

## **Renminbi in ASEAN Economy: How ASEAN responds to Renminbi Internationalization**

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Chinese Yuan Renminbi has been included in IMF Special Drawing Right since the end of 2015. This momentum notified the increasing importance of Renminbi (RMB) as a rising star of international currency. ASEAN plus 3 has responded to RMB internationalization and the Asian financial crisis by the Chiang Mai Initiative of Multilateralization (CMIM). This paper will explore the impact of RMB internationalization on the movement of ASEAN member exchange rates. This research would provide empirical evidence that RMB has already become an important force in impacting the exchange rate of ASEAN currencies. The framework of the empirical model from Frankel and Wei (1994) and Ogawa and Shimizu (2006) are used to answer these questions. This research found that the effects of Renminbi internationalization are significant in explaining ASEAN currency movements, especially after ASEAN China FTA (ACFTA). There is empirical evidence that increasing trade between ASEAN and China could facilitate the increase use of RMB in the ASEAN foreign exchange market.

**JEL Classification:** F15, F31, F33

**Keywords:** exchange rate, Renminbi, ASEAN China FTA, international currency

### **Introduction**

The natural response to the growing share of Chinese trade and investment flow in world economy is the internationalization of the Renminbi currency. According to SWIFT, more than 900 financial institutions in over 70 countries are already doing business in the Chinese

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Renminbi (RMB). Since June 2010, corporations worldwide can settle transactions in RMB; SWIFT noted the spectacular growth in recent years involves more than 10 per cent of China's cross-border trade is now settled in RMB. Even though Chinese yuan have a small proportion of worldwide international currency usage (0.5%), is nonetheless experiencing a stellar ascension. And now RMB is currently ranked fifth for Asia-Pacific inflows and outflows with Europe, excluding the UK. (SWIFT, 2015).

After the Asian Financial Crisis in 1997-1998, the role of Republic of China (the PRC) in regional and global trade has increased significantly. This phenomenon is due to the growth of export and import in China from and to the United States, European countries, and Asian countries. Since 2015, the PRC is the world's largest economy (on a purchasing power parity basis), manufacturer, merchandise, exporter and importer, and holder of foreign exchange reserves. China is a big player in the international economy, but the question remains about whether or not China is capable of sustaining its remarkable growth. One way of measuring China's growth as a world superpower is by looking at its currency: the Chinese renminbi. If the renminbi can join the likes of the Japanese yen, British pound sterling and Euro as an international currency, there's a strong economic case for continued Chinese growth in the world economy. PRC's economic power influences the countries in the Asian region. The story of the renminbi in Southeast Asia as a trade settlement currency paints a clear picture about where the renminbi and China are headed. The steady rise in China's importance in the ASEAN economies not only dethroned the United States' historically strong ties in the region, but continues to grow year after year. (Cheung, 2015).

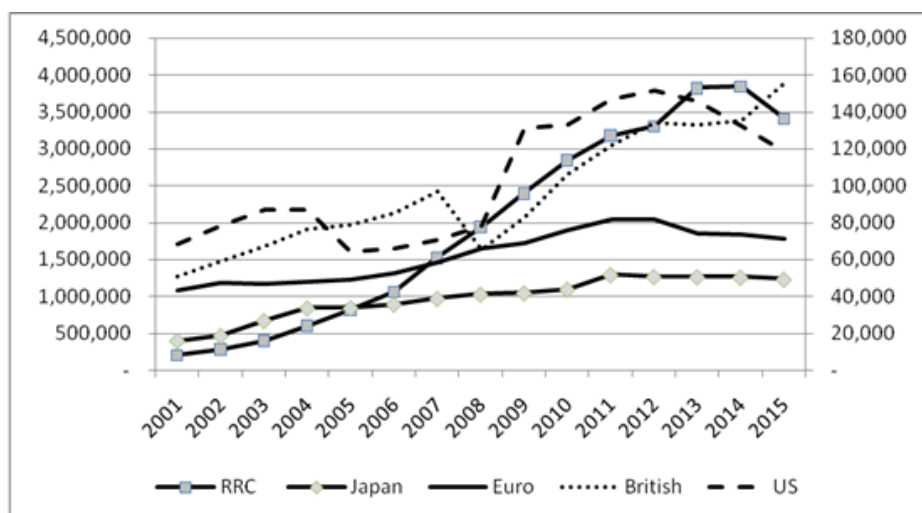
One important history regarding RMB internationalization is the inclusion of Chinese Renminbi in the basket of Special Drawing Right (SDR) in December 2015. This marks the first time in over 15 years that the list of currencies comprising the SDR has changed. The change was agreed by the IMF's executive board. This momentum is an important milestone in the integration of Chinese economy to global financial architecture. This achievement is also seen as a reward to Chinese authorities that has been relatively successful in reforming their financial and monetary system. This statement came from IMF managing director, Christine Lagarde, in December 2015.

IMF also reformulated the basket of SDR. According to this new formula, the weights of the currencies in the SDR basket are based on the value of the issuers' exports, the amount of reserves denominating the respective currencies that were held by other monetary authorities, foreign exchange turnover, international bank liabilities and international debt securities. The revised SDR basket is now on the following weights: 41.73 per cent for the U.S. Dollar; 30.93 per cent for the Euro; 10.92 per cent for the Chinese RMB; 8.33 per cent for the Japanese Yen, and 8.09 per cent for the British Pound (IMF Survey Magazine, 2015).

Eichengreen and Kawai (2014) highlighted that the implications of RMB internationalization are not just for the PRC but for other countries and, more broadly, for the international monetary and financial system. The effects of economic policies and conditions in the PRC will be stronger for countries that come to rely broadly on the RMB in their international transactions as their commercial banks will rely more heavily on RMB funding. Their central banks are likely to place a bigger weight on the RMB when managing the exchange rate and foreign exchange reserves, especially for Asian countries including Indonesia. The Association of Southeast Asian Nations (ASEAN) countries on average have intense trade transactions with China, which has implications for ASEAN-China financial transactions. The majority of ASEAN members have a Bilateral Currency Swap Agreement (BCSA) with China since RMB internationalization in response to the Asian Financial Crisis. RMB internationalization has a logical implication of increasing China's power in the economy and trade, and underlines the importance of China as a country which has the highest foreign reserve in the world (Figure 1).

Based on the above presentation, the purpose of this research is to analyze the weight/share of RMB exchange rate movements in the currencies of ASEAN member countries. Increasing share could become an indicator of increasing used of RMB in ASEAN currencies. The additional objective of this research is to analyze the factors that determine the extent of RMB used in trade invoicing.

**Figure 1:** Foreign Reserve of Five SDR currencies (2001-2015)



Source: Central Bank of Indonesia Financial Statistics (External Sector)

Note: LHS : RRC and Japan Reserve

RHS: Euro, British, US

### Existing Literature

Eichengreen and Kawai (2014) found that RMB can be a global currency, similar to the US Dollar, or it can play a regional role in Asia equivalent to that of the Euro in greater Europe. The research suggests that China, which has a strong economic and political connection in with Asian countries, will be the leading Asian currency. Ito (2011) noted that RMB internationalization cannot be avoided. Many countries will use RMB in their trade and capital market and then it can be added to the SDR basket in the IMF. The rise of RMB will continue and will challenge the status of the US Dollar as a major international reserve currency, though RMB is more likely to become a regional currency throughout Asia.

Kawai and Pontines (2014) examined the behavior of the RMB exchange rate and the impact of RMB movements on other currencies emerging in East Asia during the period 2000–2014. They use the Frankel–Wei regression model (1994) to identify changes in the RMB exchange rate regime over time and a modified version of the model to estimate the RMB weight in East Asian emerging economies’ currency basket. They

find that the US dollar continues to be the dominant anchor currency in the region, while the RMB has taken on increasing importance in the currency baskets of many East Asian economies in recent years.

Ito *et al* (1998) estimate the optimal weight of the US dollar and Yen in currency basket to stabilize trade balance and capital flows in East Asia before the Asian currency crisis. US dollar optimal weights were found to be smaller than the weight gained by Frankle and Wei (1994) who found the East Asian region adopts a dollar peg. It implied that the currency basket peg system can stabilize trade balance than de facto dollar peg system.

Exporter has the option to determine the currency used in the determination of the price of goods. When the exporter does international trade, they have the option to create an invoice in the currency of the country, of the country's trading partners, or other currencies, called a vehicle currency. The decision of the selection of the currency used in invoice has an important role in the transmission of financial impact across countries.

The decision for the election vehicle currency completes the analysis of the factors that determine the selection of the invoiced currency. The role of the currency is first as a medium exchange then the focus is not on the trade itself but financial transactions. The selection of the currency is associated with the low cost of a transaction. Low transaction costs reflect a high degree of liquidity in the foreign exchange markets for the currency in question (Portes and Rey, 1999).

The second analysis is related to the characteristics of the industry. The industry consists of homogeneous goods and traders in specialized markets prefer to generate the invoice using the currencies with the least cost (McKinnon, 1979). If a currency is specified as the dominant currency in a market, then there's no incentive for a particular firm to create invoices in other currencies. This is because the use of other currencies will result in high transaction costs and the level of sales will be more volatile because of relative price movements compared to competitors (Krugman, 1980). When the demand for an exporter is highly elastic and marginal costs increase with output, the exporter has an incentive to stabilize their price in the currency of its trading partners (customers) (Bacchetta and van Wincoop, 2005).

The third analysis involves currency invoicing driven by the volatility of macroeconomic condition in different countries. The company will specify the currency used for invoicing, based on the country where the level of volatility due to financial shock of the monetary aggregate is moderate. More moderate volatility shocks minimize fluctuations in currency exchange rates (*other factor constants*).

### Methodology, Empirical Testing, and Data

The data that will be used are quarterly macroeconomic data from 2000 to 2015. It was collected from the CEIC database, International Financial statistics, and Central Bank statistics from each ASEAN member. The empirical method of this study is first the difference OLS regression method that measures the impact of currency exchange rates of five major currencies (in SDR basket) to ASEAN exchange rate member currencies movement.

This study will use the model of Frankel and Wei (1994) and then make modifications by adding the Chinese Yuan (CNY) or RMB into the model. We will use the Swiss Franc as the base currency. The model is presented below:

$$\begin{aligned} \Delta \log \left( \frac{\text{ASEAN member}}{\text{CHF}} \right) = & \beta_0 + \beta_1 \Delta \log \left( \frac{\text{USD}}{\text{CHF}} \right) + \beta_2 \Delta \log \left( \frac{\text{JPY}}{\text{CHF}} \right) + \beta_3 \Delta \log \left( \frac{\text{EURO}}{\text{CHF}} \right) \\ & + \beta_4 \Delta \log \left( \frac{\text{GBP}}{\text{CHF}} \right) + \beta_5 \Delta \log \left( \frac{\text{CNY}}{\text{CHF}} \right) + e_t \end{aligned} \quad (1)$$

Where:

- $\Delta \log (\text{ASEAN member}/\text{CHF})$  = movement of Rupiah to Swiss Franc;
- $\Delta \log (\text{USD}/\text{CHF})$  = movement of US Dollar to Swiss Franc;
- $\Delta \log (\text{JPY}/\text{CHF})$  = movement of Yen to Swiss Franc;
- $\Delta \log (\text{Euro}/\text{CHF})$  = movement of Euro to Swiss Franc;
- $\Delta \log (\text{GBP}/\text{CHF})$  = movement of Pound Sterling to Swiss Franc;
- $\Delta \log (\text{CNY}/\text{CHF})$  = movement of Chinese Yuan to Swiss Franc;

$\beta_0$  = constant;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = coefficient of regression;  $e_t$  = error term

That coefficient of exchange rate of the five major currencies (SDR currency basket) restrictions must equal one ( $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 = 1$ ).

This paper also analyzes the factors that determine the CNY/RMB currency invoicing in Indonesia as a case study (because the data available for the use of RMB is only accessible from Bank Indonesia). The determinants of total used of CNY/RMB are derived from the existing literature. A high degree of liquidity in the foreign exchange markets for the currencies is proxied by China international reserves. The macroeconomic variable from the country that will be used as vehicle currency is proxied by the Manufacture Production Index of China. The volatility of exchange rate is proxied by the log exchange rate of CNY/RMB to USD. The model is specified below:

$$LTotal\_used = \alpha_0 + \alpha_1 LReserve + \alpha_2 LTotal\_trade + \alpha_3 LMPI\_PI + \alpha_4 LExchrates + e_t \quad (2)$$

Where :

$Ltotal\_used$  = log total Renmimbi used in Indonesian international trade (export + import)

$LReserve$  = log China's international reserve

$Ltotal\_trade$  = log Indonesia international trade with China (export+import)

$LMPI\_PI$  = log China's manufacture production index

$LExchrates$  = log exchange rate (CNY to USD)

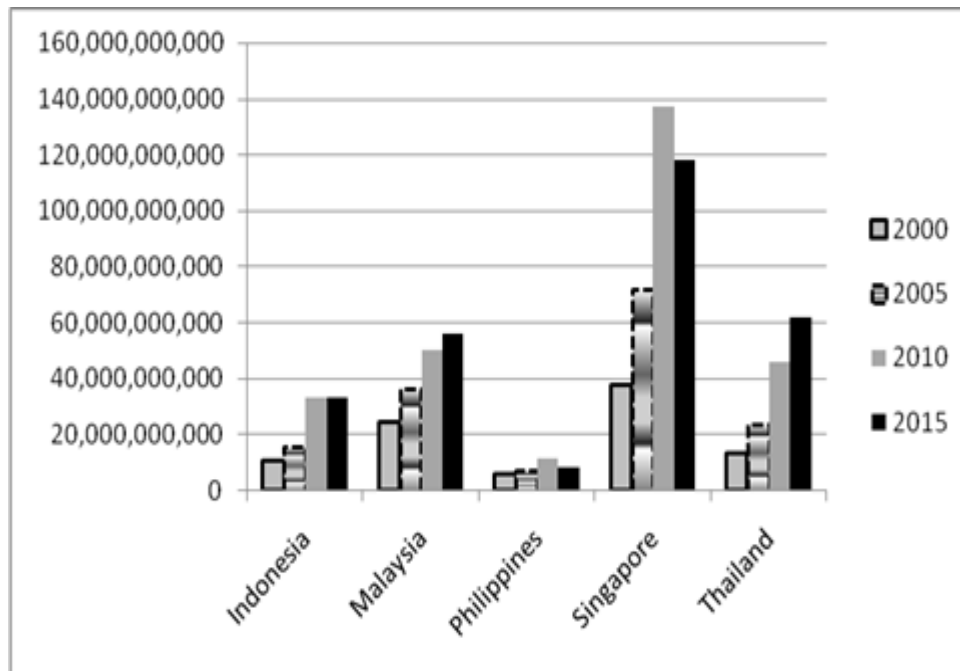
$\alpha_0$  = constant;  $\alpha_1, \alpha_2, \alpha_3, \alpha_4$  = coefficient of regression;  $e_t$  = error term

Analysis is only done for Indonesia. This is because of the data limitation of CNY/RMB used in international trade in ASEAN countries. Econometric analysis will be complemented by stylized facts and desk study about each country's policy response in ASEAN countries regarding RMB internationalization.

### Stylized Fact and Each Country and ASEAN Responses to RMB Internationalization

The discussion about Renminbi used in ASEAN countries would be related to the ASEAN trade potential as well as ASEAN trade with China. Intra ASEAN trade is depicted in Figures 2 and 3 below while ASEAN-China trade is depicted in Figure 4 and 5. ASEAN member intra-trade shows a slower trend in 2015, but the long-term trend is increasing.

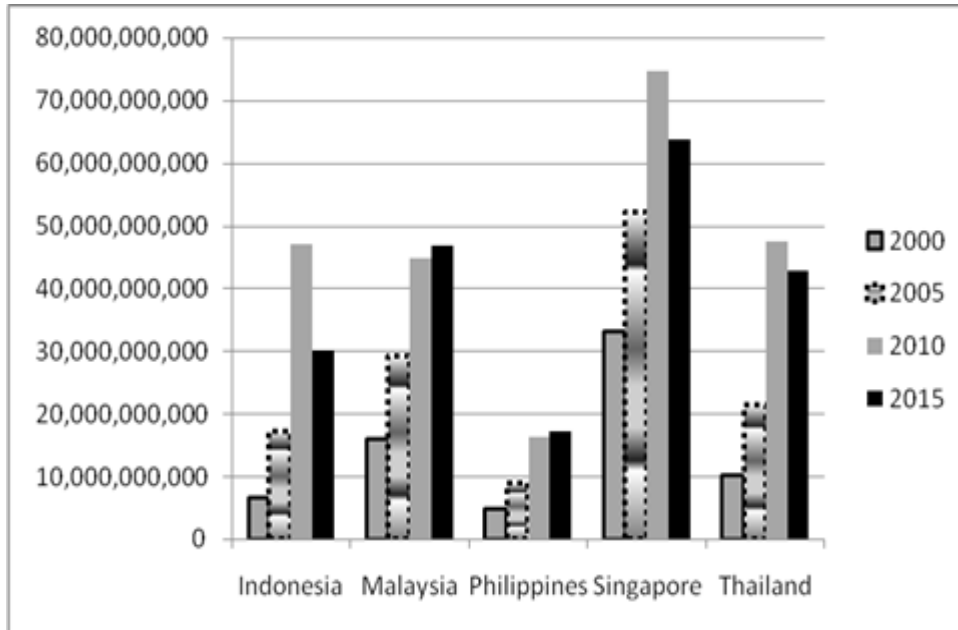
**Figure 2: ASEAN Member Export Intra-Trade (in US\$)**



Source: ASEAN Statistical Yearbook



**Figure 3: ASEAN Member Import Intra-Trade (in US\$)**



Source: ASEAN Statistical Yearbook

**Figure 4: ASEAN6 - China Trade (in million US\$)**



Source: ASEAN Statistical Yearbook

**Figure 5:** ASEAN 4 (CLMV) – China Trade (in million US\$)

Source: ASEAN Statistical Yearbook

The increasing trend of ASEAN intra-trade and ASEAN-China trade (that possibly comes from ASEAN China FTA results since 2010) could become important support for RMB use in the ASEAN foreign exchange market. ASEAN-China trade could intensify the use of RMB in their trade settlements. As in the statement of Minikin and Lau (2013), China's role in international trade is a key driver for currency internationalization. It seems natural that RMB will gain its role as a vehicle currency, given China's growing significance in the Asian and global economy. To capture the ACFTA impact we can divide regression into two sub samples, where sample 1 before ACFTA (before 2010), and sample 2 is period after 2010 (after ACFTA).

**Table 1.** ASEAN+China Exchange Rate Statistics**Period 1:** Before ACFTA (2000M1 – 2009 M12)

VAR	RMB	IDR	MYR	THB	PHP	SGD
OBSERVATION	2,509.00	2,506.00	2,509.00	2,509.00	2,507.00	2,509.00
MEAN	7.89	9,344.93	3.67	38.73	50.16	1.64
MEDIAN	8.28	9,207.60	3.80	39.41	50.96	1.68
MAX	8.28	12,209.00	3.80	45.80	56.45	1.85
MIN	6.81	7,037.90	3.13	29.32	38.96	1.35
STD DEV	0.55	844.99	0.18	4.21	4.51	0.14
Variation coef	<b>6.92</b>	<b>9.04</b>	<b>4.90</b>	<b>10.87</b>	<b>9.00</b>	<b>8.27</b>

**Period 2: After ACFTA, Before Tapering Off (2010 M1 – 2013 M10)**

VAR	RMB	IDR	MYR	THB	PHP	SGD
OBSERVATION	940.00	940.00	940.00	940.00	940.00	940.00
MEAN	6.45	9,260.17	3.12	30.95	43.24	1.28
MEDIAN	7.80	9,132.40	3.10	30.79	43.26	1.27
MAX	6.84	11,573.10	3.44	33.21	47.46	1.42
MIN	6.11	8,450.90	2.94	28.62	40.54	1.20
STD DEV	0.23	532.79	0.10	0.96	1.56	0.06
Variation coef	<b>3.57</b>	<b>5.75</b>	<b>3.29</b>	<b>3.09</b>	<b>3.60</b>	<b>4.46</b>

**Period 3: After ACFTA, After Tapering Off (2013 M10 – 2016 M12)**

VAR	RMB	IDR	MYR	THB	PHP	SGD
OBSERVATION	728.00	728.00	728.00	728.00	728.00	728.00
MEAN	6.29	12,709.58	3.67	33.67	45.28	1.33
MEDIAN	6.22	12,931.15	3.62	32.90	44.90	1.34
MAX	6.70	14,739.60	4.46	36.49	48.00	1.44
MIN	6.04	11,000.00	3.13	31.01	43.02	1.24
STD DEV	0.18	867.89	0.41	1.53	1.31	0.06
Variation coef	<b>2.83</b>	<b>6.83</b>	<b>11.19</b>	<b>4.54</b>	<b>2.89</b>	<b>4.58</b>

Source: Author's own

In the three periods of sub-samples, China's exchange rate to USD has decreasing volatility. As a whole, we could conclude that in the period after ACFTA, the volatility exchange rates of the ASEAN economy to USD are lower on average. ACFTA could possibly help to stabilize ASEAN member exchange rates.

In the period of tapering off from QE, Malaysia was hit hardest compared to other members, regarding increased exchange rate volatility. On the other hand, four countries over ASEAN-5 have higher volatility to USD in the tapering off period, thus increasing the need to decrease dollar dependency.

**ASEAN responses related: Chiang Mai Initiative**

Related to the topic of the use of RMB in ASEAN countries, the Chiang Mai Initiative (CMI) was established in response to the Asian Financial Crisis (AFC). CMI is a regional financial arrangement to supplement the existing international facilities. It can help facilitate promotion of RMB for ASEAN countries. CMI in the view of RMB internationalization could help liquidity aspect needed as prerequisites for international currencies.

On May 2000, an agreement was signed in Chiang Mai, Thailand, where ASEAN +3 (Japan, South Korea, and the China) set up a partnership in an exchange system to ASEAN countries from the Asian crisis in 1997-1998, termed the Chiang Mai Initiatives. This agreement also included a policy that called for a Bilateral Swap Arrangement/Bilateral Currency Swap Arrangement (BSA/BCSA) between ASEAN countries and Japan, South Korean and the China. The BSA is a facility in the form of swaps of US dollars with the domestic currencies of participating countries. Repurchase agreements were meant to provide liquidity support through the sale and buyback of US treasury notes or bills with a remaining life of no more than 5 years and government securities of the counterparty country.(Garcia and Lee, 2013).

In 2009, the bilateral swap mechanism was found to be inefficient. On March 24, 2010, it became multilateral and from then on it has been called the Chiang Mai Initiative Multilateralization (CMIM). Member countries are: Brunei, Cambodia, Hong Kong, Indonesia, Japan, Laos, Malaysia, Myanmar, the People`s Republic of China, Philippines, Singapore, South Korea, Thailand, Vietnam. The key role in governing CMIM lies upon Central Banks of those member countries. CMIM`s capital draws from a foreign exchange reserves pool worth US\$120 billion and was launched on 24 March, 2010. This pool of reserves was expanded to US\$240 billion in 2012.

**China`s Bilateral Currency Swap Agreement (BCSA)**

China has many BCSAs with several countries including ASEAN members. The BCSA is a key pillar of cooperation between PBOC and ASEAN countries, especially to strengthen regional economic resilience and financial stability. According to Gui (2012), China launched BCSA as its diplomatic campaign.

China is able to use this policy to reinforce their currency in a payment system. Since July 2009, the PRC authorities started to allow exporters and importers to use RMB to settle merchandise trade (Kawai and Pontines, 2014). The BCSA's by the People's Bank of China (PBOC) with ASEAN members are as follows.

**Table 2.** Renminbi-Denominated BCSA by the PBOC with ASEAN Members

Date signed	Economy	Value		Note
		CNY Billion	(\$ billion)	
Aug, 2003	Philippines	2		Amended April 2007
Dec, 2011	Thailand	70	11	
Feb, 2012	Malaysia (extended)	180	28.6	Increased from CNY 80 billion in Feb 2009
Mar, 2013	Singapore (extended)	300	47.8	Increased from CNY 150 billion in July 2010
Oct, 2013	Indonesia (extended)	100	16.3	Increased to CNY 120 billion in 2015

Notes: (i) Value in US Dollars is calculated based on the US Dollar-Yuan exchange rate at the time of signing.

Source: ADB, People's Bank of China; Asia Regional Integration Center (ARIC) Website; Yu (2012); Bank of Japan

We also summarize the trade development in ASEAN members related to RMB used and the financial agreement related with RMB used in Table 3 (compiled from various sources on ASEAN member websites and compiled research).

**Table 3. Trade and Financial Agreement/Condition Between ASEAN  
Countries and China**

Country/ Explanation	Indonesia	Malaysia	Singapore	Philippines	Thailand
Trade Condition/ Bilateral Agreement	<ul style="list-style-type: none"> <li>- RMB invoicing has increasing trend.</li> <li>- Export share in USD and Japanese Yen has decreasing trend.</li> <li>- USD invoicing is still dominant (above 90%).</li> <li>- RMB used in Indonesian imports remains low.</li> </ul>	<ul style="list-style-type: none"> <li>- China is Malaysia's largest import source with 12% of total.</li> <li>- Malaysia is China's largest trading partner among the 10 members of ASEAN.</li> </ul>	<ul style="list-style-type: none"> <li>- China is Singapore's largest trading partner while Singapore is China's third largest trading partner in ASEAN.</li> </ul>	<ul style="list-style-type: none"> <li>- The data shows from 2000 until 2015, the export from Philippines to the PRC and import from the PRC to Philippines always increases.</li> </ul>	<ul style="list-style-type: none"> <li>- The data shows from 2000 until 2015, the export from Thailand to the PRC and import from the PRC to Thailand tends to increase.</li> </ul>
Finance Agreement	<ul style="list-style-type: none"> <li>- In Oct 2013 BCSA with China 100 billion Yuan.</li> <li>- In 2015, BCSA 120 billion Yuan.</li> <li>- The arrangement will contribute positively to an increase in trade and direct investment, help provide short-term liquidity to stabilize the financial market, and help to overcome tight liquidity from overseas funds.</li> </ul>	<ul style="list-style-type: none"> <li>- August 2010 direct quotes between RMB and ringgit in the interbank foreign exchange market on the CFETS (China Foreign Exchange Trade System).</li> <li>- The RMB was included in the national RGS,</li> <li>- Bank Negara signed a MoU with the People's Bank of China (PBOC) in Beijing to establish yuan clearing arrangements in Malaysia.</li> <li>- In Apr 2015, agreement to renew its BCSA for a further term of three years with the size maintained at 180 billion yuan/ 90 billion ringgit</li> </ul>	<ul style="list-style-type: none"> <li>- In March 2013 Singapore increased the number of BCSA agreement to 300 billion yuan (before only a half ; 150 billion Yuan)</li> </ul>	<ul style="list-style-type: none"> <li>- In August 2003, BCSA with China 2 billion Yuan.</li> <li>- In 2006 Yuan is a currency convertible with the BSP, thus it is an acceptable currency for export receipts.</li> </ul>	<ul style="list-style-type: none"> <li>- In Dec 2011, BCSA with China 70 billion yuan.</li> <li>- Jan 2015 PBOC officially authorized ICBC (Thai) to act as RMB clearing bank in Thailand</li> </ul>
Country/ Explanation	Brunei Darusalam	Vietnam	Cambodia	Myanmar	Laos
Trade Condition/ Bilateral Agreement	<ul style="list-style-type: none"> <li>- Boosting trade between China and Brunei through Brunei-Guangxi economic corridor.</li> <li>- China is a third import origin for Brunei.</li> </ul>	<ul style="list-style-type: none"> <li>- In terms of trade, China is the largest market for Vietnamese imports and among the top markets for Vietnamese exports.</li> <li>- Agreements with China for Renminbi direct trading in Guangxi province.</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing trade relations between China and Cambodia, up to 3.75 billion USD in 2014, 4.31 billion USD in 2016, predicted to increase to 5 billion USD in 2016.</li> </ul>	<ul style="list-style-type: none"> <li>China is Myanmar's second destination export</li> </ul>	<ul style="list-style-type: none"> <li>China is Laos' top export destination.</li> </ul>
Finance Agreement	<ul style="list-style-type: none"> <li>- Baiduri Bank launched RMB Payment Services.</li> </ul>	<ul style="list-style-type: none"> <li>Vietnam keeps an eye on cross-linkage exchange rates between the RMB and other major currencies.</li> <li>Vietnam doesn't have currency swap agreement with China.</li> </ul>	<ul style="list-style-type: none"> <li>- In mid-2010, the RMB was widely accepted by shops in many tourist spots of Cambodia.</li> <li>Cambodia has announced that RMB is welcome in their markets.</li> </ul>	<ul style="list-style-type: none"> <li>Myanmar doesn't have a currency swap agreement with China.</li> <li>Feb 2014, the PBOC branch helped in the establishment of CITIC RMB Capital in Yunan Province.</li> </ul>	<ul style="list-style-type: none"> <li>- Nov 2012, ICBC Vientiane Branch was granted RMB clearing center status.</li> <li>2011, two Chinese banks started</li> </ul>

Source : Summarized from Hongfang (2013), Tuazon (2014), Shipat (2015)

## Results and Discussion

### The Impact of Renminbi on the Movement of ASEAN Member

#### Exchange Rates

For identifying the impact of Chinese Yuan/RMB exchange rate to the ASEAN member exchange rate, a simple regression following Frankel and Wei (1994) and Ogawa and Shimizu (2006) is used. We ran the regression for ASEAN-5 countries.

**Table 4.** Regression Result with Full Sample in ASEAN 5 countries

Country	Sample	USD/CHF	JPY/CHF	EUR/CHF	CNY/CHF	GBP/CHF	Constant	Adj R <sup>2</sup>	DW
Indonesia	2000M1-								
	2015M12	0.446*** (3.537)	0.045 (0.440)	0.326* (1.878)	-0.064 (-0.125)	0.222 (1.519)	0.003 (1.501)	0.247	1.702
Malaysia	2000M1-								
	2015M12	0.617*** (10.674)	0.265*** (7.176)	0.073 (1.140)	5.476*** (6.302)	-0.096 (-1.487)	-0.032 (-0.202)	0.920	0.311
Singapore	2000M1-								
	2015M12	0.539*** (15.494)	0.095*** (3.329)	0.146*** (3.056)	0.551*** (3.915)	0.124*** (3.080)	-0.001 (-1.199)	0.828	1.616
Thailand	2000M1-								
	2015M12	0.933*** (8.672)	-0.056 (-0.733)	0.060 (0.548)	0.493* (1.709)	-0.150 (-1.036)	0.002 (1.121)	0.745	1.326
Philippines	2000M1-								
	2015M12	0.846*** (13.169)	0.003 (0.056)	0.138 (1.569)	0.302 (1.163)	-0.008 (-0.102)	0.001 (0.838)	0.683	1.355

Source : Author's own

Note: Full sample 2000M1-2015M12

In all five ASEAN countries, the USD is statistically significant in determining the change of each exchange rate ASEAN members. What about Chinese Yuan (CNY)/Renminbi? CNY is statistically significant for ASEAN-5 members, except for Indonesia and Philippines. On the other hand, the Japanese Yen is significant only for Malaysia and Singapore. The Euro is significant only for Indonesia and Singapore. The Pound Sterling is not significant in ASEAN 5 members, except for Singapore. All currencies included in SDR (USD, Yen, Euro, Pounds, CNY) are significant in explaining the movement of the Singapore Dollar. The above result is the first general result with a complete model and full

sample and should be explored further. First, we should be careful of the multi co-linearity problem. There are potential correlations between each currency, especially with USD as the main international currency. Second, the sample could be divided into two sub-samples concerning the impact of ASEAN-China FTA. Increasing trade relations with China could increase the use of its currency.

The results of correction for the multi co-linearity problem are as follow.

**Table 5:** Regression Result Correcting For Multi co-linearity (Full Sample)

Country	Sample	Reg	USD	CHF	JPY	CHF	EUR	CHF	CNY	CHF	Constant	Adj R 2	DW
Indonesia	2000M1- 2015M12	(a)	0.535***	0.032	0.441***	-	0.003	0.258	1.663				
			(4.781)	(0.313)	(2.823)	-	(1.613)						
	(b)	-	0.048	0.454***	0.521***	0.004*	0.252	1.654					
			-	(0.469)	(2.903)	(4.598)	(1.891)						
Malaysia	2000M1- 2015M12	(a)	0.823***	-0.058	0.069	-	0.001	0.713	1.238				
			(16.919)	(-1.315)	(1.017)	-	-1.162						
	(b)	-	-0.007	0.062	0.861***	0.002**	0.747	1.279					
			-	(-1.579)	(0.329)	(18.673)	(2.247)						
Singapore	2000M1- 2015M12	(a)	0.590***	0.088***	0.211***	-	-0.000	0.808	1.559				
			(18.133)	(2.958)	(4.667)	-	(-0.989)						
	(b)	-	0.089***	0.212***	0.606***	0.000	0.820	1.588					
			-	(3.113)	(4.846)	(19.113)	(0.843)						
Thailand	2000M1- 2015M12	(a)	0.690***	0.064	0.170**	-	0.000	0.642	1.326				
			(12.599)	(1.262)	(2.222)	-	(0.008)						
	(b)	-	0.080	0.183**	0.686***	0.000	0.637	1.393					
			-	(1.644)	(2.418)	(12.652)	(0.721)						
Philippines	2000M1- 2015M12	(a)	0.844***	0.004	0.135*	-	0.000	0.684	1.348				
			(14.858)	(0.939)	(1.707)	-	(0.816)						
	(b)	-	0.017	0.146*	0.844***	0.001	0.679	1.355					
			-	(0.325)	(1.828)	(14.625)	(1.733)						

Source : Author's own

Note : \*\*\* significant in 1%, \*\* significant in 5%, \* significant in 10%



**Table 6.**Summary of Two Period Samples Results

Country	Before ACFTA		After ACFTA		CNY Share
	CNY	USD	CNY	USD	
Indonesia	0.356	0.368	0.816	0.828	Increase
Malaysia	0.877	0.870	0.861	0.772	Decrease
Singapore	0.573	0.564	0.637	0.607	Increase
Thailand	0.579	0.581	0.894	0.895	Increase
Philippines	0.820	0.808	0.826	0.851	Increase

Source : Author's own

between China and ASEAN, but also contributed to the regionalization of the renminbi.

From the several regression experiments, we have four of ASEAN-5 countries that have an increasing share of CNY in their currency after ACFTA implementation. The only country that has a decreasing share is Malaysia. The finding of increasing share is similar to Gui (2012). He also found that the effect of renminbi on ASEAN currencies has experienced a significant growth during the two sample periods while the effects of Japanese yen diminished. The renminbi is more likely to be the Asia anchor currency than Japanese yen. Gui (2012) also stressing the role of ASEAN-China Free Trade Area that not only increased the trade volume

## **2.The Factors Affecting Currency Invoicing: The Case of Indonesia**

The additional objective of the research is to analyze the factors that affecting currency invoicing for RMB/CNY But we apply only to the case of Indonesia because of data availability reasoning.

**Table 7.** Regression Result Factor That Determine Currency Invoicing

Dependent : LTOTAL\_USED=total Renminbi used in Indonesia trade

Sample: 2012M01 2015M12

Variable	<i>Model 1</i>		<i>Model 2</i>	
	Coefficient	t statistics	Coefficient	t statistics
C	-27.915	-1.681	-4.710	-0.576
LRESERVE	0.994*	1.818	0.354	0.935
LTOTAL_TRADE	0.579**	2.059	0.428	1.586
LMPI_PI	0.139	0.096	-0.550	-0.389
LEXCHRATE	4.581	1.597	-	-
LTOTAL_USED(-1)	0.578***	4.339	0.568***	4.189
Adjusted R <sup>2</sup>	0.317		0.292	
DW stat	1.637		1.604	
F statistic	5.358		5.848	

Source : Author's own

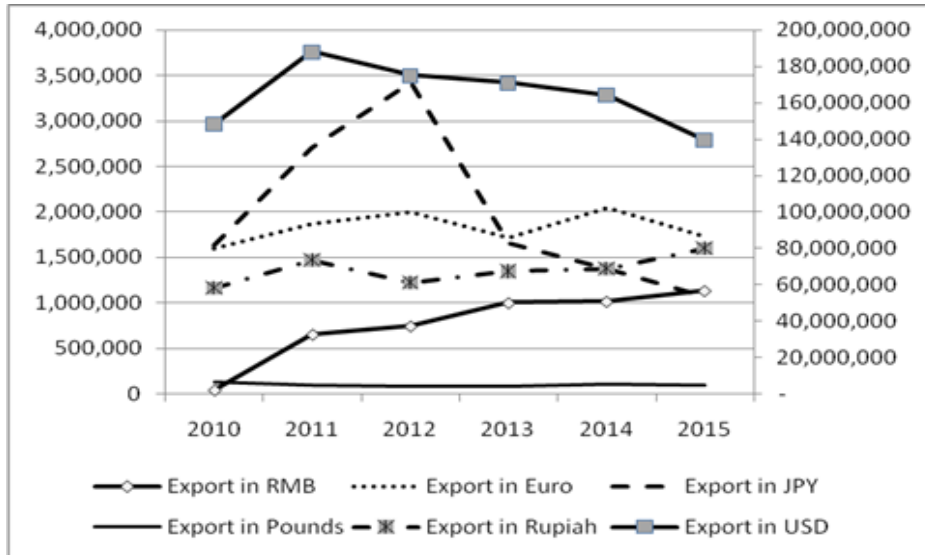
Note : \*\*\* significant in 1%, \*\* significant in 5%, \* significant in 10%

In theory of the demand for currency, the use of a country's currency is influenced by internal factors, external factors and an inertia factor. In the case of demand for RMB, an internal factor is China's foreign exchange reserve and China Manufacture Production Index. External factors are trade between Indonesia and China, and the inertia factor is the use of RMB in the previous period.

Based on the result of the regression, China's international reserve, total trade with China, and log of the RMB exchange rate are significant in determining the use of RMB. The China Manufacture Production Index did not significantly affect the RMB currency invoicing either in Model 1 or Model 2. Again, we find that trade could boost the use of RMB.

In Indonesia's case, it is clear that the export share in RMB invoicing has an increasing trend. On the other hand, the export share in USD and Japanese Yen has a decreasing trend. However, USD invoicing is still dominant in terms of number (still above 90 per cent, Figure 6 and 7).

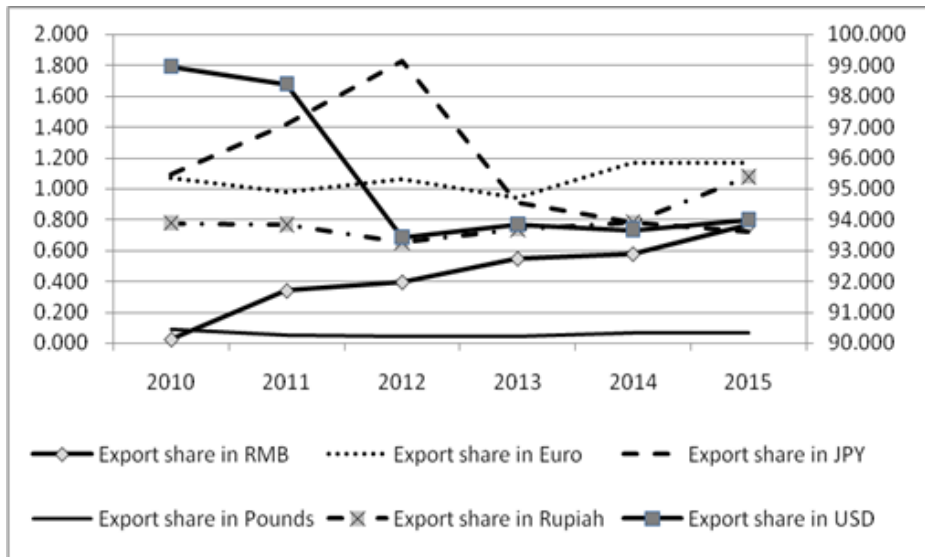
**Figure 6: Export Share in Five SDR Currencies and Indonesian Rupiah**



Note: LHS: Export Share in Euro, Pounds, JPY, RMB, Rupiah; RHS : Export Share in USD

Source: Central Bank of Indonesia Financial Statistics (External Sector)

**Figure 7: Import Share Five SDR Currencies and Indonesian Rupiah**



Note: LHS: Import Share in Euro, Pounds, JPY, RMB, Rupiah; RHS : Import Share in USD

Source: Central Bank of Indonesia Financial Statistics (External Sector)

In contrast to exports, RMB used in Indonesian imports is still low (even with a small increase) but still far from the other four SDR currencies. USD also has different trend. After tapering off, the decreasing trend diverts to an increasing trend. A strong USD is the reason for this diversion in pattern. Another interesting fact is that the import share in Rupiah has increased significantly in the observation period. The phenomenon is called local currency invoicing.

The fact that import invoicing for RMB is still low showed that even Chinese exporters still do not prefer to receive payments from Indonesian importers in the RMB denomination. To increase RMB internationalization in the future, Chinese exporters should have the preference of also using RMB (their own currencies) and not only USD. Indonesian imports from China have an increasing trend which is large in terms of value, but the use of RMB invoicing was very far from expected.

### **Conclusion**

From the data, we can conclude an increasing RMB role in ASEAN economies through the significance of RMB/CNY in explaining ASEAN member exchange rate movements. With the Asian financial crisis lessons learned, the Chiang Mai initiative, the increasing role of China in the world economy, increasing global turbulence, and also greater integration between ASEAN countries and China through ASEAN China FTA, and the strong USD and lack of USD liquidity, together could enforce the increasing use of RMB in ASEAN economy transactions. The regression results show the increasing importance of RMB in explaining ASEAN member exchange rate movements.

Increasing trade relations could boost the use and intensity of RMB used and diversify invoicing currencies in reducing exchange rate volatility to USD. The evidence comes from the increasing CNY/RMB share in the majority of ASEAN member countries after ASEAN China FTA. The increasing use of RMB/CNY also could relate to the effort from China in making BCSA with ASEAN members. BCSA could possibly facilitate the increasing use of RMB/CNY. The Indonesian case also gives empirical evidence for the significance of trade in the story of RMB used (even with sample limitations). For the next research topic, using all ASEAN member currency invoicing models, we could extend more

comprehensive analysis in finding the factors that affect currency invoicing and also assess the effectiveness of BCSA in increasing the use of RMB in ASEAN countries.

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