

On Monetary Cooperation in East Asia

In View of Experience with the
European Monetary Cooperation

Soko Tanaka

Experience with European Monetary Cooperation

- 4 Institutional Components of the EMS
- Collective Foreign Exchange Rate System: ERM → fixed exchange rate system: Central Rates $\pm 2.25\%$ Band ($\pm 15\%$ from 1993 to 1998)
- Supporting Credit Mechanism
- Surveillance Mechanism
- Currency Basket or Basket Currency: ECU

European M. Cooperation – Why?

- Smithsonian Band (Central Rate in US\$ $\pm 2.25\%$) \rightarrow Intra-EC Band Too Wide ($\pm 4.5\%$) \rightarrow Narrowing Band ($\pm 2.25\%$) in 1972
- Avoidance of Currency Turmoil or Currency Divide (\rightarrow Economic Stagnation) inside the region
- Capital Swings between \$ & DM \rightarrow Independence from the US dollar
- European Single Currency in the future (1980s)

3 Steps of Euro. M. Cooperation

- 1970s: Wreck of Cooperation due to Conflicts of Monetary Policy (Price Stability vs. Growth)
- 1980s: Convergence of Price Trends – from Crawling Peg to Fixed Rate
- Narrow Band vs. Capital Liberalization → EMS Crisis in 1992/93
- Widening of Band: $\pm 15\%$ in 1993 → Speculation-proof → Single Currency

East Asian Forex Rate Cooperation

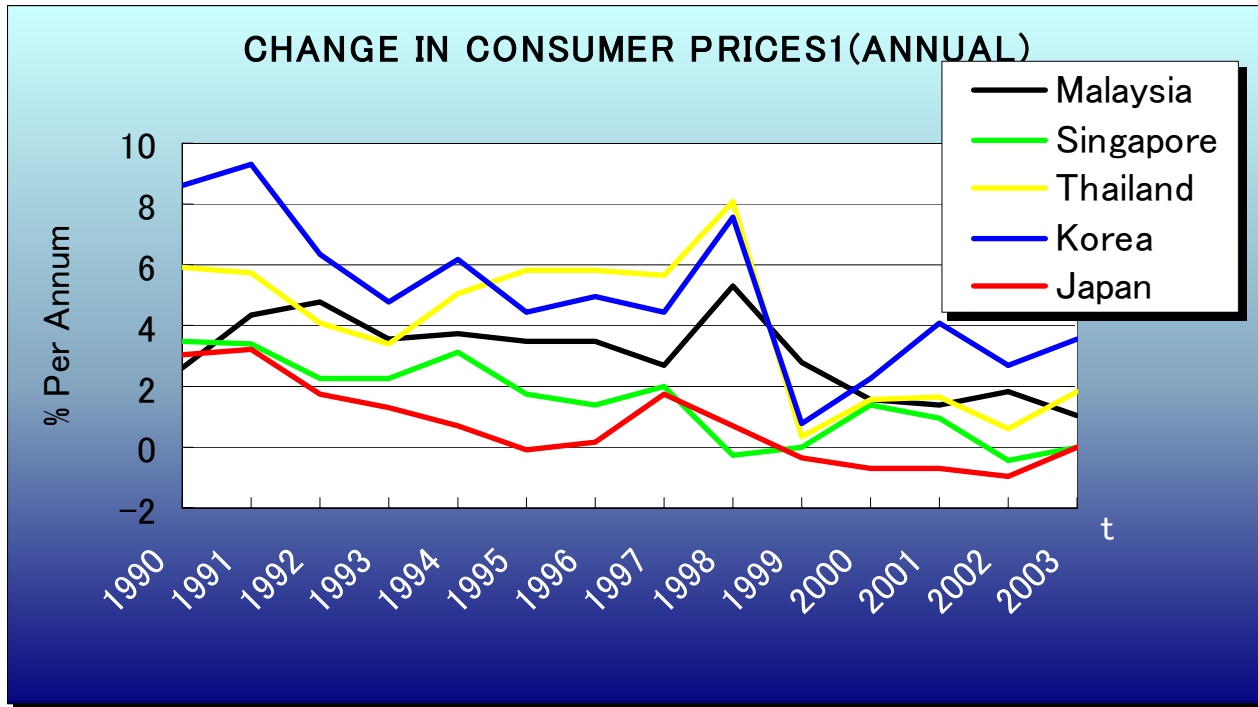
– Why now?

- Growing global imbalances: East Asia vs. United States – Possible “Big Fall” of US\$ & Currency Turmoil in East Asia
- Transition to more flexible foreign exchange regime of Chinese yuan (RMB)
- Background: (1) Rising interdependence of the intra-regional trade and FDI, (2) Developing FTA building in East Asia

Framework: ASEAN + 3

- Asian Currency Crisis in 1997/98
- Chiang Mai Initiative (CMI)
- Summit Conference, Conferences at Ministerial Level (Trade, Foreign, Finance)
- Setting: (1) Enlarged fund of CMI + Forex Rate Regime under Finance Minister Conference, (2) Permanent Office for Cooperation

Time to Go: Price Stability



Price Rise in East Asia: Comparable to Middle of 1980s in Europe

Trinity Problem in East Asia

- Exchange Control → Forex Rate Stability + Monetary Policy Independence
- Room for Maneuver - Monetary Policy Independence + Free Movement of Capital + Relative Forex Rate Stability by Massive Intervention (Japan)

Factors to be taken into account for a Forex Rate Cooperation

- To Avoid Excessive Dependence on US Dollar: 1997/98 Crisis
- To Reflect Competitiveness of Members
- To be Flexible about Shocks

→ Crawling Band System with Wide Fluctuation Band

DEY Baskets for Reference Rate

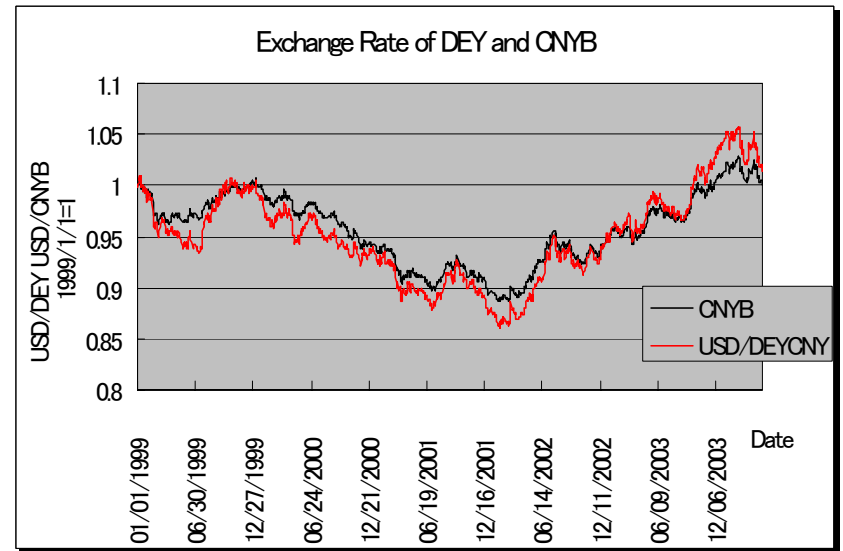
- Currency Basket Composed of US Dollar, Euro and Yen → DEY basket
- No Trade-Weighted Basket (10 most important trade partners): too much dollar weight → Ex: Singapore \$: USD 24%, E 22%, Y 20%, Others 34% → USD about 58% (Malaysia, China and Hong Kong)
- Trade Partners: Only USA, EU and Japan

CNYB And DEY of CNY

Number of Unit and Weight of basket CNYB

		weight	Number of Unit
JPY	US\$/JPY	19.60%	22.19169
USD	US\$/US\$	18.08%	0.18082
Euro	US\$/Euro	16.51%	0.14140
HK\$	US\$/HK\$	12.65%	0.97953
Baht	US\$/Baht	1.67%	0.60934
S\$	US\$/S\$	2.69%	0.04441
Ringgit.	US\$/Ringgit	2.79%	0.10602
Rupiah	US\$/Rupiah	1.53%	121.06834
Pesos	US\$/Pesos	1.02%	0.39627
NTD	US\$/NTD	8.97%	2.88451
KRW	US\$/KRW	8.62%	103.40749
RUB	USD/RUB	2.35%	0.49085
AUD	US\$/AUD	2.02%	0.03291
CAD	US\$/CAD	1.51%	0.02312

Weighted by exchange rate on Jan 1, '99 and trade of '02



How to make a currency basket DEY

- Trade weight of USA, EU and Japan for each country in 1998 (USA + EU + Japan = 100.0%) → Previous Year of Start of Cooperation
- Exchange Rate of \$, Euro and Yen on the previous day of Start of Cooperation into DEY Equation (Other methods)
- Revision of the Baskets: Every Five Years

DEY Baskets

Weight of 3 Currencies in basket DEY

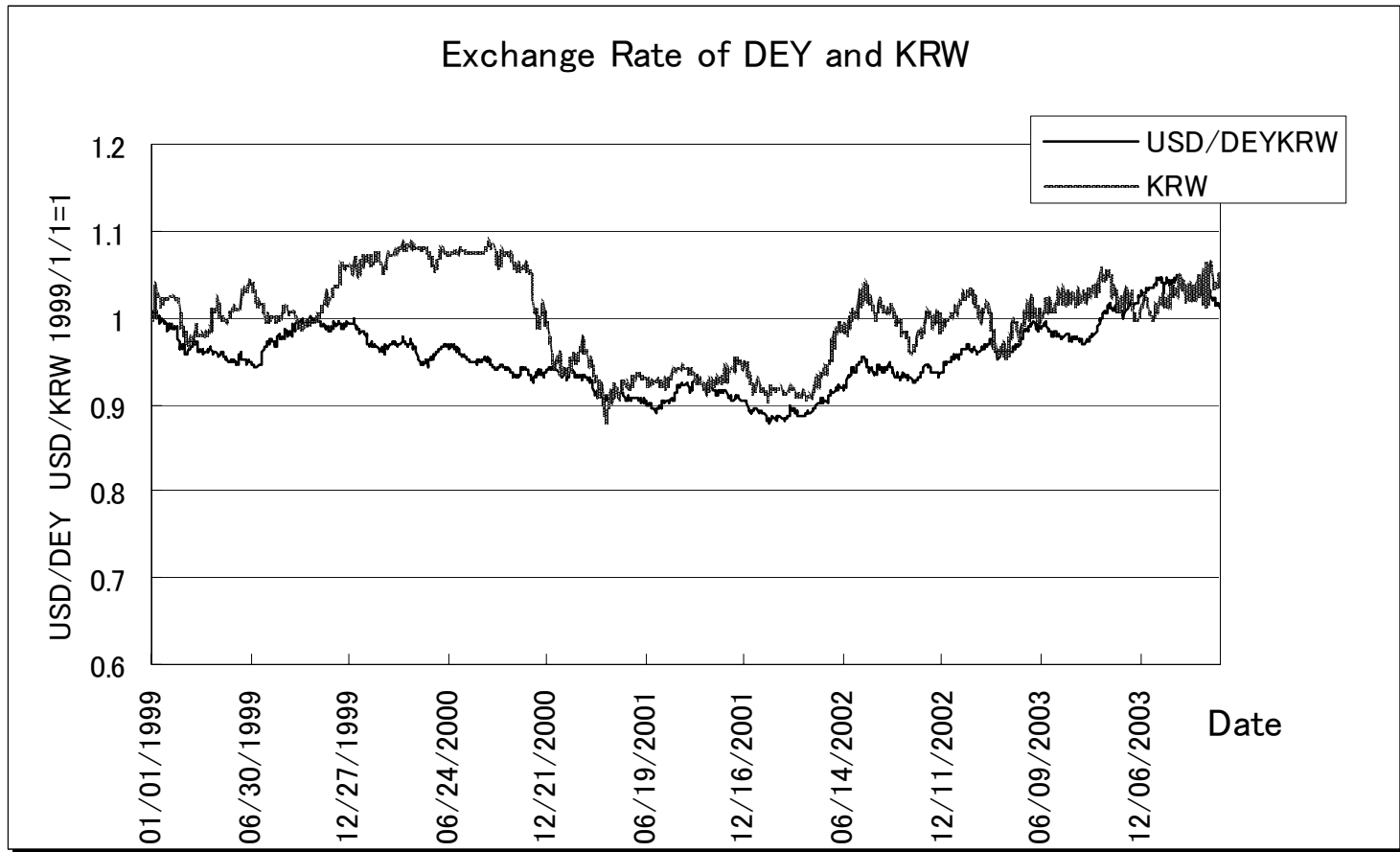
	USD	EURO	JPY
DEY _{CNY}	32.69%	30.38%	36.93%
DEY _{Bhat}	34.79%	28.87%	36.34%
DEY _{KRW}	42.70%	28.40%	28.90%
DEY _{S\$}	42.33%	32.85%	24.82%
DEY _{Ringgit}	41.57%	28.32%	30.11%
DEY _{Rupiah}	27.59%	37.68%	34.73%
DEY _{Pesos}	46.40%	23.45%	30.15%
DEY _{HK\$}	38.50%	35.07%	26.43%

Number of Units of Each Currency

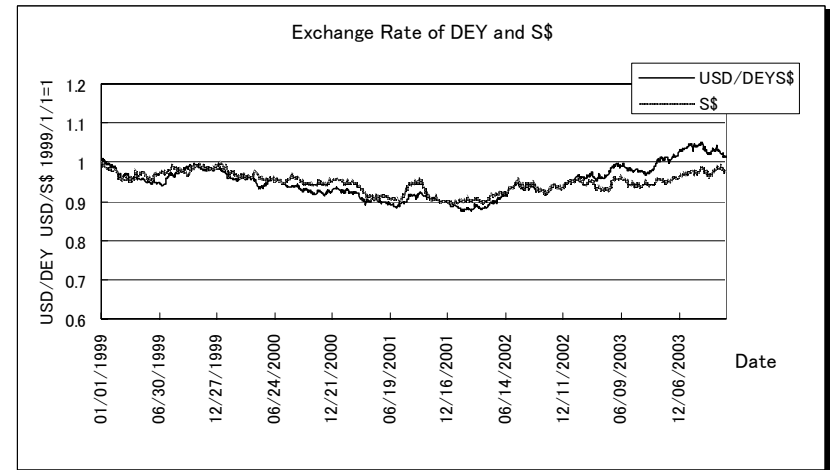
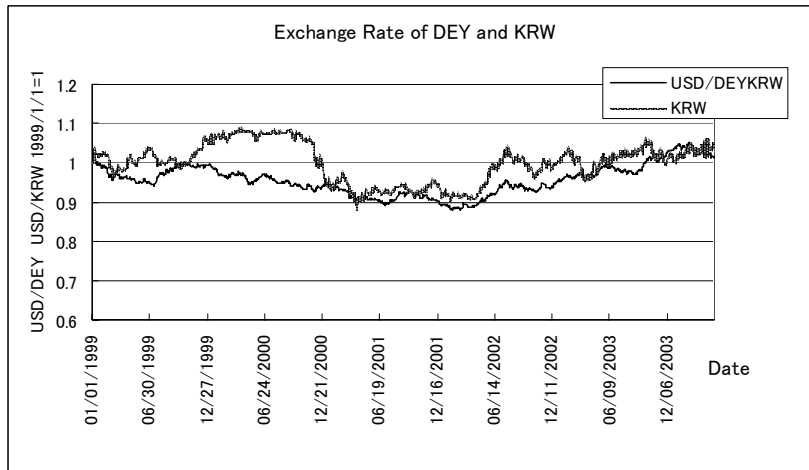
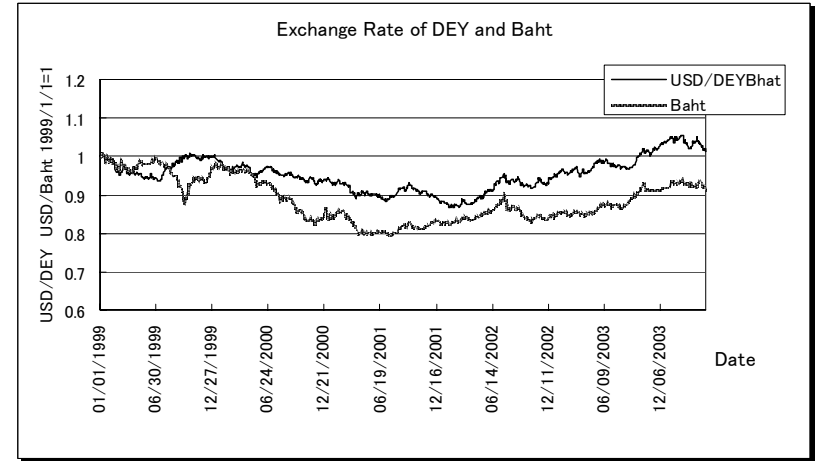
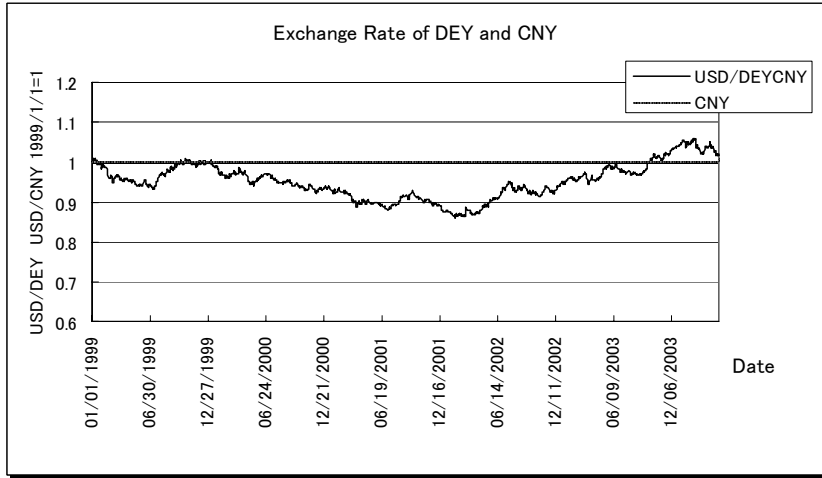
	USD	EURO	JPY
DEY _{CNY}	0.32687	0.26026	41.81465
DEY _{Bhat}	0.34794	0.24729	41.14378
DEY _{KRW}	0.42698	0.24327	32.72536
DEY _{S\$}	0.42332	0.28138	28.10228
DEY _{Ringgit}	0.41572	0.24261	34.08655
DEY _{Rupiah}	0.27593	0.32274	39.32284
DEY _{Pesos}	0.46399	0.20091	34.13360
DEY _{HK\$}	0.38505	0.30038	29.92360

- $1 \text{ DEY}_{\text{KRW}} = 0.42698\$ + 0.24327\text{E} + 32.725\text{¥}$
- $1 \text{ DEY}_{\text{Baht}} = 0.25354\$ + 0.18020\text{E} + 29.982\text{¥}$

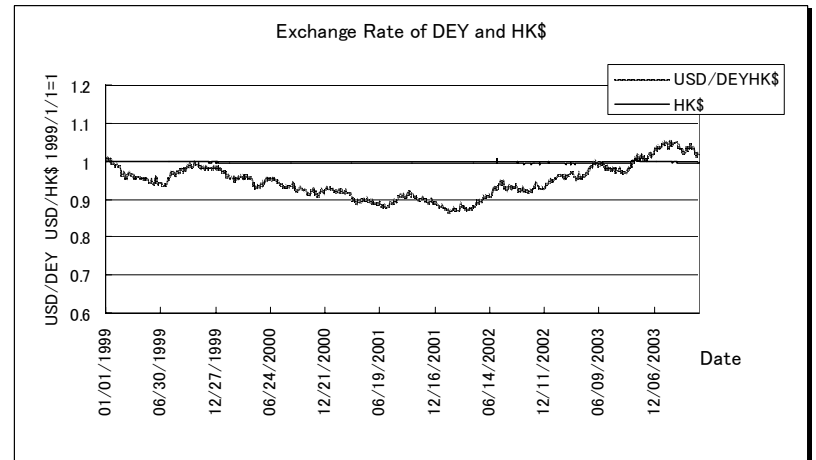
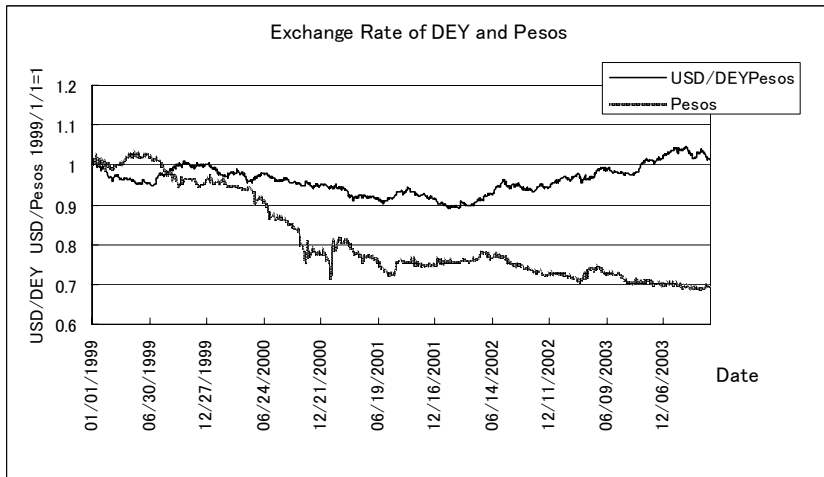
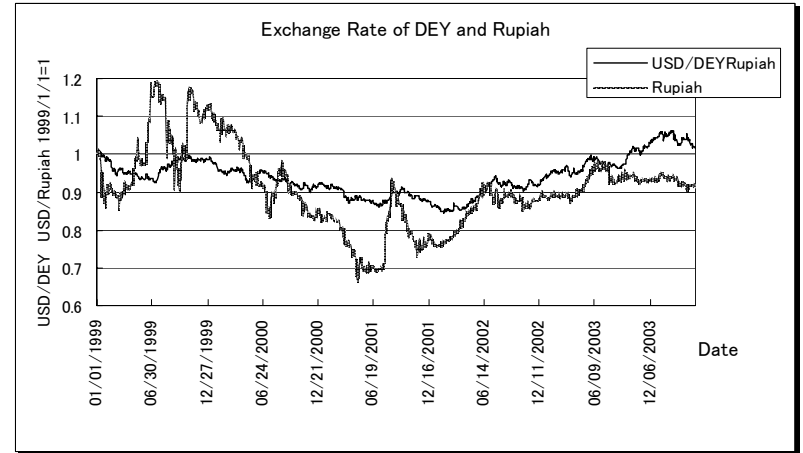
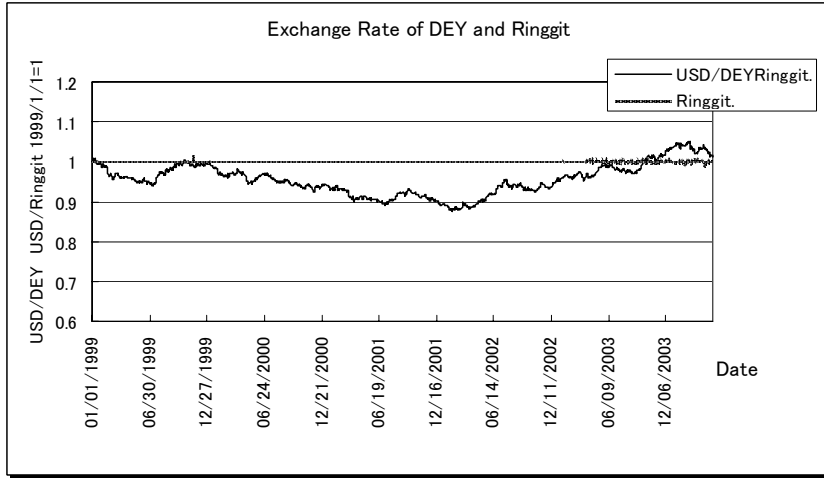
Exchange Rate of DEY_{KRW}



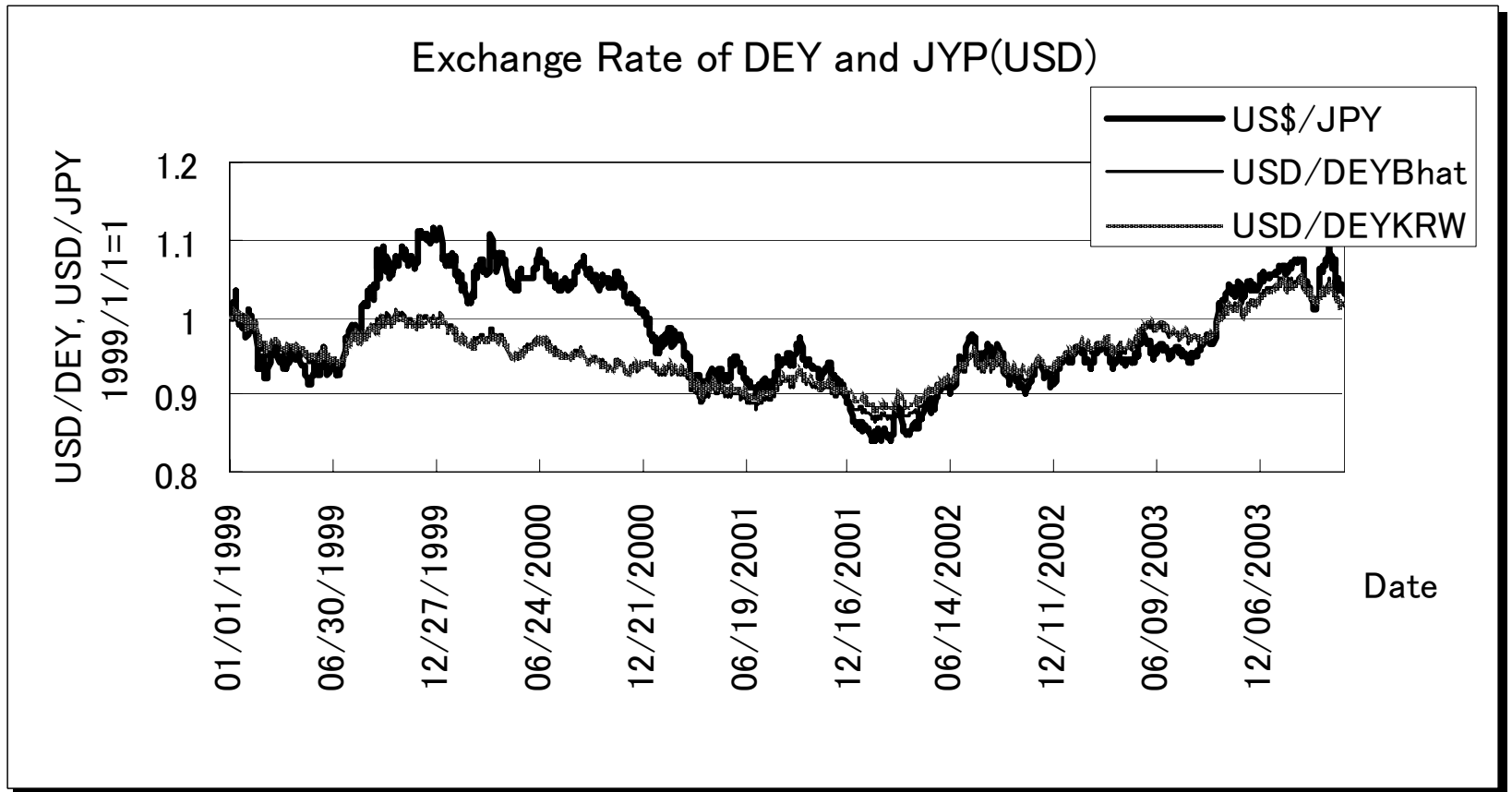
DEY Rate - CNY, Baht, KRW, S\$



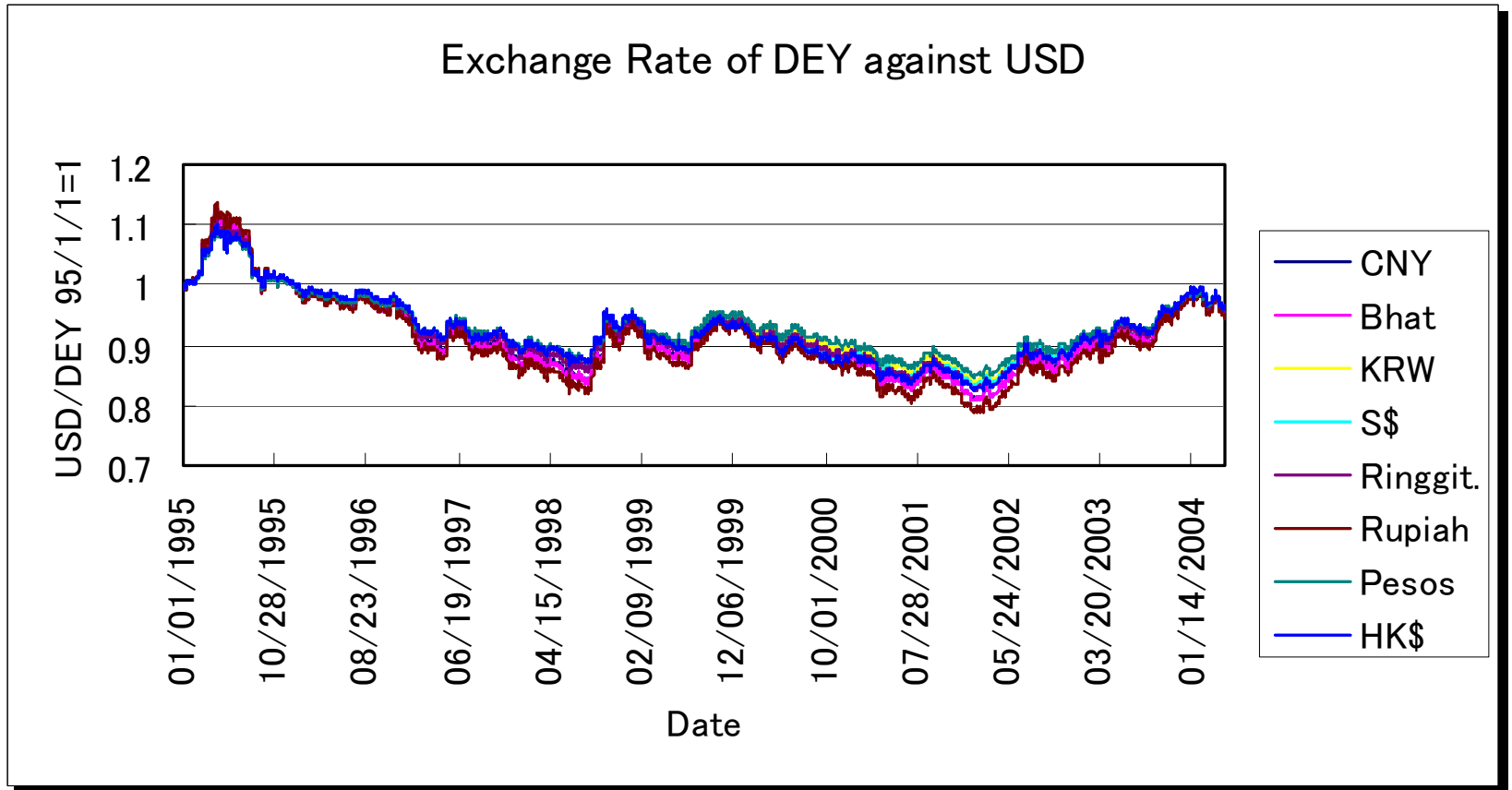
DEY Rate: Ringgit, Rupiah, Peso, HK\$



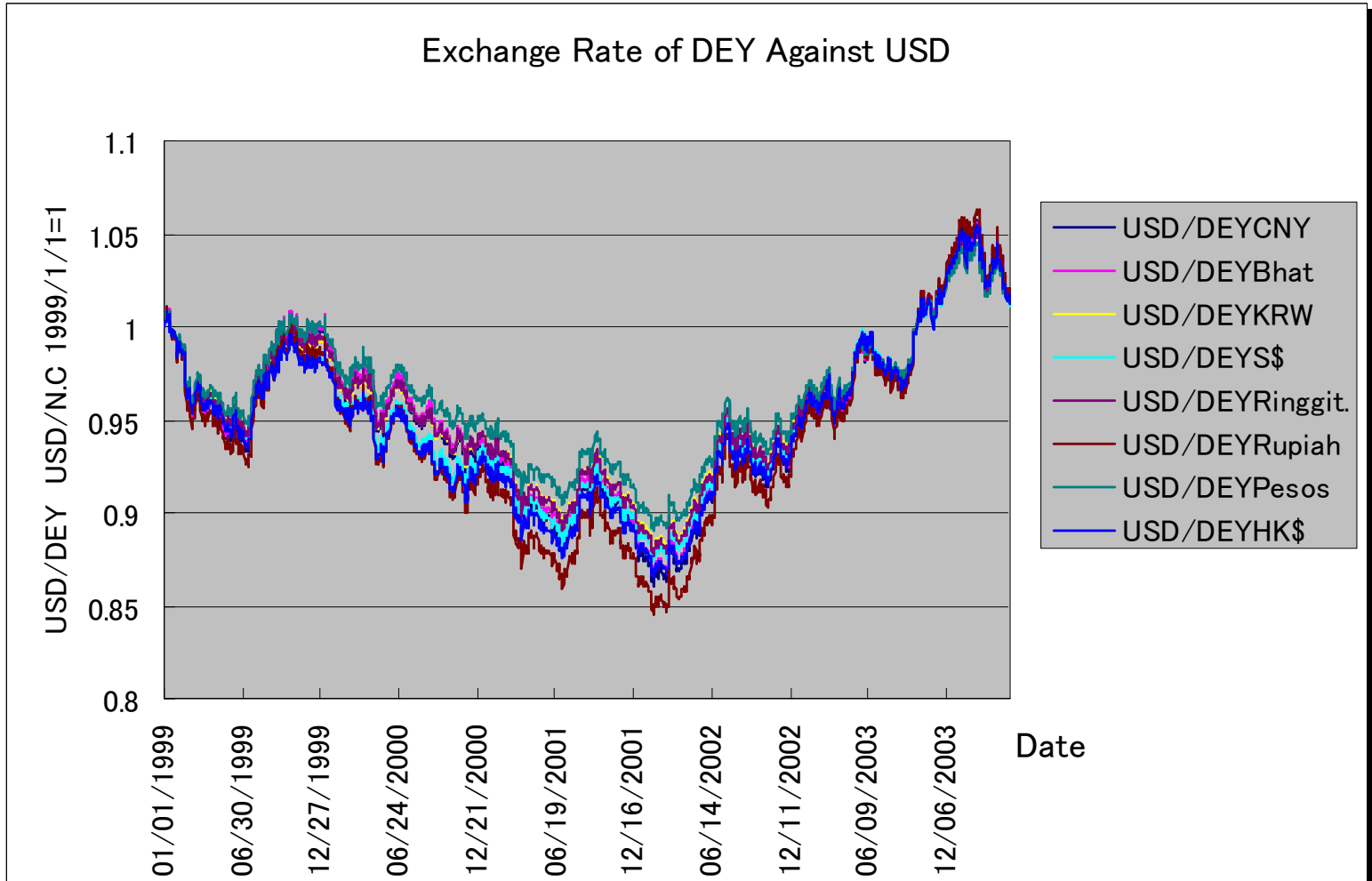
DEY Rates and Yen Rate



DEY Currency Block



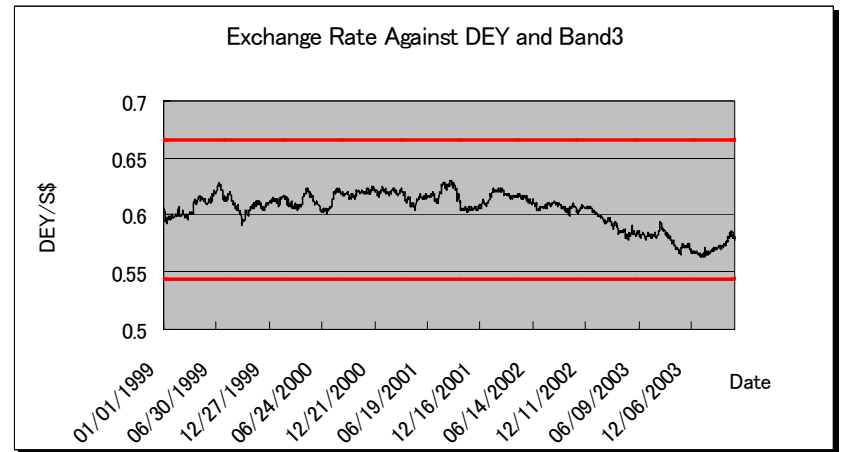
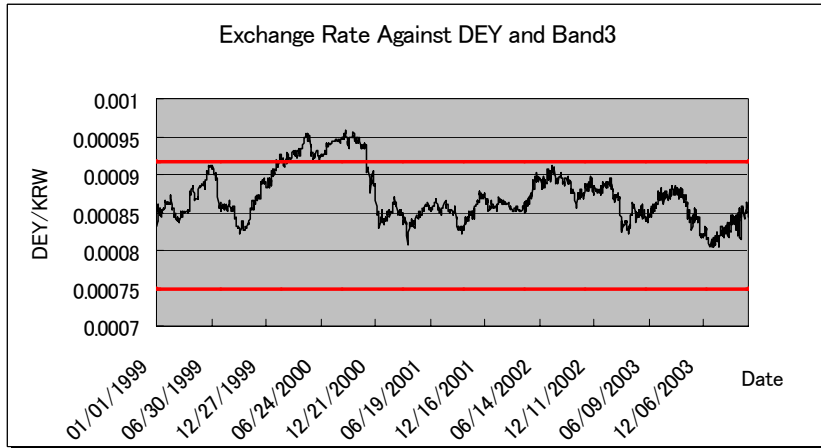
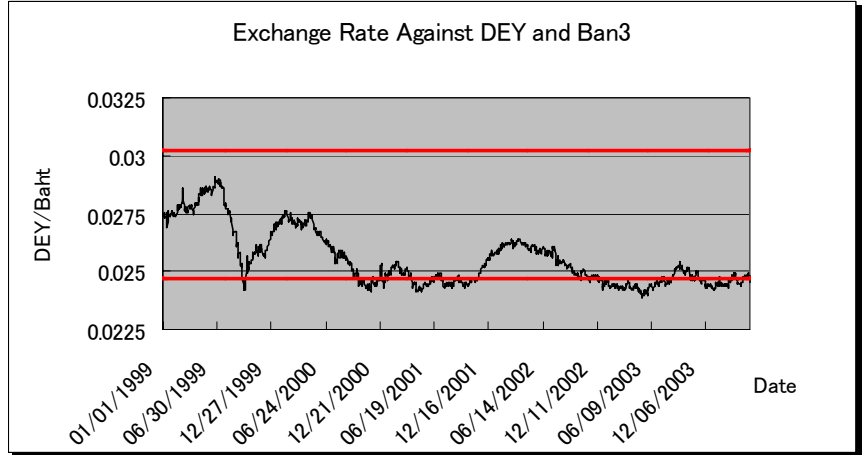
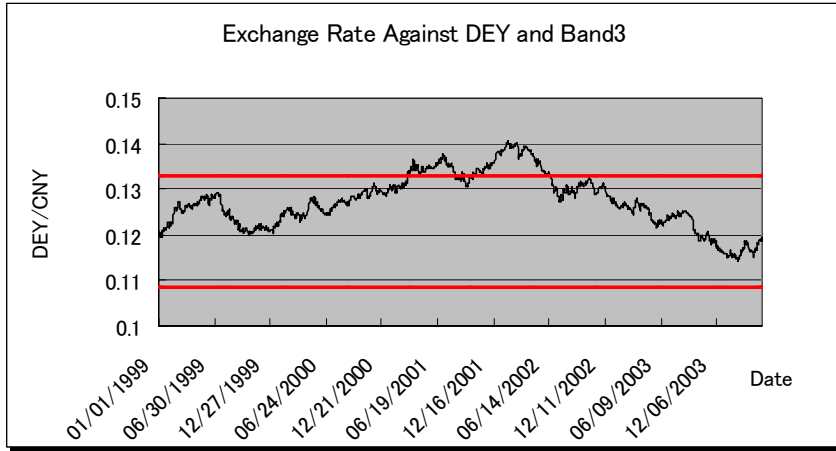
Exchange Rate Of DEY Against USD (From Jan,99')



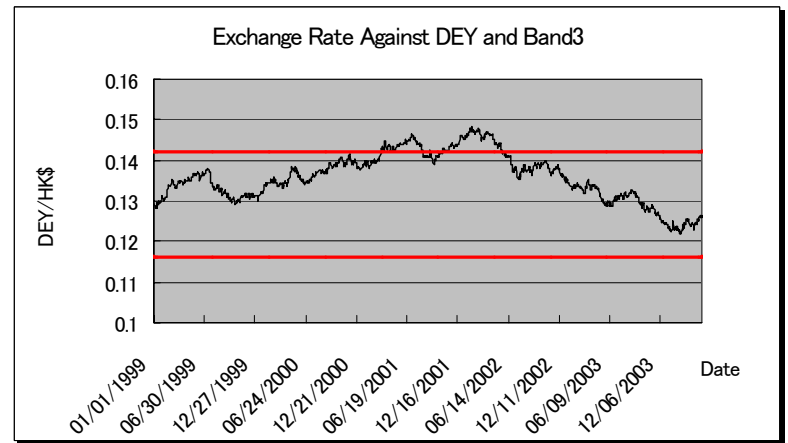
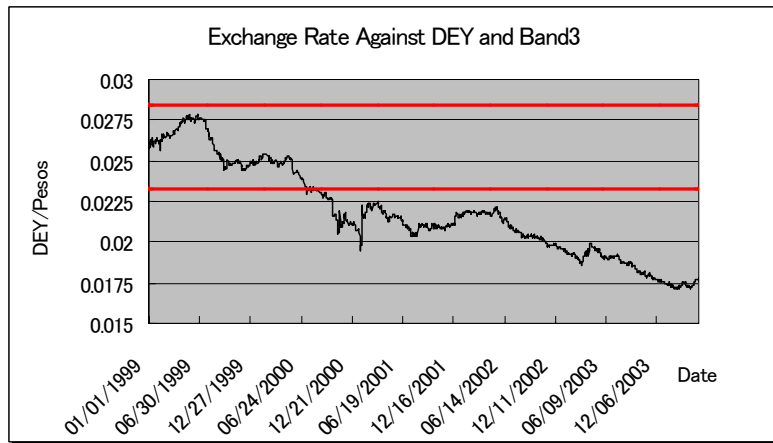
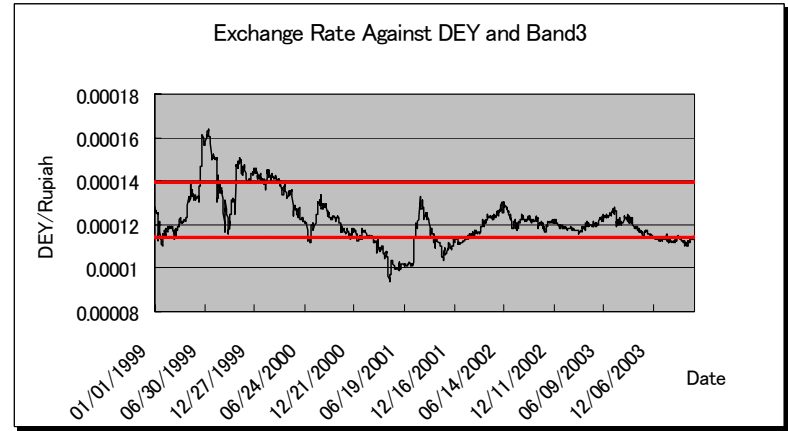
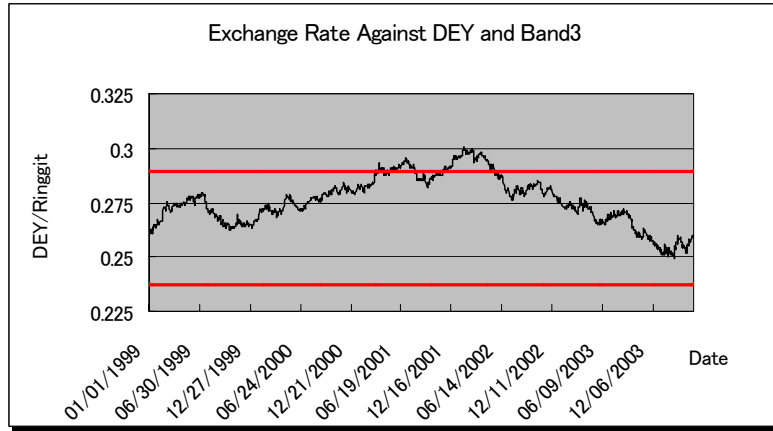
Width of Crawling Bands

- Jan. 1 1999 – April 30 2004: Maximum Fluctuation of Daily Exchange Rate vis-à-vis DEY
- Category 1: Won \$ & S\$ → 13%
- Category 2: Baht, Yuan, Ringgit → 21%
- Category 3: Rupiah 55%, Peso 34%, but about 20% after 2002
- Conclusion: width of the band = $\pm 10\%$

Exchange Rate Against DEY and Band3(1)



Exchange Rate Against DEY and Band3(2)



Descriptive Statistics of Exchange Rate of National Currency Against DEY

Descriptive Statistics of Exchange Rate of National Currency Against DEY

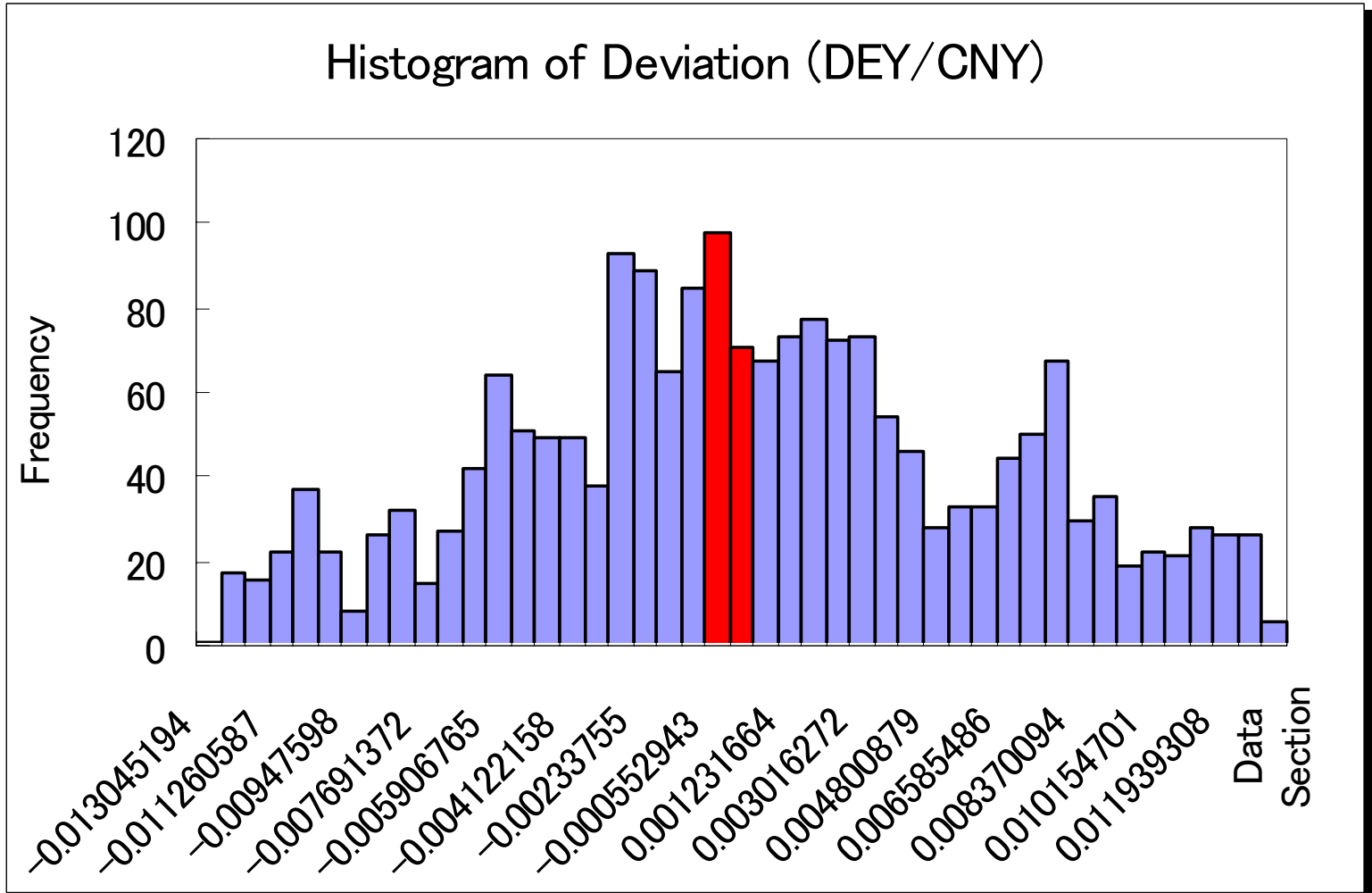
	Mean	Median	Mode	Standard deviation	Variance	Kurtosis	Skewness
DEY/CNY	0.12745	0.12709	0.11581	0.005955	3.55E-05	-0.56078	0.04832
DEY/Baht	0.02556	0.02512	0.02447	0.001227	1.5E-06	-0.11460	0.95017
DEY/KRW	0.00087	0.00086	0.00083	3.44E-05	1.19E-09	-0.24593	0.67964
DEY/S\$	0.60435	0.60830	0.56571	0.016052	0.000258	-0.10656	-0.93787
DEY/Ringgit	0.27615	0.27597	0.25396	0.011359	0.000129	-0.55373	-0.04843
DEY/Rupiah	0.00012	0.00012	0.00011	1.15E-05	1.33E-10	1.28151	0.92312
DEY/Pesos	0.02185	0.02143	0.01726	0.002859	8.17E-06	-0.80262	0.35910
DEY/HK\$	0.13595	0.13598	0.12369	0.006029	3.63E-05	-0.57698	-0.13965

Sample (n)=1947

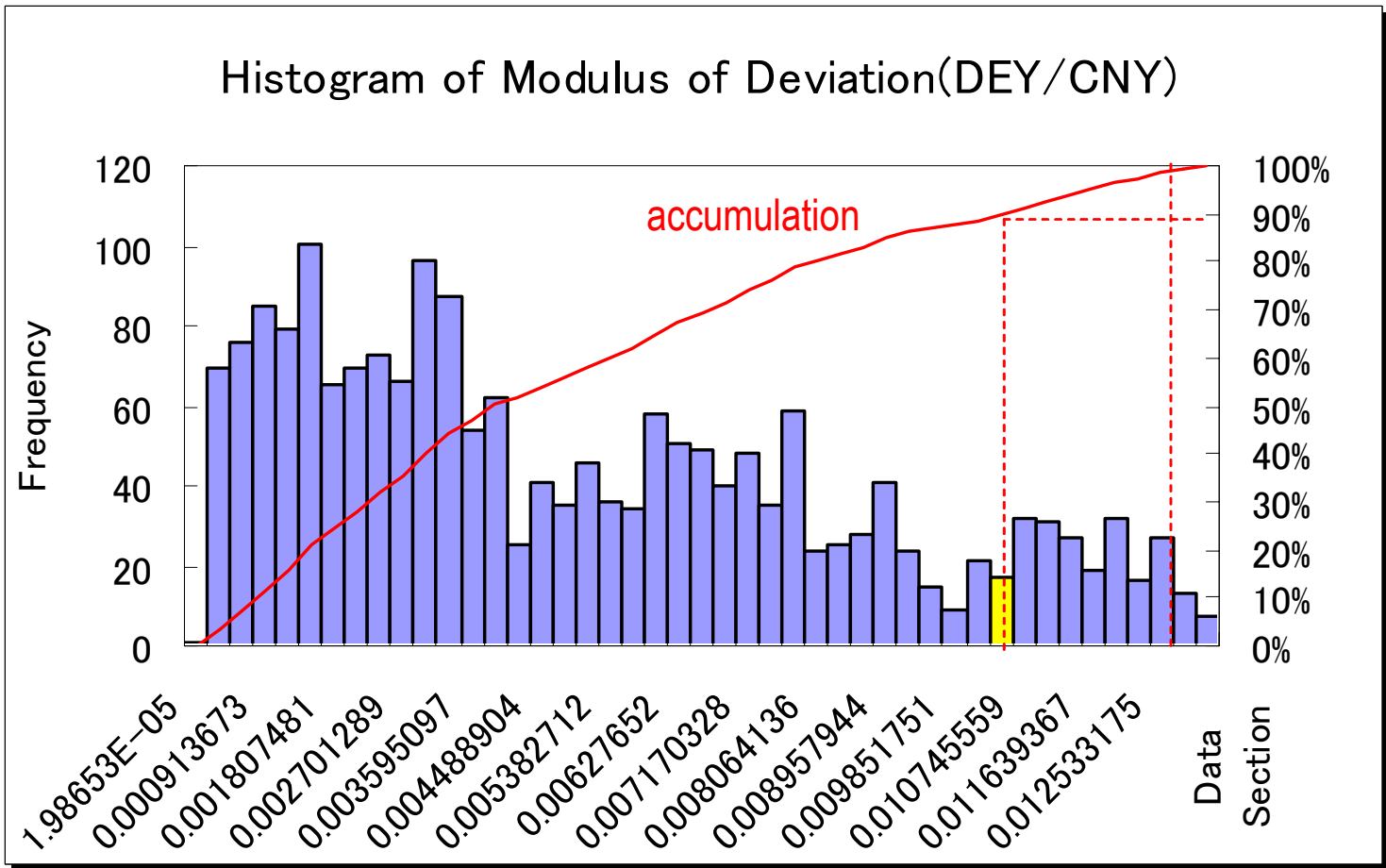
From Jan, '99 to Apr, '04

Kurtosis $\ll 3 \Rightarrow$ We can assume there are low probability that the distributions of Exchange Rate against DEY were Normal Distribution

Histogram of Deviation (DEY/CNY)



Histogram of Modulus of Deviation (DEY/CNY)



Band

$$X = \frac{\sum x_i}{n}$$

$$\text{Std.Dev} = \sqrt{\frac{\sum (x_i - X)^2}{n-1}}$$

$$|\text{Band1}| = CV = \frac{\sqrt{\frac{\sum (x_i - X)^2}{n-1}}}{X}$$

$$a_i = x_i - X$$

$$A_i = |a_i|$$

$$N = 0.9 \times n$$

Set $A_1 < A_2 < A_3 \dots < A_N < \dots < A_n$

$$|\text{Band2}| = \frac{A_N}{X}$$

Average of Exchange Rate against DEY, Deviation And Band

	average of Exchange Rate	Standard deviation	Coefficient of variation (Band1)
DEY/CNY	0.12745	0.00595	4.67%
DEY/Baht	0.02556	0.00123	4.80%
DEY/KRW	0.00087	0.00003	3.95%
DEY/S\$	0.60435	0.01605	2.66%
DEY/Ringgit	0.27615	0.01136	4.11%
DEY/Rupiah	0.00012	0.00001	9.45%
DEY/Pesos	0.02185	0.00286	13.08%
DEY/HK\$	0.13595	0.00603	4.43%

Sample (n)=1947

From Jan, '99 to Apr, '04

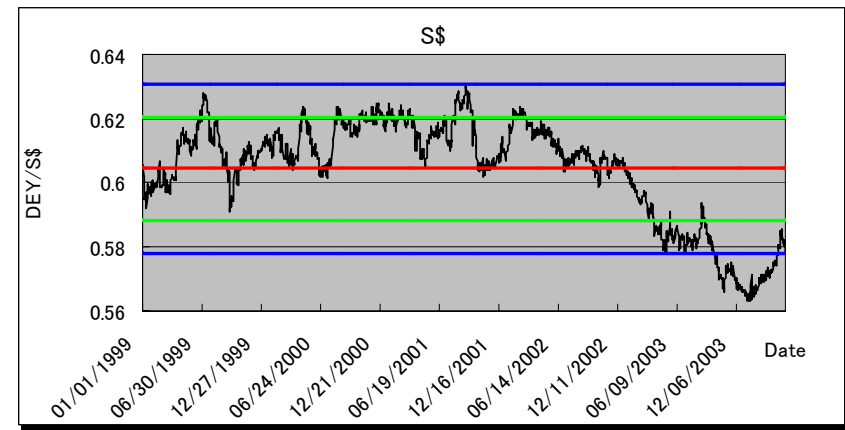
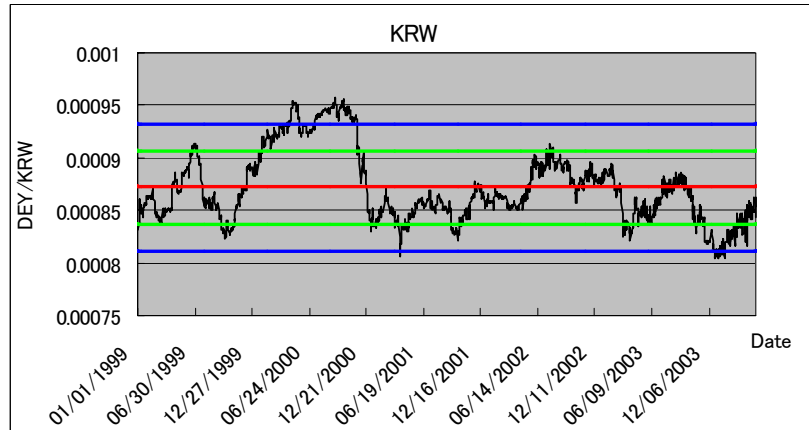
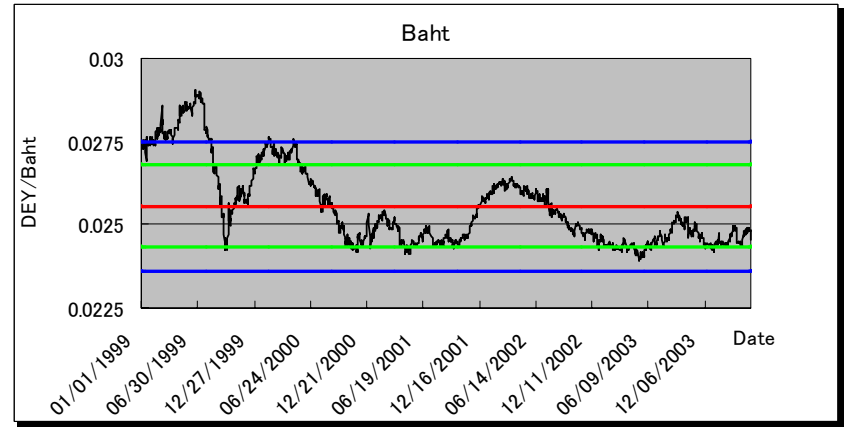
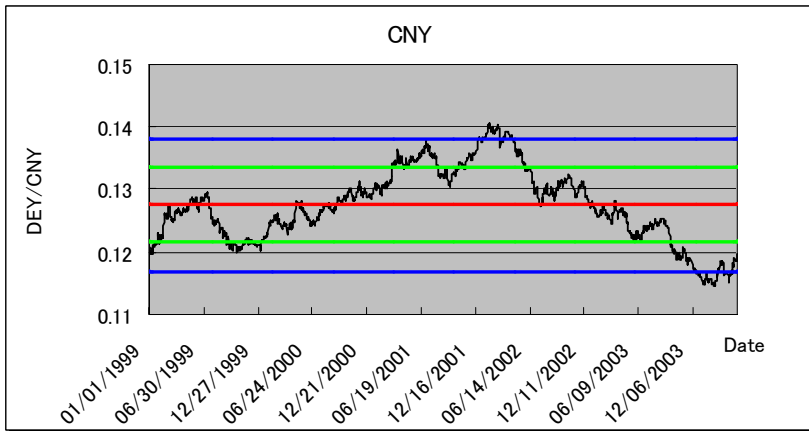
	average of Exchange Rate	Deviation at accumulated 90%	Coefficient of variation (Band2)
DEY/CNY	0.12745	0.01056	8.28%
DEY/Baht	0.02556	0.00195	7.64%
DEY/KRW	0.00087	0.00006	6.86%
DEY/S\$	0.60435	0.02614	4.32%
DEY/Ringgit	0.27615	0.01978	7.16%
DEY/Rupiah	0.00012	0.00002	16.64%
DEY/Pesos	0.02185	0.00459	21.00%
DEY/HK\$	0.13595	0.01040	7.65%

Sample (n)=1947

From Jan, '99 to Apr, '04

Exchange Rate Against DEY And Band(1)

Sample(n)=1947 From Jan, '99 to Apr, '04



01.01.99 ± 10%

CNY: 0.1087-0.1329

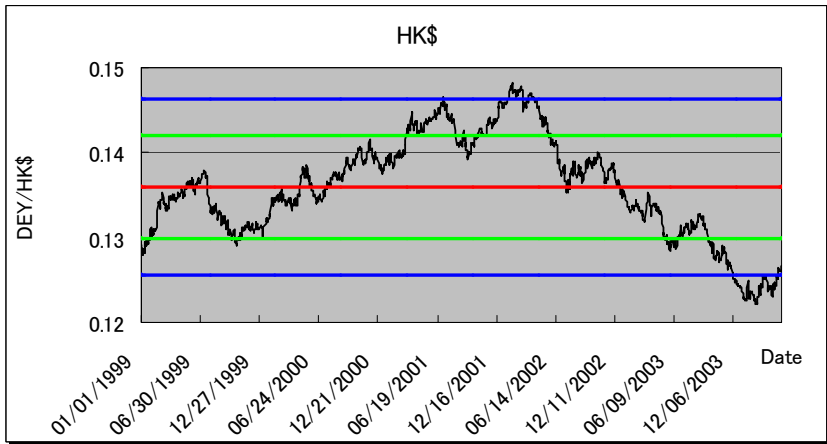
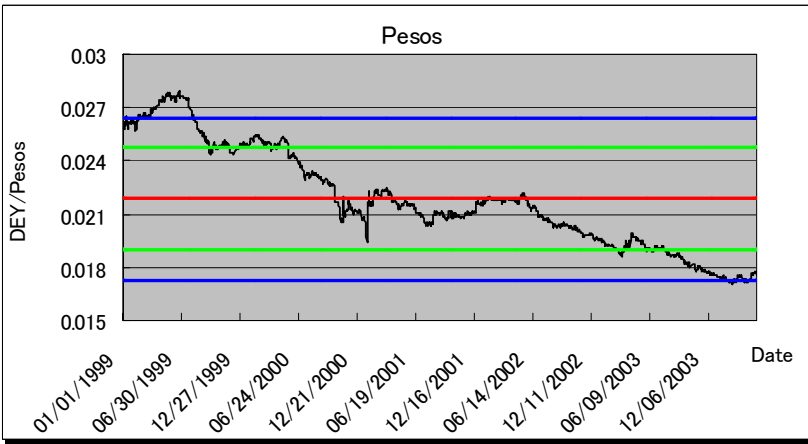
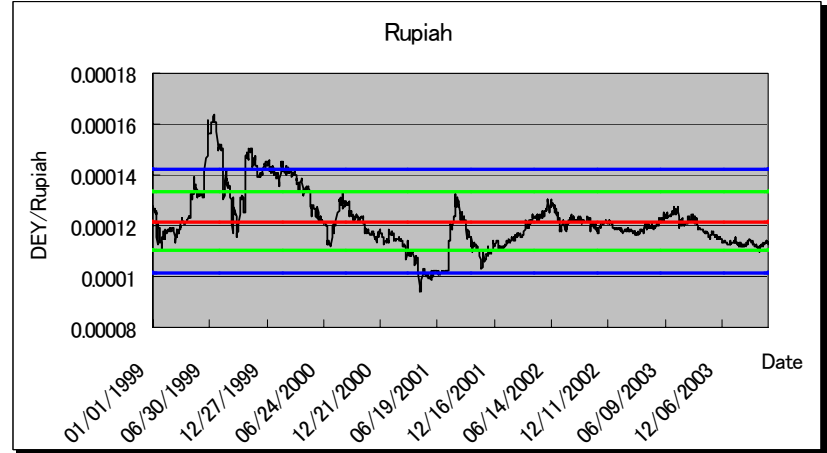
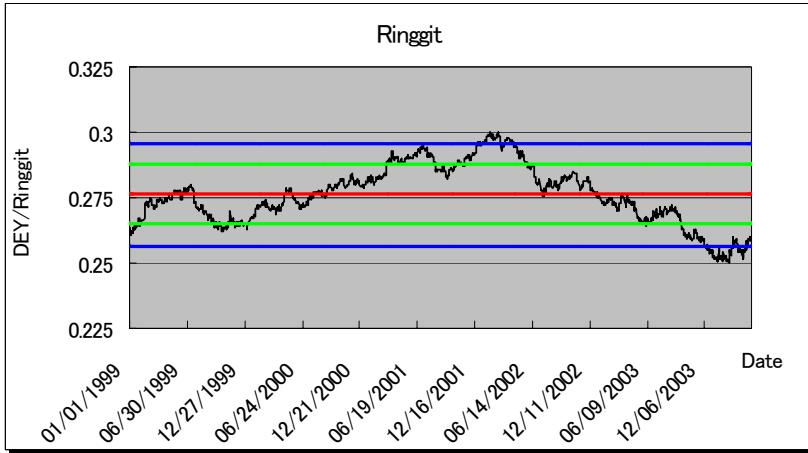
Baht: 0.0247-0.0302

KRW: 0.000750-0.000917

S\$: 0.545-0.666

Exchange Rate Against DEY And Band(2)

Sample(n)=1947 From Jan, '99 to Apr, '04



01.01.99 ± 10% Ringgit: 0.237-0.290 Rupiah: 0.000114-0.000139
Peso: 0.0232-0.0284 HK\$: 0.116-0.142

How to Crawl DEY Reference Rate

- ERM method: Revaluation or Devaluation of Central Rates based on Inflation Gap (17 times 1979-1995) → competitiveness of the members
- When a currency reaches fluctuation margin, check inflation gap against the average of the Members! → Intervention (CMI) or Crawling
- Crawling (devaluation): Cumulative inflation gap 10% → 10% devaluation of DEY_{Peso} →
$$1 \text{ DEY}_{\text{Peso}} (\text{New}) = 0.9 \times 1 \text{ DEY}_{\text{Peso}} (\text{old}) = 0.41759\$ + 0.18082\text{E} + 24.285\text{Y}$$
- Crawling (revaluation): Same method

Width of Band: Widened or Narrowed over time?

- Stability or Flexibility?
- Liberalization of Capital Accounts → More Flexibility ?
- ERM Wider Band: $\pm 15\%$ (08.1993-12.1998): Core Countries → inside $\pm 2.25\%$ Band (de facto) since 1996
- 10% band enough to be flexible for East Asia? → Price Stability of the Members

Problems of competitiveness

- Inside East Asia: $\pm 10\%$ Band and Crawling of DEY Rate based on inflation gap
- Vis-à-vis the rest of the world:
 - (1) Currency Basket: Weighted Average of the 3 Main Currencies → Competitiveness vis-à-vis the World Market
 - (2) “Big Fall” of the US Dollar → Japan’s Massive Intervention near the PPP Rate
 - (3) Cooperative Intervention of Japan, USA and East Asian Countries

Deutsche Mark as an anchor

- Market chooses an anchor → Forex Transaction Cost: proportional to “Volatility” of Currency Pair traded and inversely proportional to Transaction “Turnover”
(Quality and Quantity)
- Trade Vehicle Currency or Forex Vehicle Currency?
→ D-Mark as Forex Vehicle on European Spot Markets around 1990 (Trade Invoicing Currency → Inertia)
- Forex Rate Stability of ERM vs. Instability of the US dollar
- Transaction Turnover Increased in Capital Transactions in Europe
- Self-reinforcing Effect of Regional International Currency

Japanese yen as an anchor?

- Yen: Volatility + Little International Use
- Foreign Exchange Rate Stability vis-à-vis East Asian Currencies by DEY Basket
- Transaction Volume: Increase of Capital Transactions in East Asia in Yen or East Asian Currencies
- Development of Asian Bond Market
- Strengthening of Tokyo Financial Market
- Difficult Competition for the Yen vs. US\$

FTA and CU in ASEAN+3

- Can trade integration be endogenized?
- FTA → CU: autonomous development?
- CU has CET (Common External Tariff) and Common Authority to manage CET(→ WTO Round)
- CET: possible in East Asia?
- A Korea = Japan CU as First Step
- FTA + PESC (Pan-European System of Cumulation of Origin) → Pan-ASEAN+3 System of Cumulation of Origin → ASEAN+3 FTA

Further Development of DEY Basket

- Single Currency Basket in ASEAN+2
- ACU (Asian Currency Unit) of ASEAN+3