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The Effect of Exchange Rates on Agricultural Goods for Export: A Case of Thailand

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Abstract: This paper examined the relationships between exchange rates and the volumes of Thailand's top two majors agricultural goods export which were rice and rubber exports. The results indicated that exchange rates had negative significant effects on Thailand's agricultural goods export volumes. Results also showed that the exchange rates influenced total agricultural, rubber, and rice goods export volumes respectively. For the qualitative research, interviewing 17 business men who came from rice exports companies 6 persons and from rubber exports companies 11 persons used the in-depth interview. The results showed the effect of exchange rate had strong fluctuation then exporters could not handle it on time, and make the problems all parts of working in companies. Moreover, the best way to do hedging exchange rate risk for exporters, Companies had to book the forward contact in order to reduce the risk.

Keywords: *Rice, rubber, agricultural goods, exchange rate, Thailand*

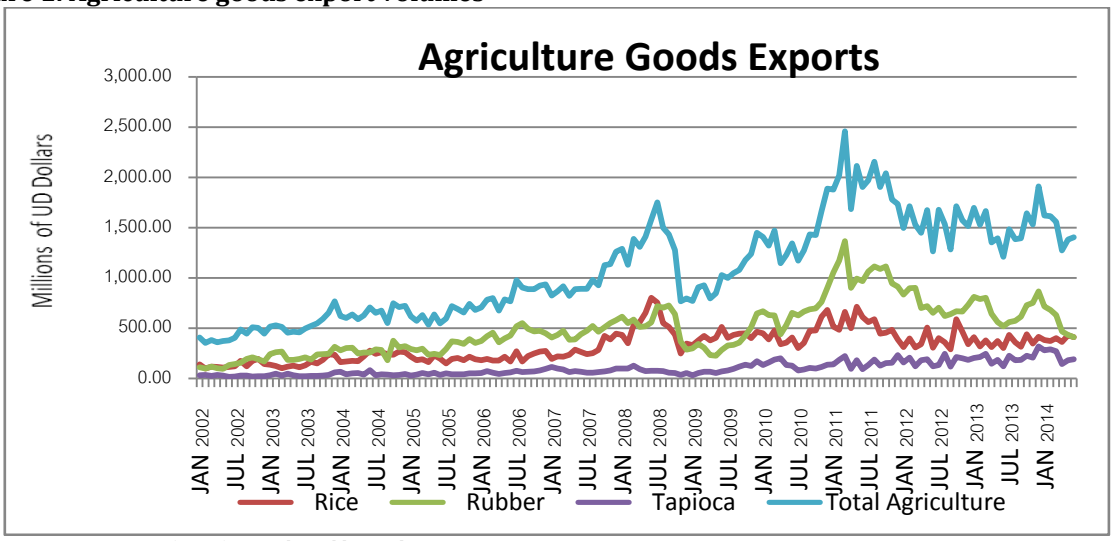
1. Introduction

Most developing countries' economic development relies heavily on export products with Thailand is no acceptation. Thailand's export volumes have moved from 66.092 US billions in the year 2002 to 225.40946 US billions at the end of 2013 (BOT, 2014) represented 341.05 present increase, and also Thailand's agricultural goods export volumes have moved from 5.06042 US billions in the year 2002 to 18.21699 US billions at the end of 2013 (BOT, 2014) represented 360.01 present increase, Theoretically, there are several major factors affecting on the movement of export volumes (Smith, 2004) which the country's exchange rates play major roles. The relationships between exchange rates and export volumes could be two ways; if the volumes of exports decline the country generate less foreign currencies making less ability to develop its economy which may resulted in weak currency value (Rhee, 2010; and Shane and Liefert, 2007). In the mean time, if the economic development is high, it may create inflation and strong value currency and raise up the export prices (Joumard and Reisen, 1992). The strong value of the currency affected directly on export volumes where the export prices seem to be too high for the import countries (Schnabl, 2001)

In the past decades, an increasing number of emerging-market economies have become victims to currency crises. Notable examples include the Mexican crisis in 1994, the Asian crisis in 1997 to 1998, the Argentine and Turkish crises, and subprime crisis in the US 2008. All the crisis make economic down turn and also widespread damage for economic in many countries, and have given rise to a large literature on the economic fundamentals that make countries vulnerable to currency crises (Jongwanich, 2006). The global economy after subprime crisis in the US in 2008 experienced turbulences caused by high inflation rates, resulted in many giant financial institutions facing huge losses and severe illiquidity. Some of them had to close down or remained in a shaky position, so international trades clam down in many countries and affect to exchange rate in each country also.

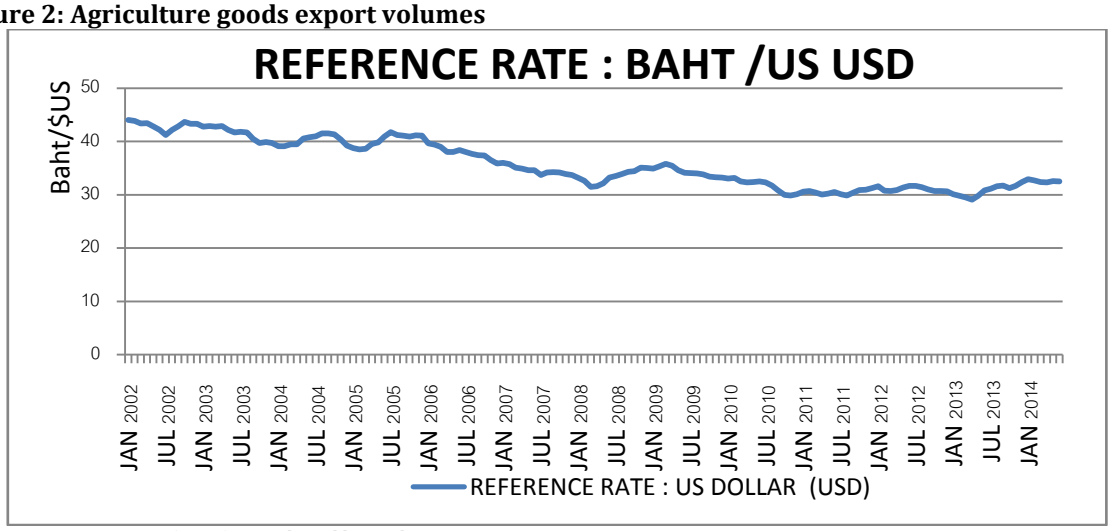
The exchange rate between two countries' currencies is particularly important because two countries heavily depend on trades which are imports and exports. The main economic growth of many countries are substantial part of exports more than imports, the exchange rate plays a particularly important role in the country's economy. For a small open economy, Thailand's economy has depended heavily on export sector for many years. However, in the long period, we find that the volumes of total agriculture exports from 2002 to 2014 showing on figure 1 continue to rise, and Thai Baht has fluctuation and still appreciation also from 2002 to 2014 showing on figure 2. Based on the exchange rate theories, the appreciation of Thai Baht in the past twelve years (2002 - 2014) may results in higher export prices which should end up with lower export volumes. Surprisingly, total of Thailand's agriculture export volumes have been increased since 2002 (BOT, 2014). Therefore, the purpose of this study is to empirical the relationships between the country's exchange rates and its agriculture export volumes specially on rice and rubber products.

Figure 1: Agriculture goods export volumes



Source: BOT (2014), Developed by authors

Figure 2: Agriculture goods export volumes



Source: BOT (2014), Developed by authors

Research problem: This study suggested that after Thailand's exchange rates is appreciated; the country is expected to export fewer products into the world markets due to the higher prices of the products. However, Thailand's agricultural exports volumes during 2002 to 2014 presented increasing exports volumes. Moreover, the exchange rate has rapidly changing over short time periods and has high volatility which affect agriculture exporter has the difficult time to pricing agriculture products. Therefore, this study aims to analyze the behavior of exchange rate, the accuracy of effective of exchange rate can make a best decision on exchange rates for two top of agricultural products exports. There is a question needed to be clarified agriculture exports volumes in rice and rubber products affect on Thailand's exchange rates.

Research Objectives: The purpose of this study is to investigate the effects of exchange rates on agricultural goods exports which are rice, rubber, and total agricultural goods in a small open economy like Thailand.

Hypothesis

H_0: There is no statistically significant relationship between Thailand's agricultural goods exports and exchange rates

Ho_1: There is no statistically significant relationship between Thailand's rice exports and exchange rates

Ho_2: There is no statistically significant relationship between Thailand's rubber exports and exchange rates

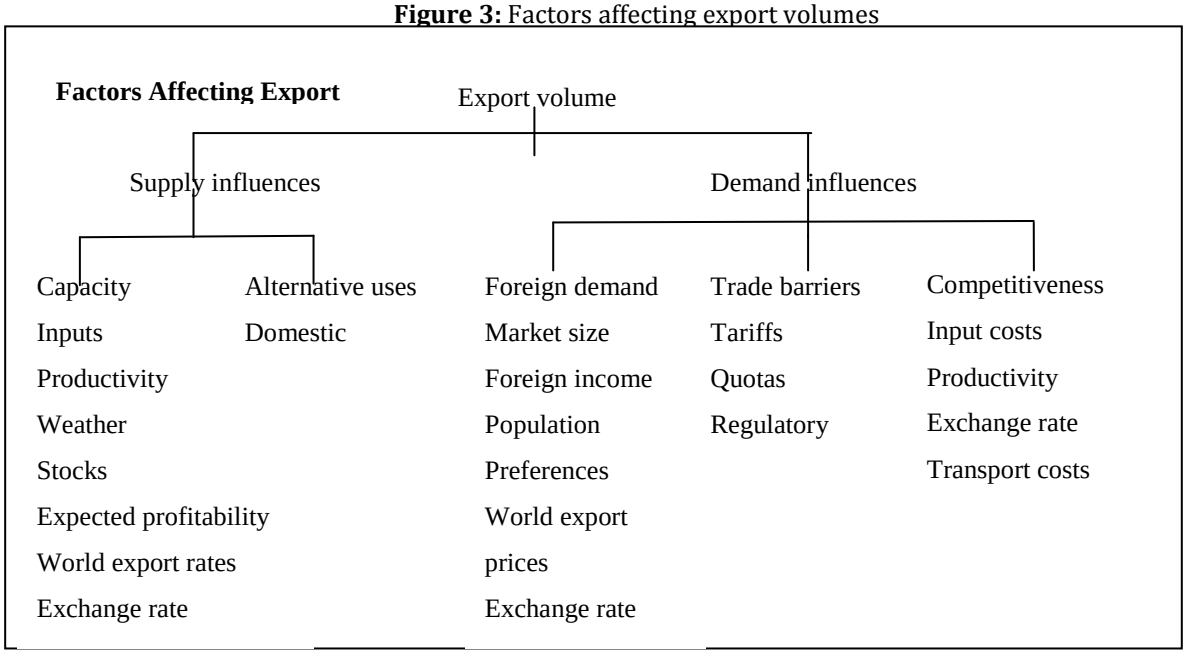
Ho_3: There is no statistically significant relationship between Thailand's total agricultural exports and exchange rates

Scope of Research: This study explores on the top two categories of agricultural exports goods in Thailand which are rice and rubber. Based on the data from Bank of Thailand's Export Classified by Product Groups, rice exports accounted for approximately 24.26 percent and rubber exports 45.20 percent of the country's total agricultural exports in 20013 (BOT, 2014). The data used in this study was obtained from the Bank of Thailand for the period from January 2002 to June 2014 which was 150 months.

2. Literature Review

Following Mundell Fleming model, many studies found that for small open economies, exchange rate appreciation would have negative impacts on exports and have positive impacts on imports. Smith (2004) investigated how export volumes (as opposed to export values) are influenced by the exchange rate and other factors. The author found that export sectors respond differently to the same exchange rate movement, with exports of services volumes (which include tourism) more exchange rate sensitive than export volumes from the agricultural sector. The author also found the real exchange rate affects volumes differ by sector. Exports of services volumes respond to the real exchange rate with a lag of 18 months. However, it only takes about a year for the real exchange rate to have an effect on most of food export volumes. Manufacturing export volumes appear to respond to the real exchange rate with a lag of 12 to 15 months.

Figure 3: Factors affecting export volumes



Source: Smith, 2004

The Effect of Exchange on Export Volumes

The Effect of Exchange Rate on Exports: Bunchapattanasakda (2001*)* found the significant relationships between the volume of Thailand's import of intermediate and raw material products and export volumes. The results explained why low volume of imports of intermediate products may possibly cause the low volumes of Thailand's exports, and changed in exchange rate may not have an impact on its export volumes. Poon, Choong, and Habibullah (2005) found exchange rate volatility has a statistically significant negative impact on real exports in most countries. Awokuse and Yuan (2006) found the effect of exchange rate uncertainty on trade was generally conflicting and inconclusive. The author suggested that the choice of volatility measure matters as there was a positive relationship between exchange rate uncertainty and poultry exports. Moreover, Dekle & Ryoo (2002) used Japanese firm level data to examine whether exchange rate fluctuations were strongly related to the export quantities of firms and found export volumes at the firm level were significantly affected by exchange rate fluctuations. However,

Klein (1990), McKenzie and Brooks (1997), and Aristotelous (2001) found that exchange rate volatility played no significant role in trade volume.

The Effect of Exchange Rate on Agriculture Products: Okputu, Opue, and Bankong (2012) confirmed the lagged values of exchange rate devaluation had a significant and positive relationship with agricultural export commodities but of a higher magnitude in the total agricultural export commodities than in the individual products in Nigeria, whereas the current values were not statistically significant at 5% level. However, Fidan (2006) studied dynamics of the agricultural export, and the real effective exchange rate (REER), found positive effect on the REER on the agricultural export and import was not very great and the duration of the effects was short. Kristine, and Anderson (2002) assessed the macro policy impact on the agricultural crop markets of the Sudan, demonstrated the overvalued exchange rate had a negative effect on the agriculture trade sector.

Baek & Koo (2009) showed results, in the long run, while U.S. agricultural exports were highly sensitive to bilateral exchange rates and foreign income, in the short run, on the other hand, both the bilateral exchange rates and income in the United States and its trading partners were found to have significant impacts on U.S. agricultural exports and imports. Elgali and Mustafa, (2012) found that exchange rate volatility had a negative impact on developing country exporters' agricultural trade. This effect, however, was small and quite comparable to the effect on aggregate trade. Cho, Sheldon, and McCorriston's (2002) found trade among G-10 country pairs authors consider and that exchange rate volatility was not affect agricultural exports more than overall exports for developed country exporters in general. Wang and Barrett (2007) found monthly exchange rate volatility affects agricultural trade flows, but not trade in other sectors in Taiwan. Kayode (2003) revealed that the low elasticity suggests potentially limited volume of agricultural export earning in response to the devaluation of the local currency.

The Effect of Exchange Rate on Rice: Molina, Mohanty, Pede and Valera (2013) obtained evidence the real exchange rate volatility had a significant negative effect on the volume of Thai rice exports, and showed aggregate exports rise less and imports fall less, the impact of the devaluation on the balance of trade was weakened, and aggregate agricultural output falls instead of rising. Intervention in the rice market thus hinders the process of structural adjustment that would normally take place with a major devaluation of the exchange rate. Robinson, El-Said, and San (1998) examined the impact on the Indonesian economy of changes in rice yield and exchange rates given different assumptions about the operations of BULOG (National Logistic Agency). An important result was that there was inefficient allocation of resources within agriculture and the rest of the economy if BULOG operates to maintain the rice price when there were significant increases in rice productivity or changes in the exchange rate. Mosavi, Esmaeili, Azhdari (2014) studied evaluates the economic effects of the Nominal Exchange Rate (NER) depreciation on the rice market, using spatial price equilibrium model. The results suggested that decreasing the NER would be detrimental. Also, the regional effects were found to vary, depending on being a net exporter or a net importer region.

The Effect of Exchange Rate on Rubber: Sang, Sriboonchitta, Huang, and Wiboonpongse (2013) observed that the exchange rate return of the Thai Baht can affect the rubber price return, indicated the trade volume was an important factor in international product pricing. Abolagba, Onyekwere, Agbonkpolor, and Umar (2010) examined the factors that influence agricultural exports with Rubber, and revealed that rubber export is influenced significantly by domestic rubber production, producer price, exchange rate, domestic consumption and interest rate. Mohamad ,Nair, Kamaruzaman (2009) discussed the impact of exchange rates on the export performance of selected ASEAN (Association of South East Asian Nations) economies, namely, Indonesia, Malaysia, Singapore and Thailand. The authors constructed an empirical model to account for the role of the real exchange rate and other economic fundamentals such as macroeconomic stability, terms of trade, capital goods investment, external demand and human capital, and found more affected by exchange rate changes than the more resource-based industries such as wood and rubber. Phoong & Ismail (2013) explored the relationship between rubber price and exchange rate for Malaysia, Thailand, Philippines and Indonesia by using Mixture model. Results found that rubber price effect on the change of exchange rate for Malaysia, Thailand, Philippines and Indonesia**.** Sadali (2013) investigated the determinant that make natural rubber price volatile , the dependent variables for this study were volatility natural rubber price in Malaysia, while the independent variables were crude oil petroleum price, inflation, export and import. The results had negative relationship with the rubber price in Malaysia

The Effect of Exchange Rate on Others Agriculture Products: The research studied the effect of exchange rate on the other agriculture were Sun, Kim, Koo, Cho, and Jin (2002) studied on the wheat trade found short and long-term measures of exchange rate volatility were constructed and compared. The authors measured of exchange rate volatility had exhibited a negative effect on world wheat trade and the long-term effect was even larger. The result implied that exchange rate volatility was an important factor in explaining the trade pattern of wheat trade worldwide. Lee and Fairchild (2006) studied US fresh grapefruit for the period from 1972 through 1986 and found US fresh grapefruit had more than one export market, with different markets responding differently to price changes. Paudel, Adhikari, Houston, and Kinnucan (2007) studied cotton, used equilibrium displacement framework to evaluate whether the efficacy of export promotion expenditures could be increased by linking them with changes in the exchange rate, and the gross gain to domestic cotton producers from the exchange rate linked subsidy scheme was positive. The authors found support exchange rate linked subsidies for export promotion of agricultural products.

The Effect of Exchange Rate on Manufacturing Products: Oguro, Fukao, and Khatri (2008) investigated both theoretically and empirically the sensitivity of trade to exchange rates in the presence of intra-industry trade (IIT) by estimating industry-specific panel regressions for six manufacturing industries for thirty-eight trading pairs that include China, the United States, and Japan. The empirical results provided strong support for the idea that the negative impact of exchange rate appreciation on exports moderates as the degree of trade to exchange rates in the presence of intra-industry trade (IIT) increases (as a result of a lower elasticity of substitution among differentiated products). Harchaoui, Tarkhani & Yuen (2005) examined the relationship between exchange rates and investment during the period 1981–97 Using industry-level data for 22 Canadian manufacturing industries. Their empirical results showed that the overall effect of exchange rates on total investment is statistically insignificant. Thorbecke and Zhang (2009) examined how an appreciation of the RMB (Chinese currency) and of exchange rates in countries that compete with China would affect China's labor-intensive manufacturing exports, constructed a panel data set of China's exports of labor-intensive manufactures to 30 countries. Evidence from dynamic ordinary least squares estimation indicated that an appreciation of the RMB would cause a substantial decline in labor-intensive exports from China, and found depreciations in countries that compete with China would cause a substantial drop in China's exports. Prapassornmanu (2009) investigated the effects of exchange rate changes on investment of manufacturing firms in Thailand during the period between 2001 and 2005. The result showed exchange rate depreciation tends to increase expected profits and then investment of firms heavily reliance on export sales.

3. Methodology

This study obtained quantitative and qualitative analysis by using secondary and primarily data. The secondary data was reference rates of Baht per 1 US dollar of exchange of commercial banks in Bangkok Metropolis, and Thailand's export volumes classified by product group for agriculture which were rice, rubber, and total agriculture products. The samples used in this study were the 150 months rice, rubber, and total agriculture exports volumes and exchange rate reports during the period from January 2002 to June 2014 obtained from the Bank of Thailand's Financial Statistics site. The primary data was in-depth interviewing from rice and rubber exports companies**.** Quantitative analysis used the secondary data by collecting from Bank of Thailand for150 months which were the value of exchange rates (Baht per US dollar) used as an independent variable and the value of rice, rubber and total agriculture export volumes used as a dependent variable in hypothesis one to hypothesis three. The data would be process using the SPSS Package software program. The data that were entered into the Package software program data matrix were the actual data. This study would use linear regressions to find the relationship between exchange rates and export volumes using regression model (Stockburger, 1996) is y = a + bx for export volumes function was as follows:

$$y = a + bx$$

where
y = agriculture goods export
x = exchange rates

Qualitative analysis used the primary data by interviewing from Thai business men who had been working on rice and rubber products exports using in-depth interview which followed the scope of guide line a questionnaire. The authors contacted interviewees who worked in rice and rubber exports

companies by via e-mail, telephone, and individual interview which the purposive, convenience, and snowball technique regarding to this study in the year 2013 to 2014.

4. Results

The Quantitative Analysis Results: The results rejected the H_0 because sig. value were less than 0.05 (sig. <0.05), that showed slope b were not equal zero. The regression analysis showed relationships between exchange rates and agricultural export, as shown on Table 1 which was presented relationships between exchange rates and rice, rubber and total agriculture goods were significant at 0.000. However, the results showed no relationship between the exchange rates and agricultural goods was inelastic demand. The functions of export volumes and exchange rates were as follow:

$Y = a + bx$
$Y_1 = 1{,}280.032 - 26.775x$
$Y_2 = 2{,}110.387 - 48.011x$
$Y_3 = 4{,}511324 - 97.287x$
X = Exchange Rate
Y_1 = Rice Y_2 = Rubber Y_3 = Total Agricultural Goods

The result of the regression method was presented in table 1, a correlation coefficient (r) of total agricultural export that was 0.903 which shown the relationship between exchange rates and total agricultural exports was 90.3 percent, and the influence of exchange rates on agricultural export volumes was 81.5 percent; a correlation coefficient (r) of rubber export that is 0.829 which showed the relationship between exchange rates and rubber exports was 82.9 percent, and the influence of exchange rates on rubber exports was 68.8 percent; a correlation coefficient (r) of rice export that was 0.788 which showed the relationship between exchange rates and rice exports was 78.8 percent, and the influence of exchange rates on rice exports was 62.1 percent.

Table 1: Relationship between Exchange Rate and Agricultural Goods

Variables	**Rice**		**Rubber**		**Total agricultural goods**	
	coefficients	*t*	coefficients	*t*	coefficients	*t*
R^2 = 0.621			R^2= 0.688		R^2 =0.815	
R = 0.788			R = 0.829		R = 0.903	
y-intercept	1,280.032	*20.732*	2,210.387	*23.129*	4551.324	*33.298*
bi	-26.775	*-15.583*	-48.011	*-18.052*	-97.287	*-25.576*

The results of effect of exchange rate on agricultural good export on multiple regression show:

- If the exchange rate increase one unit (Baht xx.0001 per US dollar), the volume of rice decrease by US 26.2775 millions.
- If the exchange rate increase one unit (Baht xx.0001 per US dollar), the volume of rubber decrease by US 48.011 millions.
- If the exchange rate increase one unit (Baht xx.0001 per US dollar), the volume of total agricultural goods decrease by US 97.287 millions.

Thai Bath value depreciation effected on agricultural goods such as rice, rubber and total agricultural goods would decreases on export volume. According to the Theory, Demand in agricultural products export is inelastic.

The Qualitative Analysis Results: Qualitative analysis used the primary data by interviewing from rice and rubber exports companies of agricultural products. The in-depth interviewees took place to collect information from the key informants among executives, operation levels, and a government officer by following the scope of guide line a questionnaire. The authors contacted 17 samples who were rice companies 6 samples and rubber companies 11 samples.

Table 2: Results of qualitative research from interview of rice business men

Information	Percentage , (Frequency)			
Gender	Male (4)	Female (2)		
	66.67%	33.33%		
Working Position	Executives (4)	Operational levels (2)		
	66.67%	33.33%		
Main Products	White Rice (4)	White Rice White Glutinous Rice (1)	White Rice Parboiled Rice (1)	
	66.66%	1.67%	1.67%	
Volume of Export (ton)	20,000 (1)	50,000 (3)	60,000 (1)	5,000,000 (1)
	20%	40%	20%	20%
Hedging Risk	Forward contract (5)	Forward contract and Option (1)		
	83.33%	16.67%		
Pricing or Quote	Made by marketing department (6)	Done pricing when had order from customers (6)		
	100%	100%		
When the company make forward contract	Customer ordered products (3)	Fluctuated of exchange rate (2)	Depend on exporter expected the value of Bath, and decided to buy forward contract when had order from customers. (1)	
	50%	33.33%	16.67%	

Source: Qualitative survey

The empirical results of the effect of exchange rate on rice exports had shown on Table2. In this regard for rice export companies, The information obtained 6 samples which 4 persons (66.67%) gave the permission to interview individually which were all executives who were director, managing director, assistant vice president, and deputy managing director, and 2 persons (33.33%) were accountants and interview by phone and e-mail. The main products were white rice (66.66%), white rice and white glutinous rice (1.67%), and White Rice and Parboiled Rice (1.67%). Volumes of rice export per a year were 20,000 tons (20%), 50,000 tons (40%), 60,000 tons (20%), and 5,000,000 tons (20%). All rice companies did hedging foreign exchange risk by forward contract (83.33%) and forward contract and option (16.67%). Price quotation was made by marketing department and done when customers ordered products (100%), companies would make forward contract when customers ordered products (50%), exchange rate had fluctuation (33.33%), and the last, depend on exporter s expect value of Thai baht and decided to buy forward contract when the customer ordered products (16.67%).

The company's trade partners were Europe, US, China, Indonesia, Africa, Nigeria, Hong Kong, India, Colombia, and Netherlands. Factors effect on exchange rate fluctuation were World economic, Thai economic, cash inflow and outflow from foreigner, stock Investment from foreigner, investment from foreigner, interest rate, international reserve, BOP, government policy, political , cash inflow for speculation of foreigner, production of agricultural decreased. The effect of exchange rate on rice exports would have the problems and obstacles, if the exchange rate had strong fluctuation or quick movement, exporter could not handle it on time which would affect on all part working of company, and the companies would have profit or lost form foreign exchange, because exporters would receive less Thai baht from customers payment, if they did not book hedging foreign exchange risk. In case of the subsidiary company ordered rice from the company, companies could negotiate price from subsidiary company for fluctuation of exchange rate to reduce risk. Other problems were high price raw material and quantity of raw material did not have standard for exporting. However, if exchange rate had slow movement, it would not have the problems for them because traders usually had to add more calculation in price quotation for exchange movement, The problem of Thai baht is stronger, it would increase price, decrease total sale, because the customers would buy the products from other countries which had cheaper price. On the other hand, if it had weaker of Thai baht, exporters would take advantage for receiving more payment, decreased price of products, and also could have increase on total sale but importers would have disadvantage for paying more payment.

Table 3: The Results of Qualitative Research from Interview of Rubbers Business Men

Information	Percentage , (Frequency)			
Gender	Male (4)	Female (6)		
	40%	60%		
Working Position	Executives (4)	Operational levels (5)	Government officer (1)	
	40%	50%	10%	
Volume of Export (million baht)	10 (1)	700-800 (2)	1,000-4000 (6)	10,920 (1)
	10%	20%	60%	10%
Forward contract could cover hedging	Some hedging (8)	All hedging (2)		
	80%	20%		
When the company make forward contract	Sold products (5)	Fluctuated of exchange rate (3)	Expected stronger of Bath (1)	
	55,56%	33.33%	11.11%	

Source: Qualitative survey

The empirical results of the effect of exchange rate on rubber exports had shown on table 3. The information obtained 11 samples which 4 persons had 4 persons (40%) were executives; 5 persons (50%) were operational level; and 1 (10%) was a government officer which assistant director who gave the permission to interview individually, 10 people from rubber company exports were interviewed by phone and e-mail, all informants were 4 males (40%) which the working position were assistant managing director; exports officer; sales co-ordination, government officer, and 6 females (60%) which the working position were international marketing manager, marketing officers, assistant marketing manager, director, marketing offices, and financial officer. The ages were between 27-48 years old, the working experiences were between 1 to 24 years. The main products were RRS, TRS, compound rubber, concentrated latex, and crepe rubber. All rubber companies were hedging foreign exchange risk by forward contract (100%). Price quotation was made by marketing department and consider by world price, forward market price (AFT/TOCOM/STCOM/SHEF), marking price; competitor price, selling price in Thailand (HDY, NAKHORN, SURAT, BURIRAM, NHONGKAI, YALA) and Singapore. Cost of products price, raw material price, daily exchange rate, weather, product stocking (raw materials, work in process, finish goods), products demand, economy situation. Companies would make forward contract when they sold products (33.33%); and expected of stronger baht (11.11%).

The rubber company's trade partners were China, India, South Korean, Hungary, Japan, Malaysia, Europe, Brazil, and Nigeria. Factors effect on exchange rate fluctuation were interest rate, international reserve, BOP, government policy, politics**,** world economy, cash inflow form foreigner, GDP, economy of country, the credit rating by standard and poor, public debt, and speculating in money market. Moreover, the effect of exchange rate on rubber exports would have the problems and obstacles, when the exchange rate had strong fluctuation,

- It was difficult to expect the risk, hard to decide buying the raw material.
- Companies could get loss from exchange rate. In case stronger baht would decrease total sale because the customer would not buy the products, so traders would adjust to decreases products pricing.
- Companies could get more profit and loss from exchange rate fluctuation, if company booked forward contract which can cover hedging foreign exchange risk.

In conclusion of the effect of exchange rate on rice and rubber exports obtained from the in-depth interviews of respondents was analyzed using content analysis and presented in each category. In this regard for rice export companies, 6 persons which were 4 executives, and 2 persons, the main products were white rice, white glutinous rice, and parboiled rice. Rice export volume per year was 20,000 tons to 5,000,000 tons. Companies did hedging foreign exchange risk by forward contract only and forward contract and option. The results of rubber export companies interviewed 11 persons that were 4 executives, 5 operational levels, 1 government officer, and 1 not answer. Ages were between 27-48 years old. The working experiences were between 1 to 24 years. The main products were RRS, TRS, compound rubber, concentrated latex, and crepe rubber. All companies made hedging foreign exchange risk by forward contract. For both rice and rubber companies, price quotation was made in USD by marketing department, and considered by world price, forward market price; marking price, competitor price, selling price in Thailand and Singapore, daily exchange rate, economy situation, and etc. Companies

would make forward contract when sold products, exchange rate had fluctuation, and depend on exporters expect value of Thai baht. Factors effect on exchange rate fluctuation were World economic, Thai economic, cash inflow and outflow from foreigner, stock investment from foreigner, interest rate, international reserve, BOP, government policy, political , production of agricultural decreased, GDP, the credit rating by Standard and Poor, public debt, and speculating in money market .

The effect of exchange rate on rice exports would have the problems and obstacles, if the exchange rate had strong fluctuation or quick movement, exporter could not handle it on time, difficult to expect the risk which would affect on all part working of company, and the companies would have profit or lost form foreign exchange. Therefore, the company had to book forward contract to reduce hedging foreign risk. In case of the subsidiary company ordered rice from the company, companies could negotiate price from subsidiary company for fluctuation of exchange rate to reduce risk. Other problems were high price raw material and quantity of raw material did not have standard for exports. The problem and obstacles of exchange rates fluctuation for rubber exports were difficult to expect the risk, hard to decide to buy raw material, companies could get loss from operations, and profit or loss from exchange rate fluctuation.

Discussion of Results: The results from regression analysis showed that exchange rates had effect the movement of Thailand's agricultural exports factors with high confidence interval statistics testing. The coefficients of determination were acceptable in high level: 90.3, 82.9, and 78.8 percent for total agricultural, rubber, and rice exports index. Results depreciation of exchange rate effect on total agriculture, rice and rubber exports was significant but had negative relationship. Thai Bath value depreciation (the exchange rate increase) effected on agricultural goods such as rice, rubber and total agricultural goods would decreases on export volume. According to the Theory, Demand in agricultural products export was inelastic. When the value of Bath decrease (Exchange rate goes up), P/Q was going down. Price went down, but the quantity of export did not go up more, If the number was less than one, demand was inelastic. In other words, quantity changes slower than price. This is in agreement with Elgali and Mustafa, (2012) who reported a negative impact on developing country exporters' agricultural trade, Molina, Mohanty, Pede and Valera (2013) who found the real exchange rate volatility had a significant negative effect on the volume of Thai rice exports. Moreover, This finding is in agreement with Sadali (2013) who also reported a negative relationship between rubber export and exchange rate, and Abolagba, Onyekwere, Agbonkpolor, and Umar (2010) who also had significant on exchange rate and rubber exports. For the qualitative research, the authors interviewed 17 persons from 6 persons of rice companies and 11 persons of rubber exports companies by the in-depth interview. The results showed the effect of exchange that the strong fluctuation of exchange rate, exporter could not handle it on time, and make the problem all part working in companies such as marketing, finance, accounting, purchasing, and production department. Companies had to book the forward contact to reduce the risk in order to manage risk of exchange rate and make more profit.

Implementation: The results indicated that the value of the Baht depreciation had strong negative relationship with agriculture, rice and rubber products for exports. It means that those agriculture products should well plan for their production line such as well manage inventory of raw materials. The agriculture products should monitor closely on exchange rate fluctuation and use it to forecast demand of their agriculture products for exports. Furthermore, the results from this study would benefit to rice and rubber exporter, farmer, and related government agencies in order to be able to forecast demand and supply of rice and rubber products when the currency value changes.

5. Recommendations

The recommendations for the future research of this papers, the researcher should investigate others variables in this papers such as government monetary policy, real exchange rates, inflation rates, and cash inflow from stock market in order to develop the finance model of the effect of exchange rate on agricultural exports specially on rice and rubber exports. It was recommended that the Thailand government set up monetary policies to control the rubber price and rice price, and control the volatility of exchange rate of Thai Baht. According to the dominant negative effect of Thai baht depreciation, In the short term, Thai government should make adjustment on policy to promote rice and rubber exports such as encouraging more resources in the agricultural products, improving the quality of agricultural products, reducing the costs of agricultural export by provide cheap agricultural inputs raw materials in order to get more advantage on price competitiveness. In the long term, Thai government should set up

monetary policies to control the rubber price and rice price, and control the volatility of exchange rate of Thai Baht.

Limitation: This study does not takes in to the other export goods such as manufacturing, fishery, forestry, and mining export volumes, and the others economic indicators such as inflation rate, foreign direct investment, capital inflows, trends in import, and etc. which effects of exchange rates in order to determine the changes in both exchange rates and agricultural goods export volumes. The time period between January 2002 to June 2014 uses in this study is not long enough to present all exchange rate regimes that Thailand's government used to have before 2002.

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