buildup of foreign currency reserves. In August 1999, Thailand decided to stop receiving assistance from the IMF[168].

Among the presumed causes of the currency crisis in Thailand was the vulnerability and

[167] Ito (2007).
[168] Sussangkarn and Vichyanond (2007).

deterioration of macroeconomic fundamentals. In other words, doubt arose about the sustainability of the current account deficit, and on the real economic front, the growth rates of exports and GDP were slowing down[169].

(Indonesia)

Initially after the outbreak of the Asian currency crisis, the Indonesian currency, the rupiah, was falling, and yet Indonesia was not very seriously affected by the crisis. All the same, as a preventive measure, the government of Indonesia requested assistance from the IMF in October 1997, and an IMF program was approved by the IMF Executive Board on November 5 of the same year. As an unintended consequence of this, coupled with domestic political issues, the Indonesian rupiah plunged.

Although the Indonesian rupiah's fall was halted due to the IMF program in the short term, the program did not have long-term effects. On January 15, 1998, Indonesia and the IMF reached an additional agreement under which the IMF made structural reform the centerpiece of the effort to restore confidence in Indonesia. However, the IMF conditionalities included those that had little effectiveness. When then President Suharto later indicated he had no intention to implement the agreements with the IMF, the Indonesian rupiah fell again. Consequently, the Indonesian rupiah suffered the steepest fall among the affected currencies during the Asian currency crisis[170].

Amid the ongoing currency crisis, inflation soared and incidents of violence occurred in Indonesia, leading to the resignation of President Suharto in May 1998. In June 1999, Indonesia's first democratic election was held, and in October of the same year, the government of President Abdurrahman Wahid was inaugurated. After President Megawati Sukarnoputri took office in July 2001 and political unrest subsided, the Indonesian rupiah stopped falling at long last.

(ROK)

Even after the outbreak of the currency crisis in Thailand, a currency crisis was presumed to be unlikely to occur in ROK[171]. However, when it was recognized that the amount of ROK's short-term foreign debts was huge relative to its foreign currency reserves, a financial crisis occurred. Until then, ROK banks had taken out short-term loans from Japanese, U.S. and European banks, but the banks universally refused to roll over loans after recognizing that fact. In late November 1997, the ROK won fell steeply, prompting the government of ROK to request assistance from the IMF, and an IMF program was approved by the IMF Executive Board on December 4 of the same year.

In ROK as well, the ROK won continued to fall after the agreement on the IMF program was reached, and as in the case of Thailand, the IMF program based on the exchange rate had little effectiveness. On December 24 of the same year, it was decided that the IMF and the G-7 countries would implement an emergency measure (mandatory rollovers of loans provided to ROK by Japanese, U.S. and European banks), and this helped to halt the won's fall at last.

[169] Ito (1999b).
[170] Refer to Hill and Shiraishi (2007) as a more comprehensive document.
[171] Ito (2007).

In a sense, the currency crisis in ROK was a liquidity crisis triggered by an investor panic[172].

After the Asian currency crisis, the crisis-affected Asian countries took a variety of measures to improve and strengthen their fundamentals based on the lesson of the crisis. First, regarding foreign exchange, many Asian countries shifted to a floating exchange rate system. As is well known, it is impossible to simultaneously realize a fixed exchange rate system, free movement of capital and an independent monetary policy, and this trilemma is called the "impossible trinity" of international finance.

Policies adopted by Asian countries before the Asian currency crisis may be viewed as an attempt to overcome the trilemma of international finance[173]. After the Asian currency crisis, ROK, the Philippines, Thailand and Indonesia shifted to a floating exchange rate system. In exchange for continuing monetary policy independent from the free movement of capital, these countries abandoned a fixed exchange rate system. In other words, they abandoned the pegging of their currencies to the dollar that had caused an overvaluation of their currencies, one of the common factors of the Asian currency crisis cited in Table II-2-1-17. On the other hand, in September 1998, Malaysia introduced restrictions on capital outflow (Table II-2-1-19).

As for the vulnerabilities of the financial system (weak supervision of banks and non-banks), cited as the second common factor of the Asian currency crisis in Table II-2-1-17 (presented earlier), since the Asian currency crisis, the non-performing loan ratio (the ratio of non-performing loans to the balance of loans provided by commercial banks) has been declining in the Asian 5. In Thailand and Indonesia in particular, the non-performing loan ratio, which was higher than 40% in 1998, plummeted to 2-3% by 2011 (Figure II-2-1-20).

As for the risk-adjusted capital ratio (capital/gross assets), which is an indicator of the soundness of the business foundation of banks, has been rising in most Asian countries. Although Indonesia's risk-adjusted capital ratio has been on a downtrend, it is relatively high compared with other countries' ratios (Figure II-2-1-21).

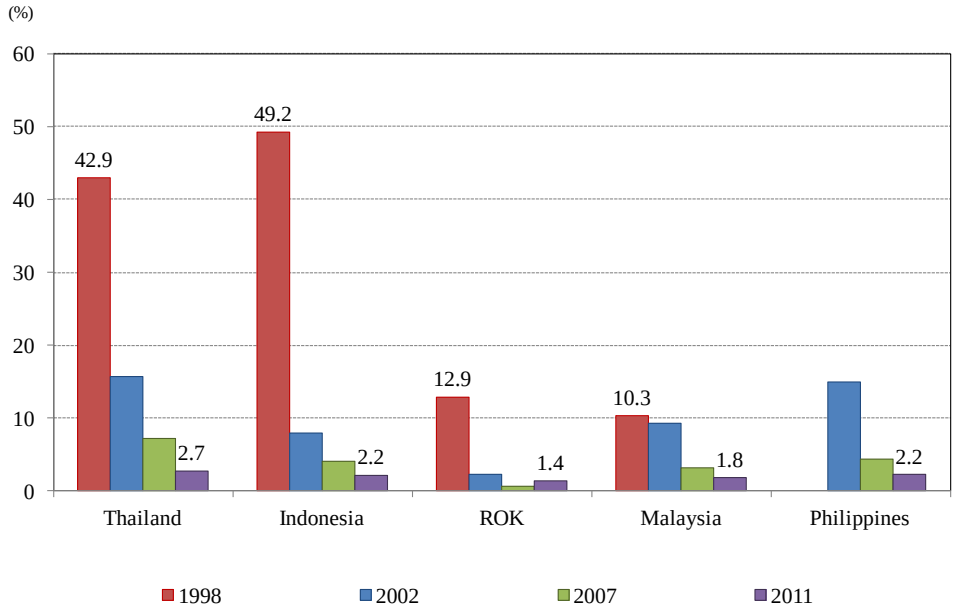
[172] Ito (1999b) and Ito (2007).
[173] Ito (1999b).

Table II-2-1-19 Responses by countries to the "Impossible Trinity"

Response	Fixed exchange rate system	Free capital movement	Independent monetary policy	Countries
The Impossible Trinity	○	○	○	Apart from China and Hong Kong, all Asian countries before the Asian financial crisis
Floating exchange rate syste	×	○	○	Thailand, Indonesia, ROK, Philippines,
Capital controls	○	×	○	Malaysia and (since September 1998) China
Currency board	○	○	×	Hong Kong

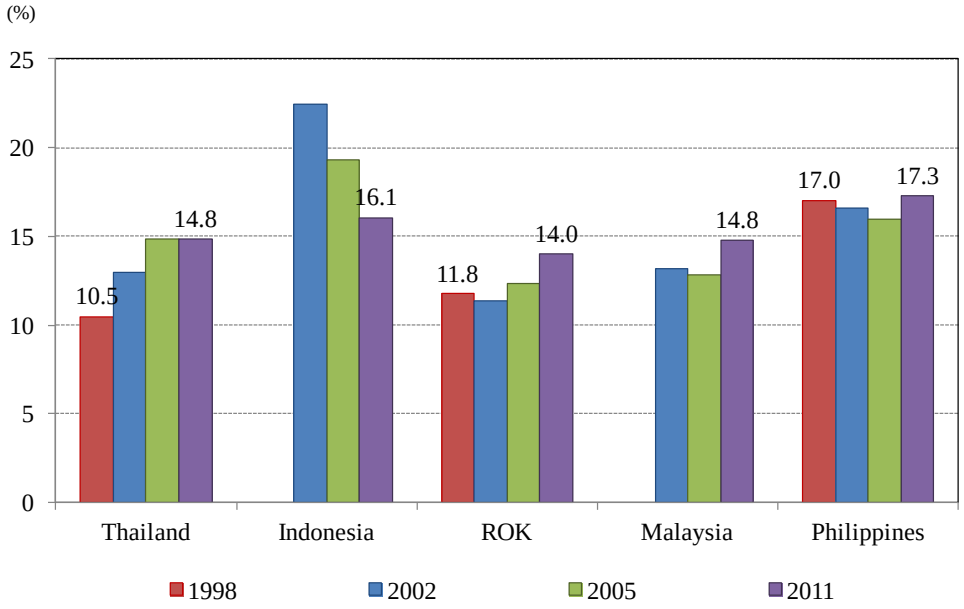
Notes: In this table, ○ indicates that the condition at the top of the table is met by the system listed at the side of the table, while × indicates that it is not.
Source: Ito (2001).

Figure II-2-1-20 Trends in nonperforming loans as a share of commercial loans



Notes: The 1998 figure for ROK uses data for 1999. No data are available for the Philippines prior to 2002.
Source: *Economic and Financial Indicators* (ADB Asia Regional Integration Center).

Figure II-2-1-21 Trends in risk-weighted capital adequacy ratios



Notes: The 1998 figures for ROK and the Philippines use data for 1999. The 2011 figure for the Philippines uses data for 2010. No data are available for Indonesia or Malaysia prior to 2002.
Source: *Economic and Financial Indicators* (ADB Asia Regional Integration Center).

(3) Global economic crisis

The global economic crisis refers to the financial market turmoil worldwide which started with the freezing of funds under the control of BNP Paribas, a major French bank, in the summer of 2007 due to the souring of subprime loans caused by the housing price drop continuing from the previous year and which led to the failure and bailout of Bear Stearns, a major U.S. investment bank, in March 2008, the nationalization of government-sponsored enterprises (GSE) such as Fannie Mae and Freddie Mac in July of the same year, the collapse of Lehman Brothers, a major U.S. investment bank, in September of the same year and the bailout of American International Group by the FRB in September of the same year[174].

Although the trigger of the global economic crisis was the souring of subprime loans in the United States, the effects of the crisis spread throughout financial markets around the world. Figure II-2-1-23 shows changes in the market volatility regarding various asset classes as estimated by the IMF. The colors indicate the level of market volatility, with green, orange and red representing low, medium and high levels of volatility, respectively. After the subprime loan problem came to light, volatility increased first with regard to asset-backed securities (ABS) mortgages. Subsequently, when the seriousness of the subprime loan problem was recognized in July-August 2007, volatility increased steeply in the market for mortgage-backed securities (CMBS), in financial markets and in advanced country markets. From around March 2008, when Bear Stearns failed, volatility started to increase in the market for prime loans such as residential mortgage-backed securities (RMBS) and in markets related to corporate credit. After the collapse of Lehman Brothers in September 2008, the effects of the

[174] Takemori (2007) explained the sequence of the financial crises from the Asian currency crisis to the subprime mortgage problem.

crisis that originated in the United States spread to emerging economies, resulting in an increase in volatility in emerging country markets.

The global economic crisis was rooted in the collapse of the housing bubble in the United States, an advanced country[175], and is different in nature from the two crises discussed above in the scale and extent of impact. Even so, the presence of financial system turmoil as a background factor is a common factor of the three crises.

The financial crisis that originated in the United States and Europe spread to emerging economies despite the limited amount of securitized products held by financial institutions in these countries because U.S. and European financial institutions operated as lenders in both advanced and emerging economies. As a result, the effects of the crisis spread to emerging economies through U.S. and European financial institutions' moves to shrink their balance sheets and their risk-averse investment behavior[176]. Based on the lessons of the past currency crises, emerging economies, mainly those in Asia, improved external economic fundamentals by turning their current account balance into a surplus (see Figure II-2-1-13 above) and building up foreign currency reserves (Figure II-2-1-24) as a "self-insurance."[177] However, since the collapse of Lehman Brothers in September 2008, emerging economies with a relatively low level of creditworthiness faced a rapid capital outflow, and countries whose dependence on foreign financing had increased, such as ROK and Indonesia, experienced a significant depreciation of their currencies, stock price plunges, and a decline in foreign currency reserves[178].

Figure-II-2-1-25, compiled from an IMF report, shows emerging economies' external and domestic vulnerabilities in a scatter diagram. The vertical axis of Figure-II-2-1-25 represents the current account balance as a percentage of GDP and the horizontal axis represents the real credit growth in excess of GDP growth[179] (both represent the average between 2010 and 2012). Countries located in the fourth quadrant of the diagram, including Brazil, Colombia and Turkey, have relatively high external and domestic vulnerabilities.

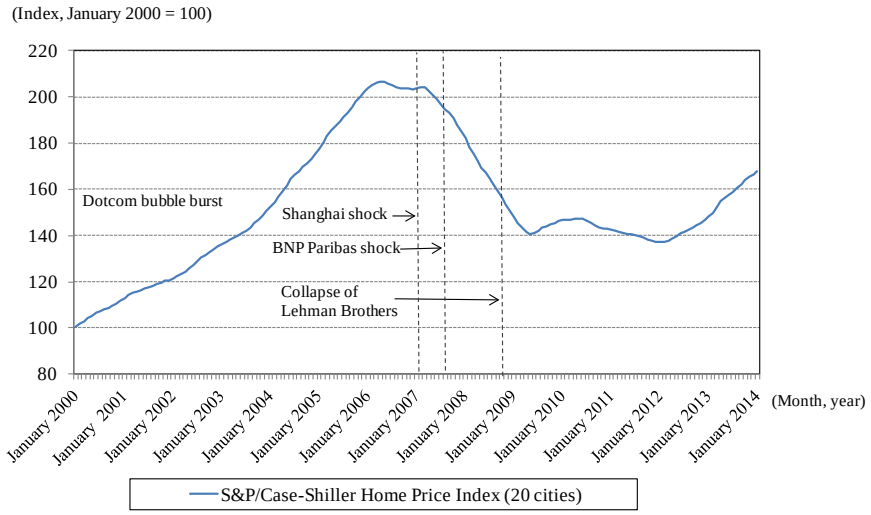
Figure II-2-1-26 indicates the relationship of the rate of change in the exchange rate versus the dollar to the inflation rate, the current account balance as a percentage of GDP and the CDS (credit default swap) spread. For example, Panel A shows that the higher a country's inflation rate is, the larger the rate of depreciation in the exchange rate of its currency tends to be. Likewise, Panel B shows that the larger a country's current account deficit as a percentage of GDP is, the larger the rate of depreciation in the exchange rate of its currency is, although this correlation is loose. Finally, Panel

[175] Ito (2009).
[176] Cabinet Office (2009b).
[177] Ito (2007). As is clear at a glance, the increase in the amount of ROK's foreign currency reserves is remarkable. However, as was shown in Panel C in Figure II-2-1-14, ROK's ratio of foreign currency reserves to short-term foreign debts is relatively low compared with other Asian countries' ratios.
[178] Mizuho Research Institute (2009)
[179] If loans continue to be provided at a rate much higher than the GDP growth rate, it means an excessive credit growth relative to economic growth, so this can be used as a yardstick of the generation of an asset bubble.

C shows that the larger a country's CDS spread is, the larger the rate of depreciation in the exchange rate of its currency tends to be.

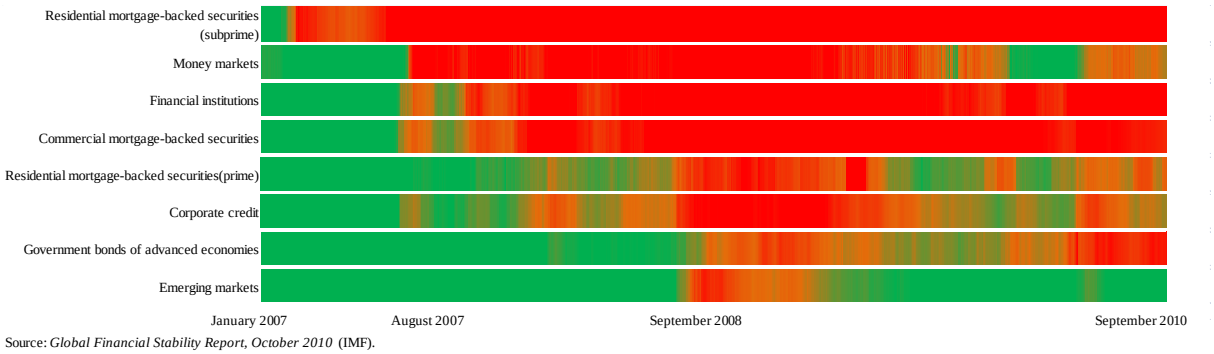
Based on the lessons of the past currency and financial crises, many emerging economies have been strengthening domestic economic fundamentals and making preparations for external shocks. However, the progress in such efforts and the policy directions and priorities differ from country to country. That is the background to the distinctive characteristics of individual countries' current risk tolerance and growth fundamentals.

Figure II-2-1-22 Trends in the S&P/Case-Shiller Home Price Index (20 cities)



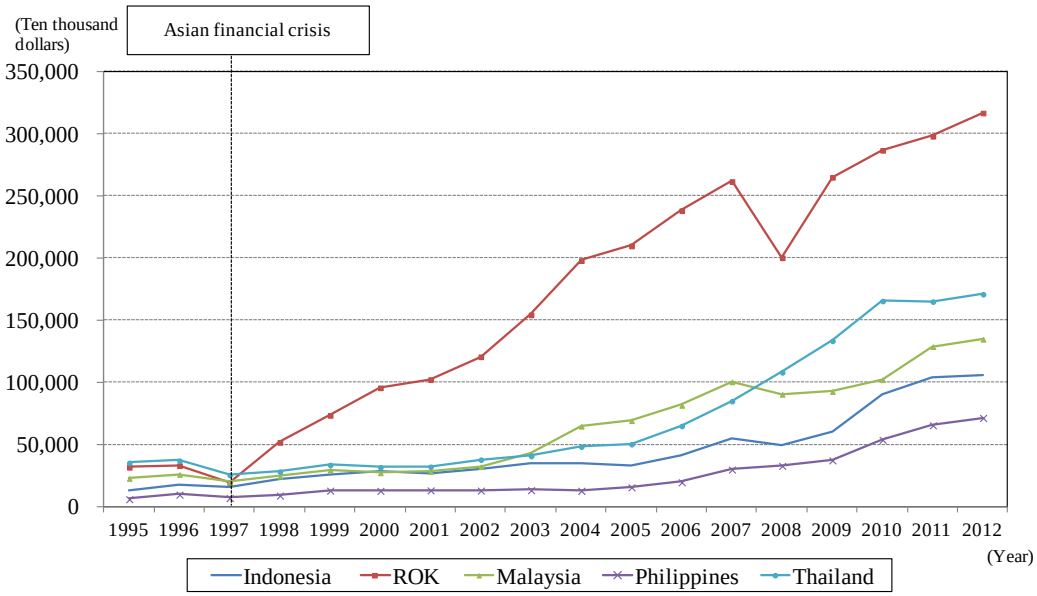
Source: *FRED* (Federal Reserve Bank of St. Louis).

Figure II-2-1-23 Volatility heatmap



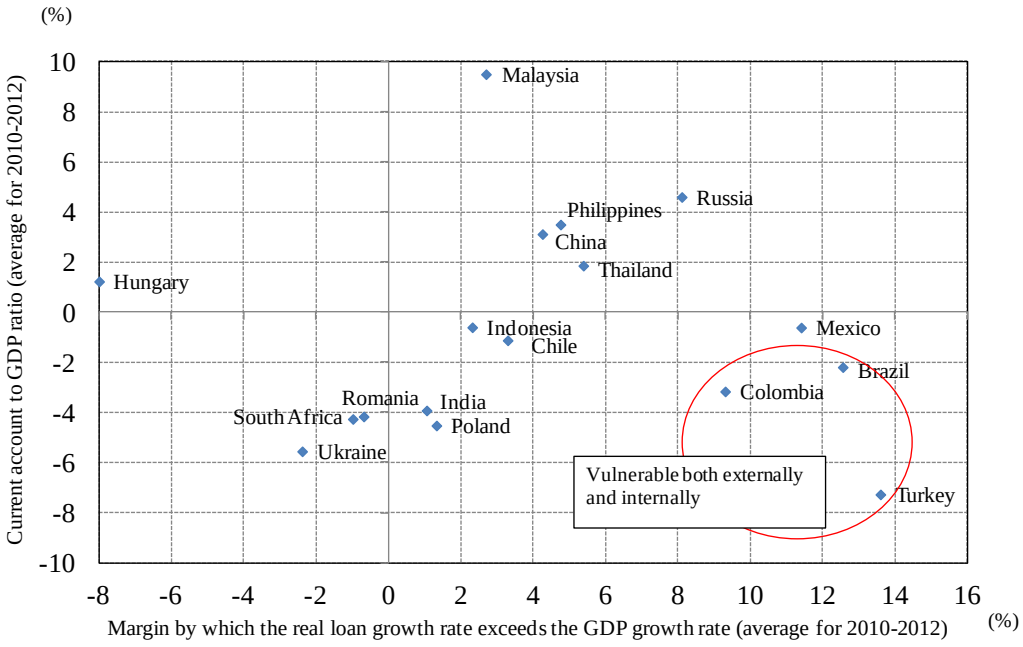
Source: *Global Financial Stability Report, October 2010* (IMF).

Figure II-2-1-24　Trends in foreign exchange reserves (end of each period)



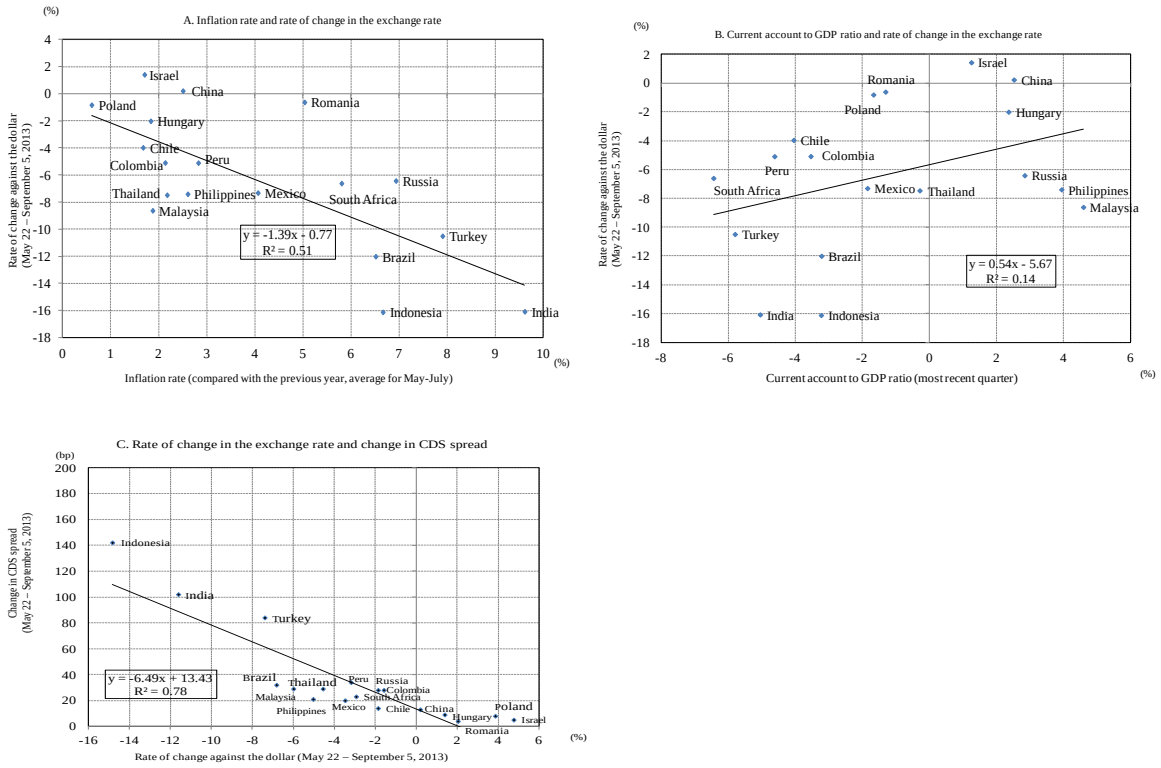
Source: *Key Indicators for Asia and the Pacific 2013* (ADB)

Figure II-2-1-25　External and internal vulnerabilities of emerging economies



Source: *Global Financial Stability Report, October 2013* (IMF).

Figure II-2-1-26 Recent financial stress on emerging economies



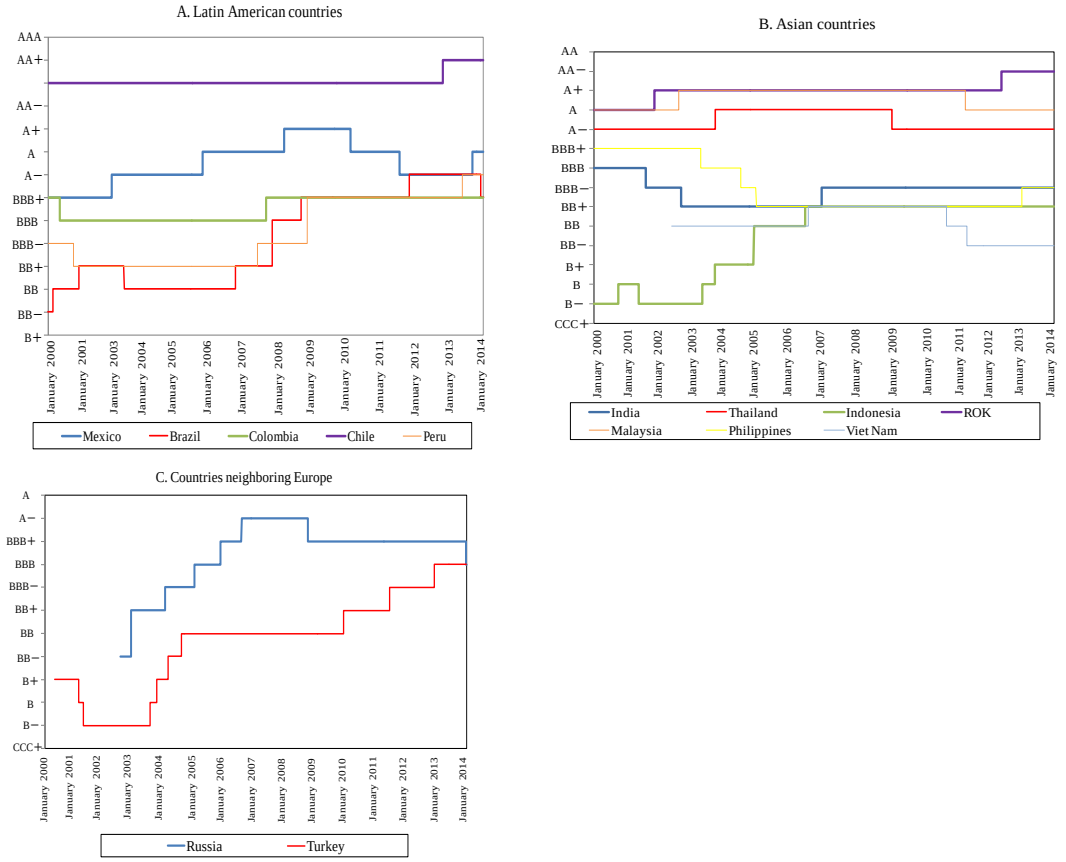
Source: *Global Financial Stability Report, October 2013* (IMF).

Column 9 Changes in sovereign credit ratings of emerging economies

We look at sovereign credit ratings, which are presumed to be calculated by taking into consideration a combination of various factors including economic fundamentals and resilience against external shocks. Column Figure 9-1 shows changes in long-term issuer ratings (domestic currency) assigned to emerging economies by S&P Rating Services, a major rating agency, by region (Central and South American countries (Panel A), Asian countries (Panel B) and European neighborhood countries (Panel C).

Among Central and South American counties, Brazil's and Peru's sovereign credit ratings have risen significantly since 2000 (Brazil's sovereign credit rating was downgraded by one notch on March 25, 2014), and Chile has also maintained a high sovereign credit rating. Among Asian countries, Indonesia's sovereign credit rating has significantly risen, although it is still below the investment grade of BBB. On the other hand, the sovereign credit ratings of the Philippines and Viet Nam have been on a downtrend. Meanwhile, the sovereign credit ratings of ROK, Malaysia, and Thailand have stayed stable at a high level. Among countries neighboring Europe, the sovereign credit ratings of both Russia and Turkey have been on an uptrend, although Russia's rating was downgraded by one notch on April 25, 2014.

Table Column 9-1 Trends in issue credit ratings in emerging and other economies (January 1, 2000 – April 28, 2014)



Mexico	Brazil	Colombia	Chile	Peru	India	Thailand
A	BBB+	BBB+	AA+	A-	BBB-	A-
Indonesia	**ROK**	**Malaysia**	**Philippines**	**Viet Nam**	**Russia**	**Turkey**
BB+	AA-	A	BBB-	BB-	BBB	BBB

Notes: Long-term rating by S&P Rating Services of issues denominated in the home currency. The table below the charts shows the current rating of each country as of April 28, 2014.
Source: Thomson Reuters Eikon.

2. Economic fundamentals of emerging economies

(1) Risk tolerance analysis

Here, in light of the experiences of the past currency and financial crises discussed above, we give scores to the relative risk tolerance of emerging economies by representing their inherent risks and vulnerabilities as index figures[180]. Below, we first provide an overview of several preceding studies that analyzed the relationship between countries' risks and vulnerabilities and financial crises as the analysis in this section does.

Ito (2009) analyzed the effects of the global economic crisis on Asian countries. Ito (2009) argues

[180] The methods of scoring and relative evaluation of fundamentals are described in Supplementary Note 6.

that while the global economic crisis affected Asian countries mainly through trade, the effects through the financial system were not significant except in a few countries (such as Indonesia and ROK). In addition, only a limited number of countries experienced a steep fall of their currencies, so the contagion of the global economic crisis to Asia was mild. Moreover, it was reported that there was little correlation between currency falls and growth rate declines. Ito (2009) argued that the reason for that is that Asian countries increased their resilience to external shocks by enhancing the soundness of their financial sectors and building up foreign currency reserves, making it possible to minimize the effects of the crisis on the financial front.

Goldstein and Xie (2009a) defined 66 indicators of vulnerability based on economic and financial data (Refer to Table II-2-1-27;indicators surrounded by red borders are ones used in the analysis of this white paper or ones similar thereto), analyzed Asian countries' vulnerabilities at the time of the global economic crisis (2007-2009)[181] and ranked countries vulnerable to shocks that spread through various channels (Table II-2-1-28). Based on the results, Goldstein and Xie (2009a) pointed out that there is a positive correlation between the overall vulnerability ranking indicator (the lower the indicator's value is, the higher the vulnerability is) and growth slowdown (Figure II-2-1-29). The analysis by Goldstein and Xie (2009a) may be presumed to be most closely related to the analysis of this white paper.

The Board of Governors of the Federal Reserve System (2014) created a vulnerability index comprised of on six component indexes ― (i) the current account balance as a percentage of GDP, (ii) the ratio of government debts as a percentage of GDP, (iii) the average inflation rate in the past three years, (iv) changes in private bank credit as a percentage of GDP in the past five years, (v) the ratio of the balance of foreign debts to exports (annualized) and (vi) foreign currency reserves as a percentage of GDP ― and analyzed the relationship between the recent vulnerability index values for emerging economies and changes in exchange rates. This report indicated that the higher the vulnerability index's value is (the higher vulnerability is) the larger the rate of depreciation in the exchange rate is and argued that in order to improve fundamentals, several emerging economies need to implement fiscal and monetary policy measures and structural reforms.

Below, we look at the results of the evaluation of the risks and vulnerabilities inherent in individual countries, mainly emerging economies. As was mentioned above, we mainly selected major indicators of fundamentals and economic and financial indicators that were regarded as leading indicators of risks and vulnerabilities in the past currency and financial crises. Table II-2-1-30 shows a list of indicators selected as risk tolerance indicators. In our analysis, we use indicators that have seldom been adopted in preceding studies, such as indicators of risks and vulnerabilities contained in the trade structure, including concentration of export destinations (countries/regions) and dependence on resources and primary goods in export, and indicators of governance related to the quality of the government, and economic and social systems. A decrease/increase in the scores given is referred to as an improvement/deterioration in some cases.

Figure II-2-1-31 shows radar charts representing the results of scoring regarding indicators of

[181] Refer to Goldstein and Xie (2009b) as well.

individual countries' risk tolerance in accordance with the procedures explained in Supplementary Note 6.

Table II-2-1-32 classifies the simple average scores of individual countries regarding each of the five groups of indicators[182] and the six groups presented in Table II-2-1-30 and the overall groups of indicators into the 1 to 1.99 range, 2 to 2.99 range, 3 to 3.99 range and 4 to 5 range.

As for the overall average (simple average of the scores regarding all individual evaluation items), all countries are placed in either the 2 to 2.99 range or 3 to 3.99 range, with seven countries in each range. The countries placed in the 2 to 2.99 range are India, the Philippines, Viet Nam, Brazil, Mexico, Turkey and Colombia. Regarding vulnerability tolerance indicators in general, these countries are underperformers relative to the average, so they are presumed to be relatively vulnerable to external shocks. Meanwhile, the countries placed in the 3 to 3.99 range are Indonesia, ROK, Malaysia, Thailand, Russia, Chile and Peru. Regarding vulnerability tolerance indicators in general, they are above-average performers and are presumed to be relatively resilient to external shocks.

By group, countries placed in lower score ranges are Turkey with regard to the macroeconomy group and external economy group of indicators, India with regard to the government sector group, Colombia with regard to the trade structure group and ROK and Malaysia with regard to the capital composition group. As for countries placed in the highest score ranges, no country was placed in the 4 to 5 range but nine countries were concentrated in the 3 to 3.99 range with regard to the macroeconomy group. All Asian countries and two countries from the Central and South American region, Chile and Peru, were placed in the 3 to 3.99 range. With regard to the government sector group, ROK and Chile obtained relatively high scores, and with regard to the external economy group, Malaysia and Russia obtained relatively high scores. Relatively high scores were given to India and Turkey with regard to the trade structure group and to India, Thailand, Viet Nam, Russia and Peru with regard to the capital composition group.

Below, we describe what is notable about time-sequential changes in the respective fundamentals of individual countries. Asian countries (ASEAN countries in particular) and Central and South American countries (Brazil and Mexico in particular) will be discussed in more detail in later sections.

[182]The groups are defined as: macro economy group (real GDP growth rate, unemployment rate and inflation rate); government sector group (governance, the fiscal balance as a percentage of GDP and government debts as a percentage of GDP); external economy group (the current account balance as a percentage of GDP, the trade balance as a percentage of GDP and the ratio of short-term foreign debts to total reserves); trade structure group (concentration of export destinations (countries/regions) and dependence on resources and primary goods in export): and capital composition group (the ratio of inward portfolio investments).

Table II-2-1-27 List of vulnerability indicators

Group (indicator ID)	Indicator
Group 1	Foreign trade links
1	(Exports to the U.S.) as a percentage of GDP
2	(Exports to EU+the U.S.) as a percentage of GDP
3	Average commodity exports as a percentage of merchandise exports
4	Terms of trade change
5	Manufactures exports (percent of GDP)
6	Correlation between GDP growth and exports growth
7	Correlation between GDP growth and net exports growth
8	Tourism receipts to GDP (%)
9	Remittances to GDP (%)
Group 2	International capital flows, foreign asset holdings, and costs of financing
10	Subprime losses to capital (%)
11	Exposure to the U.S. equities
12	Exposure to the U.S. bonds
13	Exposure to the U.S. debt market
14	Net capital inflow as percent of GDP
15	FDI as share of capital inflow (%)
16	FDI as percent of GDP
17	Short-term debt inflow as percent of GDP
18	Change in private capital inflow (%)
19	Comprehensive measure of capital mobility
20	International Reserves to GDP
21	Share of foreign currency denominated bonds to total bonds (%)
22	Exports as a percentage of GDP
23	External sovereign debt service (percent of exports)
24	Domestic sovereign debt service (percent of GDP)
25	Total sovereign debt service (percent of GDP)
26	Private sector external debt service (percent of GDP)
27	Current account deficit as percent of GDP
28	International claims of BIS reporting banks to GDP
29	International claims of BIS reporting banks to International Reserves
30	Ratio of foreign portfolio investment to domestic capital market (%)
Group 3	Currency pressures and mismatches
31	Bilateral exchange rate depreciation vis-a-vis USD
32	Bilateral exchange rate depreciation vis-a-vis JPY
33	Depreciation in terms of JP Morgan real effective exchange rate
34	Decline in total reserves minus gold
35	Overvaluation in terms of Cline–Williamson real effective exchange rate
36	Real exchange rate overvaluation in terms of Balassa–Samuelson effect
37	Aggregate Effective Currency Mismatch (AECM) index
38	Short-term external debt/reserve
39	Total reserves in months of imports
Group 4	Banking and financial sector fragilities
40	Bank nonperforming loans to total loans
41	Bank regulatory capital to risk-weighted assets
42	Bank return on assets
43	Ratio of loans to domestic deposits
44	Ratio of loans to total liabilities
45	Ratio of foreign liabilities to domestic deposits
46	Private domestic credit as a percentage of GDP
47	Private domestic credit growth
48	Private monitoring index
49	Herfindahl index measuring the concentration of loan, equity and bonds in external financ
50	Foreign bank ownership
51	Price/earnings ratio
52	Price-to-book ratios
53	Share of variance in local equity returns explained by US Shocks
54	Household indebtedness as a percentage of GDP
55	Percent change in real housing prices
Group 5	Scope for implementing countercyclical fiscal and monetary policy stimulus
56	Fiscal deficit of central government to GDP (%)
57	Public sector debt as a percentage of GDP
58	External debt as a percentage of GDP
59	General interest payment as a percentage of GDP
60	External (debt/exports) to IIR ratings
61	Estimated growth impact of fiscal stimulus plans
62	Inflation rate (CPI, %)
63	Inflation targeter
64	Exchange rate volatility
65	Real interest rate
66	M2 growth rate

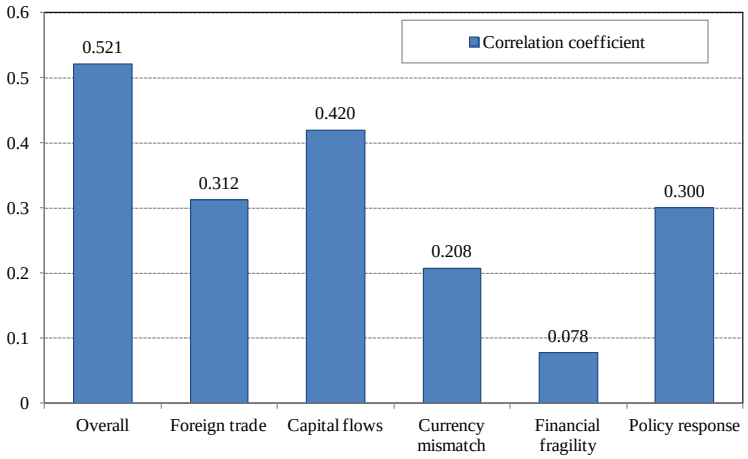
Source: Goldstein and Xie (2009a).

Table II-2-1-28 Ranking of vulnerability to shocks via each channel

	Total	Foreign trade	Capital flow	Currency mismatch	Financial fragility	Policy response
1	Hong Kong	Malaysia	Singapore	ROK	Viet Nam	Malaysia
2	Viet Nam	Hong Kong	Philippines	Indonesia	China	Singapore
3	Malaysia	Viet Nam	Hong Kong	Viet Nam	Malaysia	Philippines
4	ROK	Singapore	ROK	Hong Kong	Hong Kong	Hong Kong
5	Singapore	Thailand	Viet Nam	Thailand	ROK	Indonesia
6	Indonesia	Indonesia	Indonesia	Philippines	Singapore	Viet Nam
7	Thailand	Philippines	China	Malaysia	Thailand	Thailand
8	Philippines	China	Malaysia	Singapore	Indonesia	ROK
9	China	ROK	Thailand	China	Philippines	China

Notes: The overall ranking is a simple average of the vulnerability indices in each group to the right. The higher the ranking, the higher the vulnerability.
Source: Goldstein and Xie (2009a).

Figure II-2-1-29 Correlation between GDP growth slowdown and vulnerability indicators



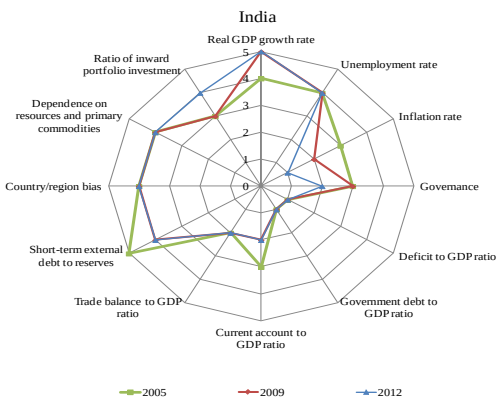
Notes: The closer the correlation coefficient is to 1, the higher the correlation is between the vulnerability indicator and the GDP growth rate.
Source: Goldstein and Xie (2009a).

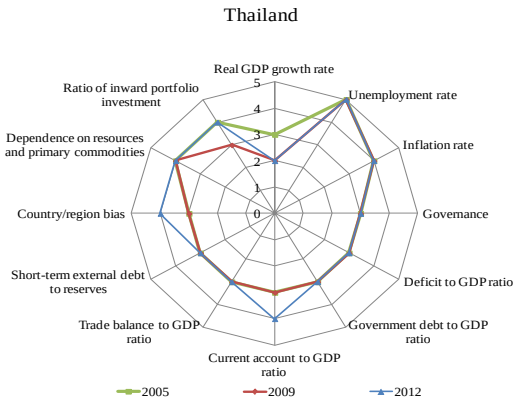
Table II-2-1-30 List of risk resilience indicators

Group	Indicator	Contribution	Notes
1. Macroeconomy			
	#1. Real GDP growth rate	+	Growth rate of real GDP
	#2. Unemployment rate	-	Number of unemployed people as a share of the total labor force (definitions differ slightly between countries)
	#3. Inflation rate	-	Rate of increase in the consumer price index (at the end of each period)
2. Government sector			
	#4. Governance	+	Total for the indicators concerning voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.
	#5. Deficit to GDP ratio	-	Fiscal balance (revenue – expenditure) as a proportion of GDP
	#6. Government debt to GDP ratio	-	Total government debt outstanding as a proportion of GDP
3. External economy			
	#7. Current account to GDP ratio	+	Current account balance as a proportion of GDP
	#8. Trade balance to GDP ratio	+	Balance of trade as a proportion of GDP
	#9. Short-term external debt to reserves	-	Short-term external debt as a proportion of total reserves (total of foreign exchange reserves, gold reserves, IMF reserve positions, and Special Drawing Rights)
4. Trade structure			
	#10. Country/region bias (export destination)	-	Value of exports to the top 5 countries as a proportion of the total value of exports
	#11. Dependence on resources and primary commodities	-	Value of exports of resources and primary commodities as a proportion of the total value of exports
5. Capital structure			
	#12. Ratio of inward portfolio investment	-	Value of inward portfolio investment / (value of inward direct investment + value of inward portfolio investment)

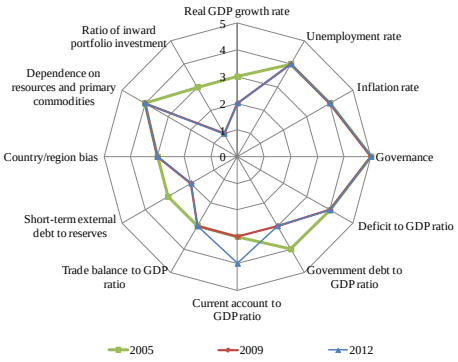
Notes: The symbols + and – in the contribution column indicate that the scoring increases or decreases, respectively, when the figure for the indicator in question rises.

Table II-2-1-31 Radar charts of risk resilience indicators

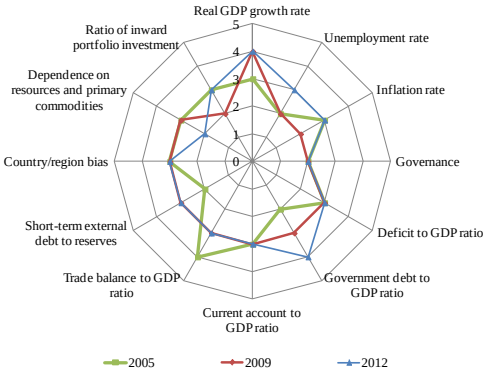




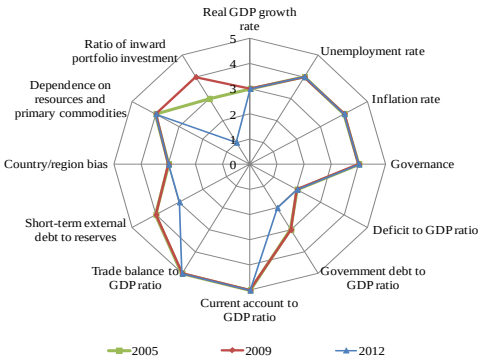
ROK



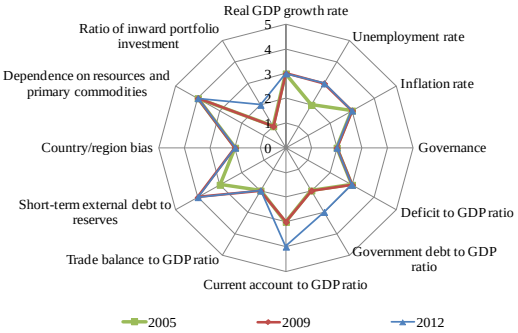
Indonesia



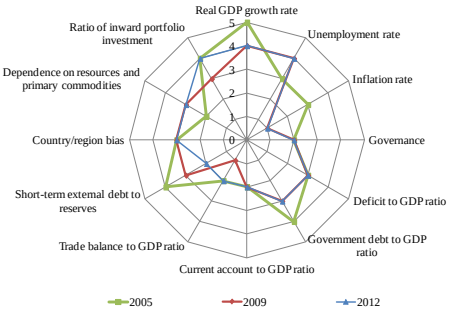
Malaysia



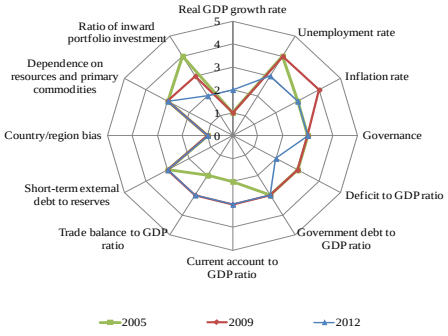
Philippines



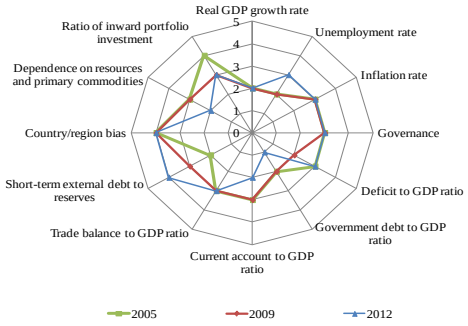
Viet Nam



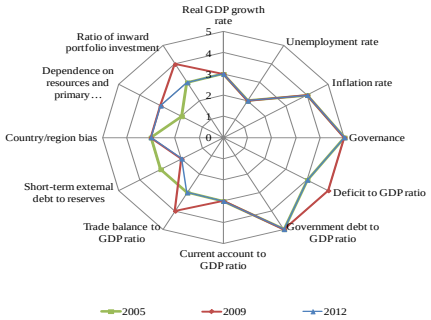
Mexico



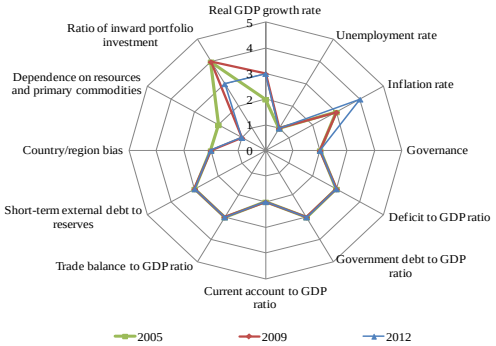
Brazil



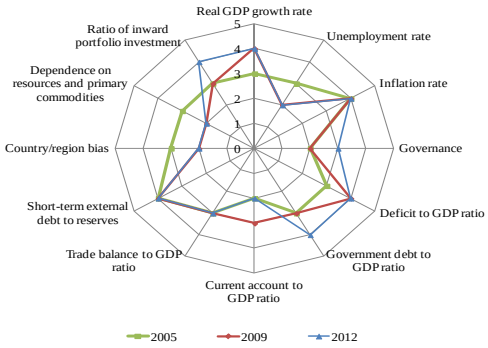
Chile



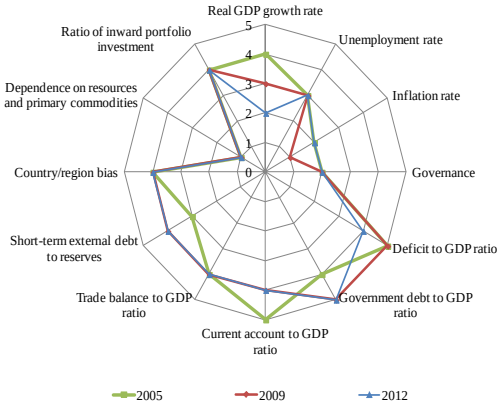
Colombia



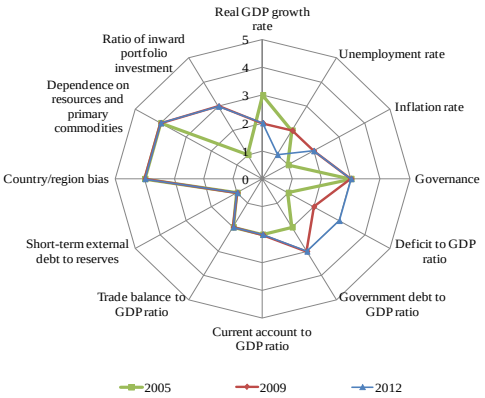
Peru



Russia



Turkey



Notes: The bigger (smaller) the area of the radar chart enclosed by each line, the stronger (weaker) the country's overall risk resilience.
Source: *WEO, April 2014*(IMF), *WDI 2013*, *The Worldwide Governance Indicators (WGI) project* (World Bank), *Key Indicators for Asia and the Pacific 2013* (ADB), *Latin American and Caribbean Macro Watch* (Inter-American Development Bank), CEIC Database, UN Comtrade, *World Competitiveness Report* (World Economic Forum).

Table II-2-1-32 Evaluation of risk resilience indicators in each group (simple average of the scores (2012))

Overall average				Macroeconomy			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
	India	Indonesia		Turkey	Russia	India	
	Philippines	ROK			Brazil	Indonesia	
	Viet Nam	Malaysia			Mexico	ROK	
	Brazil	Thailand			Colombia	Malaysia	
	Mexico	Russia				Thailand	
	Turkey	Chile				Philippines	
	Colombia	Peru				Viet Nam	
						Chile	
						Peru	

Government sector				External economy			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
India	Malaysia	Indonesia	ROK	Turkey	India	Indonesia	Malaysia
	Philippines	Thailand	Chile		Viet Nam	ROK	Russia
	Brazil	Viet Nam			Chile	Thailand	
	Turkey	Russia			Colombia	Philippines	
	Colombia	Mexico				Brazil	
		Peru				Mexico	
						Peru	

Trade structure				Capital structure			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
Colombia	Indonesia	ROK	India	ROK	Philippines	Indonesia	India
	Viet Nam	Malaysia	Turkey	Malaysia	Mexico	Brazil	Thailand
	Russia	Thailand				Turkey	Viet Nam
	Mexico	Philippines				Chile	Russia
	Peru	Brazil				Colombia	Peru
		Chile					

Source: Radar charts in Figure II-2-1-31.

External economic indicators

First, we take up the current account balance (the current account balance as a percentage of GDP), one of the indicators to which importance was attached at the time of the Mexican currency crisis and the Asian currency crisis. In the five Asian countries affected by the Asian currency crisis (Thailand, ROK, Indonesia, Malaysia and the Philippines), the current account balance as a percentage of GDP has mostly been improving or has remained relatively favorable, as shown by Table II-2-1-33. The scores for Thailand, ROK and the Philippines rose from 3 in 2005 to 4 in 2012. Malaysia consistently recorded the highest score, 5. In these countries, after the Asian currency crisis, the current account balance improved rapidly due to the combination of the effects of such factors as a decrease in imports caused by an economic downturn and an increase in exports attributable to the depreciation of exchange rates of their currencies. For Mexico as well, the score rose 2 in 2005 to 3 in 2009 and remained at 3 in 2012. On the other hand, in Asian countries such as India and Viet Nam, Central and South American countries such as Brazil, Colombia and Peru, and Turkey, a country neighboring Europe, the current account balance as a percentage of GDP deteriorated or remained relatively

unfavorable between 2005 and 2012.

Looking at changes in the score regarding the ratio of short-term foreign debts to total reserves (Table II-2-1-34), which attracted attention as an indicator of the severity of the burden of short-term foreign debt at the time of the past currency crises, we can see that the relative performance of Asian countries such as ROK, Malaysia and Viet Nam as well as Chile in the Central and South American region deteriorated[183]. Turkey consistently recorded a score of 1, meaning that its performance remained the worst among the countries covered by the comparison. Meanwhile, the score for Brazil rose from 2 to 3 in 2009 and to 4, a score viewed as relatively sound, in 2012. The scores for Indonesia and the Philippines also rose one point in 2012 compared with 2005.

Table II-2-1-33 Trends in current account to GDP ratio scores

	2005	2009	2012
Thailand	3	3 →	4 ↑
ROK	3	3 →	4 ↑
Indonesia	3	3 →	3 →
Malaysia	5	5 →	5 →
Philippines	3	3 →	4 ↑
India	3	2 ↓	2 →
Viet Nam	2	2 →	2 →
Brazil	3	3 →	2 ↓
Mexico	2	3 ↑	3 →
Colombia	2	2 →	2 →
Peru	2	3 ↑	2 ↓
Turkey	2	2 →	2 →

Source: Radar charts in Figure II-2-1-31.

[183] Refer to Ishikawa (2009) and Morikawa (2011) as well.

Table II-2-1-34 Trends in short-term external debt to reserves scores

	2005	2009	2012
Thailand	3	3 →	3 →
ROK	3	2 ↓	2 →
Indonesia	2	3 ↑	3 →
Malaysia	4	4 →	3 ↓
Philippines	3	4 ↑	4 →
Viet Nam	4	3 ↓	2 ↓
Brazil	2	3 ↑	4 ↑
Chile	3	2 ↓	2 →
Turkey	1	1 →	1 →

Source: Radar charts in Figure II-2-1-31.

Government sector indicators

Next, a comparison of the scores regarding the fiscal balance as a percentage of GDP (Table II-2-1-35) shows that many Asian countries have maintained constant scores since 2005. In 2012, the score was 2 or less for Malaysia, Viet Nam and India. Although Malaysia has started efforts toward fiscal consolidation, its score has remained at 2 since 2005. The score for Viet Nam declined from 3 in 2009 to 2 in 2012. India has been the worst performer, with its score consistently at 1 since 2005, due to its tendency to record a chronic fiscal deficit because of an increase in subsidies caused by generous assistance for agriculture[184]. Meanwhile, the performance of Brazil and Turkey has been improving.

A comparison of the scores regarding government debts as a percentage of GDP (Table II-2-1-36) shows that India and Brazil recorded the lowest score, 1, in 2012. The score for Malaysia declined from 3 in 2009 to 2 in 2012 because of a lack of improvement in the fiscal balance as a percentage of GDP that was mentioned earlier. The score for ROK declined from 4 in 2005 to 3 in 2009. Meanwhile, the score for Indonesia has gradually risen in each of the selected years, while the score for the Philippines rose to 3 in 2012 from the previous 2.

[184] Cabinet Office (2012).

Table II-2-1-35 Trends in fiscal balance to GDP ratio scores

	2005	2009	2012
Thailand	3	3 →	3 →
ROK	4	4 →	4 →
Indonesia	3	3 →	3 →
Malaysia	2	2 →	2 →
Philippines	3	3 →	3 →
Viet Nam	3	3 →	2 ↓
India	1	1 →	1 →
Brazil	3	2 ↓	3 ↑
Turkey	1	2 ↑	3 ↑

Source: Radar charts in Figure II-2-1-31.

Table II-2-1-36 Trends in government debt to GDP ratio scores

	2005	2009	2012
Thailand	3	3 →	3 →
ROK	4	3 ↓	3 →
Indonesia	2	3 ↑	4 ↑
Malaysia	3	3 →	2 ↓
Philippines	2	2 →	3 ↑
India	1	1 →	1 →
Brazil	2	2 →	1 ↓

Source: Rader charts in Figure II-2-1-31.

Macro-economic indicators

Next, we look at the unemployment rates and inflation rates. As for changes in the unemployment rate (Table II-2-1-37), the unemployment rate has stayed relatively high in Central and South American countries. The score regarding the unemployment rate remained at 2 or less for Chile, Colombia, Peru and Turkey. In 2012, Colombia and Turkey showed the worst performance, as the unemployment rate in these countries has chronically stayed at around 10% since 2005.

An inflation rate comparison shows that the inflation rate has remained stable for many of the countries taken up here. However, as shown in Table II-2-1-38, the score was 2 or less for India, Viet Nam, Russia and Turkey in 2012. For Viet Nam in particular, the score declined two points between 2005 and 2009. In recent years, India and Viet Nam have tried to stabilize the inflation rate through interest rate hikes and price-curbing measures but the inflation rate has remained relatively high in these countries. In contrast, the inflation rate improved in Russia and Turkey. Until 2009, Russia

recorded a double-digit inflation rate in many years, but in recent years, the country's inflation has been subsiding. Brazil, which experienced a hyperinflation of an annual inflation rate of close to 2,500% (consumer prices, end-of-year figure) in the second half of the 1980s through the first half of the 1990s, has maintained a relatively moderate inflation rate since the second half of the 1990s.

Table II-2-1-37 Trends in unemployment rate scores

	2005	2009	2012
Chile	2	2 →	2 →
Colombia	1	1 →	1 →
Peru	3	2 ↓	2 →
Turkey	2	2 →	1 ↓

Source: Rader charts in Figure II-2-1-31.

Table II-2-1-38 Trends in inflation rate scores

	2005	2009	2012
India	3	2 ↓	2 →
Viet Nam	3	1 ↓	1 →
Brazil	3	3 →	3 →
Russia	2	1 ↓	2 ↑
Turkey	1	2 ↑	2 →

Source: Rader charts in Figure II-2-1-31.

Trade structure indicators

As for the export dependence on resources and primary goods in exports (Table II-2-1-39), three counties in the Central and South American region, Brazil, Colombia, Peru, recorded a score of 2 or less in 2012, as did Indonesia, and Russia. For Indonesia, Brazil, Colombia and Peru, the score declined compared with 2005, meaning that their dependence on resources and primary goods in exports increased. Russia was at the bottom of the score table, with its score consistently stuck at 1 since 2005, reflecting its trade dependence on exports of primary goods as represented by oil.

Regarding concentration of export destinations (countries/regions), many Central and South American countries recorded a low score (Table II-2-1-40) as in the case of the export dependence on resources and primary goods in exports. The score was 2 or less in 2012 for the Philippines, Mexico, Colombia and Peru. Among Asian countries, only the Philippines recorded a score of 2 or less. The Philippines' low score comes against the backdrop of its relatively high ratio of exports to Japan and the United States compared with other Asian countries. Mexico shows the most conspicuous concentration of export destinations. As a result of the conclusion of the North American Free Trade Agreement (NAFTA), Mexico is very strongly linked to the United States, with U.S.-bound exports

accounting for slightly less than 80% of the total value of its exports in 2012.

Table II-2-1-39 Trends in dependence on resources and primary commodities scores

	2005	2009	2012
Indonesia	3	3 ⇨	2 ⇩
Brazil	3	3 ⇨	2 ⇩
Russia	1	1 ⇨	1 ⇨
Colombia	2	1 ⇩	1 ⇨
Peru	3	2 ⇩	2 ⇨

Source: Rader charts in Figure II-2-1-31.

Table II-2-1-40 Trends in country/region bias (export destination) scores

	2005	2009	2012
Philippines	2	2 ⇨	2 ⇨
Mexico	1	1 ⇨	1 ⇨
Colombia	2	2 ⇨	2 ⇨
Peru	3	2 ⇩	2 ⇨

Source: Rader charts in Figure II-2-1-31.

Capital composition indicators

Finally, a look at changes in the scores regarding the ratio of inward portfolio investments (Table II-2-1-41) shows that the score declined two points or more for ROK and Malaysia among Asian countries and for Mexico among Central and South American countries between 2005 and 2012. When the dependence on inward portfolio investments, which are quick to flow across borders, is high, the impact of capital flight will be significant, as was the case at the time of the past currency and financial crises, so the economic structures of such countries are presumed to contain risks that may materialize when the international financial markets are thrown into turmoil[185]. Although the score for Turkey was 1 in 2005, it rose more than 2 points during the same period, meaning that the country's dependence on inward portfolio investments declined.

Figure II-2-1-42 shows the correlation coefficient between individual countries' risk tolerance indicators and their sovereign credit ratings[186]. The governance indicator has the strongest correlation with the sovereign credit rating, with the correlation coefficient between these two variables at a large positive value of 0.88 (the weaker a country's governance is, the lower its sovereign credit rating is). Government sector and external economic indicators have a loose positive correlation with the

[185] Refer to Ishikawa (2009) and Morikawa (2011) as well.
[186] Here, only the governance indicator is selected out of the government sector group.

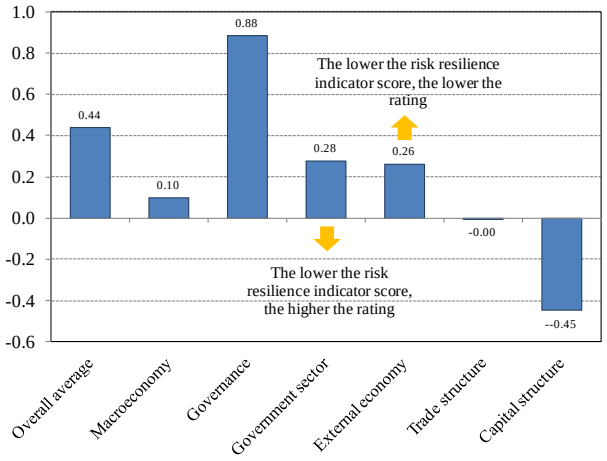
sovereign credit rating (0.26 to 0.28). Meanwhile, the capital composition indicators have a loose negative correlation with the sovereign credit rating (the higher the ratio of inward portfolio investments in a country is, the higher the country's sovereign credit rating is). If countries with a relatively high ratio of inward portfolio investments are regarded as being in a state of capital inflow boom, it may be said that such countries tend to have a high sovereign credit rating.

Table II-2-1-41 Trends in ratio of inward portfolio investment scores

	2005	2009	2012
Thailand	4	3 ↓	4 ↑
ROK	3	1 ↓	1 →
Indonesia	3	2 ↓	3 ↑
Malaysia	3	4 ↑	1 ↓
Philippines	1	1 →	2 ↑
Mexico	4	3 ↓	2 ↓
Turkey	1	3 ↑	3 →

Source: Rader charts in Figure II-2-1-31.

Figure II-2-1-42 Correlation between risk resilience indicators (2012) and government bond credit ratings



Notes: The coefficient of correlation between the simple average of the 2012 risk resilience indicators in each category and the credit rating of government bonds (long-term rating by S&P Rating Services of issues denominated in the home currency) as of April 28, 2014. For the sake of convenience, the coefficient of correlation has been calculated based on the following rating scores: AA-: 2.5; A+: 2; A: 1.5; A-: 1; BBB+: 0.5; BBB: 0; BBB-: -0.5; BB+: -1; BB-: -2. Data for 14 countries were used: Brazil, Chile, Colombia, India, Indonesia, South Korea, Malaysia, Mexico, Peru, Philippines, ROK, Thailand, Turkey, and Vietnam.
Source: Rader charts in Figure II-2-1-31 and from data obtained from Standard & Poor's Rating Services.

(2) Analysis of the growth fundamentals

Above, we evaluated and analyzed individual countries' inherent risks and vulnerabilities expressed as indicators. Below, we evaluate and analyze individual countries' growth fundamentals through a similar scoring method. Table II-2-1-43 shows a list of indicators of individual countries' fundamentals for future growth that we selected. We selected indicators that are presumed to have strong correlation with medium- and long-term growth and development from multiple viewpoints in reference to preceding studies.

As in the case of the scoring regarding risk tolerance indicators, we show radar charts (Figure II-2-1-44) representing the scoring regarding indicators of individual countries' growth fundamentals.

Table II-2-1-45 classifies the simple average scores of individual countries regarding each of the five groups of indicators of growth fundamentals[187] presented in Table II-2-1-43 and regarding the overall six groups of indicators into the 1 to 1.99 range, 2 to 2.99 range, 3 to 3.99 range and 4 to 5 range.

As for the overall average (simple average of the scores regarding all individual evaluation items), most countries were placed in the 2 to 2.99 range or the 3 to 3.99 range, but ROK and Malaysia were

[187] The groups are defined as: macro economy group (the investment ratio and trade openness); human resources group (demographics and human capital), the level of development group (quality of infrastructure, urbanization rate and value added in manufacturing (as a percentage of GDP); economic and social systems group (intellectual property protection and governance); and financial deepening group (market capitalization of listed companies (as a percentage of GDP) and domestic credit to the private sector by banks (as a percentage of GDP).

placed in the 4 to 5 range. Six countries, most of which are located in Central and South America or in proximity to Europe were placed in the 2 to 2.99 range. The countries were India, Brazil, Colombia, Peru, Russia and Turkey. Another six countries – Indonesia, Thailand, the Philippines, Viet Nam, Mexico and Chile – were placed in the 3 to 3.99 range. These countries, four in Asia and two in Central and South America, are regarded as having relatively strong growth fundamentals. Many Asian countries belong to the range, and Mexico and Chile belong to the range as Central and South American countries.

By group, the Philippines, Brazil, Colombia, Peru, Russia and Turkey recorded the lowest score with regard to the macro economy group of indicators, while India, Thailand, Viet Nam and Turkey were the worst performers with regard to the human resources group of indicators. Russia recorded the lowest score with regard to the level of development group of indicators, and India, the Philippines, Viet Nam, Colombia, Peru, Russia and Turkey did so with regard to the economic and social systems group. Regarding the financial deepening group, Indonesia, the Philippines, Mexico, Colombia, Peru and Turkey scored lowest. As for the best performers, ROK and Viet Nam recorded the highest score with regard to the macro economy group, and Malaysia and the Philippines did so with regard to the human resources group. ROK, Malaysia Thailand were the best performers with regard to the level of development group, while ROK, Malaysia and Chile scored highest with regard to the economic and social systems group and the financial deepening group.

Figure II-2-1-46 shows the correlation between the groups of indicators of individual countries' growth fundamentals and per-capita real GDP (purchasing power parity basis) in 2005, 2009 and 2012. The human resources group, the economic and social systems group and the financial deepening group consistently show a positive correlation with per-capita real GDP, but the macro economy group and the level of development group shows little correlation. The human resources group and the economic and social systems groups, which include indicators concerning the wellspring of growth, such as the population growth rate, accumulation of human capital and the strength of the rule of law, showed a moderate to medium degree of correlation with variables that are regarded as important in research fields relating to economic growth throughout this period. The financial deepening group's correlation with per-capita real GDP gradually increased, indicating the growing importance for economic growth and development of such factors as the development of the financial environment through markets and banks[188]. The correlation between the overall average and per-capita real GDP stayed at around 0.2 to 0.3 throughout the period.

In recent years, studies that stress the roles played by political and economic systems in a country's economic growth and development have been attracting attention in the field of economic growth theories[189]. Therefore, below, we take a closer look at the relationship between the governance

[188] Beck and Levine (2004) and Okabe and Mitsuyasu also show, based on regression analysis using a more extensive sample, that financial deepening (development of finance through banks and markets) promotes economic growth.

[189] Refer to Fukumi (2006), Acemoglu et al. (2003), Acemoglu et al. (2005), Rigobon and Rodrik (2005), and Rodrik et al. (2004), for example. Meanwhile, Yamazawa (2013) analyzed the relationship between

indicator in particular and individual countries' economic growth and development.

Table II-2-1-47 shows six composite indicators of governance ("Voice and Accountability", "Political Stability, and Absence of Violence/Terrorism," "Government Effectiveness," "Regulatory Quality," "Rule of Law," and Control of Corruption") in individual countries/regions which were used in the above analysis and which were calculated and published by the World Bank, along with their definitions.

Figure II-2-1-48 shows the correlation between each governance indicator and per-capital real GDP (purchasing power parity basis)[190]. Regarding "Voice and Accountability" (Panel A) and "Political Stability, and Absence of Violence/Terrorism" (Panel B), a significant correlation with per-capita real GDP was not observed, while a significant positive correlation was observed between four other indicators (Panels C to F) and per-capita real GDP. Among the governance indicators, "Regulatory Quality" had the strongest correlation (0.732) with per-capital real GDP, followed by "Government Effectiveness" (0.654), indicating that governments' governance capability is an important factor for economic growth[191].

Table II-2-1-43 List of indicators of the foundations for growth

Group	Indicator	Contribution	Notes
1. Macroeconomy			
	#1. Share of investment	+	Total investment as a share of GDP
	#2. Openness to trade	+	Total value of trade (value of exports + value of imports) as a share of GDP
2. Human resources			
	#3. Population dynamics/structure	+	Simple average of the respective scores for population growth rate and young population ratio (population aged under 15 / working-age population)
	#4. Human capital	+	Index of human capital per person based on the length of education and the rate of return to education
3. Degree of development			
	#5. Infrastructure quality	+	Overall quality of infrastructure (land, sea and air routes, and communications)
	#6. Urbanization rate	+	Average rate of change in the urban population (annual rate)
	#7. Manufacturing value added (as a share (	+	Share of GDP accounted for by value added by manufacturing industry
4. Socioeconomic systems			
	#8. Protection of intellectual property rights	+	Degree of protection of intellectual property rights
	#9. Governance	+	Total for the indicators concerning voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.
5. Financial deepening			
	#10. Stock market capitalization (as a share	+	Aggregate market value of stocks as a share of GDP
	#11. Private sector credit (as a share of GD	+	Value of credit granted to the private sector by banks as a share of GDP

Notes: The symbol + in the contribution column indicates that the scoring increases when the figure for the indicator in question rises.

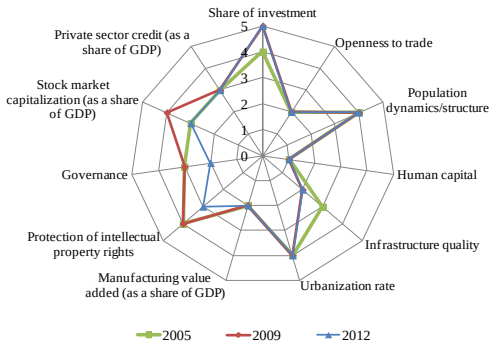
systems and economic growth from the perspective of the "middle income trap."

[190] The overview and calculation method of the indicators of governance are described by Kaufmann et al. (2010).

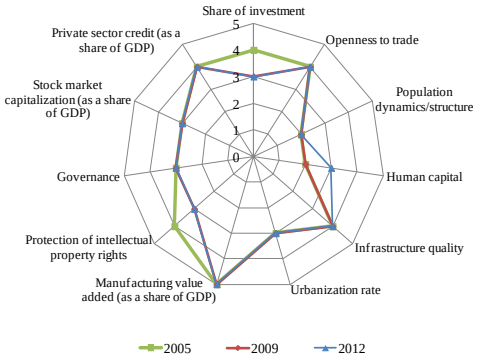
[191] Of course, it is conceivable that there is an inverse cause and effect relationship: the higher a country's per-capita real GDP is, the further political stability is promoted there. It should also be kept in mind that the results shown here are limited to the 14 countries covered by the analysis and that the results could vary if the composition of countries included in the sample changes.

Figure II-2-1-44 Radar charts of indicators of the foundations for growth

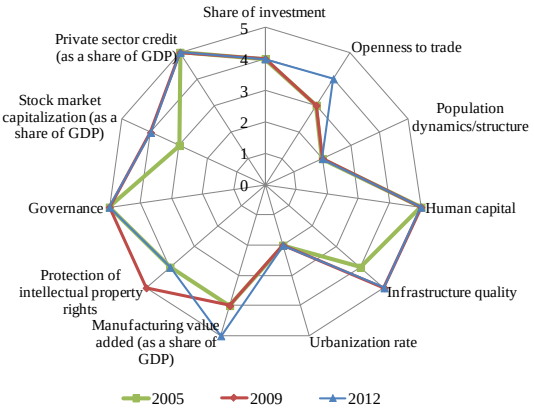
India



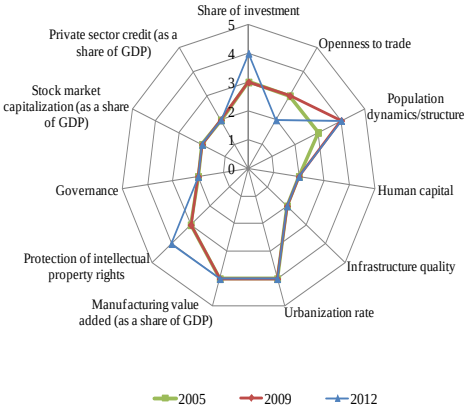
Thailand



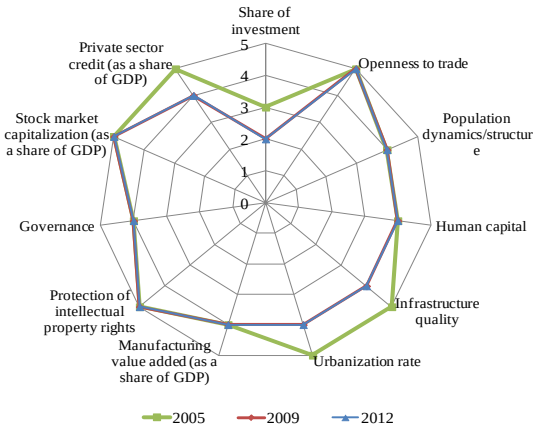
ROK



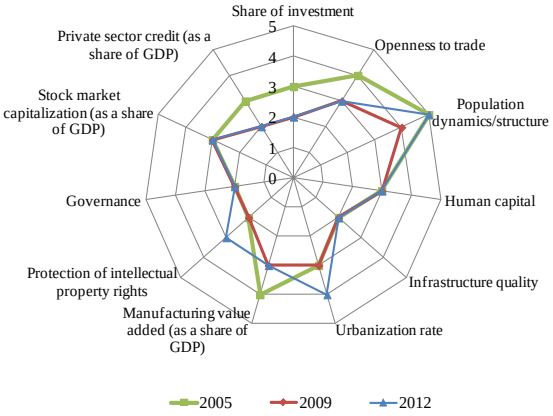
Indonesia



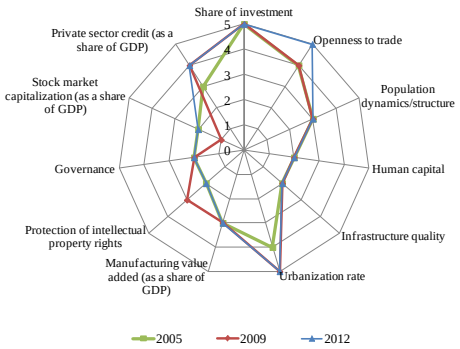
Malaysia



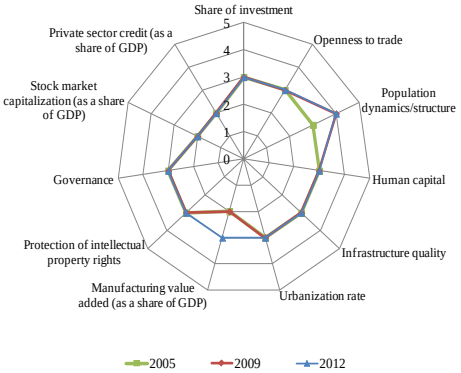
Philippines



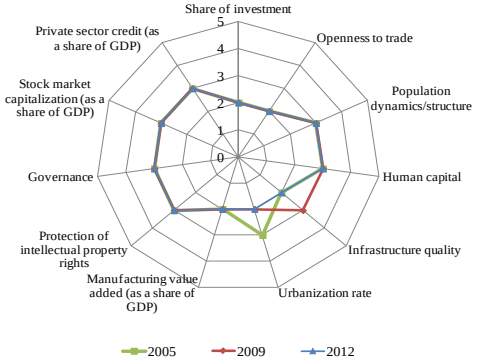
Viet Nam



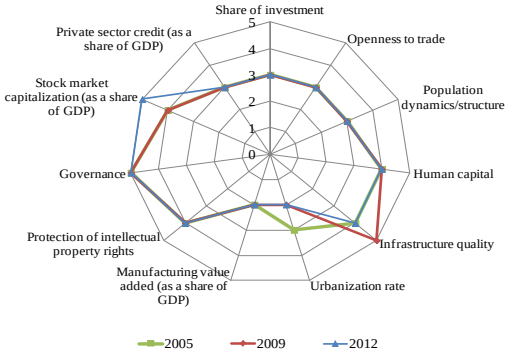
Mexico



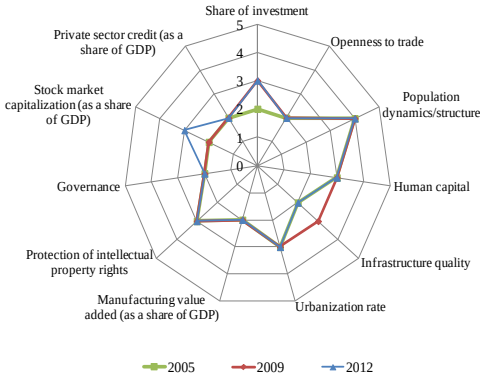
Brazil



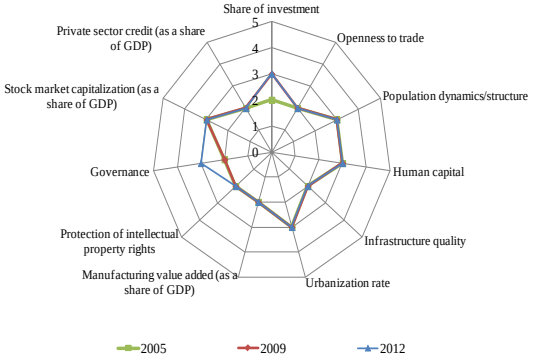
Chile

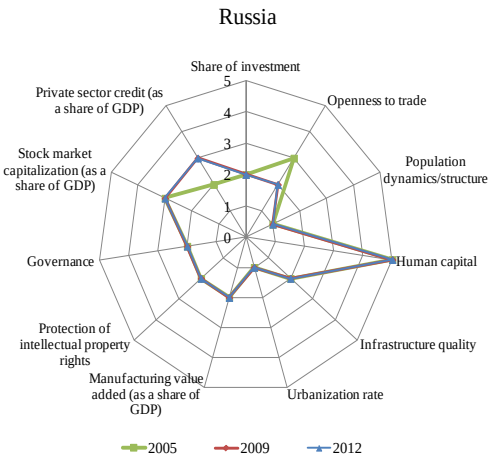


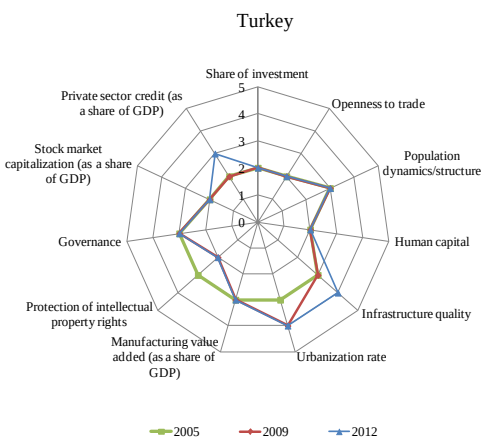
Colombia



Peru







Notes: The bigger (smaller) the area of the radar chart enclosed by each line, the stronger (weaker) the country's overall foundations for growth.
Source: IMF, WEO, April 2014; World Bank, WDI 2013, The Worldwide Governance Indicators (WGI) project, and World Urbanization Prospects: The 2011 Revision; ADB, Key Indicators for Asia and the Pacific 2013; the CEIC Database; UN Comtrade; World Economic Forum, World Competitiveness Report; and Penn World Table 8.0.

Table II-2-1-45 Evaluation of the indicators of foundations for growth in each group (simple average of the scores (2012))

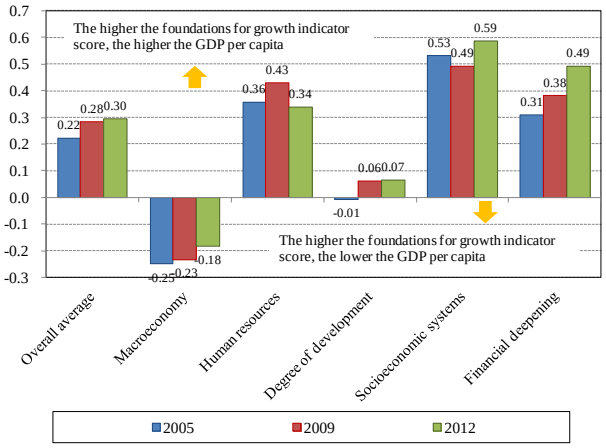
Overall average				Macroeconomy			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
	India	Indonesia	ROK		Philippines	India	ROK
	Brazil	Thailand	Malaysia		Brazil	Indonesia	Viet Nam
	Colombia	Philippines			Colombia	Malaysia	
	Peru	Viet Nam			Peru	Thailand	
	Russia	Mexico			Russia	Mexico	
	Turkey	Chile			Turkey	Chile	

Human resources				Degree of development			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
	India	Indonesia	Malaysia	Russia	India	Indonesia	ROK
	Thailand	ROK	Philippines		Brazil	Philippines	Malaysia
	Viet Nam	Mexico			Chile	Viet Nam	Thailand
	Turkey	Brazil			Colombia	Mexico	
		Chile			Peru	Turkey	
		Colombia					
		Peru					
		Russia					

Socioeconomic systems				Financial deepening			
1~1.99	2~2.99	3~3.99	4~5	1~1.99	2~2.99	3~3.99	4~5
	India	Indonesia	ROK		Indonesia	India	ROK
	Philippines	Thailand	Malaysia		Philippines	Thailand	Malaysia
	Viet Nam	Mexico	Chile		Mexico	Viet Nam	Chile
	Colombia	Brazil			Colombia	Brazil	
	Peru				Peru	Russia	
	Russia				Turkey		
	Turkey						

Source: Rader charts in Figure II-2-1-44.

Figure II-2-1-46 Correlation between indicators of foundations for growth and real GDP per capita (PPP equivalent) in emerging economies



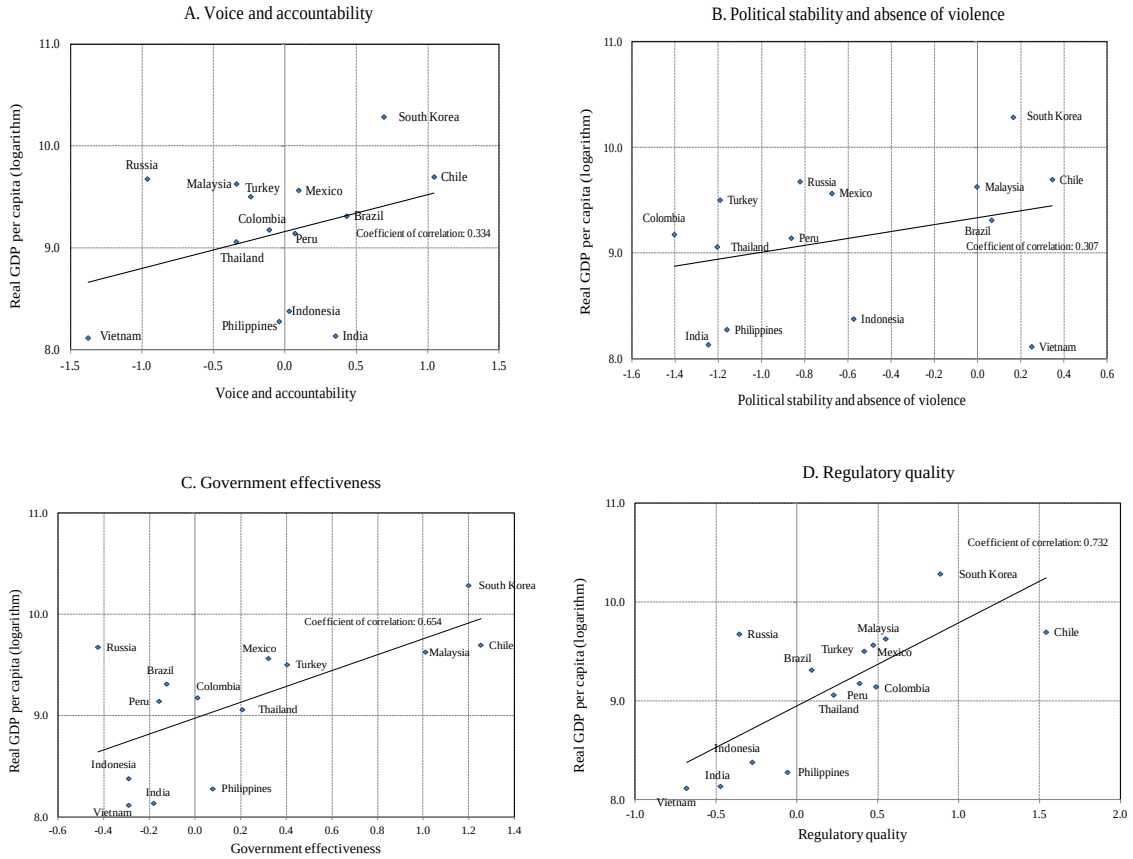
Notes: Coefficient of correlation between the simple average of the 2005, 2009, and 2012 foundations for growth indicators in each category and real GDP per capita (PPP equivalent, moving average for the previous five years) in 2005, 2009, and 2012, respectively. Data for 14 countries were used: Brazil, Chile, Colombia, India, Indonesia, ROK, Malaysia, Mexico, Peru, Philippines, Russia, Thailand, Turkey, and Viet Nam.
Source: Rader charts in Figure II-2-1-44 and *WEO, April 2014* (IMF).

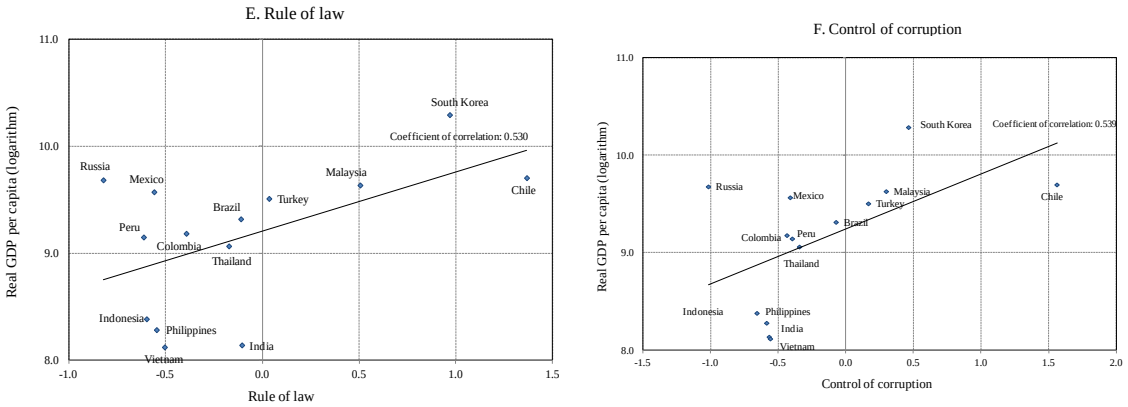
Table II-2-1-47 Definition of each governance indicator

Indicator	Definition
Voice and accountability	The extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
Political stability and absence of violence	The likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
Government effectiveness	The quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Regulatory quality	The ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Rule of law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
Control of corruption	The extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Source: Kaufmann et al. (2010).

Figure II-2-1-48 Correlation between governance indicators and real GDP per capita (PPP equivalent)





	Voice and accountability			Political stability and absence of violence			Government effectiveness		
	Estimate	Standard error	t value	Estimate	Standard error	t value	Estimate	Standard error	t value
Constant term	9.162 ***	0.177	51.755	9.337 ***	0.248	37.596	8.975 ***	0.152	58.902
Coefficient	0.363	0.295	1.228	0.326	0.292	1.119	0.781 ***	0.261	2.992
Coefficient of determination, corrected for level of freedom			0.038			0.019			0.380

	Regulatory quality			Rule of law			Control of corruption		
	Estimate	Standard error	t value	Estimate	Standard error	t value	Estimate	Standard error	t value
Constant term	8.951 ***	0.138	65.030	9.205 ***	0.161	57.097	9.245 ***	0.164	56.284
Coefficient	0.841 ***	0.226	3.722	0.555 **	0.256	2.164	0.563 *	0.254	2.214
Coefficient of determination, corrected for level of freedom			0.497			0.221			0.231

Notes: Real GDP per capita uses the natural logarithm expressed in purchasing power parity (PPP) equivalent in U.S. dollars (2012). *, **, and *** indicate that the correlation is statistically significant at the 1%, 5%, and 10% significance levels, respectively.
Source: *The Worldwide Governance Indicators (WGI) project* (World Bank), *WEO, April 2014* (IMF).

(3) Economic fundamentals as seen from the viewpoints of risk tolerance and growth fundamentals

Panels A to C in Figure II-2-1-49 shows scatter diagrams with the horizontal axis representing the risk tolerance indicator and the vertical axis representing the growth fundamentals indicator in 2005, 2009 and 2012. The center of each scatter diagram indicates the average point of 3 for both the risk tolerance indicator and the growth fundamentals indicator. Countries located in the upper right field of each scatter diagram have a relatively high level of risk tolerance and strong growth fundamentals, while countries in the upper-left field have a relatively low level of risk tolerance but relatively strong growth fundamentals. Countries in the lower-left field have a relatively low level of risk tolerance and relatively weak growth fundamentals and countries in the lower-right field have a relatively high level of risk tolerance but relatively weak growth fundamentals.

The correlation coefficient between the risk tolerance indicator and the growth fundamentals indicator was 0.593 in 2005 (Panel A), 0.597 in 2009 (Panel B), and it dropped to 0.451 in 2012 (Panel C). Thus, we can see a basic tendency that countries with a higher level of risk tolerance have stronger growth fundamental and countries with a lower level of risk tolerance have weaker growth fundamentals. In 2005 (Panel A), emerging economies were scattered relatively widely across the diagram, but their locations gradually grew more concentrated around the center of the diagram.

Figure II-2-1-50 represents Panels A to C (see Figure II-2-1-49 presented earlier) layered together, with time-sequential changes described as plot lines, in order to make it possible to trace time-sequential trends regarding individual countries in more detail. According to this figure, the locations of several countries moved considerably over the period.

First, we look at countries whose performance is on a downtrend. With regard to the risk tolerance indicator, Malaysia, ROK, Viet Nam and India recorded a relatively large decline in their scores compared with 2005. Regarding the growth fundamentals indicator, Malaysia and India recorded a relatively large decline in their scores compared with 2005. Although Malaysia's score declined with regard to both indicators, the country was still located in the highest area in the upper-right field.

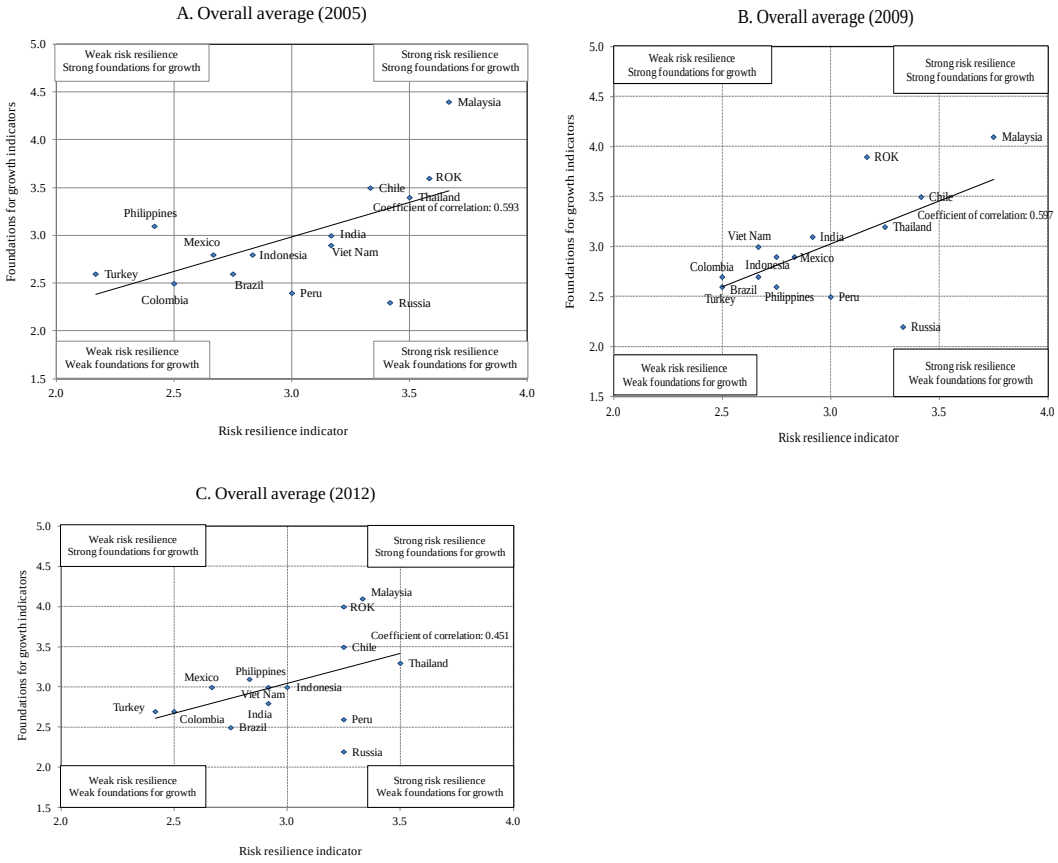
Meanwhile, several countries' performance improved. Regarding the risk tolerance indicator, Indonesia, the Philippines, Peru and Turkey recorded a relatively large improvement in their scores compared with 2005. Regarding the growth fundamentals indicator, only ROK recorded a relatively large improvement in its score. For Viet Nam, Mexico, Peru and Turkey, the score improved somewhat compared with 2005. Although Turkey's score improved with regard to both indicators, the country was still located in the lowest area in the lower-left field.

On the whole, many Asian countries were located in the upper-right field, while Central and South American countries were generally located in the lower-left field. Among Central and South American countries, only Chile, which is called a "bright hope of South America"[192], is located in the upper right field. Moreover, countries initially located in or around the right-upper field moved lower-left, while countries initially located in or around the lower-left field moved upper-right. In other words, between 2005 and 2012, countries that initially had a high level of risk tolerance tended to lose risk tolerance and countries that initially had a low level of risk tolerance tended to gain risk tolerance.

Countries whose vulnerabilities have been pointed out in recent years[193] were located in the lower-left field, meaning that they have not only a relatively low level of risk tolerance but also relatively weak growth fundamentals.

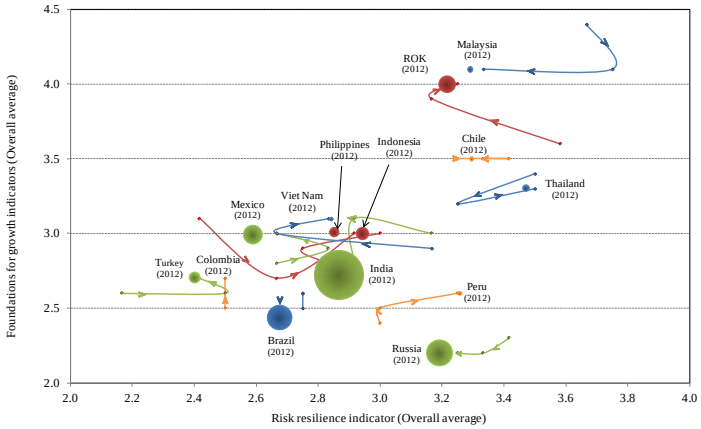
[192] Refer to Nishikawa (2014), for example.
[193] India, Indonesia, Brazil, Turkey and South Africa (which is not covered by the current analysis) in particular.

Table II-2-1-49 Scatter diagram of risk resilience indicators and indicators of growth foundations



Notes: Each point shows the combination of risk tolerance indicator and growth fundamentals indicator (both are overall average).
Source: Rader charts in Figure II-2-1-44.

Table II-2-1-50 Scatter diagram of risk resilience indicators and indicators of growth foundations (2005-2012)



Notes: Each point and line represents the trend in the combined risk resilience indicator and foundations for growth indicator (overall average for each) for each country from 2005 to 2012. The bubble chart represents the GDP share (PPP equivalent) in each of the 14 countries as of 2012.
Source: Rader charts in Figure II-2-1-44.