The Sino-US Trade War: Does it Matter to Malaysia's Crude Palm Oil Price and Sector?

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Abstract

Purpose: The purpose of this study is to investigate the effects of Sino-US trade war towards Malaysia's Crude Palm Oil Price and Industry.

Design/methodology/approach: All data used in this study are from secondary data taken from reliable sources such as Malaysian Palm Oil Board, Investing.com, Thomson Reuters Eikon, and Department of Statistics Malaysia. Data gathered are from January 2016 to December 2019 which considers 24 months before the Sino US trade war (equivalent to the range of year that trade war started in 2018) and after the event happened.

Findings: The finding of this study shows that there is a mixed result of significant difference and impact between the Sino-US trade war event and Malaysia's crude palm oil price and sector.

Research limitations/implications: This study did not include any political data and other non-economic influence such as confidence and bias toward crude palm oil industry. Other than that, the proportion of sample might not represent the real situation that affects this crude palm oil export production since this issue is still ongoing.

Practical implications: Based on the research finding, this study will give benefits towards the entity that is responsible for the promotion and to develop national objectives, policies, and priorities for the wellbeing of Malaysia's oil palm industry.

Originality/value: This study presents a new finding of the impact between crude palm oil commodity and Sino-US trade war.

Keywords: Sino-US trade war, Futures Crude Palm Oil, Export, Kuala Lumpur Plantation Index, Commodity price

Introduction

The trade war between Sino-US has become an imperative yet complicated economic condition that initially started on the 22nd of January 2018. However, the action was taken towards China which is the tariff imposition started on 6th July 2018. The US initiated 25% tariffs on $34 billion worth of Chinese goods. The imposition of safeguard tariffs by the US is the response to retaliate the imbalance of the export-import between the two countries (Chong & Li, 2019). Trump administration believed that the US has 'sacrificed' their prosperity towards China economic development and they need to regain it back with the motto of "Make America Great Again". The rise of the "dragon" predominance as the world's biggest trading power in the 21st century has caused broad concerns for the hitherto superpower, which is the United States of America. According to Singapore Foreign Minister K. Shanmugan, during the forum in

Singapore, he stated that "In 2013, China was already the biggest or second-biggest trading partner of most Southeast Asian nations. By then, Asia was reliant on China for its prosperity and the reality of a China-dominated region was already here" (Toh, 2016). China and the US are competing not only in Southeast Asia but also in Africa to scramble for markets and resources on the continent in the 19th century. China overtook the US as Africa's biggest trading partner in 2009. Chinese has become vigorous in economic development. For example, China is geopolitically controlled by the commencement of their plan, which is Silk Road Economic Belt and Twenty-First Century Maritime Silk Road project, also known as the One Belt, One Road (OBOR).

From the Malaysian economic perspective, those two countries are one of Malaysia's biggest exporter and importer. The current trade pressure may affect Malaysia's trade with China since some of Malaysia's exports to China also contribute towards its exports of final products to the US, as well as other third countries' export markets. Furthermore, any slow-down economic activity in China due to trade war will affect Malaysia's exports to China. This study will examine the effect of Crude Palm Oil (CPO) commodity in Malaysia towards the economic instability between Sino-US (Yean, Yi, & Ann, 2019).

Crude Palm Oil is the biggest commodity that has become the prime income to Malaysia. Malaysia Palm Oil Board (MPOB) reported that Malaysia has a significant role in providing and exporting Crude Palm Oil, in which the country is the second-biggest producer with 17,320 ('000 tonnes) that comes after Indonesia, 34,520 ('000 tonnes) in 2016. Because of that, palm oil bilateral trade and international trade has become one of our highest income, and it helps to boost the Malaysian economy. Palm oil is found in approximately 50% of products on supermarket shelves, including food and non-food items, e.g. consumer retail food and snack manufacturers, personal care and cosmetics, biofuel and energy, animal feed, pharmaceutical, industrial, foodservice/service industry. This study investigated the relationship between the Sino-US trade war and Malaysia's commodity production since the US-China trade tension generally affects global palm oil price and import of palm oil by China (Hao, Nik Ibrahim, Ismail & Shah, 2018).

China and US trade war does not only involve them, but it also involves the world economy since both countries can be considered as the economic superpower that can cause a ripple effect towards all trading country. Meanwhile, the US has the power to influence the world price of a commodity. Since Malaysia is the raw producer of Crude Palm Oil and China is the processing country that used the raw commodity change the material into products, this research scrutinized the effect of the imposition of defensive tariffs by the US towards China that indirectly affects the demand of Malaysia's Crude Palm Oil commodity.

This study triggered researcher to dig more information about this issue after reading an article written in News Straits Time stating that, "With China's new 25 per cent tariffs on American soybean, a substitute for palm oil, this will be a **boon for Malaysia to expand her palm oil exports to China**. Further, China's higher tariffs on the US's pork products, with the US$3 billion worth of tariffs, would also be a **good opportunity** for alternative suppliers, **like Malaysia,**" (Shamsudin 2018). Another contradicting statement stated in The Edge Markets, "another important export item, palm oil, **does not seem to have a bright outlook**," (Othman 2019). This contradiction of statement written by market analyst caused turmoil of thought towards the researcher on what is exactly the scenario of this commodity. Does the production of Malaysia Crude Palm Oil is at declining or increasing graph? Does the Sino-US trade war give a significant impact to Malaysia's commodity price and export? Hence, these are the aims and factors needed to be investigated for this research.

Literature Review

Impact on the export product due to the Sino-US trade war

The tariffs imposed on China raises the possibility of trade and investment diversion to Malaysia. Re-exports play an important role in Malaysia's export adjustment to the US and China from 2017-2018. The possibility of investment opportunity from China is high given the growing presence of China's investment in Malaysia since the announcement of the Belt and Road Initiative (BRI) (Yean, Yi, & Ann, 2019).

The US-China trade war generally impacts the import of palm oil by China. The shift of China's imports of soybean from the US to South America has caused a significant drop in US trade balance. The US is forced to find other markets for the soybean since it lost the major trader for soybean, which is China. The US has to export soybean at a lower price to countries like Brazil and Argentina that have depleted supplies of soybean due to increased exports to China. The researcher also claimed that palm oil trading has become more competitive in 2018 compared to 2017. The export of Malaysia palm oil and palm-based product to China registered an increase of 17.5% to 1.12 million tonnes between January-May 2018. Due to the price indifference and high demand, the researcher suggested that Malaysia should take this opportunity to extend its commitment to China in supplying palm oil and its products (Hao, Nik Ibrahim, Ismail & Shah, 2018).

Impact toward Crude Palm Oil Price due to Sino-US trade war

According to (Hao, Nik Ibrahim, Ismail & Shah, 2018), the US-China trade tension affects the global palm oil price. The change of import of soybean from China country has triggered drop in US soybean price. Such a situation happened because the US has to find other markets for the soybean since it lost its major market, namely, China. The strategy includes exporting soybean at a lower price to countries like Brazil and Argentina that have depleted supplies of soybean due to increased exports to China. A drop in the US soybean price has also caused a price reduction of its by-product, soybean oil. **The lower soybean oil price affects the overall prices of other vegetable oils in the global market, including the decrease in crude palm oil (CPO) price.**

U.S and European markets for oil and refined products are integrated, and it has the direction of causality between crude oil prices and petroleum product prices, which means countries such as the U.S plays a big role on putting pressure toward world commodity price, in this case, crude palm oil (CPO) (Ederington, Fernando, Hoelscher, Lee, & Linn, 2019).

The incremental tariffs by the US will decrease the world price of commodities, thereby triggering a stronger demand from other countries. For example, the decrease in US import of Chinese products drags down the aggregate demand. The price of commodities will drop to clear the market, making those goods more attractive in markets outside the US (Chong & Li 2019).

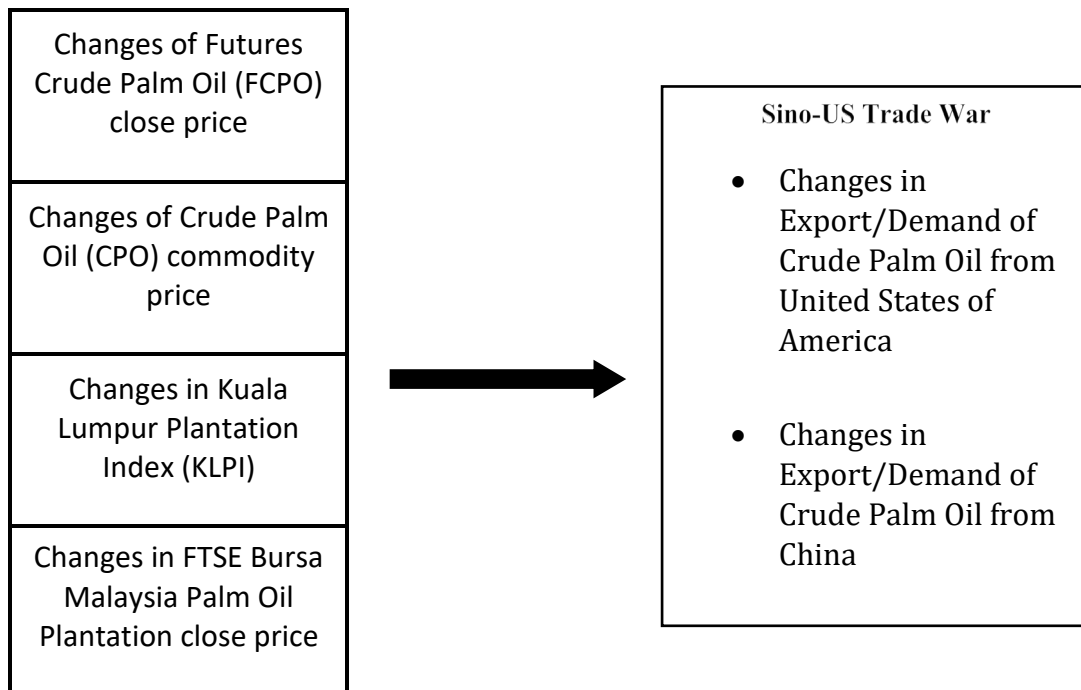**Research Framework and Hypothesis Development**

Figure 1: Research Framework

Research Hypothesis: *Sino-US trade war has a significant effect on Malaysia's Crude Palm Oil Price and Sector.*

From the hypothesis that been suggested, there is a parallel line to the argument of the Theory of the Price Control by John Kenneth Galbraith's Contribution, which supports the changes in the price of CPO. John Kenneth Galbraith's study stated that due to the economic issues from the change of the rate of interest (as proposed by Adam Smith), minimum wage, certain agricultural commodities and event of economic distress such as World War 2 gave power to President Roosevelt to control price (Laguerodie & Vergara, 2008). The traits are significant to this study which investigates the economic distress that is Sino-US trade war. This argument is also supported by other research which also stated that U.S and European markets are the key players for oil market and refined products price changes (Ederington, Fernando, Hoelscher, Lee, & Linn, 2019). Hence, the above evidence tells that economic issues and international economic key player are the benchmarks on the changes in the world price commodity.

Method
All data used in this study were taken from secondary data, which were collected from reliable resources such as Malaysian Palm Oil Board, Investing.com, Thomson Reuters Eikon, and Department of Statistics Malaysia. There are two main variables consist of independent variables and dependent variables. The independent variable was measured through 48 observations taken by monthly data on the event of a Sino-US trade war started (Laguerodie & Vergara, 2008). The data taken liaise with the ongoing trade war event between the US and China from January 2016 to December 2019. For the independent variable, the researcher focused on the trade war's impacts on the financial markets which consist of Future Crude

Palm Oil Price (FCPO), Kuala Lumpur Plantation Index (KLPI) and FTSE Bursa Malaysia Palm Oil Plantation closing price. Another scope that was emphasized is the economic impact which includes Export/Demand of Crude Palm Oil from the United States of America, Export/Demand of Crude Palm Oil from China and Crude Palm Oil (CPO) commodity price (benchmark price from Industrial player).

Descriptive analysis
The descriptive analysis describes the patterns based on time series analysis from the 48 observations and general trends in a set of data by referring to the central tendency and dispersion of the independent and dependent variables.

Table 1: Descriptive analysis

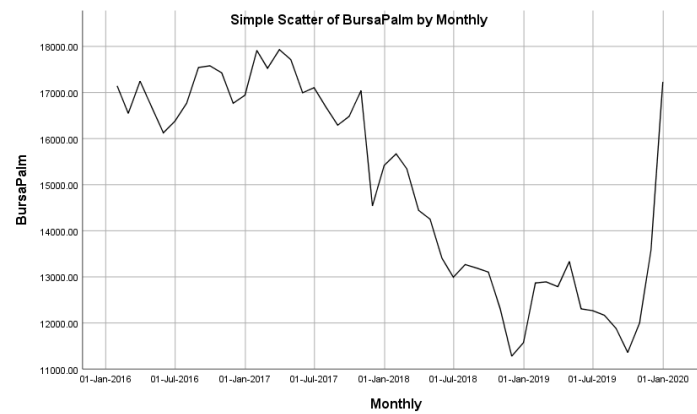|	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic
KLPI	48	6720.52	8202.52	7592.7646	424.86410
BursaPalm	48	11279.24	17930.46	15005.7967	2196.33068
CPOprice	48	1794.50	3268.00	2446.5312	373.62859
Export to China in Tonnes	48	53119	340230	169782.90	70134.088
Export to USA in Tonnes	48	0	76786	43880.58	12761.721
Close price FCPO in RM	48	1865	3230	2460.31	357.266

Figure 2: Time series of Bursa Palm

Figure 2 had derived the data from the FTSE Bursa Malaysia Palm Oil Plantation Index. This index was designed to provide easy access to investors who wish to participate in nourishing Malaysia's palm oil industry. This benchmark index consists of palm oil-related companies from the underlying FTSE Bursa Malaysia EMAS Index, and it aims to capture the performance of companies that earn a substantial proportion of their revenue from palm oil activities. Palm oil activities include production, ownership or operation of palm oil, and palm oil plantations. This graph illustrates the trends observed from 48 observations. It can be seen that the trend is on the decline right after the trade war happened in early 2018.
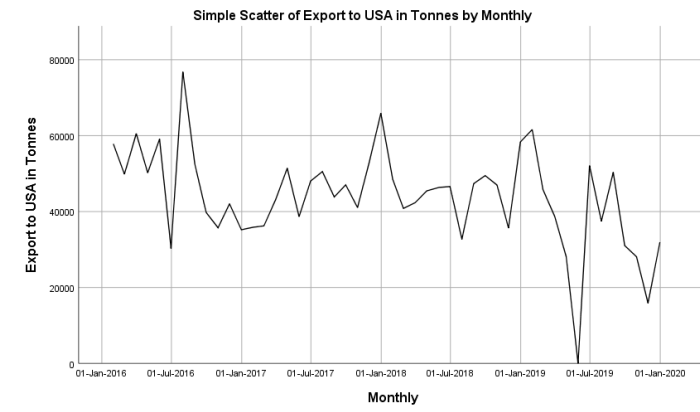
Figure 3: Time series of Export to USA

The total value of crude palm oil exported to the US is 2,493,615 tonnes (including outliers). The export of crude palm oil to the US is less than export to China. It accounted for 3% of the total Malaysian palm oil export from the 48 observations. Based on the observation in Figure 3, the trend is looking sideways and fluctuate every month. Furthermore, to avoid violation in assumption and distortion in statistical, the researcher had to remove the outliers in May 2019, which amounted 121,096 tonnes.
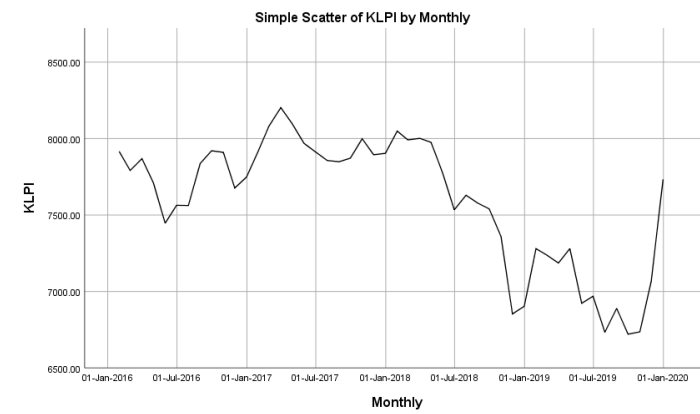

Figure 4: Time series of KLPI

Kuala Lumpur Plantation Index, which is also known as KLPL, is the tickers comprise of 43 components/companies from Bursa Malaysia plantation-related company.
It includes crude palm oil (CPO) plantation, rubber plantation, fresh fruit bunches (FFB), palm kernel (PK), logs and wood product manufacturing. This index is not focusing on palm oil production alone instead of encompassing other plantation and agriculture-related business. Based on the observation, it can be seen that KLPI has been negatively impacted right after the event of a trade war in the early year of 2018.

Figure 5: Time series of Export to China

China is the third-largest export market for Malaysia's palm oil in 2017 after India (1.94 million tonnes) and the European Union (1.75 million tonnes), and it was accounted for 11% of total Malaysian palm oil exports. In 2017, the total value of palm oil exported to China was RM 4.61 billion, showing a decrease of 4.8% from RM 4.84 billion in 2016. After 2017, the volume of Crude Palm Oil volume has shown fluctuation trend.
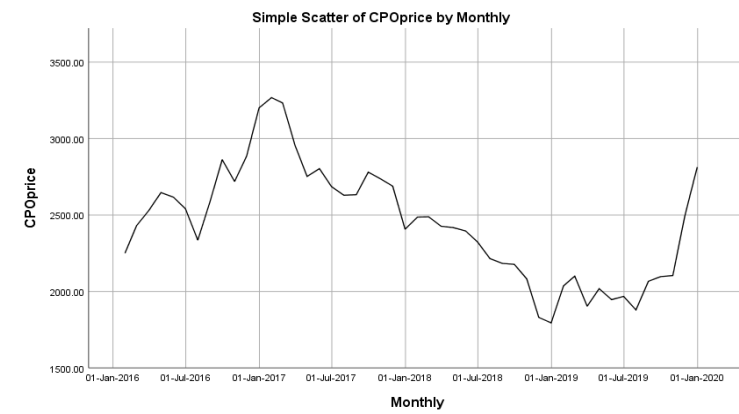

Figure 6: Time series of CPO Price

The CPO price shown in figure 6 was taken straight from the Malaysia Palm Oil Board. The average price of palm oil products announced by MPOB is based on the actual price reported by the MPOB licensee itself which consists of fruit mills, refineries and traders within 24 hours from the date of the palm oil transaction contract is made through the online system "e-Registration System". The average price of palm oil products is based on the weighted average method where the total value of transactions is divided by the total quantity of transactions to ensure that the average price of palm oil products announced by MPOB is more accurate than the simple average method. Therefore, the price announced by MPOB is not the price set by MPOB. It only acts as a price guide or reference (benchmark) to industry players in carrying out transactions.
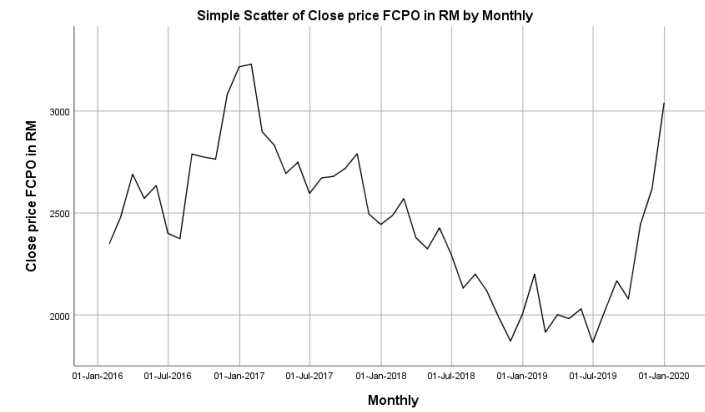
Figure 7: Time series of FCPO Close Price

From Table 1, the FCPO price portrays the maximum value on 1st January 2017, and right after that, the graph shows a declining pattern. The price drop occurred due to the trade war sentiment that had been induced in the following year. The shift of China's imports of soybean from the US to South America has caused a significant drop in US soybean price. A drop in the US soybean price has also caused a price reduction of its by-product, soybean oil. The lower soybean oil price affects the overall price of other vegetable oils in the global market, including the decrease in crude palm oil (CPO) price.

Normality Statistics

From the Kolmogorov-Smirnov test statistics as computed, the p-value is more than 5% level of significance. Since the p-value is > 0.05, it implies that the null hypothesis of normality can be accepted at the 5% level. Thus, the variable of Crude Palm Oil (CPO) commodity price, Export to China, Export to USA and Futures Crude Palm Oil (FCPO) closing price have a normal distribution. The coefficient of skewness is zero, which has also further supported that the variable is normally distributed. Meanwhile, variable Kuala Lumpur Plantation Index (KLPI) and FTSE Bursa Malaysia Palm Oil Plantation Index show non-parametric data. Hence, for the test of difference, both data were tested on different treatment which is Mann Whitney U-test for non-parametric data and Independent Samples t-test for parametric data.

Table 2: Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KLPI	.155	48	.006	.892	48	.000
BursaPalm	.179	48	.001	.889	48	.000
CPOprice	.091	48	.200[*]	.974	48	.347
Export to China in Tonnes	.123	48	.065	.950	48	.040
Export to the USA in Tonnes	.098	48	.200[*]	.957	48	.078
Close price FCPO in RM	.079	48	.200[*]	.969	48	.241

Test of Differences

Mann-Whitney U test is equivalent to the parametric independent samples t-test. This test was applied in the study because the data in the sample did not follow a normal distribution. For Mann-Whitney u-test, the significance value should be less than 0.05 (P<0.05). Based on Table 3, the Mann Whitney U-test results are significant for the variable of the KLPI and Bursa Palm. Significance value 0.000 indicates the rejection of the null hypothesis. Hence, it can be concluded that there is a significant change in the Kuala Lumpur Plantation Index (KLPI) and FTSE Bursa Malaysia Palm Oil Plantation Index after the Sino-US trade war which took place in the year 2018.

Table 3: Mann-Whitney U test

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of KLPI is the same across categories of Sino-US Trade War.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
2	The distribution of BursaPalm is the same across categories of Sino-US Trade War.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Independent samples t-test was applied in the study because the contradicted from a normal distribution. For independent sample t-test, the significance value should be less than 0.05 (P<0.05). Based on Table 4, it can be seen that the independent sample t-test results are insignificant for the variable of the export of Crude Palm Oil to China. Significance value 0.262 enables the study to retain the null hypothesis. For other variables, it can be seen that the independent sample t-test results are significant. The significance value of less than 0.05 allows the hypothesis to be accepted. Hence, it can be concluded that there is a no significant change in the export of Crude Palm Oil to China, while there is a significant change of FCPO, CPO price and Export to the USA after the Sino-US trade war took place in the year 2018.

Table 4: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CPO price	Equal variances assumed	.079	.780	7.221	46	.000	538.97917	74.63848	388.73969	689.21864
Export to China in Tonnes	Equal variances assumed	1.892	.176	-1.137	46	.262	-22943.125	20183.331	-63570.063	17683.813
Export to the USA in Tonnes	Equal variances assumed	.446	.508	2.148	46	.037	7625.833	3550.018	480.017	14771.650
Close price FCPO in RM	Equal variances assumed	1.020	.318	6.521	46	.000	490.042	75.149	338.774	641.309

Regression Analysis

There are 2 regression model that had been used in this research which is:

1. Export to China = α + β1 (CPO) + β2 (KLPI) + β3 (BursaPalm) + β4 (FCPO) + ϵ

2. Export to USA = α + β1 (CPO) + β2 (KLPI) + β3 (BursaPalm) + β4 (FCPO) + ϵ

Where: α = Value of Intercept CPO = Crude Palm Oil Price, KLPI = Kuala Lumpur Plantation Index, BursaPalm = FTSE Bursa Malaysia Palm Oil Plantation Index, FCPO = Futures Crude Palm Oil, ϵ = Error Term

Based on the regression analysis on model 1, the results describe that the value of R-Squared is .389. It represents that the model indicates a modest fit in predicting the independent variables. Meanwhile, the F-value is 6.853. Hence, the F-value is more than the p-value, which is 0.000, which means this model is statistically significant. On the coefficients table, the result of significance is varied from one another. The significance value should be less than 0.05 (P<0.05) to determine the impact. Thus, variable that was impacted from the event of Sino-US trade war based on Export to China as Dependent Variable is FTSE Bursa Malaysia Palm Oil Plantation Index, Crude Palm Oil price and Futures Crude Palm Oil close price. In comparison, Kuala Lumpur Plantation Index has less impact from the event of Sino-US trade war.

Table 5: Model Summary of Regression Analysis on Export to China

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.624[a]	.389	.332	57300.097

Table 6: ANOVA of Regression Analysis on Export to China

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	90001198413.274	4	22500299603.319	6.853	.000[b]
	Residual	141181947655.205	43	3283301108.261		
	Total	231183146068.479	47			

Table 7: Coefficients of Regression Analysis on Export to China

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	279890.088	213829.207		1.309	.198
	KLPI	-18.458	38.795	-.112	-.476	.637
	BursaPalm	-19.305	9.569	-.605	-2.017	.050
	CPOprice	-201.284	79.033	-1.072	-2.547	.015
	Close price FCPO in RM	330.113	78.166	1.682	4.223	.000

Constructed regression analysis on model 2 shows the results stated that the value of R-Squared is .248. The value represents that the model indicated a modest fit in predicting the independent variables. Meanwhile, the F-value is 3.551. Hence, the F-value is more than the p-value, which

is 0.014. Hence, this model is statistically significant. On the coefficients, the significance value should be less than 0.05 (P<0.05) to confirm the impact. Hence, none of the variables was impacted by the event of Sino-US trade war based on Export to the USA as the Dependent Variable. The significance results interpreted it more than 0.05 agglomerated.

Table 8: Model Summary of Regression Analysis on Export to the USA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.498ᵃ	.248	.178	11567.493

Table 9: ANOVA of Regression Analysis on Export to the USA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1900795548.544	4	475198887.136	3.551	.014ᵇ
	Residual	5753696585.123	43	133806897.328		
	Total	7654492133.667	47			

Table 10: Coefficients of Regression Analysis on Export to the USA

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-42964.503	43166.906		-.995	.325
	KLPI	14.612	7.832	.486	1.866	.069
	BursaPalm	2.948	1.932	.507	1.526	.134
	CPOprice	-28.036	15.955	-.821	-1.757	.086
	Close price FCPO in RM	.103	15.780	.003	.007	.995

Discussion and Conclusion

Based on the test of differences, most of the variables, i.e. export of CPO to US, KLPI, BursaPalm, FCPO and crude palm oil commodity price show the significant differences from the event of Sino-US trade war. However, the export to China has no presence of significant difference due to the event of the trade war. Supposedly, there should be a relationship between volume and price because these two items are interrelated based on previous studies (Yean, Yi & Ann, 2019). The insignificant differences in export to China mark that the ongoing trade of Crude Palm Oil between Malaysia and China is not distracted by the Sino-US trade war.

In terms of the impact towards the financial market, Futures Crude Palm Oil (FCPO) commodity price, Kuala Lumpur Plantation Index (KLPI) and FTSE Bursa Malaysia Palm Oil Plantation Index highlight the significant difference from the event of Sino-US trade war. This result is significant to the previous study which stated that the Impact of China-US Bilateral Trade tensions caused downturn in crude palm oil (CPO) price (Hao, Nik Ibrahim, Ismail & Shah 2018). This result is also relevant to the **Theory of the Price Control** by John Kenneth Galbraith's Contribution (Laguerodie & Vergara, 2008)

Although it has been supported by corresponding statistical data which are dependable and valid to a certain extent, there are still some limitations. Total volume for export production of crude palm oil from Malaysia to the US is not robust and pragmatic to be calculated because the data size is not big enough to come out with statistical influence. Although China is the second-largest countries that import crude palm oil from Malaysia, it is only made up 10% of

the total export all around the world. The proportion of sample might not represent the real situation that affects this crude palm oil export production due to the event of the trade war. Furthermore, in the case of the effects of Sino-US trade war towards palm oil industry, the net impact is uncertain due to the complicated implementation of the tariffs, retaliation of the imposition, and safeguard policy between China and US.

According to a previous study, the author stated that this trade war has no real economic foundation, and it is more likely to be driven by political incentives. The conflict could cause greater global economic uncertainty with no benefits to either party (Zhang, Lei, Ji & Kutan 2019). Thus, this study did not include any political data and lack of qualitative writing regarding this issue. Hence, this study has less explanation in terms of qualitative writing due to lack of data since this is a novel issue, and it is still ongoing.

Moreover, commodity price has many other factors that should be concerned rather than trade war alone. For example, the case of environmental concerns that happened last year where there is an advertisement in the UK plight of orang-utan reignited campaign against the palm oil industry. Because of this issue, the trader lost their confidence in the palm oil industry. Hence, causing the price to drop (Giam, Mani, Koh & Tan, 2016).

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