American International Journal of Business Management (AIJBM)
ISSN- 2379-106X, www.aijbm.com Volume 2, Issue 4 (April - 2019), PP 46-51

Is the Future Price can be Predicted through Spot and Forward Price?

Posma Sariguna Johnson Kennedy[1], Melina Geni[2]
[1]*Faculty of Economics and Business, Universitas Kristen Indonesia, Jakarta, Indonesia*
[2]*Facultyof Economics and Business, Universitas Kristen Indonesia, Jakarta, Indonesia*
**Corresponding Author: Posma Sariguna Johnson Kennedy*

ABSTRACT: *The purpose of this study is to see the effect of spot and forward prices on futures prices on olein products on the Bursa Berjangka Jakarta or Jakarta Futures Exchange (JFX) for the 2015-2017 period. The research method used by the quantitative approach. The data used are secondary data, obtained from bappebti.co.id and jfx.co.id. The results of this study indicate that forward rates do not affect futures rates, while spot rates affect the futures rates. Thus the spot price is the best predictor in predicting futures prices.*

KEYWORDS -*Forward Prices, Spot Prices, Future Prices, Olein Commodity, Jakarta Futures Exchange*

I. INTRODUCTION

In every form of investment always presents two sides of outcome, namely the risk of losses or get potential profits. Investment in commodity futures trading is known as a form of investment that has a high risk and has the potential to provide high profits in a relatively short time. In futures trading, a customer does not need to deposit money as much as the value of the contract traded, but only in a small percentage ranges from 3-5% of the contract value. This amount of money is called the margin. Every time the customer can release or sell the contract before the contract is due. However, as a customer, they must keep in mind that the buying and selling transaction that is involved is a business that not only assesses the margin deposited but the value of the contract. Thus, if there is a change in the price of a commodity which is subject to a contract in the market up by several percents, the customer may get a huge profit or loss, so that the deposited margin can multiply or disappear in a short time. These risks are what investors face in the Commodity Futures Trading. That is what causes the Commodity Futures Trading to be a type of high-risk trade.[1]

The Commodity Futures Trading contract is a standard contract where the amount, quality, type, place and time of delivery have been determined in advance. If an analys can be carried out carefully by applicable rules, investing in the Commodity Futures Trading is likely to give good results. Potential commodity futures and trade indications as an attractive investment alternative can be seen from the increasing number of lots transacted on Jakarta Futures Exchange, from year to year which shows that the average trade transaction experienced very significant growth.[1]

Commodity Futures Trading in Indonesia uses the basis of Law No.32/1997 as amended by Law No. 10/2011, concerning Commodity Futures Trading is everything related to commodity buying and selling with margin withdrawals with settlement then based on futures contracts, sharia derivative contracts and or other derivative contracts. The commodity in this law regulated by the regulation of the Head of Badan Pengawas Perdagangan Berjangka Komoditi (BAPPEBTI)orThe Commodity Futures Trading Regulatory Agency. Historically, the commodities transacted began with primary products such as agricultural, mining and energy products, and now include various financial products such as the stock index and foreign currency (cross currency).[1]

At present, Indonesia has two Futures Exchanges, namely the Bursa Efek Jakarta (BBJ) or the Jakarta Futures Exchange (JFX) which began operations at the end of 2000, and the Indonesian Bursa Derivative Commodity Exchange (BKDI) which began operations in 2009. Since its inception, BBJ and BKDI offer a forum for Commodity Futures Trading transactions that can meet national needs by following global trends. This is so that the Commodity Futures Trading market players in Indonesia can conduct transactions on BBJ and BKDI as well as the Commodity Futures Trading market participants in the Futures Exchange in various cities throughout the world. Thus, every user both as an investor and a local hedger has the opportunity to take advantage of the existence of BBJ and BKDI as in other Futures Exchanges throughout the world.

During 2015, commodity futures trading transactions reached 5,490,430 lots, an increase of 6.11% from the previous year, amounting to 1,059,145 lots to 1,360,601 lots. The multilateral contract that dominates the trade is CPO with 439,635 lots, robusta coffee 233,712 lots and gold 250 grams 129,023 lots. Despite dominating, on an annual basis, CPO transactions declined 27%, while coffee and 250-gram gold each grew

64% and 27% respectively. But at the end of 2016, JFX was focused on efforts to increase multilateral transactions of CPO derivative products. According to the official website www.jfx.co.id, the CPO price of the October 2016 delivery contract at JFX for 10 tons of olein products (OLE) stagnated at the level of Rp. 10,730 per kg in line with the amount of 20 tons of OLE products which remained at Rp. 10,715 per kg. It's just that since the end of 2015, the price of OLE20 tons has increased by 39.15% and OLE10tons has soared 35.39%.[2]

There are still many market participants who do not know that olein is the main ingredient in making cooking oil, so that it loses compared to other JFX multilateral products such as gold and coffee. For information, throughout 2015 the multilateral olein transaction volume was only 60,243 lots. From the data provided by JFX, it is known that until September 20, 2015, OLE20 tons transactions have reached 51,000 tons while OLE10 tons amounted to 26,000 tons or a total of 77,000 lots. This means that until the middle of September 2016 olein transactions have reached 78% of the total target of JFX until the end of 2016. Throughout 2017 the contract with the most significant increase was achieved from OLE10 products which grew to 135%. Based on JFX data compiled by the business, OLE10 trading recorded the highest growth to reach 107,000 lots, with an increase in transactions up to 135% from the previous year at 78,000 lots. However, overall Olein products include OLE10 and OLE20 tons, which experienced a 16% increase in transactions during 2017, with a growth of 3% year on year.[2]

Based on these data, the author will use olein commodity prices as the object of research. This study aims to analyze futures price predictions by using forward rate and spot price variables, with case studies of olein price movements at the Jakarta Futures Exchange in the 2015-2017 period. Thus the formulation of the problem posed is how the relationship of spot prices and forward prices affects the forecast of futures prices on olein commodities for the period 2015-2017.

II. LITERATURE REVIEW

Same in analyzing stock prices, in price analysis on commodity futures exchanges investors also need to examine supply-demand in the market. In looking at changes in stock prices, investors see all variables, such as macroeconomic factors, company progress, corporate financial health, company performance, organizational systems within the company, facilities owned, continuity of good contracts with suppliers or third parties, mastery of technology and information in this era of globalization, as well as other factors.[3]

In commodity markets, the market moves more dynamically, because the prices that occur will always change reflected by the very active supply-demand process. Success in hedging (risk minimization) in the futures market depends on the ability to anticipate and analyze the base of the relationship of future pricea and spot price, identification and understanding of the mechanisms that affect the link, will help market players in deciding marketing and production strategies.[4]

Futures prices are prices that occur on futures exchanges at certain times with later deliveries. Prices are formed from the expectations of the actors based on predictions of commodity demand and supply. Futures prices are the price of a futures contract, which is a futures contract that is binding on both parties to buy or sell a particular financial or non-financial asset, the delivery of which is carried out in the future at a fixed price.[5]

Futures contracts are agreements to sell and buy assets at a certain period in the future at a fixed price that has been agreed before. The amount of the futures contract is the opposite of the price in the spot market; the rate will be lower or can be higher. Futures contracts are often used in hopes of eliminating risk (hedging) [6]. Hull[7] describes a futures contract as an agreement between two parties to buy or sell assets in a certain period in the future at a price agreed upon previously. Prices on futures contracts are influenced by supply and demand as well as spot market prices. The rate of a futures contract can be higher or lower. In futures contracts, some initial margins are required, which is the nominal amount of money that the investor needs to deposit to the broker.

By using a futures contract, it is expected that risk prevention can be carried out against unwanted price movements on the spot market. If the futures market and spot market move together, any losses suffered by hedgers in one position can be offset by profit in the other place. Therefore gains and losses are expected to have the same value. Futures contracts are forwarded institutionalized arrangements. Futures contracts for foreign exchange are almost the same as futures contracts for various agricultural commodities (rubber, cacao, etc.), for interest-bearing deposits and gold.[8]

According to Hull[9], spot prices are the current shipping prices for products traded on the spot market or also called cash prices. Spot prices are prices that occur in the physical demand for commodities that are directly bought at certain times and places. This price happens on an agreement with the seller and the buyer, including the surrender requirements or the standard of the commodity being traded. Spot prices are influenced by demand and supply. Hanafi[10] states that the spot contracts on money markets are foreign exchange transactions with immediate delivery (theoretically even though in practice spot transactions are completed within two or three days).

Forward prices are prices agreed upon in an asset transaction on a Forward contract. Forward contracts are bilateral contracts that do not require a cash payment up to the time of delivery of assets or commodities at the expired date exchanged for cash. The performance promised by the Forward contract is expected to not have a significant risk due to guarantee and trust in the current parties. Prices of forwarding contracts with different delivery times may have unequal costs.[9]

A forward contract is an agreement to sell or buy assets at a particular time in the future. Kimbal[11], states a forward agreement or forward contract is an agreement between the two parties to sell and buy a commodity that will be sent at a particular time in the future at an agreed price at this time. According to Hull[7], forward contracts are agreements between two parties, namely sellers and buyers who negotiate and decide on a written agreement of ability between the two parties to buy and sell certain assets, with the agreed time. Ayuet.all[12] explained that forward contracts are agreements to sell or buy assets at certain times in the future. The accepted value is not written in the deal because the cost will always change following the existing fundamental conditions, such as supply-demand and occur during the contract.

Forward transactions are commodity transactions where delivery is carried out on a specific date in the future. Forward transactions will be settled as determined when both parties agree to the contract to buy and sell [8]. According to Hanafi[10], forward transactions in foreign currencies are transactions with surrenders over some future currencies based on some other specific currencies. The rate in the forward deal is determined in advance while the delivery and payment are made in the future. Forward prices are usually quoted with terms of one, two, three, six and twelve months. But if another period is needed, (e.g., four months or even 55 days) negotiations can be done.

The relationship of Spot Prices to Futures Prices can be explained through the contango and backwardation theories. Contango is a market situation when Futures Prices are above the Spot Price. The theory explains that commodity supply for the future time is expected to decline, while fixed or increasing demand will push Futures Prices higher than Spot Prices. Instead, backwardation according to is a market situation when Futures Prices are below the Spot Price. Backwardation theory explains if the inventory is estimated to be excessive while the demand is fixed, it will encourage Futures Prices to be below the Spot Price. In the process of forming prices towards equilibrium prices, namely prices at maturity, Spot Prices will go to Futures Prices, which are called convergence points. Based on the explanation of the two theories, it can be concluded that the Spot Price has a positive effect on Futures Prices.[13]

Forward contract agents generally also have better information about future price predictions because the players in the forward market or negotiation market are parties that have a direct interest in the supplier of the commodit. Suppliers in commodity markets have an essential role in means of price formation because suppliers are more aware of the conditions of supply and demand in real terms on the market based on existing inventories accurately so that the prices formed can represent actual supply and demand conditions. Information possessed by forwarding contract players is more accurate in real time while futures contract players usually only respond to news that has been officially announced, this makes the price predictions of forwarding contract players faster and more accurate than futures market participants. Futures market participants will use Forward Prices as a reference for Futures Prices. Thus it can be concluded that Forward Prices have a positive effect on the predictions of Futures Prices.[8]

Previous research conducted by Yanthi&Artini[14] proved that the Spot Rate and Forward Exchange Rate significantly proved to have a positive effect in predicting Spot Futures. While Prihatini[15] in his study included macro variables in determining the impact of prices and other variables, namely production, exchange rates, interest rates and world oil prices on exports were analyzed using VECM analysis. The results show that in the long run futures priceshave a significant effect on exports.

Based on the background and exposure above, the hypotheses in this study are constructed: (1) Spot prices influence predictions of futures prices, and (2) Forward prices have a positive influence on predictions of futures prices.

III. METHODOLOGY

This study aims to predict futures prices as the dependent variable, using the variable forward price and spot price as independent variables. The research method is quantitative with data analysis using a time series approach using multiple regression methods. The object of the research used is olein commodity prices at the Jakarta Futures Exchanges (JFX) with the period 2015-2017.

In this study, the method is carried out by observing, and recording the published commodity price data. The type of data used is secondary data, namely data obtained from other parties or primary data that has been processed by other parties. The data is obtained from JFX which is registered at BAPPEBTI. Olein price data is obtained from www.bappebti.co.id[16] and www.jfx.co.id[2]. Spot olein price data is secondary data issued by BAPPEBTI. Spot prices follow current market prices that occur in the physical market. The forward

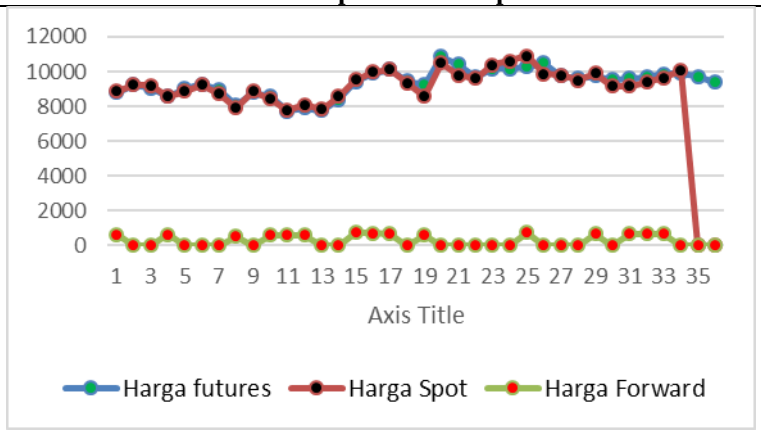
price refers to the price of the forward olein contract but the price announced is the price that occurs between the seller and the buyer through the broker through an average calculation.

The data analysis technique is carried out by doing descriptive statistics, standard assumption tests, hypothesis testing, and multiple linear regression analysis. Descriptive statistics in question are to describe data processed by the researcher about the mean, maximum and minimum values. The classic assumption test is done to see whether in the data to be formed into a regression model there is residual normality, multicollinearity, autocorrelation, and heteroscedasticity. Hypothesis testing is done by the F test t-test. The t-test, also called the regression coefficient test partially aims to determine whether the independent variables can somewhat influence significantly or not on the dependent variable. While the F test is conducted to test the significance of the influence of several independent variables simultaneously on the dependent variable. Multiple linear regression analysis aims to know the importance of independent variables and dependent variables.[17]

IV. FINDINGS

The data used is in the form of historical prices of monthly transactions for olein commodities, which occur during 2015-2017, consisting of futures prices, spot prices, and forward prices. Based on data collection, there are 36 data units that are ready to be processed and analyzed, the graph can be seen in the figure below.

Table 1. Data Graph and Descriptive Statistics



Movement of Futures Prices, Forward Prices and Spot Prices

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Spot (X_1)	36	7750.00	10908.00	9284.7867	781.24188
Forward (X_2)	36	525.00	737.50	641.5694	50.26461
Futures (Y)	36	7730.00	10855.00	9365.4167	779.11706
Valid N (listwise)	36				

Source: www.bappeti.co.id

The picture above shows futures price movements, spot prices and forward prices monthly,for the period 2015 to 2017. From all the data of 36 spot olein market prices for the period of 2015 to 2017, we have a minimum value of 7750 and a maximum value of 10908 with an average value of 9284.79 and a standard deviation of 781.24. The lowest spot olein market price is found on the trade of 30-11-2015, while the highest spot olein market price is located in trading on 31-01-2017.

We do a classic test on the datas, and the results are as follows:

a) Regarding thenormality test, the significance value (Sig.) of the spot price is 0.200, the value of Sig. forward price of 0.200, and Sig. futures price of 0.200. Because of the significance value is greater than the significance level (0.05), the three variables come from normal form.

b) Regarding the multicollinearity test, the Tolerance and VIF values of the spot price variable are 0.309 and 3.239, and the Tolerance and VIF values of the forward price variable are 0.309 and 3.239. Because both independent variables have Tolerance values greater than 0.1 and VIF values smaller than 10, it can be concluded that there are no symptoms of multicollinearity between independent variables.

c) Regarding the heteroscedasticity test, from testing through graphic images, there is no clear pattern in the picture, and the points spread above and below the number 0 on the Y axis, so there is heteroscedasticity.

d) Regarding the autocorrelation test, the Durbin Watson value (d) is 1,331. Whereas based on the DW table in appendix 5 for many independent variables (k) = 2 and the number of observations (n) = 36, obtained the value of dL (outer limit) of 1.3537 and dU (inner border) of 1.5872, so determined a 4-dL value of 2.6463 and 4-dU of 2.4128. From these calculations, it is known that the amount of Durbin Watson (d) is located in the test area d (1.331) <dU (1.5872), which means there are symptoms of autocorrelation.

The statistical analysis used in this study is multiple linear regression to determine whether there are effect of the independent variables (spot price and forward price) on the dependent variable (futures price).The results of statistical processing are as follows:

Table 2. Summary of Statistic Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	809.903	637.779		1.270	.213
	Spot (X1)	.958	.113	.960	8.476	.000
	Forward (X2)	-.523	1.756	-.034	-.298	.768

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18468023.430	2	9234011.713	109.699	.000[b]
	Residual	2777795.323	33	84175.616		
	Total	21245818.750	35			

a. Dependent Variable: *Futures* (Y)

b. *Predictors: (Constant)*, *Forward* (X_2), *Spot* (X_1)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.932[a]	.869	.861	290.13034	1.331

a. *Predictors: (Constant), Forward* (X2), *Spot* (X1)

b. Dependent Variable: *Futures* (Y)

Source: Data processed with SPSS 24.0

From the table above can be seen the results of hypothesis testing, are:

a) Effect of spot prices on futures prices. From the table, it is shown that the value of t count is 8.476 with significant value (Sig.) of 0,000. Because the significant value (0,000) is smaller than the significant level (0.05), it means that Ho is rejected and Ha is accepted, meaning that spot prices have a significant effect on futures prices.

b) Effect of forwarding prices on futures prices. From the table, it is shown that the value of t count is -0.298 with a significant amount (Sig.) of 0.768. Because of the substantial cost (0.768) is higher than the significant level (0.05), it means accepted, saying that the forward price does not have a significant effect on futures prices.

c) The table above shows that spot prices and forward prices have a significant effect on futures prices simultaneously.

d) The table above shows the coefficient of determination (R square) of 0.869. This means that 86.9% of futures prices are influenced by the two independent variables of forward rates and spot prices, while the remaining 13.1% are influenced by other causes.

V. CONCLUSION

Partially, spot prices have a positive and significant effect on futures prices for olein commodities, and the forward rate has no impact on futures prices for olein commodities. Simultaneously, spot prices and forward prices have a significant effect on futures prices for olein commodities traded on the Jakarta Futures Exchange. Also, the coefficient of determination (R square) is obtained amounting to 0.869, which means that 86.9% of futures prices are influenced by both the independent spot price and forward prices, while the remaining 13.1% are influenced by other factors.

Empirically, it is evident that spot prices are the best predictors in predicting futures prices. In doing hedging, the calculation must be done carefully. By knowing the relationship of spot prices and forward prices to futures prices, it is expected to be used as an estimate for users to obtain market price information. Also, it can be used as supporting data in the fundamental analysis in determining when it is in the position of selling or buying, especially for olein commodities.For further research, it is recommended to add other variables by increasing the data variant and the study period.

REFERENCES

[1] KementrianPerdaganganRepublik Indonesia, PerdaganganBerjangkaKomoditi, BAPPEBTI Commodity Futures Trading Regulatory Agency (CoFTRA), from http://bappebti.go.id/resources/docs/brosur_leaflet_2001_03_10_7gpy8wst.pdf downloaded on March 1, 2019.

[2] www.jfx.co.id

[3] P.S.J. Kennedy, R. Hayrani, PengaruhFaktor-FaktirEkonomiMakro: Inflasi, Kurs, HargaMinyak, danHargaBahanBangunanterhadapHargaSaham Perusahaan Properti di BEI, JurnalMitraManajemen (JMM Online), Vol 2, No.1, 2018, 1-12.

[4] Faisal M, ManajemenKeuanganInternasional (Jakarta: Salemba, 2001).

[5] Rambey S, AdakahNilaiEkonomisProdukFinansialDerivatifdalamPerdaganganKomoditi Indonesia: RelevansinyadenganKonstruksiNilaiEtikadalamPasarBebasdanPertumbuhanNilaiEkonomiBangsa (Jakarta : HMI, 1999).

[6] Ismiyanti, F., &Sasmita, H. I, Efektivitas Hedging Kontrak Futures KomoditiEmasdenganOlein, JurnalManajemenTeori Dan Terapan, 4(2), 2011, 54–67.

[7] Hull, Jhon C, Options, Futures and Other Derivatives (Pearson Prentice Hall, New Jersey, 1997).

[8] Kuncoro, Mudrajad, ManajemenKeuanganInternasional (Yogyakarta: BPFE-Yogyakarta, 2009).

[9] Hull, Jhon C, Fundamentals Of Future And Options Markets, Fourth Edition, (Pearson Prentice Hall, New Jersey, 2001).

[10] Hanafi, Mamduh, ManajemenKeuanganInternasional (Yogyakarta: BPFE-Yogyakarta, 2001).

[11] Kimball, J. Dietrich, Financial Services and Financial Institutions: Value Creation in Theory and Practice (Prentice-Hall, 1996).

[12] Ayu, I. G., Diana, K., Gede, L., &Artini, S, Memprediksi Future Spot PadaPasarValasKawasan Asia Tenggara. JurnalManajemen, StrategiBisnis, Dan Kewirausahaan, 7(2), 2013, 75–85.

[13] Irawan, Puguh, CatatankutentangContango& Backwardation dalamKajianPasarMinyak, 2012, from https://puguhbirawan.wordpress.com.

[14] Yanti, I &Artini, Luh, PengaruhKurs Spot danKurs Forward DalamMemprediksi Future Spot PadaPasarValasKawasann Asia Tenggara. JurnalManajemen, StrategiBisnis, danKewirausahaan. Vol 7. No 2, 2011.

[15] Prihatini, Athika, AnalisisVotalitasdanHubunganHarga Spot-Futures denganEkspor Crude Palm Oil (CPO) di Indonesia. Tesis. Bogor: IPB, 2015.

[16] www.bappebti.co.id

[17] Sugiyono, MetodologiPenelitian (Bandung, Alfabet, 2011, 34–60).

Corresponding Author: Posma Sariguna Johnson Kennedy
[1]Faculty of Economics and Business, Universitas Kristen Indonesia, Jakarta, Indonesia