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# Mizuho Economic Outlook & Analysis

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## *The depreciation of the renminbi may have a negative impact on the Asian economies*

### < Summary >

- ◆ While the depreciation of the renminbi may have both positive and negative impacts on the exports of Asian countries/regions, the recent intensification of export competition with China has made some countries/regions particularly vulnerable to a weaker renminbi.
- ◆ From a political perspective, a significant depreciation of the renminbi appears unlikely. However, given the persisting slump of exports among the Asian countries/regions due to the global economic slowdown, there are strong concerns that a weaker renminbi might have a negative impact upon their export competitiveness.
- ◆ In the event that the Asian countries/regions resort to more currency-weakening efforts, there is the risk of a vicious cycle of concerns regarding ballooning external debt burdens denominated in foreign currencies leading to further currency weakening.

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**1. Given the depreciation of the renminbi since the beginning of the year, there are concerns regarding its adverse effect upon neighboring Asian countries/regions**

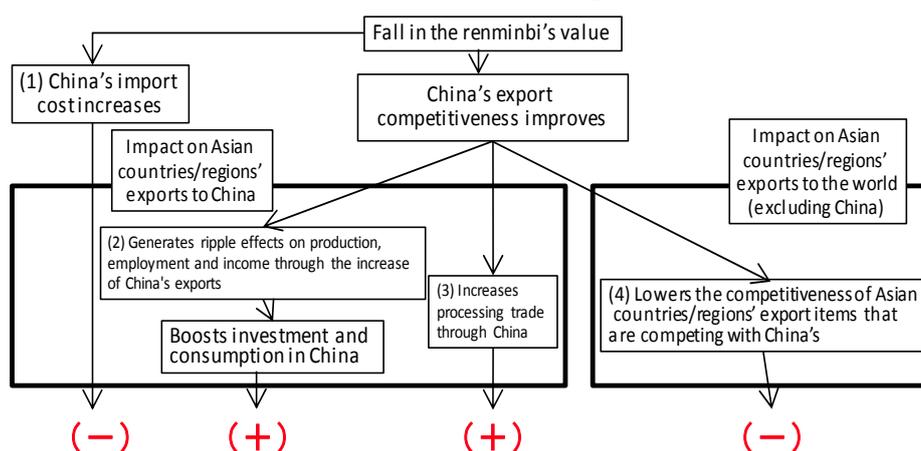
From the start of 2016, the renminbi started to weaken against the US dollar. While this has led to the rise of market expectations toward a further depreciation of the renminbi, there are concerns among neighboring countries/regions in Asia<sup>1</sup> that a further renminbi depreciation may have an adverse impact on their countries/regions by exerting negative pressures upon exports. Nevertheless, note that the depreciation of the renminbi can generate both positive and negative ripple effects on the Asian countries/regions in economic theory (**Chart 1**).

To shed light upon this point, this paper examines how the effects of the depreciation of the renminbi are transmitted, based upon the assumption that the value of other currencies of Asian countries/regions remains unchanged, that the renminbi is the sole currency falling significantly, and that all trade transactions in China are denominated in foreign currencies.

First, we consider the impact on Asian countries/regions' exports bound for China. A decline in the value of the renminbi would lead to the rise of import costs denominated in the renminbi, exerting downward pressures upon China's imports. This means that it will have a negative impact upon China-bound exports of Asian countries/regions.

On the other hand, it is also possible that the weaker renminbi will promote Asian

**Chart 1: Transmission mechanism of the depreciation of the renminbi on the exports of Asian countries/regions**



Source: Made by MHRI.

<sup>1</sup> We selected NIEs (South Korea, Taiwan, Hong Kong, Singapore) and ASEAN5 (Indonesia, Thailand, Malaysia, Philippines, Vietnam) as the Asian economies subject to this report's analysis in consideration of their deep economic relationship with China and their degree of dependence on exports to China as well as statistical data restraints.

countries/regions' exports to China. The mechanism works as follows: First, the depreciation of the renminbi promotes Chinese exports by raising China's export competitiveness, stimulating the production activity of Chinese companies and pushing up their capacity utilization ratio. This in turn will boost China's domestic demand through corporate investment, which will increase import demand, mainly with respect to capital goods in China. In addition, production growth may also lead to the improvement of employment and income conditions, lifting personal consumption to bring about the rise of demand for imports mainly of consumer products. As a result, Asian countries/regions exporting goods to China will benefit from the positive effect.

Note also that a system of division of labor has been established in Asia. This is a system in which Asian countries supply intermediate goods, parts for example, to China, where final goods are assembled and exported to the global market. Hence, if processing trade centered in China is stimulated as a result of the rise of competitiveness stemming from the depreciation of the renminbi, it will have positive effect upon Asian countries/regions' exports of intermediate goods to China.

Next, concerning Asian countries/regions' exports to other parts of the world (excluding China), if China's export competitiveness strengthens as a result of the depreciation of the renminbi, it will weaken their relative export competitiveness and have a negative impact.

In sum, the weakening of the renminbi can generate both positive and negative impacts on the exports of Asian countries/regions. While the renminbi depreciation may (1) push down Asian countries' exports to China through the rise of China's import costs (-), it may also have the opposite effect of invigorating Asian countries' exports to China through (2) growth in China's exports leading to an increase in production and investment activities (+), as well as (3) the expansion of processing trade via China (+). On the other hand, (4) improvement in China's export competitiveness may also weaken Asian countries/regions' exports to the global market, excluding China (-). The foregoing shows that a weaker renminbi can have both positive and negative impacts on overall exports of Asian countries/regions.

This paper shall verify the effect of each transmission path and to analyze the overall impact of the renminbi depreciation on Asian countries/regions' exports.

## **2. The positive effect of the rise of China's exports upon investment may be decreasing in recent years**

For path (1), statistics compiled by the General Administration of Customs of the People's Republic of China and the People's Bank of China suggest that the value of

trade transactions denominated in the renminbi has been rising rapidly, standing at about 26% of the overall trade transactions in 2015. However, since foreign currency denominated transactions still comprise the majority of trade activities, a depreciation of the renminbi may serve as restraints on China's import volume through the rise of import costs, depending on the degree of renminbi depreciation.

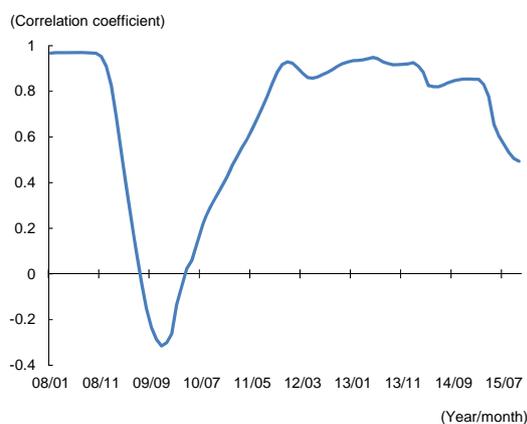
Next, we look at path (2). The push-up effect on China's production and investment activities fueled by export growth appears to be gradually diminishing at present. In fact, the interrelation between China's export volume and real investment is now declining (**Chart 2**).

In the background is the intensification of adjustment pressures on capital stock stemming from the excessive production capacity saddling Chinese corporations. Even if the renminbi depreciation leads to the stimulation of exports and rise of the capacity utilization ratio, the excessive production capacity mainly in the primary materials industry makes it difficult to stimulate corporate incentive for new capital investment.<sup>2</sup> Thus, in view of the current difficulty to stimulate incentive for investment, its impact to spur imports of capital goods is also expected to be limited.

Meanwhile, personal consumption in China has been relatively firm compared with business investment, partly reflecting the expansion of the middle to high-income brackets. Even so, since personal consumption has a smaller effect of spurring imports relative to investment,<sup>3</sup> its positive impact on Asian countries/regions' exports to China is expected to remain subdued.

The foregoing suggests that even if the depreciation of the renminbi boosts exports

**Chart 2: Correlation of China's export volume index and real fixed asset investment**



Notes: 1. 36-month rolling correlation.  
 2. Real-term seasonally-adjusted figures are estimates by MHRI.  
 3. We used figures of the 3-month backward moving averages on a seasonally-adjusted basis.  
 Source: Made by MHRI based on CEIC Data.

<sup>2</sup> On the other hand, it is also possible that foreign companies will increase direct investment to China to benefit from exports driven by the yuan depreciation. But on the back of a shifting business environment, such as the sharp increase in labor costs, some Japanese, South Korean and Taiwanese firms are becoming more cautious on making new capital investments in their Chinese affiliates, and for this reason it is difficult to imagine that the yuan depreciation will be the sole factor pushing up inward direct investment of China as in the 2000s.

<sup>3</sup> For example, Miyajima and Nakamura (2014) use China's Input-Output Table to point out that the import inducement coefficient of consumption (change in import volume induced when consumption increases by one unit) is greater than investment. It should be noted that the import inducement coefficient of investment is around 0.26 while consumption's is about 0.17.

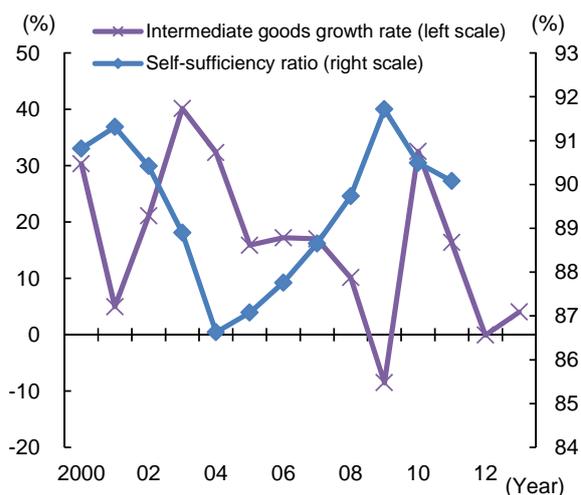
and production in China, it is only expected to have a minor impact to spur import demand given its limited impact to boost investment. Hence, we infer that the positive impact on Asian countries/regions' exports to China will not be so large.

### 3. The effect of promoting Asian countries/regions' exports to China with expanded processing trade through China is also diminishing

Next, we observe (3) the potential ripple effects of the weaker renminbi on Asian countries/regions' exports to China with the expansion of processing trade through China. In conclusion, as in the case of path (2), the effect of increasing Asian countries/regions' exports to China through path (3) is also likely to diminish.

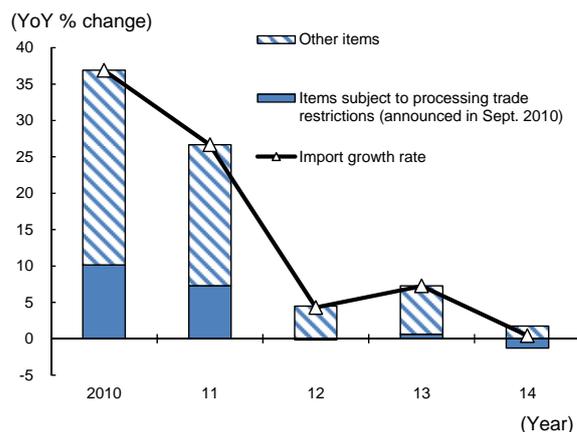
Two factors can explain this trend. The first factor is the improvement in China's self-sufficiency ratio. Our calculation of China's self-sufficiency ratio using the World Input-Output Database (WIOD)<sup>4</sup> shows that the ratio has been rising since 2005 (Chart 3). Despite a slight decline between 2010 and 2011, China's self-sufficiency ratio is following an overall upward trend when compared with the ratio recorded in the mid-2000s. Even though the WIOD after 2012 was not yet released at the time of this report, in view of the significant fall in the growth rate of China's intermediate goods imports since 2011, the chances are remote that there was a sharp drop in the self-sufficiency ratio after 2012. This indicates the possibility that the rise of China's

**Chart 3: China's self-sufficiency ratio and imports of intermediate goods**



Source: Made by MHRI based on *RIETI-TID2013* and WIOD.

**Chart 4: Nominal value of imports of China**



Note: Items subject to processing trade restrictions are calculated in the six-digit level of the HS2007 standard. Source: Made by MHRI based on *UN Comtrade*.

<sup>4</sup> The self-sufficiency ratio was derived from the domestic intermediary input/total intermediary input.

self-sufficiency ratio due to productivity gains among Chinese companies is serving as a drag upon intermediate goods imports.

The second factor is the implementation of the policy to restrain processing trade through China. China adopted this policy for reasons such as environmental protection, and the recent rise in number of items covered under this policy appears to be serving as downward pressures on the volume of China's imports.<sup>5</sup> A look at the rate of import growth of the items subject to the processing trade restrictions announced in September 2010<sup>6</sup> (**Chart 4**) reveals that the rate started falling after 2012 and plunged into negative territory in 2014, and that the fall of the growth rate of the items subject to the restrictions is much steeper than other items. This suggests that the policy has been effective in restraining China's processing trade.

The foregoing indicates a high possibility that the positive impact on Asian countries/regions' exports to China stemming from the expansion of processing trade through China is declining in recent years.

#### **4. The escalation of export competition between China and Asian countries/regions is magnifying the negative effects of the renminbi depreciation**

Lastly, let us look at the ripple effects through path (4).

As represented by Xiaomi and Samsung Electronics, the recent productivity gains of Chinese companies based on their catch-up efforts with their rivals have intensified competition with firms in Asian countries/regions such as South Korea. For countries/regions facing relatively high competition with China, the rise of competitiveness of Chinese companies due to the renminbi depreciation leads to the fall of export competitiveness of their products and downward pressures on their exports.

For a comprehensive comparison of export competitiveness between Asian countries/regions and China, we compared the share of imports from China, NIEs and ASEAN5 in the US and Europe (EU28), which are the leading markets in the world (**Chart 5**). From 2002 through 2014, the share of imports from China grew in both the US and Europe, while the share of imports from NIEs dropped slightly and ASEAN5 remained almost flat. These results suggest that China's export competitiveness is rising over the medium term compared with NIEs and ASEAN5.<sup>7</sup>

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<sup>5</sup> Miyajima and Nakamura (2015) point out that the share of imports for the purpose of processing trade in China is on a declining trend, and its growth rate is also hovering at a low level. Thus, they state that the size of processing trade through China is not expanding as rapidly as in the past.

<sup>6</sup> Since the restricted items for processing trade announced in 2014 have been implemented since 2015, we used the restricted items announced in 2010 as the standard.

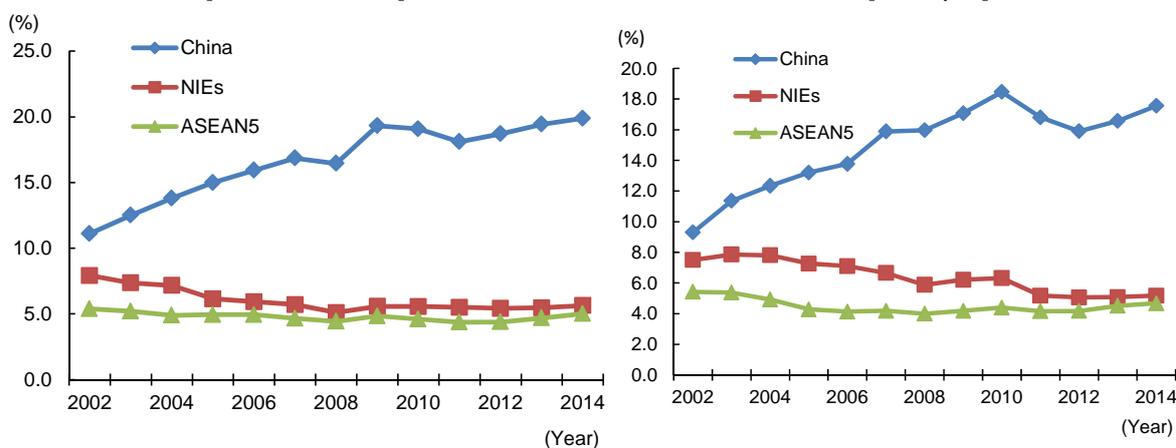
<sup>7</sup> But Tamai (2014) also points out that China's export competitiveness may have already reached its peak recently.

In addition, we used the import statistics<sup>8</sup> of the US and Europe (EU28) and estimated the export competitiveness index of Asian countries/regions<sup>9</sup> to confirm which countries the index has been rising relative to China. The higher the value of the export competitiveness index, the more the two countries' export structures resemble each other and the greater the competitive pressure with China. Our results reveal that the index is rising in some Asian countries/regions where export competition with China is escalating (Chart 6).

If we look at the export competitiveness index in the US, the value of Taiwan is the highest relative to other Asian countries/regions and has been rising gradually since 2002, implying that export competition between China and Taiwan is escalating. As of 2014, the value of Vietnam is second after Taiwan, and the export competitive index of Vietnam has risen sharply from 2002. Furthermore, South Korea's export competitiveness index has also been rising since 2009. The index of Hong Kong came after these countries/regions, but the value has been declining since 2012.

Next a look at the competitiveness index of exports bound for Europe reveals that the

**Chart 5: Share of imports from Asian countries/regions in the US and Europe**  
[ United States ] [ Europe ]



Notes: 1. Figures for Taiwan were substituted by the figures of "Other Asia."  
2. ASEAN5 include Indonesia, Thailand, Malaysia, Philippines and Vietnam.  
Source: Made by MHRl based on *UN Comtrade*

<sup>8</sup> If we use statistics from the export side, particularly in the case of Hong Kong and Singapore, there is a strong possibility that a majority of exports to the US and Europe were taken from exports that only passed through the economies (but originated in other countries), and therefore such statistics are not appropriate for calculating export competitiveness. For this reason, we used statistics from the import side of the US and EU28 for the calculation.

<sup>9</sup> We calculated the export competitiveness index using the following formula.

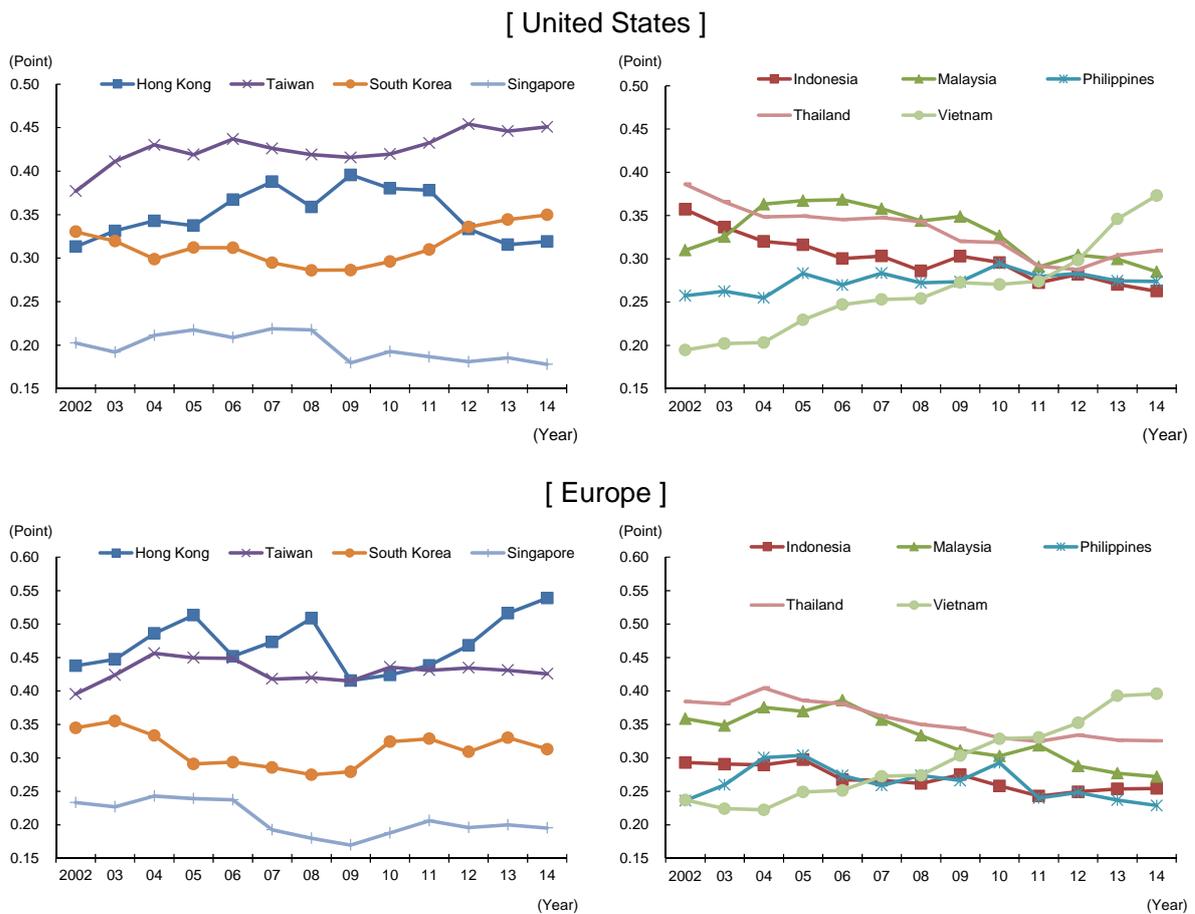
$$ESI_{ab} = \sum_{i=1}^n \min(X_a^i / X_a, X_b^i / X_b)$$

$X_a^i$  is the export value of goods i from country a to a certain country/region,  $X_a$  is the total export value from country a to a certain country/region,  $X_b^i$  is the export value of goods i from country b to a certain country/region, and  $X_b$  is the total export value from country b to a certain country/region. In this report, we used six-digit-level statistics based on HS2002 to observe long-term changes.

value of Hong Kong has been rising since 2011 and is now the highest among other Asian countries/regions. In 2014, the value of Taiwan came second after Hong Kong, but its competitiveness index has not risen since 2002. As with exports to the US, the value of Vietnam rose sharply from 2002, suggesting that export competition with China is growing more intense. Also, while the competitiveness index of South Korea is not particularly high, it rose slightly in 2010 to reach Thailand's index which has been following a downward trend since 2002.

In summary, the foregoing reveals a high degree of export competition between China and the countries of Taiwan and Vietnam. In particular, the export competitiveness index of Vietnam against China has risen sharply from the past. Furthermore, South Korea and Hong Kong face a high degree of export competition with China. The values of their competitiveness index came after Taiwan and Vietnam. Since the above-mentioned countries/regions are exposed to fierce export competition with China, it is highly likely that their exports to non-China countries will be hit even harder by an improvement in

**Chart 6: Export competitiveness index of exports bound for the US and Europe**



Notes: 1. Figures for Taiwan were substituted by the figures of "Other Asia."  
 2. Figures above are calculated in the six-digit level of the HS2002 standard using the statistics of importing countries.  
 Source: Made by MHRI based on *UN Comtrade*

China's export competitiveness due to the renminbi depreciation.

## **5. Negative impact of the renminbi depreciation may grow larger for some Asian countries/regions**

A summary of the arguments thus far is as follows.

First, since a large part of trade transactions are denominated in foreign currencies, the depreciation of the renminbi may serve as a driver of China's import costs.

Second, although the depreciation of the renminbi will boost China's exports and production and may give rise to import demand for capital goods due to the rise of investment, the excessive production capacity saddling Chinese companies is diminishing the positive effects, thereby reducing the favorable impact on Asian countries/regions' exports to China. On the other hand, shoring up the import demand for consumer goods can be expected to a certain extent, but the effect of increasing imports through personal consumption seems limited relative to investment.

Third, the effect of the renminbi depreciation spurring demand for imports of intermediate goods, along with the rise of processing trade through China, is also diminishing in recent years. This stems from the improvement of China's self-sufficiency ratio and strengthening of its policy to restrain processing trade. This has impaired the potential positive effect on Asian countries/regions' exports to China.

Fourth, the rise of China's export competitiveness due to the depreciation of the renminbi is leading to the aggravation of the negative impact on Asian countries/regions' exports to countries other than China. This stems from the rise of China's export competitiveness over the medium-term compared with early 2000 as a result of catch-up efforts of Chinese companies with their rivals. In countries where export competition with China is particularly intense, such as Taiwan, Vietnam, South Korea and Hong Kong, China's improved export competitiveness will likely place stronger downward pressures on their exports to non-China countries.

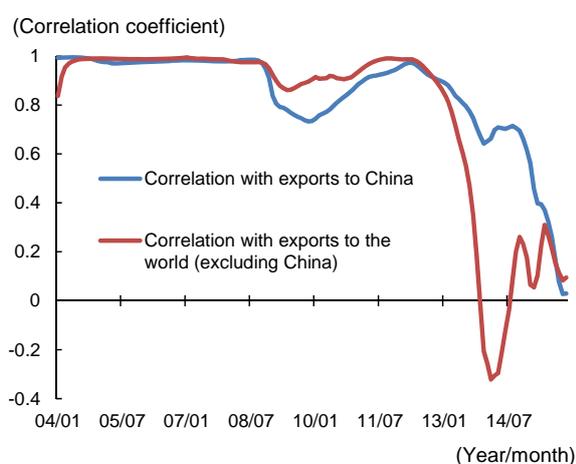
The foregoing analysis leads to the following conclusion. In contrast to the decline of the positive impact of the renminbi depreciation on Asian countries/regions' exports, the negative impact of the renminbi depreciation has grown larger in recent years. Particularly in Taiwan, Vietnam, South Korea and Hong Kong, whose export competitive indexes vis-a-vis China have grown higher, the degree of the negative impact has outpaced the positive effect, and the renminbi depreciation will likely do more harm than good to the exports of these countries/regions.

Let us turn to the relationship (linkage) between China's exports to the world and the exports of Asian countries/regions. With regard to the relationship between China's

exports to the world and Asian countries/regions' exports to China, the correlation coefficient was trending at the level close to 1 from 2004 through the end of 2012 (**Chart 7**). This implies that the increase in China's exports to the world had a significant effect of boosting the exports of Asian countries/regions to China. The value of the correlation coefficient since 2013, however, has suddenly begun to fall and has reached almost zero in current years. Therefore, it can be inferred that the effect of increasing Asian countries/regions' exports to China has become limited under the current circumstances.

On the other hand, concerning the relationship between China's exports to the world and Asian countries/regions' exports to non-China countries, in the event the export competitiveness index rises, the negative correlation should grow stronger. In reality, the correlation coefficient was hovering at around 1 until the end of 2012, with no sign of the rise of export competitiveness (**Chart 7**). However, note that there have been periods of a negative correlation, albeit for a short time, implying that export competition between China and Asian countries/regions has grown stronger in recent years, at least compared with the past.

**Chart 7: Correlation between China's exports to the world and the exports of Asian countries/regions**



Notes: 1. Nominal figures are in US dollars.  
 2. We estimated using the 3-month backward moving averages based on seasonally-adjusted figures by MHRI.  
 3. 36-month rolling correlation.  
 Source: Made by MHRI based on statistics of the respective countries and CEIC Data.

## **6. Asian countries/regions may find it difficult to tolerate the depreciation of the renminbi because of concerns regarding the fall of exports**

We have thus far hypothesized a case where the renminbi loses significant ground to all other currencies. The next question is how far the renminbi may actually depreciate against other currencies.

In terms of the bottom line, we believe that the chances are remote that the renminbi will fall by over 10% against the US dollar because of political circumstances that will not allow such a significant drop of the renminbi. In the run up to the G20 Summit in September 2016 chaired by China, the Chinese government will most likely seek to avoid the rise of international criticism that the “renminbi depreciation is causing trade

friction.” As a further decline in crude oil prices may lead to a growing trade surplus, such criticism may easily arise in the future. Furthermore, in view of the scheduled inclusion of the renminbi in the SDR basket this October, an excessive decline in the renminbi’s value will serve as an obstacle to the globalization of the currency. Given such circumstances, particularly after the fall of 2016, it is difficult to imagine that the renminbi depreciation will advance any further. Furthermore, if the Chinese authorities intervene to significantly weaken the renminbi, the rise of uncertainties regarding the emerging markets (EM) including the Chinese economy, would create larger pressures for capital outflows and result in serious global financial turmoil such as the plunge of EM currencies. If events unfold as such, the EM stagnation may escalate and run the risk of a significant contraction of China’s exports.

For the above-mentioned reasons, we do not expect the Chinese government to allow a major depreciation of the renminbi.

However, the chances are remote that capital outflow pressures will be eradicated completely, since the market should remain risk-averse out of concerns regarding the potential downturn of the Chinese economy stemming from the weakness of external and domestic economic indicators, as well as uncertainties over the future course of the EM economies mainly with respect to the crude oil- and commodity-producing countries. Amid such circumstances, the pace of renminbi depreciation may accelerate if capital outflow pressures intensify.

In view of the current situation, we believe that it will be difficult for the monetary authorities of Asian countries/regions to tolerate the depreciation of the renminbi. This is due to the slowdown of Asian countries/regions’ exports since early 2015 reflecting gradual slowdown of the Chinese economy, the economic stagnation of the crude oil- and commodity-producing countries due to the decline in prices of commodities such as crude oil, and moderation of US economic recovery. Given their high export-dependence, the Asian countries/regions<sup>10</sup> are most likely keeping a close eye upon the future course of the renminbi and potential moves by the Chinese government out of concerns regarding any downward pressure on exports driven by the depreciation of the renminbi.

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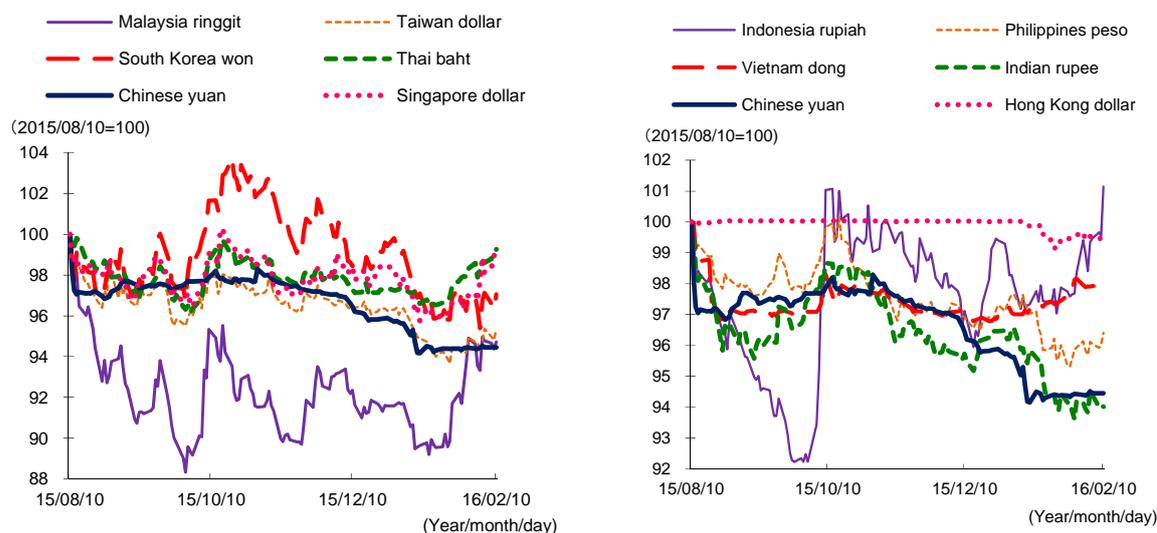
<sup>10</sup> If we estimate exports to GDP ratio in Asian economies in 2013 using the statistics of UNCTAD, the ratio is about 78% (personal consumption is about 52%, and gross fixed capital formation is roughly 25%).

## 7. Note the risk that currency-weakening actions may lead exacerbate repayment burdens of foreign currency-denominated external debt

Thus far, we have based our paper on the hypothesis that the value of currencies in other Asian countries/regions will remain unchanged. However, in reality, in the event of a sharp rise of market expectations toward a weaker renminbi, the central banks or monetary authorities of the Asian countries/regions may also implement policies to weaken their own currencies in order to maintain export competitiveness.<sup>11</sup> A look at exchange rates to the US dollar since August 2015 when expectations toward the weakening of the renminbi heightened (**Chart 8**), currencies in some Asian countries/regions, excluding India, appreciated slightly relative to the renminbi. Since a large part of trade transactions are settled using the US dollar, we believe it is possible that the monetary authorities in the respective countries/regions will place emphasis upon maintaining their US dollar-denominated export competitiveness.

In fact, since around the beginning of 2016, there has been a gradual increase of policy measures among the countries/regions of Asia which may be deemed as monetary easing and/or currency-weakening measures. Indonesia slashed its deposit reserve requirement ratio in November 2015 and lowered its policy interest rate in January 2016. Taiwan also reduced its policy interest rate in December 2015, and Malaysia cut its deposit reserve requirement ratio in January 2016. Furthermore, in Vietnam, where

**Chart 8: Exchange rates of Asian currencies against the US dollar**



Source: Made by MHRI based on Bloomberg

<sup>11</sup> Since Hong Kong adopts an exchange rate system strictly linked to the US dollar, it is difficult to manipulate the value of its currency as other Asian economies do, and this makes the level of the Hong Kong dollar relatively high. In other words, attention should be paid to the possibility that the deterioration in Hong Kong's export competitiveness relative to China and other Asian economies may weigh on the Hong Kong economy.

export competition with China has intensified sharply, the Vietnamese monetary authority adopted in January 2016 a more flexible foreign currency system in which a reference exchange rate to the US dollar is set each day, implying a more tolerant stance toward a weaker Vietnamese dong. While factors such as the rise of expectations toward the fall of inflation and improvement of the trade balance due to a further fall of crude oil prices appears to be a large factor behind the accommodative monetary/currency policy stance among the Asian countries/regions, we are inclined to believe that the rise of expectations toward renminbi depreciation from the beginning of the year is also another background factor.

Given the strong market caution toward China's economic outlook, the volatility of the renminbi exchange rate in offshore markets is extremely high, spurring expectations toward the depreciation of the renminbi. Going forward, since it is highly likely that crude oil prices will remain low and the pace of US interest rate hikes will be gradual, Asian countries/regions will have greater leeway to ease their monetary policies and allow their currencies to weaken. Amid such circumstances, in the event expectations toward renminbi depreciation rises further, tolerance toward currency weakening would spread, and lead to more countries/regions to implement monetary easing steps.

Assuming that the renminbi weakens further and the Asian countries/regions react by taking further currency weakening steps, those countries/regions would be able to avoid significant adverse effects on exports by maintaining the competitiveness of their exports. However, it is necessary to keep in mind that currency depreciation entails side effects of raising inflationary pressures stemming from imports and increasing foreign currency-denominated debt repayment burdens in real terms. As long as crude oil prices continue to stay as low as they are today, inflationary pressures stemming from imports may be restrained to a certain extent, and the repayment burden of foreign currency debt may not rise to levels experienced during the Asian currency crisis, since many countries/regions in Asia have worked to increase their bond issuance in local currencies in the aftermath of the crisis. However, excessive currency weakening may lead to a market sell-off of Asian currencies due to concerns regarding the negative side effects of currency weakening measures. In particular, net external debtors, such as Indonesia and the Philippines of ASEAN and India, may be exposed to rumors of default risk in the market if excessive currency depreciation increases their external debt repayment burdens denominated in foreign currencies. In turn, this could lead to a vicious cycle of unrestrained currency depreciation exacerbating external debt repayment burdens.

The monetary authorities of the Asian countries/regions are facing a critical juncture where they must achieve a delicate balance of maintaining their export competitiveness and stabilizing their currencies while keeping a close eye upon the movement of the

renminbi.

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