

Reconsidering the AMU What is the optimal basket currency for Asia?

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Purpose of this paper

- AMU (Asian Monetary Unit) is a database constructed by Ogawa and Shimizu (2005) to provide its data on RIETI website.
 - The AMU deviation indicator for each Asian currency measures how much each currency deviates from its benchmark rate, and it is proposed to be as a surveillance indicator for exchange rate coordination policies within the region.
 - AMU basket weight is based on the method used by the European Currency Unit (ECU) before the introduction of the Euro.
- Twenty years have passed since the creation of the AMU, China and other Asian countries' economies have largely advanced.
 - Trade structures and supply chains have expanded, leading to increased capital transactions within the region.
 - Does the current AMU weighting accurately reflect the current economic and trade environment of Asian countries?
- As economic cooperation within Asia strengthens in trade and investment, stability among Asian currencies becomes a critical policy issue in the region.
- To coordinate exchange rates among Asian currencies, it is necessary to reconsider what factors should determine the basket currency weights for the AMU.

Contents

1. AMU calculation and changes in weight
2. Checking OCA condition within the region
 - i. Generalized PPP Model by Ogawa and Kawasaki
3. Previous research on basket currency weights
4. Exchange Rate Policies of Member Countries
 - i. Invoice Currency Share within the region
 - ii. Cross-border investment positions within the region

1. AMU Basket Weights and their changes over the past 20 years

AMU calculation

- The benchmark period is defined as the period when the total trade balance of all member countries, the trade balance of member countries other than Japan with Japan, and the total trade balance between member countries and the rest of the world are closest to equilibrium: 2000–2001
- AMU weights are calculated using the arithmetic average of weights based on the share of intra-regional trade over the past three years and GDP measured using purchasing power parity (PPP).
 - PPP-GDP was adopted because, given the high proportion of emerging economies among member countries, PPP is considered to better reflect the true state of affairs than nominal GDP.
- When calculating the real AMU deviation indicator, the consumer price index (CPI) is used as the inflation rate.

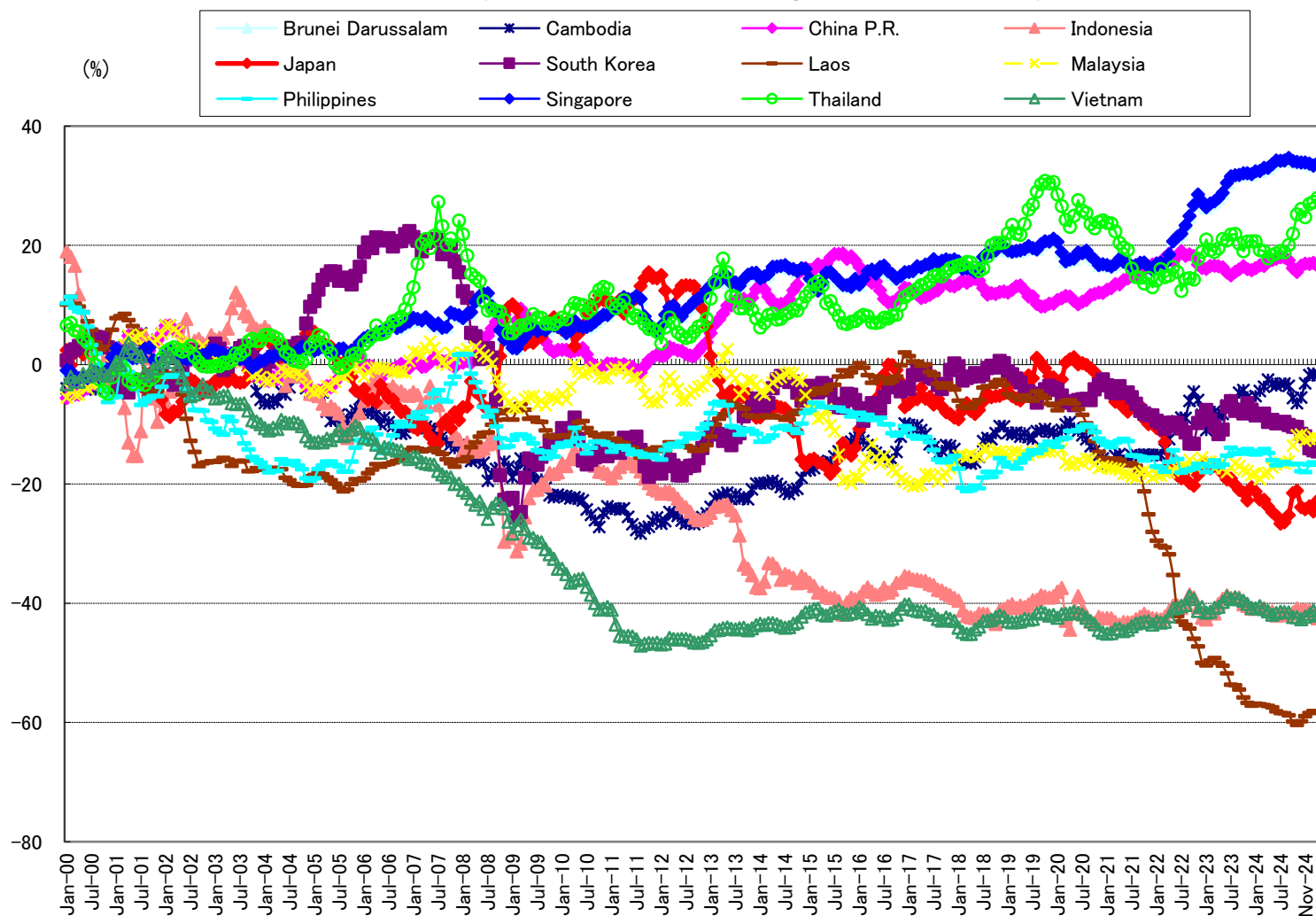
Problems with AMU calculations

- Reflecting the rapid expansion of the Chinese economy since 2005, the PPP-GDP share in AMU weight calculations has risen to around 60%, and the intra-regional trade share has also increased to around 30%, while Japan's share has decreased year by year.
- The increase in China's intra-regional trade volume is not solely due to Chinese-made products but also involves trade transactions related to Japanese companies' supply chains.
 - While these changes reflect the heightened presence of the Chinese economy over the past two decades, they may not fully reflect the current situation, particularly considering that Japan's decline in intraregional trade share is largely due to the relocation of Japanese companies' production bases to Asia.
- There may also be issues with the choice of the base year (adopting 2000-2001 as a simple balance of intra-regional trade).
- Given the surveillance objective of maintaining stability in intra-regional exchange rates, it is necessary to reconsider what should be prioritized moving forward.

Nominal AMU Deviation Indicator (2000-2025)

(データの出所：RIETI,
<https://www.rieti.go.jp/users/amu/detail.html>)

Figure 3. Nominal AMU Deviation Indicators
(benchmark year=2000/2001, basket weight=2020-2022, monthly)



AMU Basket Weights

<https://www.rieti.go.jp/users/amu/en/detail.html>

$$\begin{aligned}
 \text{US\$/euro}/_{AMU} = & 0.0028 \text{US\$/euro}/_{BN\$} + 14.6296 \text{US\$/euro}/_{CBR} + 3.8702 \text{US\$/euro}/_{CNY} \\
 & + 592.0354 \text{US\$/euro}/_{IDR} + 14.8207 \text{US\$/euro}/_{JPY} + 103.6088 \text{US\$/euro}/_{KRW} \\
 & + 20.5128 \text{US\$/euro}/_{LOK} + 0.1649 \text{US\$/euro}/_{MLR} + 0.0371 \text{US\$/euro}/_{MYK} \\
 & + 0.8629 \text{US\$/euro}/_{PLP} + 0.0872 \text{US\$/euro}/_{SP\$} + 1.7744 \text{US\$/euro}/_{TLB} \\
 & + 735.4167 \text{US\$/euro}/_{VTD}
 \end{aligned}$$

(revised in 1/2025****, benchmark year=2000/2001)

	Trade volume* %	GDP measured at PPP** %	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
Brunei	0.26	0.07	0.17	0.589114	0.0028
Cambodia	0.61	0.18	0.40	0.000270	14.6296
China	35.27	61.57	48.42	0.125109	3.8702
Indonesia	5.37	8.01	6.69	0.000113	592.0354
Japan	14.60	12.27	13.44	0.009065	14.8207
South Korea	12.42	5.38	8.90	0.000859	103.6088
Laos	0.34	0.14	0.24	0.000117	20.5128
Malaysia	6.72	2.27	4.50	0.272534	0.1649
Myanmar	0.57	0.61	0.59	0.159215	0.0371
Philippines	1.50	2.28	1.89	0.021903	0.8629
Singapore	8.80	1.48	5.14	0.589160	0.0872
Thailand	5.60	3.11	4.36	0.024543	1.7744
Vietnam	7.95	2.64	5.30	0.000072	735.4167

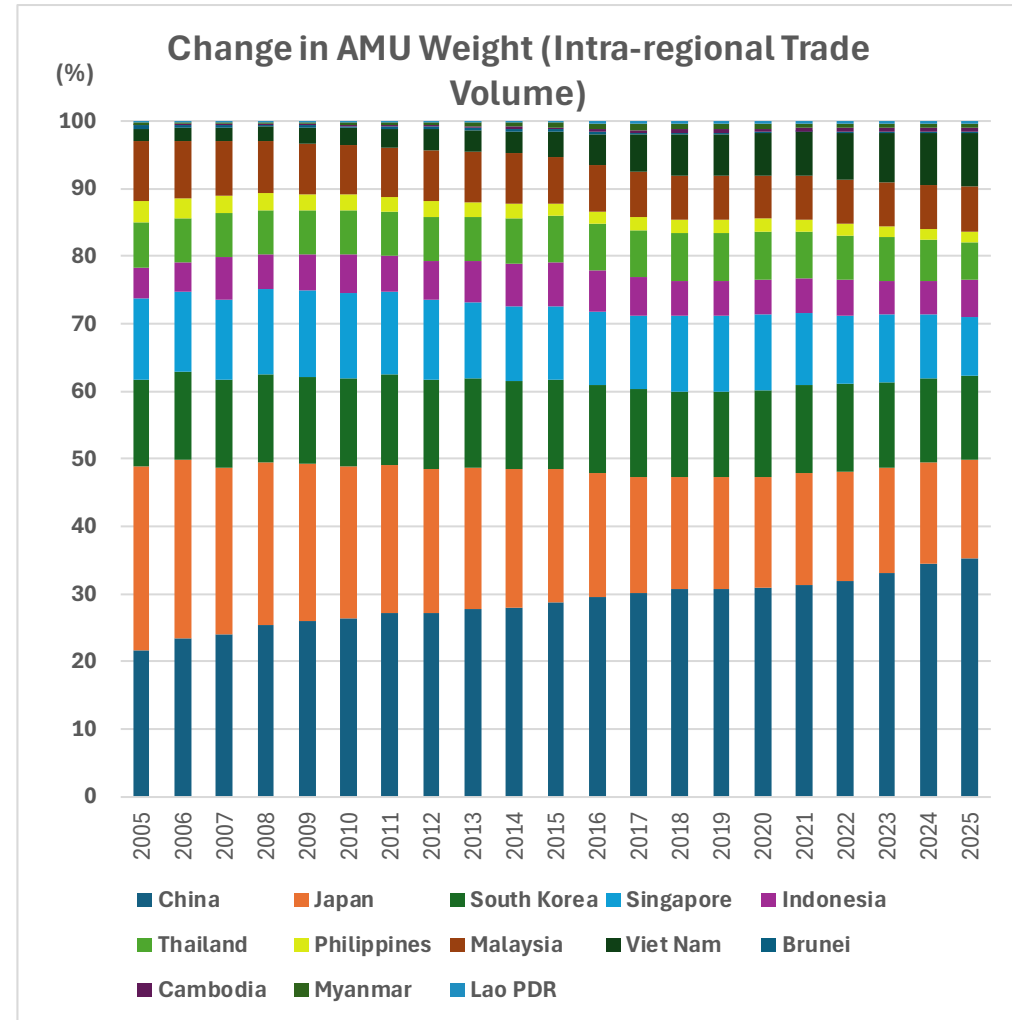
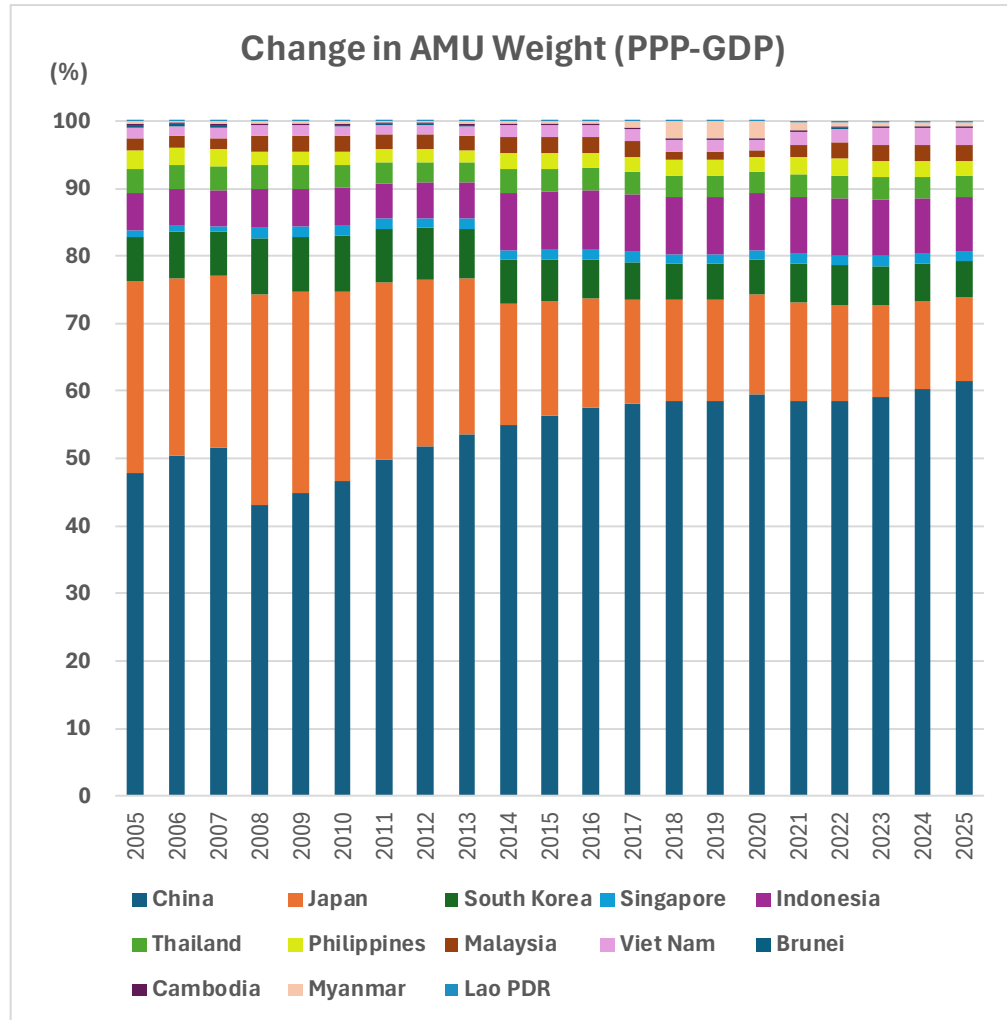
* : The trade volume is calculated as the average of total export and import volumes in 2020, 2021 and 2022 taken from DOTS (IMF).

** : GDP measured at PPP is the average of GDP measured at PPP in 2020, 2021 and 2022 taken from the World Development Report, World Bank.

*** : The benchmark exchange rate (\$-euro/Currency) is the average of the daily exchange rate in terms of US\$-euro in 2000 and 2001.

**** : AMU shares and weights were revised in January 2025.

Change in AMU Basket Weight

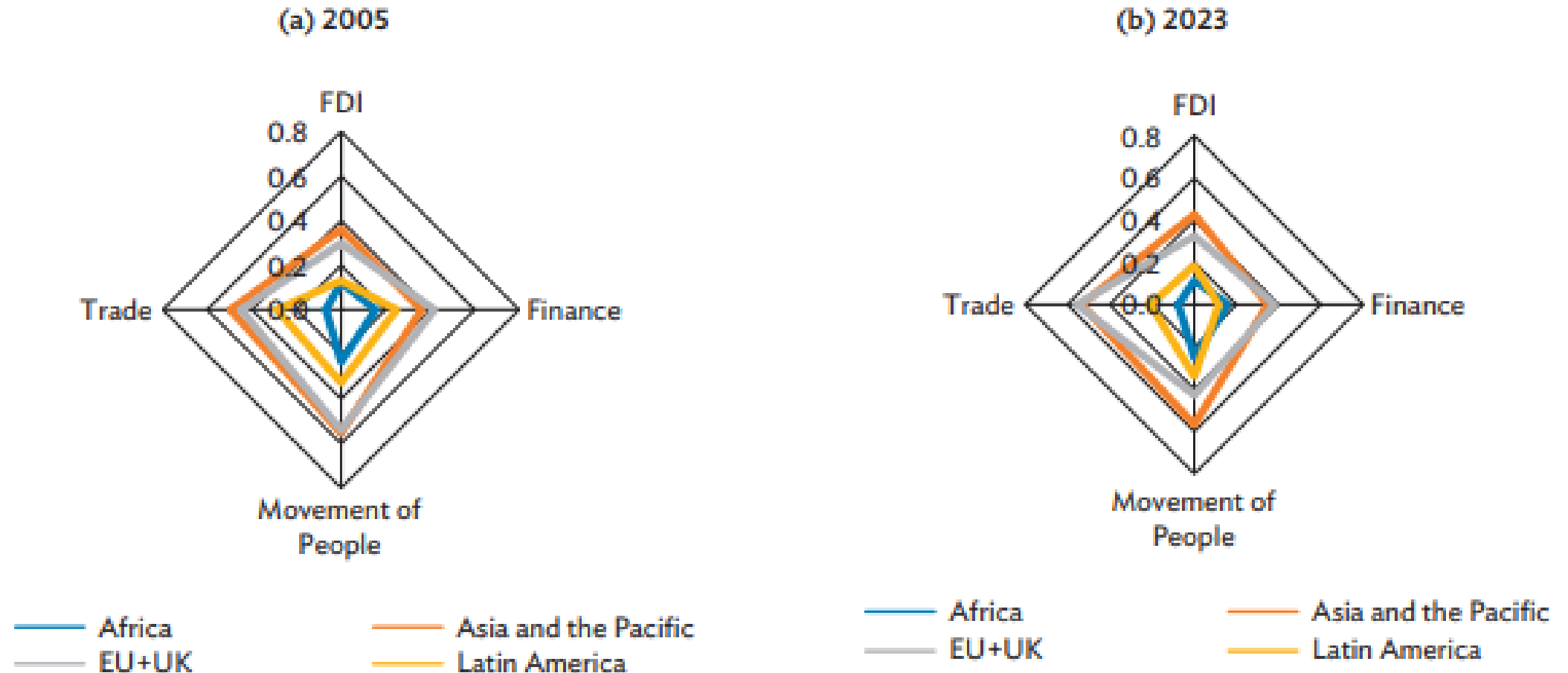


2. Checking OCA condition within the region

Regional Integration in the region and the role of AMU Deviation Indicator

- According to the ADB's Regional Integration Index, Asia and the Pacific has achieved trade integration on par with the EU, while its integration in terms of FDI is more advanced than the EU.
- Looking at the intra-regional trade share within ASEAN+4 (2024), exports account for 43.7% and imports for 44.8%, which falls short of the EU.
 - One reason for this is the high share of external trade for China, Japan, and South Korea.
 - Intra-regional trade shares within China-Hong Kong and among ASEAN countries themselves are around 60% for many nations.
- Particularly in intra-Asian trade, where intra-firm trade between Japanese and Korean manufacturing firms with their subsidiaries in ASEAN is significant, the US\$ has been used as a trade invoicing currency.
- Recently, Asian local currencies such as the CNY and Baht are gradually gaining ground as an invoicing currencies.
 - The AMU divergence indicator, designed to promote exchange rate stability among Asian currencies, is expected to play an increasingly important role going forward.

Regional Integration Index by Dimension, 2023 (ADB)



EU = European Union (27 members), FDI = foreign direct investment, UK = United Kingdom.

Note: Based on ADB's Regional Integration Index estimates, the values for each dimension represent the ratio of the number of strong intraregional connections at the bilateral level relative to the sum of strong intraregional and extraregional connections.

Source: ADB calculations using data from ADB. Bilateral Economic Integration Index Database.

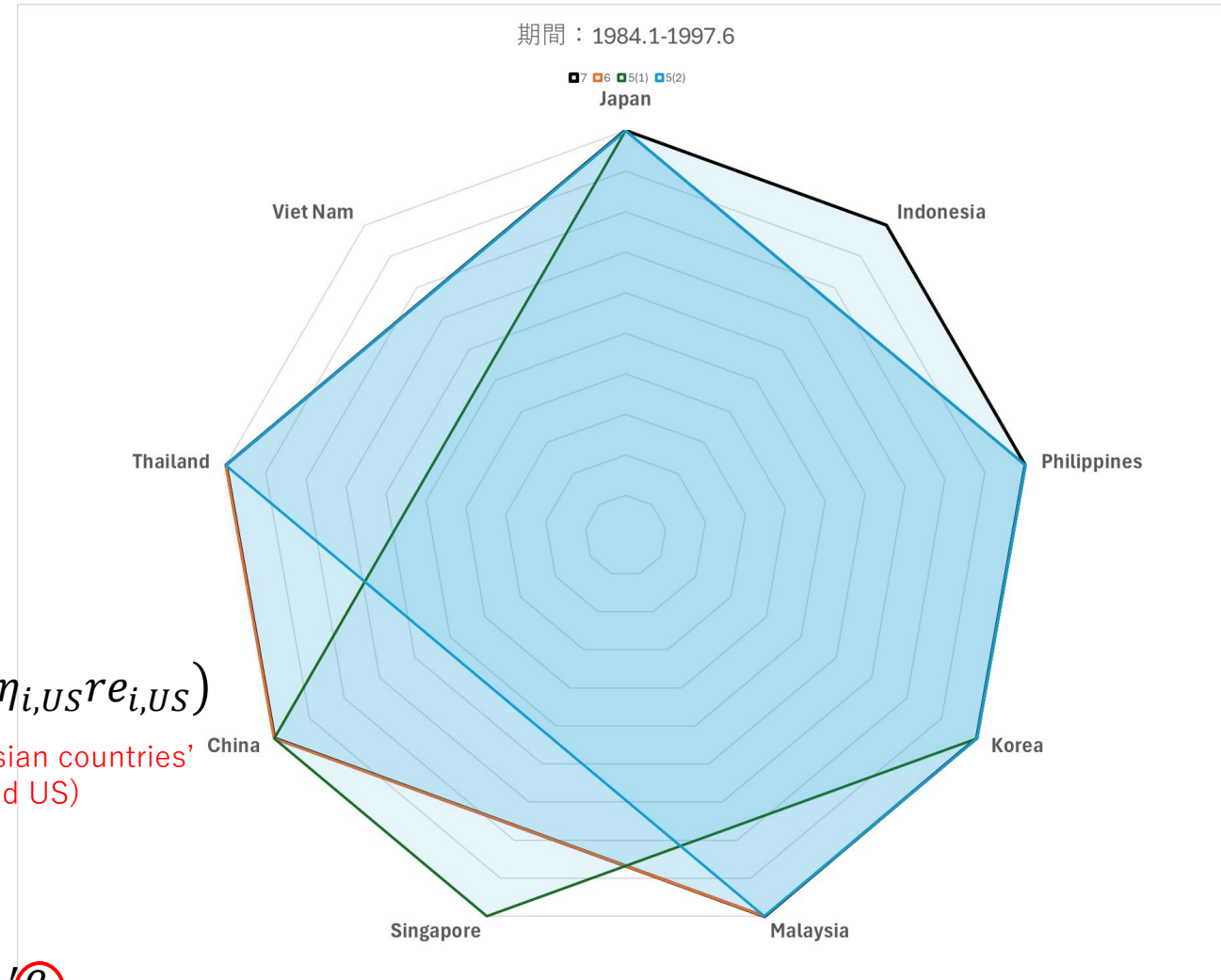
Regional Trade Share in 2024

Intra-regional Trade Share within ASEAN +4 (China, HK, Japan, and Korea) in 2024

	Export	Import
Brunei Darussalam	69.3%	49.9%
Cambodia	31.7%	90.3%
Hong Kong	71.9%	69.1%
China, P.R.: Mainland	32.9%	29.1%
Indonesia	56.2%	63.8%
Japan	43.6%	42.6%
Korea, Republic of	45.6%	42.5%
Lao PDR	87.1%	88.5%
Malaysia	56.4%	55.9%
Myanmar	61.4%	87.2%
Philippines	60.1%	71.0%
Singapore	62.3%	44.1%
Thailand	48.5%	57.2%
Vietnam	40.2%	72.4%
Total	43.7%	44.8%

Authors' calculation. All trade data are from CEIC.

Checking OCA Condition by G-PPP Model



$$ree_i = (\eta_{i,1}re_{j,1} + \eta_{i,2}re_{j,2} + \dots + \eta_{i,n}re_{i,n}) + (\eta_{i,EU}re_{i,EU} + \eta_{i,US}re_{i,US})$$

Component 1: East Asian countries

($i=1, \dots, n, i \neq n$: JP, CN, KR, ID, ML, PH, SG, TH, VN)

Component 2: East Asian countries' trade partners (EU and US)

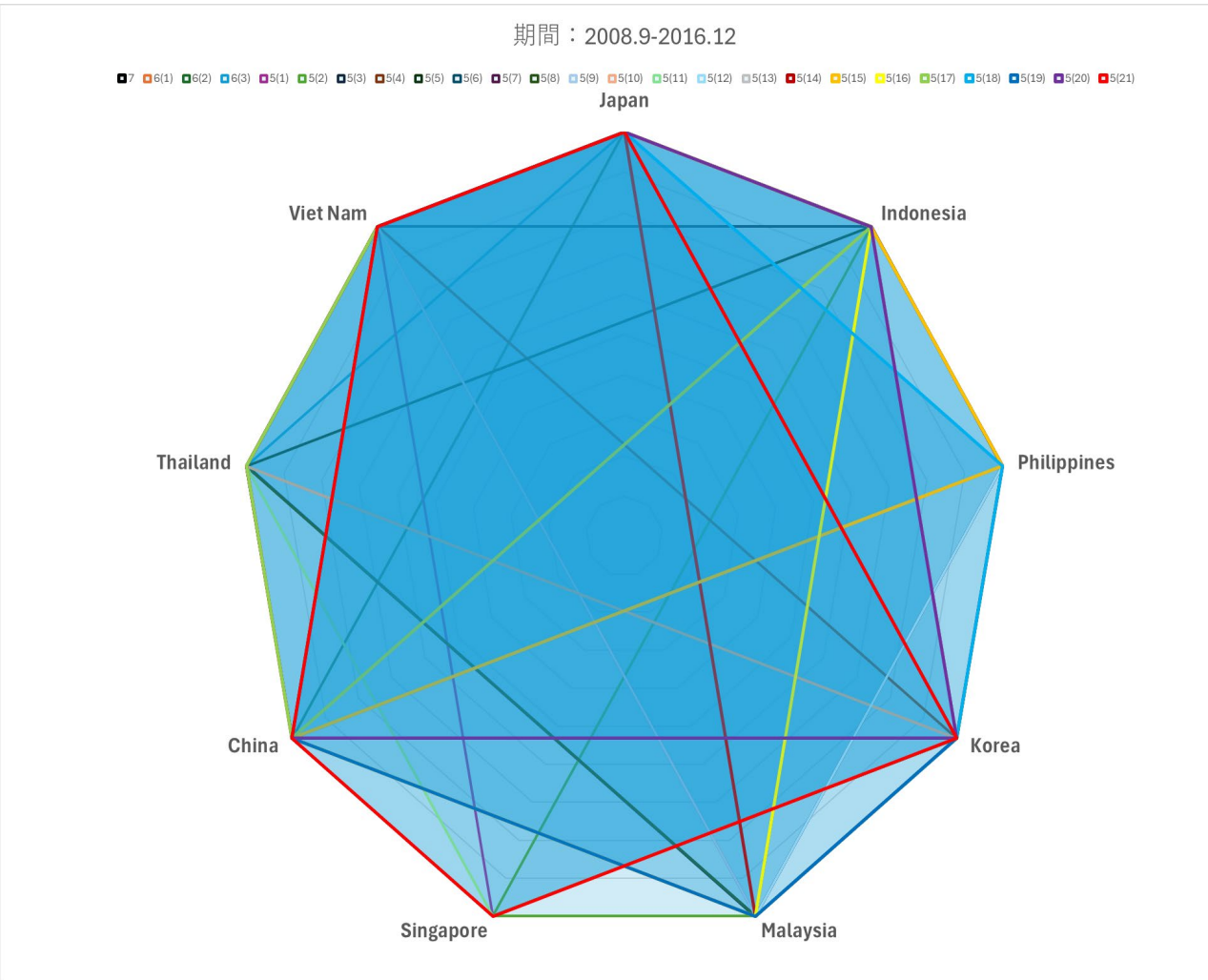
$$\mathbf{ree}_{US}^{1, \dots, n} = \overline{\mathbf{ree}} + \widetilde{\mathbf{ree}} = \mathbf{F} \cdot \mathbf{re}_{US}$$

(n+1)x1 (n+1)x1 (n+1)x1

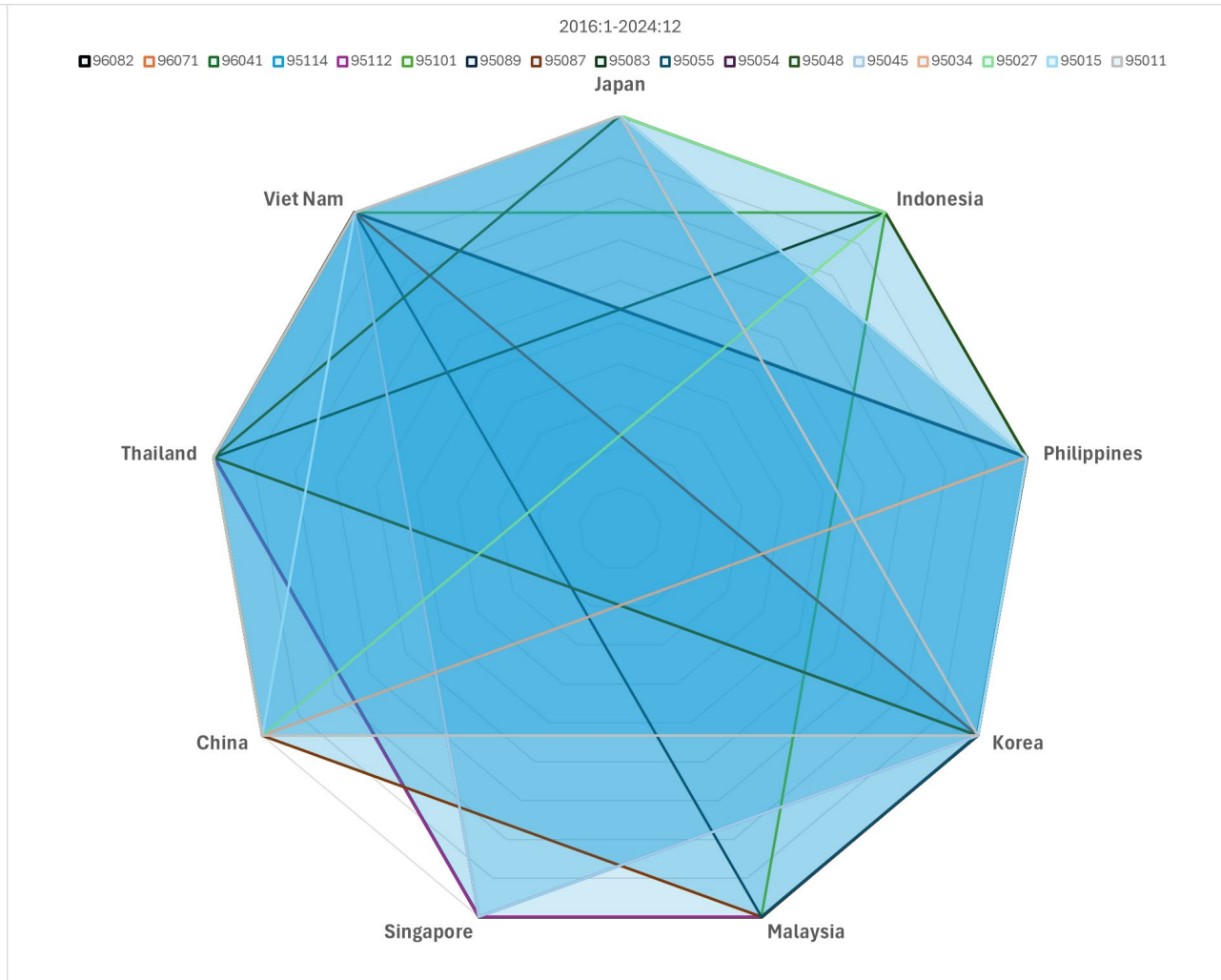
$$\mathbf{Z} \cdot \mathbf{F} \cdot \mathbf{re}_{US} = \mathbf{Z} \cdot (\mathbf{F}_1 \cdot \mathbf{re}_{US} + \mathbf{F}_2 \cdot \mathbf{re}_{EU,US}) = 0 \quad \mathbf{Z} = \alpha' \beta$$

(n+1)x(n+1) (n+1)x1 (n+1)xn nx1 (n+1)x1 1x1

Checking OCA Condition by G-PPP Model



2008:01-2016:12



2016:01-2024:12

3. Previous research on basket currency weights

Previous research on currency basket weights

- Han (2000) “Choice of currency basket weights and its implications on trade balance” IREF
 - The optimal choice of currency basket weights should consider both trade balance and consumer price index.
- Yoshino, Kaji and Suzuki (2004) JJIE
 - The basket currency weights of currencies depends on the specific policy goals. If these weights are not optimally set—such as using trade weights—it becomes difficult to achieve policy objectives.
- Shioji (2006) “Invoicing currency and the optimal basket peg for East Asia: Analysis using a new open economy macroeconomic model JJIE
 - This paper analyzes the optimal currency basket peg and the role of the invoicing currency in East Asia using a new open economy macroeconomic model.
- Xu (2011) “The optimal currency basket under vertical trade” JIMF
 - Theu focus on an economy with vertical trade, where the currencies in the basket may play different roles in invoicing trade flow.
- McCauley and Chang (2018) “Recent RMB policy and currency co-movements” BIS
 - Financial links such as investment flows, market correlations, and portfolio adjustments create interdependencies that drive currency co-movement, especially in regions with strong economic and financial ties.

Yoshino, Kaji and Suzuki (2004) JJIE

- The choice of an exchange rate regime should align with a country's specific policy goals.
- **A basket-peg with trade weights is not always optimal, as it requires frequent adjustments and may not achieve desired outcomes.**
 - While a basket-peg can reduce intervention needs and spread the impact of exchange rate changes, its benefits depend on trade diversification and optimal weight calculations, which are complex.
 - A dollar-peg is best for stabilizing the exchange rate against the dollar, while a floating regime is ideal for maintaining monetary policy autonomy, provided it is used wisely.
- Ultimately, countries must carefully evaluate their goals and economic context to select the most suitable regime.

Shioji (2006) JJIE

- This paper analyzes the optimal currency basket peg and the role of the invoicing currency in East Asia using a new open economy macroeconomic model.
 - **Producer Currency Pricing (PCP)**
 - A monetary expansion in Japan leads to a trade deficit in Asia (around 6% of GDP), while a monetary expansion in the US leads to a surplus.
 - A 50:50 basket weight between the yen and the dollar stabilizes the trade balance.
 - **Local Currency Pricing (LCP)**
 - Asia's trade balance remains virtually unaffected by monetary policies in Japan or the US.
 - Since prices are independent of shocks, the choice of exchange rate regime has little effect.
 - **US Currency Pricing (UCP)**
 - A monetary expansion in Japan leads to a trade deficit in Asia, while a US monetary expansion leads to a surplus, though the effects are weaker than under PCP.
 - A basket weight of approximately 80% for the yen is required to stabilize the trade balance.
 - **Invoicing Currency Pricing (ICP)**
 - Similar to UCP but incorporates more realistic invoicing currency shares.
 - A basket weight of approximately 80% for the yen stabilizes the trade balance.
- **ICP is better than other pricing regimes for Asia because it incorporates the dominant role of the USD in invoicing**, provides more realistic insights into trade dynamics, and helps design more effective exchange rate policies to stabilize trade balance and other economic variables.

Xu (2011) JIMF

- It explores the optimal currency basket in the context of vertical trade and focuses on the different roles by the invoicing currency of import and export.
- The optimal weights of a currency basket are determined by the following factors:
 - **Structure of Vertical Trade**
 - **Elasticity of Substitution between Imported Intermediate Goods and Domestic Labor:** Higher elasticity increases the importance of stabilizing the import currency.
 - **Share of Intermediate Goods:** A higher share of intermediate goods in traded goods production increases the weight of the import currency.
 - Trade-off between Export Revenue and Import Cost Stability
 - Price Rigidity
 - **Exchange Rate Policies of Other Countries:** The choice of weights depends on whether other Asian economies peg their currencies to the US dollar or adopt flexible exchange rate regimes.
 - Impact of External Shocks
- Vertical trade plays a critical role in determining the composition of currency baskets for small open economies. Its influence can be summarized as follows:
 - Differentiation of Currency Roles
 - In vertical trade, one currency is used to invoice imported intermediate goods (import currency), while another is used to invoice exported finished goods (export currency).
 - Trade-Off Between Revenue and Cost Stability
 - Impact of Trade Structure
 - **Regional and Global Linkages**
 - Vertical trade links economies through production networks, making exchange rate policies of other countries relevant.

McCauley and Chang (2018) BIS

- Recent RMB policies have significantly influenced the co-movement between the RMB and other Asian and emerging market currencies.
 - The strongest co-movement observed during the basket management period (Feb 2016-May 2017), then co-movement declined in May 2017-July 2017.
 - Trade links significantly influence currency co-movement by aligning the economic and financial dynamics of trading partners.
- Financial links play a crucial role in influencing currency co-movement by connecting economies through investment flows, portfolio behavior, and market correlations.
 - **Cross-boarder investment Flows** :FDI and portfolio investments lead to closer currency co-movement with RMB.
 - **Stock market correlation** : Shanghai and HK stock Markets
 - **Bond Market connections**
 - **Portfolio Behavior**: if the RMB shows lower exchange rate risk relative to the dollar, it may attract more investment.
 - Monetary Policy Influence: Similar monetary policies across countries can lead to synchronized currency movements.
- Above financial links create interdependencies that drive currency co-movement, especially in regions with strong economic and financial ties.

In this paper's

- From the above-mentioned previous research, we focus on the following factors as currency basket weights in Asia:
 - Exchange Rate Policies
 - Invoice currency share
 - Cross-border Investment Flows
 - Structure of Vertical Trade
- In future research, we consider the following:
 - Structure of Vertical Trade
 - Share of Intermediate Goods
 - Share of local contents
 - Input-Output table
 - Inflation gaps and interest rate differentials
 - Stock and Bond market correlation

4. Considering Basket weights
from several factors

Exchange Rate Policies of Member Countries

Country	Currency	2017-2019		2023-2025		Country	Currency	2017-2019		2023-2025	
China	USD	0.6889	*** (0.0623)	0.6621	*** (0.0389)	Malaysia	USD	0.4011	*** (0.0651)	0.1035	(0.0968)
	JPY	0.0599	(0.0497)	0.1044	*** (0.0311)		JPY	0.0069	(0.0361)	0.1232	* (0.0470)
	EURO	0.1650	** (0.0644)	0.1044	** (0.0524)		EURO	0.1438	*** (0.0493)	0.0677	(0.0774)
	AUD	0.1115	(0.0693)	0.1758	*** (0.0568)		CNY	0.3976	*** (0.0624)	0.5041	*** (0.1184)
Brunei	USD	0.3045	*** (0.0407)	0.3125	*** (0.0379)	AUD	-0.0021	(0.0520)	-0.0238	(0.0854)	
	JPY	0.0930	*** (0.0226)	0.1191	*** (0.0184)	Philippines	USD	0.8372	*** (0.0911)	0.4412	*** (0.0902)
	EURO	0.2190	*** (0.0308)	0.2471	*** (0.0304)		JPY	-0.0377	(0.0506)	0.0607	(0.0438)
	CNY	0.1508	*** (0.0390)	0.1403	*** (0.0464)		EURO	-0.0185	(0.0690)	0.1198	* (0.0721)
	AUD	0.2039	*** (0.0325)	0.1060	*** (0.0335)		CNY	0.1280	(0.0874)	0.2854	** (0.1103)
USD	0.9622	*** (0.0636)	0.9996	*** (0.0339)	AUD		0.0054	(0.0728)	-0.1670	** (0.0796)	
Cambodia	JPY	0.0173	(0.0353)	0.0008	(0.0165)	Singapore	USD	0.3156	*** (0.0463)	0.3368	*** (0.0409)
	EURO	0.0087	(0.0482)	-0.0371	(0.0271)		JPY	0.1165	*** (0.0257)	0.1220	*** (0.0199)
	CNY	0.0092	(0.0611)	0.0148	(0.0415)		EURO	0.1939	*** (0.0350)	0.2137	*** (0.0327)
	AUD	-0.0062	(0.0508)	0.0380	(0.0299)		CNY	0.1512	*** (0.0444)	0.1184	** (0.0500)
	USD	0.4549	*** (0.0884)	0.3357	*** (0.1015)		AUD	0.2220	*** (0.0369)	0.1239	*** (0.0361)
Indonesia	JPY	0.0010	(0.0491)	0.0836	* (0.0493)	Thailand	USD	0.4415	*** (0.0788)	-0.1066	(0.1044)
	EURO	-0.0802	(0.0670)	0.1332	(0.0812)		JPY	0.1922	*** (0.0437)	0.2072	*** (0.0507)
	CNY	0.3208	*** (0.0849)	0.3371	*** (0.1242)		EURO	0.1100	* (0.0597)	0.0835	(0.0836)
	AUD	0.2698	*** (0.0706)	0.1295	(0.0896)		CNY	0.0385	(0.0756)	0.4951	*** (0.1277)
	USD	0.3009	** (0.1367)	-0.1408	(0.1168)		AUD	0.1678	*** (0.0629)	0.2077	(0.0922)
South Korea	JPY	0.1017	(0.0759)	0.3093	*** (0.0567)	Vietnam	USD	0.9625	*** (0.0258)	0.6274	(0.0672)
	EURO	0.0893	(0.1035)	0.1666	* (0.0934)		JPY	-0.0078	(0.0143)	-0.0147	*** (0.0327)
	CNY	0.1219	(0.1312)	0.2924	** (0.1428)		EURO	-0.0220	(0.0196)	-0.0002	(0.0538)
	AUD	0.4918	*** (0.1092)	0.3303	*** (0.1031)		CNY	0.0679	*** (0.0248)	0.4177	*** (0.0822)
Lao PDR	USD	0.9637	*** (0.0296)	0.8261	*** (0.0771)	AUD	0.0082	(0.0206)	-0.0641	(0.0593)	
	JPY	0.0152	(0.0164)	0.0302	(0.0375)						
	EURO	0.0436	* (0.0224)	0.0491	(0.0617)						
	CNY	-0.0116	(0.0284)	0.0987	(0.0944)						
	AUD	-0.0336	(0.0237)	0.0973	(0.0681)						

*** p<0.01, ** p<0.05, * p<0.1

All exchange rates are on a weekly basis, and we use NZD/USD exchange rates as a numeraire
 Estimated by Frankel & Wei
 Regression Model

Findings from De-fact currency basket of Asian Currencies

- The results of the FW regression model confirmed the following:
 - Cambodia and Laos remain the countries closest to a dollar peg. Cambodia had a renminbi weight of about 10% before COVID-19, but this linkage has recently disappeared.
 - Countries where the dollar weight has decreased include Indonesia, South Korea, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. Among these, the CNY weight has increased in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.
 - In the recent period, it became clear that a basket system consisting of major currencies plus the CNY has been established in Singapore (Brunei) and Thailand.
 - Compared to the pre-pandemic period, it was confirmed that many Asian currencies have recently seen a decline in their USD correlation weight, with the CNY's correlation weight increasing instead.

Invoice Currency Share in the intra-regional trade

- Japan, Thailand, South Korea, and Indonesia have published data on invoice currency shares by trading partner, allowing us to observe the use of local currencies in intra-regional trade.
- Japan's data shows that 46.3% of exports to Asia and 24.2% of imports are denominated in yen.
- By partner country, Thailand has the highest share of exports denominated in its own currency at 14.9%, followed by China at 11.6%. For imports, Thailand has the highest share denominated in its own currency at 18.9%, followed by China at 8.1%.
- In recent years, the share of Asian local currencies in Asian trade has been gradually increasing.

Invoice Currency Share in Japan, 2024

Japan					
	Destination	USD	Euro	JPY	LCY
Export to	World	50.4	5.9	36.5	2.0(CNY)
	Asia	46.4		46.3	3.6(CNY)
	China	40.1	0.3	47.9	11.6
	Korea	42.3	0.2	51.0	6.4
	Thailand	44.8	0.2	39.8	14.9
	Viet Nam	66.9	0.1	32.5	0.4
	Hong Kong	44.4		53.8	1.4
	Malaysia	42.3	0.2	54.7	2.7
Import from	World	67.4	3.3	25.3	1.9(CNY)
	Asia	69.1	0.4	24.2	3.8(CNY)
	China	71.0	0.5	20.1	8.1
	Korea	45.4	0.2	49.5	4.8
	Thailand	51.8	0.4	28.7	18.9
	Viet Nam	75.4	0.2	24.3	0.1
	Hong Kong	42.2	0.2	55.4	1.0
	Malaysia	76.1	0.5	20.9	1.4

Source: Ministry of Finance, Japan

Note: LCY is each currency of each destination country.

Data from Thailand, Korea, Indonesia & China

- According to Thai data, the share of baht-denominated trade within ASEAN stands at 25% for exports and 17.0% for imports.
- According to Indonesian data, the share of dollar-denominated trade in global exports is over 90%, while for imports, CNY-denominated trade accounts for 8.8%, rupiah-denominated trade for 3.1%, and yen-denominated trade for 2.2%.
- According to South Korean data, the yen-denominated share is high for exports to Japan at 38.4% and imports from Japan at 43.4%, compared to the US dollar. The CNY-denominated share is 7.1% for exports to China and 13.7% for imports from China. The won-denominated share is 6.2% for exports to Japan and 7.1% for imports from Japan, the highest within the region.
- China's data encompasses both trade and capital transactions. The CNY share of global receipts stands at 46.2%, while the CNY share of global payments is 52.2%, with both figures representing roughly half of the total.

Invoice Currency Share in Thailand Indonesia Malaysia in 2024

Thailand

	Destination	USD	Euro	JPY	Baht	CNY
Export to	World	76.4	2.2	2.3	15.9	1.1
	ASEAN	71.7	0.5	0.5	25.0	-
	Japan	55.7	-	21.5	22.5	-
Import from	World	79.9	3.4	3.5	7.7	3.8
	ASEAN	83.2	0.5	1.1	13.0	-
	Japan	50.2	-	32.2	17.0	-

Source: Bank of Thailand

Indonesia

	Destination	USD	Euro	JPY	Rupiah	CNY	SGD	Baht	MYR
Export to	World	92.3	0.7	0.9	1.2	3.5	0.4	0.1	0.1
Import from	World	76.1	3.6	2.2	3.1	8.8	1.6	0.3	0.3

Source: Bank of Indonesia

Malaysia

Top Currency	% (2009)	% (2023)
USD	82.9	82.1
EUR	5.0	4.3
MYR	1.3	3.6
CNY	0.0	2.9
SGD	3.7	2.6
JPY	3.4	1.9
Others	3.7	2.5

Source: Bank Negara Malaysia

Increasing Share of LC used for Regional Trade

	% (2009)	% (2023)
Trade with China	1	24
Trade with Thailand	6	19
Trade with Indonesia	4	8

Source: Bank Negara Malaysia

Invoice Currency Share in China & Korea, 2024

Korea

	Destination	USD	Euro	JPY	Won	CNY
Export to	World	844.5	6	2	2.7	1.5
	Japan	54.9	0.5	38.4	6.2	-
	China	88.6	0.6	1.3	2.4	7.1
	Southeast Asia	95.8	0.5	0.3	1.8	-
Import from	World	80.3	5.7	3.7	6.3	3.1
	Japan	49	0.3	43.4	7.1	-
	China	80.9	1.3	0.6	3.4	13.7
	Southeast Asia	93.6	1.1	0.9	3.5	-

Source: Bank of Korea

China

	Destination	USD	Euro	JPY	CNY	HKD	Others
Receipt	World	46.2	1.9	0.5	46.2	0.8	0.3
Payment	World	41.8	2.5	1.1	52.2	1.1	1.3

Source: State Administration of Foreign Exchange, China

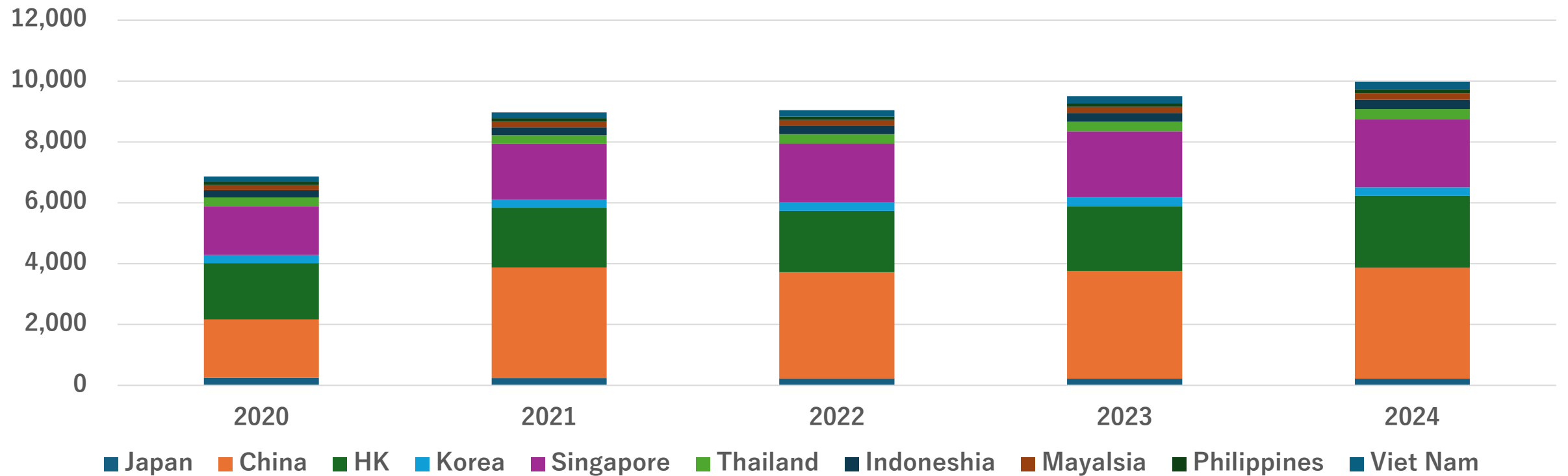
Note: This data includes both trade and financial account transactions.

Inward FDI position within the region

- Summarizing trends in inward foreign direct investment within Asia reveals the following.
 - Within the region, China receives the most inward FDI, followed by Hong Kong and Singapore.
 - The highest inward FDI ratios from within the region are in Indonesia (88.2%), followed by Vietnam (74.8%), China (72.0%), and Thailand (67.1%).
 - China and HK each have the highest direct investment from their respective countries. Approximately 60% of inward FDI into China originates from HK.
 - The countries with the highest share of FDI from Japan are Thailand (27.1%), South Korea (17.7%), and the Philippines (15.8%).
 - Singapore directs significant FDI to neighboring ASEAN countries, with the highest shares going to Indonesia (42.4%), Malaysia (25.4%), and Thailand (22.6%).
- Intra-regional inward FDI flows show a gradual upward trend, with substantial inflows originating from China, HK, and Singapore.

Inward FDI Stock in the region (billions of US\$)

FDI Stock (Inward) in the region (billions of US\$)



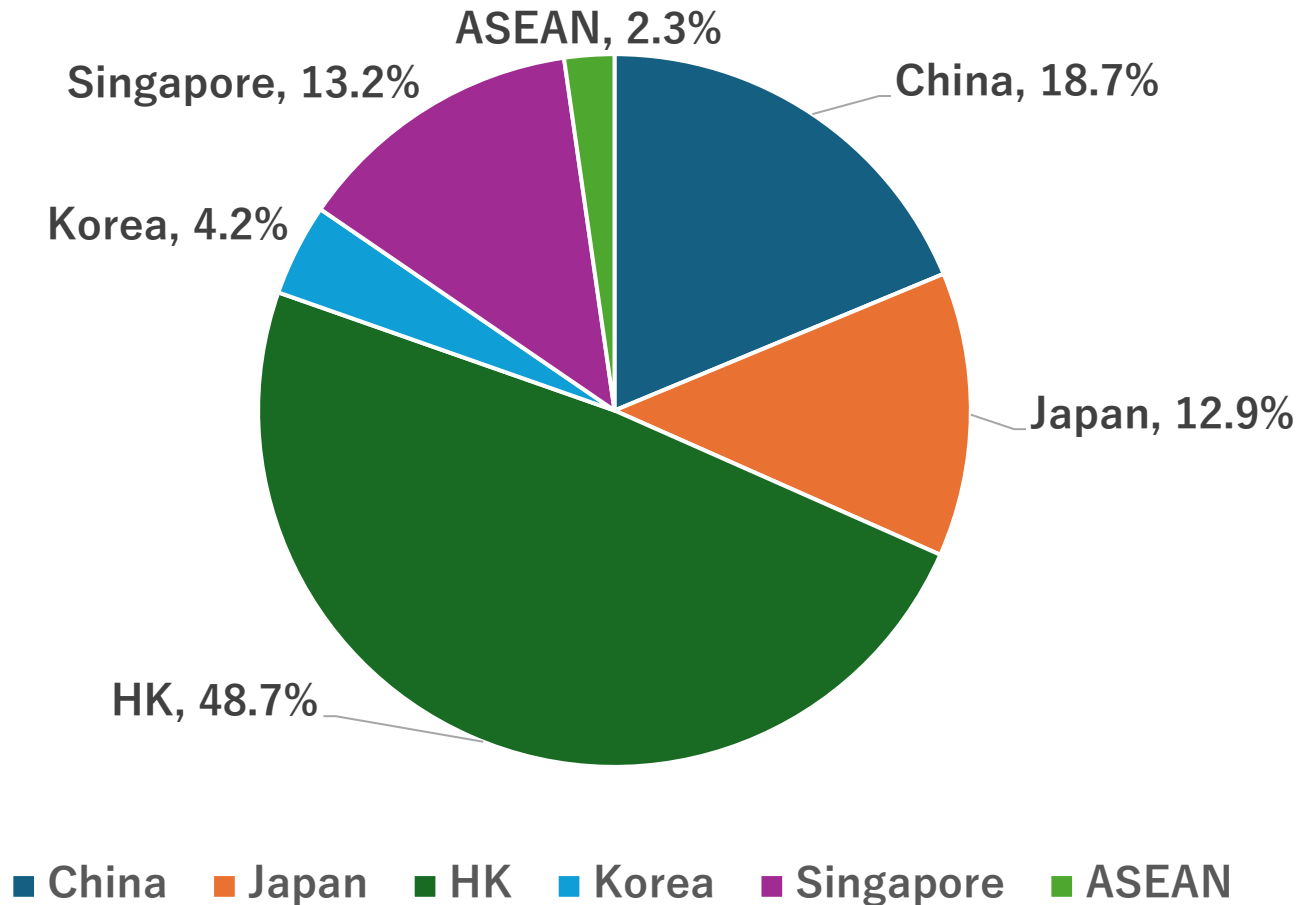
Source: Unctad

Inward FDI investment positions within the region as of 2024

	Japan	China	HK	Korea	Singapore	Thailand	Indonesia	Malaysia	Philippines	Vet Nam
Inword FDI Stock (billions of US\$)	220	3,650	2,351	287	2,231	337	306	223	126	249
Share from the region	26.6%	72.0%	32.6%	44.4%	17.7%	67.1%	88.2%	55.6%	42.2%	74.8%
from China	1.3%	-	31.1%	16.7%	2.4%	5.5%	8.1%	3.7%	4.4%	8.4%
from Japan	-	4.6%	1.5%	17.7%	6.4%	27.6%	21.1%	10.2%	15.8%	13.8%
from HK	8.1%	59.2%	-	2.9%	3.9%	8.5%	7.6%	13.3%	0.6%	9.3%
from Korea	2.7%	2.2%	0.0%	-	1.6%	1.3%	4.5%	2.9%	7.4%	19.1%
from Singapore	14.0%	6.0%	1.9%	7.0%	-	22.6%	42.4%	25.4%	12.6%	20.0%
from ASEAN (excl. Singapore)	0.5%	0.0%	0.0%	0.0%	3.5%	1.6%	4.5%	0.0%	1.5%	4.2%

Source: Unctad, IMF, STATISTICAL BULLETIN OF FDI IN CHINA 2024

Investment country' s share of Inward FDI within the region (%)



How to capture the structure of Vertical Trade

- GDP does not include income received from abroad, such as income earned by overseas branches through business activities abroad.
 - Trade (transaction) amounts tend to increase significantly as they move downstream in the supply chain.
- How should we interpret the current situation where Japan's exports (i.e., domestic production activities) are declining, while the primary income balance (i.e., profits earned through overseas investments or business activities) is increasing?
- As one approach, we can combine GDP and primary income flow within the region.
 - Specifically, this paper focuses on data from Japan and South Korea, which have positive income balances from within the region.

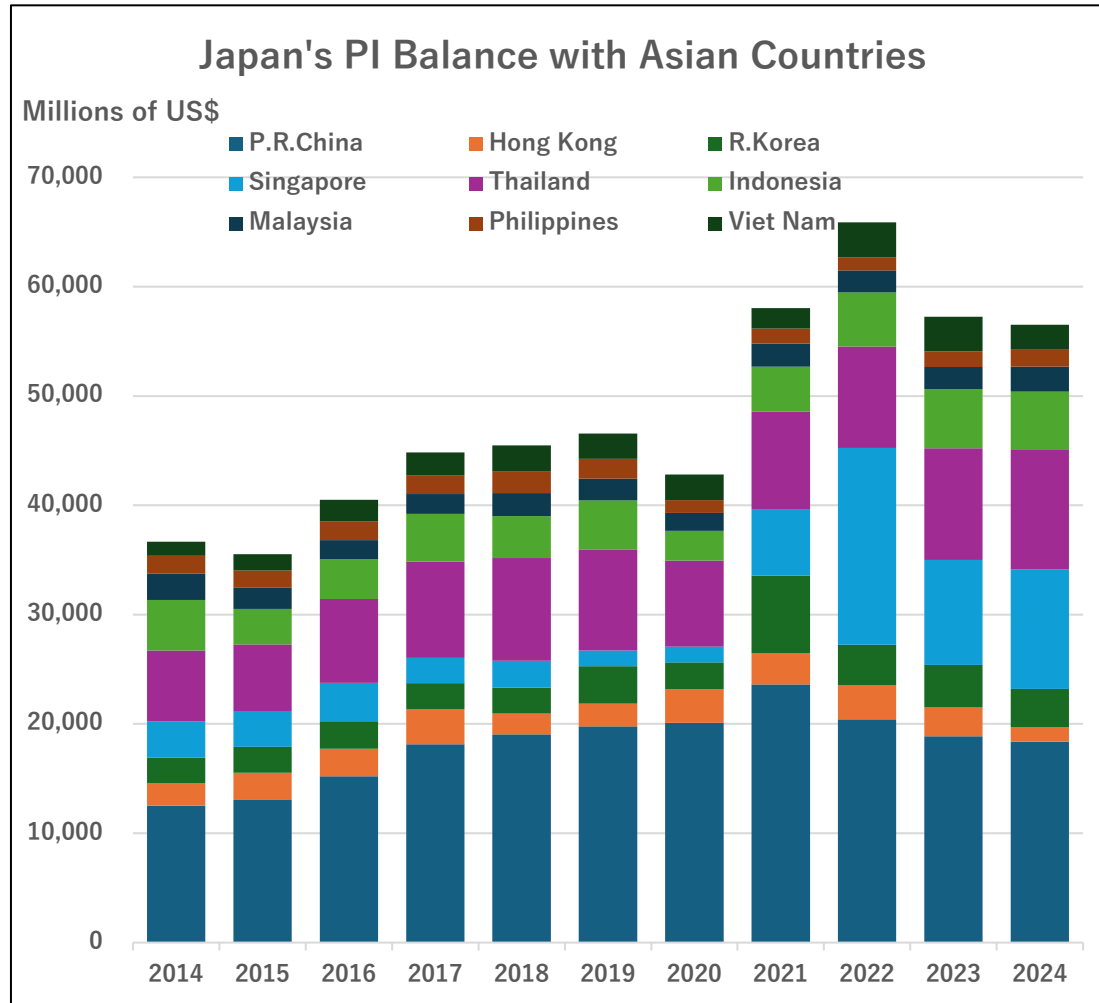
Share (%) of GDP + Primary Income (USD measured)

	Share (%) of GDP + Primary Income (USD measured)*						Share (%) of GDP (USD measured)	Share (%) of GDP (PPP measured)
	2001	2005	2010	2015	2020	2023	2023	2025 (RIETI HP**)
Brunei	0.09%	0.12%	0.09%	0.07%	0.05%	0.06%	0.06%	0.07%
Cambodia	0.06%	0.07%	0.09%	0.12%	0.14%	0.15%	0.15%	0.18%
China	19.20%	25.13%	40.28%	56.51%	59.76%	64.40%	64.85%	61.57%
Indonesia	2.23%	3.02%	4.88%	4.27%	4.23%	4.87%	5.00%	8.01%
Japan	64.61%	54.69%	39.30%	23.72%	21.48%	16.28%	15.32%	12.27%
South Korea	7.91%	10.26%	7.59%	7.55%	6.80%	6.35%	6.24%	5.38%
Laos	0.03%	0.03%	0.05%	0.07%	0.07%	0.05%	0.06%	0.14%
Malaysia	1.25%	1.52%	1.64%	1.51%	1.36%	1.42%	1.46%	2.27%
Myanmar	-	-	-	-	-	-	-	0.61%
Philippines	1.15%	1.19%	1.39%	1.58%	1.50%	1.61%	1.59%	2.28%
Singapore	1.30%	1.34%	1.58%	1.47%	1.25%	1.49%	1.83%	1.48%
Thailand	1.71%	2.00%	2.17%	1.95%	2.01%	1.83%	1.88%	3.11%
Vietnam	0.47%	0.62%	0.95%	1.17%	1.36%	1.49%	1.57%	2.64%

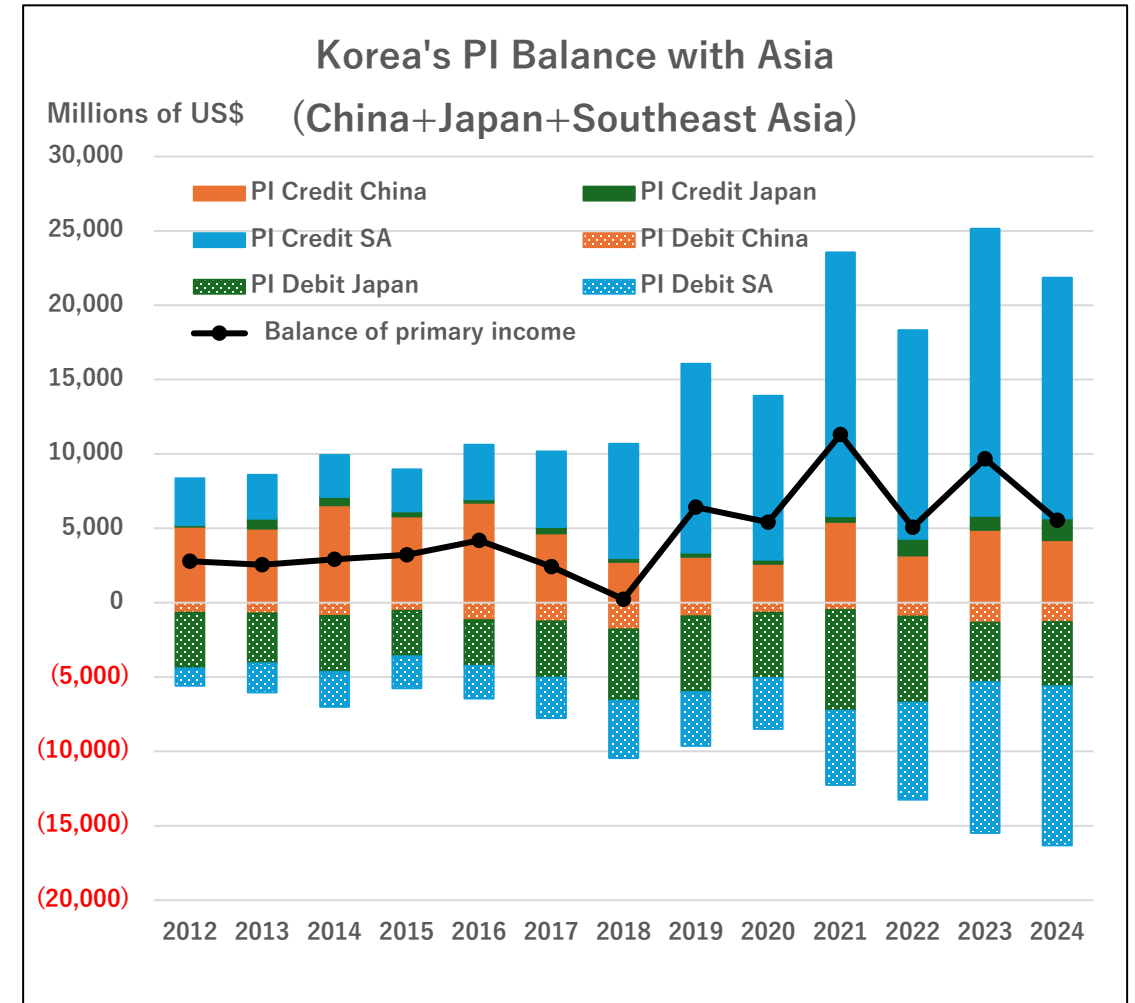
* Nominal GDP and Primary Income (USD) obtained from CEIC Database

** Table 2 from RIETI HP “AMU and AMU Deviation Indicators,” (<https://www.rieti.go.jp/users/amu/en/detail.html#01>) 37

Primary Income within the region



Source: Ministry of Finance, Japan



Source: Bank of Korea

5. Conclusion

Summary: Direction of AMU's Currency Basket Share in Future

- We confirm the recent conditions of Asian countries as follows.
 - Checking OCA condition by G-PPP Model, we confirm that OCA conditions are not met in all ASEAN+4 countries, but it has been confirmed that they are in place in multiple ASEAN countries, including Japan, China and Korea.
 - In intra-regional trade, the use of Asian local currencies such as the CNY and baht is increasing alongside the yen, and accordingly, the share of renminbi pegs is rising in the exchange rate policies of Asian countries.
- The AMU basket weights can incorporate not only traditional trade weights and GDP but also factors such as each country's exchange rate policy, the share of invoicing currencies in intra-regional trade, the share of intra-regional FDI, and the share of intra-regional Primary Income.

Possible AMU Currency Basket Weight

	Trade Volume	PPP-GDP	Exchange Rate Policy	Invoice Currency Share	Intra Inward FDI	Intra PI Balance
Brunei	0.26	0.07				
Cambodia	0.61	0.18				
China	35.27	61.57	○○○	○○	○○	
Hong Kong					○○○	
Indonesia	5.37	8.01				
Japan	14.6	12.27	○○	○○○	○○	○○○
Korea	12.42	5.38			○	○
Lao	0.34	0.14				
Malaysia	6.72	2.27				
Myanmar	0.57	0.61				
Philippines	1.5	2.28				
Singapore	8.8	1.48	○		○○	
Thailand	5.6	3.11		○		
Viet Nam	7.95	2.64				

Current AMU Weights

Possible candidates for basket weights

Remaining Challenges

- Regarding Asian production networks and vertical trade, this paper has substituted primary income balance data.
 - However, in the future, it will be necessary to construct more comprehensive data using value-added trade and/or Input-Output Tables to address basket weights.
- Although using the OCA criteria to determine the target countries for the AMU is a fundamentally sound approach, not all ASEAN+4 countries qualify as OCAs presently.
 - We want to expand our OCA analysis by including India and Chinese Taipei, as well as considering neighboring Oceania countries. We will also explore the potential for expanding the currency area.
- This paper does not explicitly address differences in prices and interest rates.
 - Nevertheless, significant disparities in prices and interest rates persist between Japan and other Asian countries, and how to account for this impact requires separate consideration.

Thank you very much!