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Impact of exchange rate volatility on the export of Thailand's key agricultural commodities to ASEAN countries

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Abstract

The key export markets of Thai agricultural commodities have recently shifted from China, the United States, and Japan to ASEAN countries. Nonetheless, exporters unavoidably encounter problems from exchange rate volatility. The question is to what extent does exchange rate volatility impact the export value of Thai agricultural commodities to the ASEAN market. To address this question, in the present study calculations were performed of exchange rate volatility based on a moving sample standard deviation of the percentage real effective exchange rate. Also, estimations were made of the dynamic relationship between the export of agricultural commodities and exchange rate volatility based on the Johansen co-integration test and error correction model. The significant findings are as follows: exchange rate volatility has a relation in the long run with most of the exports of agricultural commodities from Thailand to the ASEAN market. Furthermore, exchange rate volatility has an impact on the export of Thai agricultural commodities to the different markets in the ASEAN region, but with a variable direction of impact. For most exporters of Thai agricultural commodities, this is likely to have a positive impact because most exporters are small and medium-sized enterprises who might have an inadequate understanding of techniques for hedging foreign exchange risks and thus are more willing to face the risks in order to maintain their market share in the high potential ASEAN market.

Introduction

The Office of Agricultural Economics has reported that trade in the ASEAN market has expanded in recent years as a result of the growing economic importance of the ASEAN Economic Community. With the market continuing to grow, it presents an increasing opportunity for high quality Thai agricultural commodities. However, it is important to enhance the competitiveness of Thai goods through taking advantage of the body of knowledge and technology available related to efficient agricultural production, with an aim to reduce costs and improve production efficiency on a continual basis. In 2016, the export markets for Thai agricultural commodities in Indonesia and Vietnam grew by as much as 18.62 percent and 31.52 percent, respectively, while the existing export markets, including China, Japan, and the United States, showed much lower growth rates.

According to data from the Ministry of Commerce, during 2011–2016, Thai exports to ASEAN countries mainly involved 11 major agricultural commodities: maize; rice; rubber; tobacco; herbs and spices; fresh, chilled, and frozen chicken; fish; shrimp; pork; and fresh, chilled, frozen, and dried vegetables and fruit. Further, Thailand's export values of maize to the Philippines, Indonesia, Myanmar, Vietnam, and Cambodia increased annually at an average of 141 percent, 58 percent, 56 percent, 47 percent, and 37 percent, respectively, albeit the values of those markets in each country fluctuated from year to year. With respect to fresh, chilled, frozen, or dried fruit, Thailand's exports to Indonesia, Singapore, and the

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Philippines were approximately valued at 2070, 379, and 132 million Baht, respectively. In the Philippines, exports showed a prominent increase annually, at an average of 31 percent, but fluctuated from year to year. At the same time, Thailand's export values of rubber to Laos, fresh, chilled, or frozen fish to Vietnam, and fresh, chilled, or frozen fish to Malaysia increased dramatically from 2011 to 2016. More specifically, Thai tobacco found a promising market in the Philippines, while Myanmar represented a growing market for Thai herbs and spices. Unfortunately, Thailand's export value of fresh, chilled, frozen, or dried vegetable to Indonesia decreased on average by about 28.67 percent.

While there are clearly markets for high-quality produce from Thailand, as Thailand's financial system operates under the managed floating exchange rate system, the currency exchange rate can fluctuate depending on the demand and supply of foreign currency, which can impact import and export markets. From a theoretical perspective, Ethier (1973) succinctly proposed that assuming a firm is risk averse in its decision-making, as its revenue relies on the future exchange rate, its level of international trade will be sensitive to fluctuations in the exchange rate, which could cause a decrease in its level of international trade when the exchange rate is not favorable. Therefore, uncertainty in the currency exchange rate is considered one of the key factors influencing the exports of Thai agricultural commodities and as such it would be interesting to explore how exchange rate volatility can affect the export of Thai agricultural commodities to the ASEAN market.

Literature Review

During the early 1970s, research on the macroeconomics of agriculture in the United States only placed importance on a closed economy model. However, in March 1973 the United States changed its foreign currency exchange system to a flexible exchange rates regime, prompting research on the impacts of the currency exchange rate on the agricultural section to increase and since then more reports have been progressively published (Schuh, 1974, 1976, 1979), such as on the development of a product demand and supply model to analyze the impacts of the currency exchange rate (Chambers & Just, 1979, 1980, 1981, 1986), estimation of an export model to demonstrate the real flexibility of the currency exchange rate against the exports of the agricultural commodities of the United States (Batten & Belongia, 1986), a proposal concerning the policy issues on the currency exchange rate of trading competitors of the United States and issues with the currency exchange rate system not reflecting real currency value in developing countries, thus affecting the international trading of the agricultural products of the United States (Grigsby & Arnade, 1986).

From 1990 to the present, research on the currency exchange rate and its impact on the trading of agricultural commodities in an international context has focused on real exchange rate volatility, where the volatility can be calculated by several methods, including the moving average standard deviation, ARIMA model, ARCH model, and GARCH model. At the same time, the analysis of the impact of exchange rate volatility on the trading of agricultural commodities includes long-run equilibrium analysis applying the method of ordinary least squares or panel data analysis as well as dynamic analysis by the cointegration test and error correction model. The body of research in the literature covers both developed countries, such as the United States (Saunders, Biswas, & Mohapatra, 1999), Taiwan (Wang & Barrett, 2002), Canada (Gervais, Larue, & Bonroy, 2004), G-10 countries (Kandilov, 2008), and OECD countries (Kafle & Kennedy, 2015), and developing countries, including Nigeria (Adubi & Okunmadewa, 1999), Uganda (Cameron, Kihangire, & Potts, 2005), Iran (Goudarzi, Khanarinejad, & Ardakani, 2012), Turkey (Davis, 2014), Bangladesh (Hasan, Muktadir Al Mukit, & Islam, 2015), and Rwanda (Vallence, 2016), and ASEAN countries, such as Thailand (Chaiseree, 2011; Jiranyakul, 2013; Satawatananon, 2014), Malaysia (Zakaria, 2013), and Vietnam (Cuong & Toan, 2016). They range from case studies overviewing agricultural commodities to specifically focusing on significant agricultural products. Whether currency exchange rate fluctuations have a negative or positive impact on a firm depends on the firm's decision-making and operating strategy, especially whether it has a low- or high-risk aversion strategy (De Grauwe, 1988), and might also depend on the trading situation in each country or for each type of product.

Furthermore, some research has applied meta-regression analysis to analyze the findings of such relations (Wesley, Shen, Li, & Wilson, 2012). On the other hand, there is only a limited number of papers focusing on the export of Thai agricultural commodities to ASEAN countries. This research would therefore expand the frontier of empirical knowledge in relation to the international trading of agricultural commodities.

Methodology

The findings revealed in the literature review were used as a basis for developing a research method comprising 2 major steps, namely, calculation of the exchange rate volatility and estimation of the dynamic relationship between exchange rate volatility and the export value of Thai agricultural commodities to ASEAN countries. The countries included in this study comprised Cambodia, Laos, Myanmar, and Vietnam (generally known as the CLMV countries) as well as Singapore, Malaysia, Indonesia, and the Philippines. The study focused on the top 5 ranked export agricultural commodities based on time series data during the period 2011–2016 issued by the Ministry of Commerce (http://www.ops3.moc.go.th) and the real effective exchange rate from the Bank of Thailand (http://www2.bot.or.th/statistics). The details of the research method are described below.

Calculation of Exchange Rate Volatility

This research computed the exchange rate volatility of each period of time from the moving sample standard deviation of the percentage real effective exchange rate, which can be written in an equation (Sun, Kim, Koo, Cho, & Jin, 2002) as follows Equation (1):

$$x_t = \left[m^{-1} \sum_{i=1}^{m} (Ln(REER_{t+i-1}) - Ln(REER_{t+i-2}))^2 \right]^{\frac{1}{2}} \quad (1)$$

where *REER* refers to the real effective exchange rate and *Ln* refers to the natural logarithm, while $m = 2$ reflects the order of the moving average.

Estimation of the Dynamic Relationship Between Exchange Rate Volatility and Exports

The approach was divided into three steps, i.e., test for stationarity, estimation of the long-run relationship, and estimation of the short-run adjustment (Jaroensathapornkul, 2010).

Test for stationarity

The test for stationarity was performed by applying the augmented Dicky–Fuller (ADF) unit root test to analyze if the data was stationary, using computer software that selected the proper lag for the test and that also calculated the MacKinnon one-sided *p*-values used as the criteria for making a decision. This first step rendered the order of the time series data of the export value of agricultural commodities and exchange rate volatility variables, with an expectation that data would be stationary when it had been transformed to first difference.

Long-run relationship analysis and short-run adjustment analysis

This section is based on Johnston and DiNardo (1996). The Johansen cointegration test was applied to analyze the relationship in the long-run equilibrium between the export of agricultural products and the fluctuation of the currency exchange rate, and the trace statistic test was applied to confirm a null hypothesis of no cointegration. If a long-run relationship exists, the short-run adjustment is analyzed using the error correction model (ECM), which can be demonstrated by determining the *p*-th order vector autoregressive process for the 2×1 vector Z_t as follows Equation (2):

$$Z_t = \sum_{i=1}^{p} \Pi_i Z_{t-i} + e_i \quad (2)$$

where e_t refers to the error terms for the month t with the white noise property, while Z_t has members consisting of x_t and $y_{j,k,t}$, respectively, and j refers to the export of agricultural commodities of type j of Thailand to country k at month t, whereas $j = 1, 2, ..., 11$ refers to maize, rice, rubber, tobacco, herbs and spices, fresh, chilled, or frozen chicken, fish, shrimp, pork, fresh, chilled, frozen, or dried vegetables and fruit, respectively, while $k = 1, 2, ..., 8$ refers to Cambodia, Laos, Myanmar, Vietnam, Singapore, Malaysia, Indonesia, and the Philippines, respectively. Then, equation (2) is adjusted to the ECM as follows Equation (3):

$$\Delta Z_t = \Pi Z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Z_t + e_t \quad (3)$$

where Δ is the difference operator for the coefficients Π and Γ_i for $i = 1, 2, ..., p-1$ in equation (3). More explicitly, $\Pi = -I + \Pi_1 + \Pi_2 + ... + \Pi_p$ and $\Gamma_i = -I + \Pi_1 + \Pi_2 + ... + \Pi_i$. The coefficient Π also reflects the long run impact matrix. The rank of this matrix is equal to the number of co-integrating vectors. With respect to equation (3), the rank of Π implies that there are 2×1 matrices α and β, such that $\alpha\beta'$. When the co-integrating restrictions are imposed, Equation (4) becomes

$$\Delta Z_t = \alpha\beta' Z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Z_t + e_t \quad (4)$$

where the term $\beta' Z_{t-1}$ defines the disequilibrium errors (ECM terms) at time $t-1$, and measures the adjustments made at time t.

With respect to the selection of lag, this requires starting from determining the number of lags of each variable with a reasonable size and then applying statistical parameters, including t-statistic, adjusted R-square, and the Lagrange multiplier test (LM test) to find the proper final model. Each ECM will demonstrate how exchange rate volatility could affect the export of agricultural commodities in the short run, that is, to demonstrate the "impact effect", while it also depends on the extent of the loss of long-run equilibrium that occurred previously. On the other hand, the ECM terms demonstrate the "feedback effect", when the exchange rate volatility has resulted in a deviation in the export value of agricultural commodities from their long-run equilibrium, that is, when the loss of equilibrium is offset in the following period in order to finally adjust to the equilibrium.

Results and Discussion

The starting point for this analysis was the outcome of the test for stationarity of the time series data by applying the ADF test statistic. The MacKinnon one-sided *p*-value, indicating rejection of the hypothesis (H_0: Data has a unit root) at the 0.05 level, indicated that only the export values of maize to Cambodia ($y_{1,1,t}$) and Vietnam ($y_{2,7,t}$) and of rice to Indonesia ($y_{2,7,t}$) had a unit root, which was define an integration of order zero. On the other hand, such a *p*-value of the time series data from the moving sample standard deviation of the percentage *REER* (x_t) and the export value of agricultural commodities had mostly no unit root. This requires that such data undergo a first difference and after that it was revealed that those variables Δx_t *and* $\Delta y_{jk,t}$ had a unit root, which could be defined as an integration of order one.

After the Johansen cointegration test was carried out, the MacKinnon–Haug–Michelis *p*-values, for rejection of the hypothesis (H_0: No cointegration) at the 0.05 level, indicated that there existed a cointegration between Δx_t and the first difference of the export value for most of the agricultural commodities. This therefore affirmed that the real exchange rate volatility affects Thailand's export values of most agricultural commodities to ASEAN countries with statistical significance in the long-run period. This result is in accordance with Chaiseree (2011), Jiranyakul (2013), and Satawatananon (2014), who found a long-run impact of real exchange rate uncertainty on Thailand's commodity trade flow. Nonetheless, there did not exist a cointegration between Δx_t and the first difference of the export value for rubber and fresh, chilled, or frozen chicken to Malaysia ($\Delta y_{3,6,t}$ *and* $\Delta y_{6,6,t}$) as well as for certain products exported to the CLMV group of countries, specifically the export values of chicken to Cambodia ($\Delta y_{6,1,t}$), rice and fruit to Laos ($\Delta y_{2,2,t}$ *and* $\Delta y_{8,2,t}$), rice and shrimp to Myanmar ($\Delta y_{2,3,t}$ *and* $\Delta y_{8,3,t}$), and rubber and fruit to Vietnam ($\Delta y_{3,4,t}$ *and* $\Delta y_{11,4,t}$).

By analyzing the short-run relationship with the estimated ECM, the results reflected that all the models provided an appropriate economic interpretation for two reasons. First, it appeared that the loss of short-run equilibrium of the export value of agricultural commodities could adjust to long-run equilibrium as the ECM term, the feedback effect, was negative with a statistical significance at the 0.05 level. It was thus concluded that the disequilibrium from one period was corrected in the next. Lastly, such findings were subject to the modeling, which did not encounter the econometrics problem of autocorrelation with a statistical significance at the 0.05 level when the LM test was applied (Table 1).

One interesting finding was that according to the estimated ECM models, the t-statistic value of the lag of Δx_t had mostly statistical significance at the 0.10 and 0.05 levels, respectively. The impact effect, therefore, affirmed that real exchange rate volatility affected Thailand's export value of most agricultural commodities to ASEAN countries with statistical significance in the short-run period. However, the extent of the impact varied from country to country, even for the same kind of agricultural commodities as they might come from different exporters in the respective country, e.g., exchange rate volatility had a negative impact on the export value of maize to the Philippines ($\Delta y_{1,8,t}$) but a positive impact on the export value of maize to Cambodia ($\Delta y_{1,1,t}$), Myanmar ($\Delta y_{1,3,t}$), Vietnam ($\Delta y_{1,4,t}$), and Indonesia ($\Delta y_{1,7,t}$) (Table 1).

Table 1 Estimation results from the ECM model

	$\Delta y_{1,k,t}$ (Maize)					$\Delta y_{11,k,t}$ (Fresh, chilled, frozen, or dried fruit)		
	Cambodia (k = 1)	Myanmar (k = 3)	Vietnam (k = 4)	Indonesia (k = 7)	Philippines (k = 8)	Singapore (k = 5)	Indonesia (k = 7)	Philippines (k = 8)
C	-	0.64	-	-	-2.33	-	-	0.19
		(0.17)^{NS}			(-0.09)^{NS}			(0.19)^{NS}
ECM terms	-154.92	-1,268.64	-7,373.71	-1,043.99	-706.12	-845.86	-5,718.10	-298.23
	(-2.26)**	(-4.17)**	(-2.83)**	(-3.74)**	(-2.93)**	(-3.53)**	(-3.39)**	(-4.82)**
Δx_t								
Lag (1)	66.88	1,057.56	2,784.05	379.33	-3,039.73	588.94	-	-
	(0.73)^{NS}	(2.42)**	(0.89)^{NS}	(1.01)^{NS}	(-0.98)^{NS}	(2.48)**		
Lag (2)	122.09	1,499.98	4,915.14	558.27	2,055.46	476.96	2,919.86	280.32
	(1.40)^{NS}	(3.33)**	(1.74)*	(1.81)*	(0.71)^{NS}	(2.09)**	(1.25)^{NS}	(2.27)**
Lag (3)	92.55	476.93	2,294.18	389.60	-5,645.74	434.87	1,105.90	97.50
	(1.12)^{NS}	(1.14)^{NS}	(0.76)^{NS}	(1.21)^{NS}	(-1.60)^{NS}	(2.15)**	(0.57)^{NS}	(0.82)^{NS}
Lag (4)	211.47	650.34	4,842.29	-	889.97	402.66	4,927.79	274.17
	(2.34)**	(1.43)^{NS}	(1.83)*		(0.24)^{NS}	(1.77)*	(2.09)**	(1.83)*
Lag (5)	-	-	2,015.73	-	-8,278.67	438.39	-0.20	-68.09
			(0.75)^{NS}		(2.35)**	(2.19)**	(-1.53)^{NS}	(-0.47)^{NS}
Lag (6)	-	-	-	-	-1,376.81	337.87	-	159.97
					(-0.47)^{NS}	(1.69)*		(1.11)^{NS}
Lag (7)	-	-	-	-	-4,940.56	382.84	-	-224.69
					(-1.57)^{NS}	(2.56)**		(-1.88)*
Lag (8)	-	-	-	-	-	242.3	-	263.47
						(1.61)^{NS}		(2.08)**
$\overline{R}^2$	0.16	0.30	0.20	0.39	0.36	0.27	0.21	0.35
LM (1) test p-value	0.73	0.27	0.49	0.68	0.53	0.21	0.39	0.98

	$\Delta y_{3,k,t}$ (Rubber)				$\Delta y_{7,k,t}$ (Fresh, chilled, or frozen fish)		$\Delta y_{4,k,t}$ (Tobacco)	$\Delta y_{5,k,t}$ (Herbs and spices)
	Cambodia (k = 1)	Laos (k = 2)	Singapore (k = 5)	Indonesia (k = 7)	Vietnam (k = 4)	Malaysia (k = 6)	Philippines (k = 8)	Myanmar (k = 3)
C	0.08	-	-1.01	0.05	2.24	-	-	-2.20
	(0.30)^{NS}		(-0.11)^{NS}	(0.03)^{NS}	(0.62)^{NS}			(0.18)^{NS}
Trend	-	-	-	-	-	-	-	0.14
								(0.50)^{NS}
ECM terms	-51.30	-1,264.04	-2,432.09	-451.38	-673.64	-286.68	-477.88	-1,328.07
	(-4.91)**	(-4.50)**	(-3.27)**	(-2.16)**	(-4.08)**	(-2.25)**	(-3.84)**	(-2.52)**
Δx_t								
Lag (1)	56.567	-	4,958.02	360.95	-	320.94	-	1,620.11
	(2.25)**		(4.53)**	(1.63)^{NS}		(1.99)**		(2.53)**
Lag (2)	21.11	417.35	2,008.48	435.18	785.68	167.52	967.13	686.78
	(0.84)^{NS}	(0.55)^{NS}	(1.91)*	(1.88)*	(2.00)**	(1.23)^{NS}	(1.11)^{NS}	(1.01)^{NS}
Lag (3)	-	-1,389.30	1,842.58	389.74	943.37	109.12	-1,115.53	862.90
		(-2.02)**	(1.73)*	(1.99)**	(2.49)**	(0.80)^{NS}	(-1.35)^{NS}	(1.50)^{NS}
Lag (4)	-	481.579	-	323.77	960.31	-	55.76	85.88
		(0.65)^{NS}		(1.44)^{NS}	(2.37)**		(0.07)^{NS}	(0.14)^{NS}
Lag (5)	-	-	-	-	280.03	-	-1,623.41	-
					(0.67)^{NS}		(-1.94)*	
$\overline{R}^2$	0.53	0.37	0.34	0.37	0.35	0.05	0.32	0.37
LM (1) test p-value	0.12	0.74	0.90	0.30	0.58	0.75	0.45	0.30

Table 1 (Cont.)

	$\Delta y_{2,j,t}$ (Rice)		$\Delta y_{8,j,t}$ (Fresh, chilled, or frozen shrimp)			$\Delta y_{10,j,t}$ (Fresh, chilled, frozen, or dried vegetables)	
	Cambodia (k = 1)	Singapore (k = 5)	Vietnam (k = 4)	Singapore (k = 5)	Malaysia (k = 6)	Singapore (k = 5)	Indonesia (k = 7)
C	-	-3.30	-	-0.80	-0.93	0.24	0.13
		(-0.51)^{NS}		(0.55)^{NS}	(-0.64)^{NS}	(0.22)^{NS}	(0.04)^{NS}
Trend	-	-	-	0.02	-	-0.003	-
				(0.43)^{NS}		(-0.11)^{NS}	
ECM terms	-62.48	-151.21	-6,109.13	-110.22	-1,201.77	-198.63	-681.43
	(-2.59)**	(-3.00)**	(-2.11)**	(-4.21)**	(-5.08)**	(-3.95)**	(-2.83)**
Δx_t							
Lag (1)	101.24	-	7,356.36	103.05	947.71	169.18	616.57
	(2.83)**		(2.59)**	(1.62)^{NS}	(3.98)**	(2.77)**	(1.88)*
Lag (2)	79.34	-1,624.08	3,011.56	106.37	816.07	167.71	657.38
	(2.09)**	(-1.98)**	(1.03)^{NS}	(1.69)*	(3.58)**	(2.84)**	(1.98)**
Lag (3)	58.37	-1,457.25	4,755.56	-	334.68	138.81	174.12
	(1.74)*	(-1.78)*	(1.79)*		(1.49)^{NS}	(2.14)**	(0.57)^{NS}
Lag (4)	13.45	-497.77	626.93	-	372.07	85.69	828.79
	(0.35)	(-0.48)^{NS}	(0.22)^{NS}		(1.86)*	(1.47)^{NS}	(2.49)**
Lag (5)	-	1,947.09	4,999.28	-	79.87	66.37	-
		(1.80)*	(2.14)**		(0.43)^{NS}	(1.15)^{NS}	
Lag (6)	-	-1,793.42	1,414.00	-	-	-	-
		(-1.67)*	(0.58)^{NS}				
Lag (7)	-	1,844.71	4,926.23	-	-	-	-
		(1.75)*	(2.27)**				
Lag (8)	-	-1,573.93	2,255.92	-	-	-	-
		(-1.50)^{NS}	(1.00)^{NS}				
Lag (9)		192.10	2,196.13	-	-	-	-
		(0.20)^{NS}	(1.29)^{NS}				
Lag (10)		360.51	1,133.36	-	-	-	-
		(0.42)^{NS}	(0.67)^{NS}				
Lag (11)		429.39	-	-	-	-	-
		(0.51)^{NS}					
$\bar{R}^2$	0.62	0.34	0.31	0.35	0.45	0.21	0.23
LM (1) test p-value	0.36	0.65	0.30	0.08	0.06	0.37	0.22

Note: Lag of first difference of the export value variables as an independent variable in the estimation results of the ECM model are not shown in the table. The numbers in the parentheses are the t statistics.
* $p < .01$, ** $p < .05$, while *NS* stands for not statistically significant. $\bar{R}^2$ denotes the adjusted R^2.

Apart from this, in the case of the export value of rice to Indonesia, Malaysia, and the Philippines, the export value of fresh, chilled, frozen, or dried fruit to Myanmar and the export value of rubber to the Philippines, the t-statistic value of the lag of Δx_t had a non-statistical significance at the .10 and .05 levels, respectively. It can thus be stated that the dynamic relationship between the real exchange rate volatility and Thailand's export value of most agricultural commodities to ASEAN countries was ambiguous. This result is in line with the findings of Goudarzi et al. (2012) and Zakaria (2013). The former found that exchange rate volatility has had a positive effect on exports from the agricultural sector, including pistachio and saffron, but a negative effect on dates. The latter found that the impact of exchange rate volatility on Malaysia exports to the US was negative, while for Japan, it was positive. Malaysia's exports to the UK and Singapore were found to be not significantly related to volatility in the exchange rates. Such findings also support the theoretical work of De Grauwe (1988), who argued that the fluctuation of the exchange rate can either positively or negatively affect the export value due to the convexity or concavity of the expected marginal utility of the export income function to exchange rates. Here, assuming a competitive firm, but only in the event of it being highly risk averse, the firm will seek to increase its sales in a domestic market when there is increasing fluctuation in the exchange rate. At the same time, it will decline to sell in a foreign market.

Furthermore, in the case of a positive impact, this is likely to be the result for most exporters of Thai agricultural commodities (Table 1). The positive impact case is probably because most exporters of Thai agricultural commodities are small and medium-sized enterprises (SMEs), who have limited knowledge and understanding of financial markets and might be not capable of mastering financial tools to prevent risks and thus have to face the risks from exchange rate volatility in order to maintain their market share in high potential foreign markets, like in ASEAN countries. On the other hand, the negative impact case might be due to the Thai exporters in that group being risk averse while also being able to use a technique for hedging the foreign exchange risk to avoid the risks from exchange rate volatility.

Conclusion and Recommendation

Nowadays, ASEAN countries have become a growing potential export market for Thai agricultural commodities. However, Thai exporters face exchange rate volatility as Thailand operates under the managed floating exchange rate system. This research, therefore, focused on an analysis of the impact of exchange rate volatility on the export of Thailand's

key agricultural commodities to ASEAN countries. Analysis of the long-run relationship between the value of the exports of agricultural commodities and exchange rate volatility was performed by applying the Johansen cointegration test, and it was revealed that the export value of most Thai agricultural commodities to ASEAN countries is related to exchange rate volatility in the long run. At the same time, analyzing the short-run relationship through an approximated ECM model indicated that exchange rate volatility can positively affect Thailand's export value of most agricultural commodities to ASEAN countries.

Consequently, we believe that the Thai Government should add more activities or projects to enhance exporters' understanding of the risks to the value of agricultural commodities in this matter in order to improve the competitiveness of Thai exports in the ASEAN market. Moreover, the findings of our study also confirmed the empirical relationship between exchange rate volatility and the export value of agricultural products in the ASEAN market resulting from the currency exchange rate system chosen by Thailand. Therefore, the central bank could play a significant role in intervening at the proper time and extent to mitigate exchange rate volatility and to facilitate the export of Thai agricultural commodities in the ASEAN market in the future.

Conflict of Interest

There is no conflict of interest.

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