International Journal Of Economics Social and Technology
member of scientific research institute
ISSN 2830-5132

Relationship Between Oil Price, Exchange Rate, And Stock Market

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Received:
12/08/2022

Revised
22/08/2022

Accepted:
28/08/2022

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Abstract - *The purpose of this study is to investigate the impact of oil prices and their fluctuation on the exchange rate and stock prices in Pakistan. The time-series data were collected from 1995 to 2018. The data will collect from World Bank and the Pakistan stock exchange (PSX). Oil price and oil price volatility are independent variables and dependent variables are the exchange rate and stock price. Descriptive statistics, unit root test, and ordinary least square OLS regression has applied for this research. The results from Model 1 show that there is a negative impact of oil price volatility OPV on stock price SP in Pakistan. The oil price has a positive impact on SP in Pakistan. The results suggest that increases in the OP lead to increases in the SP. in contrast increases the volatility in OP reduces the SP. Moreover, Model 2 results represent, as the impact of oil price volatility OPV is negative on exchange rate ER in Pakistan, while the oil price has a positive impact on exchange rate ER in Pakistan. The results suggest that increases in the OP lead to increases in the ER. In contrast, increasing or decreasing the volatility in OP reduces or increases the ER. This research will be very helpful for company owners, businesspeople, managers, policymakers, academic and industry researchers, and individual investors to reduce uncertainty and volatility in the financial market. The finding suggested that the study would help in managing and measuring divestment risk present in the market, selecting stock or portfolio, and financial derivatives pricing.*

Keywords: *Oil Price, Exchange Rate, Stock Price, Oil Price Volatility.*

Introduction

Oil price is considered as an important and debatable variable. Increases or decreases in OP affects various economic activities of the country (Algattan and Alhayky, 2016; Siddiqui, 2014; Iqbal and Raziq, 2018; Youssef and Mokni, 2019; Willem 2019). For the last few decades, the most important consideration was the stock price and exchange rate changes that occurred due to oil prices change. Many researchers found that oil price OP, exchange rate EXR, and stock price SP have a significant relationship (e.g. Siddiqui, 2014; Atiq and Farhan, 2019; Iqbal and Raziq, 2018; Youssef and Mokni, 2019; Willem 2019; Nurmakhanova and Katenova, 2019)

Historically, oil price changes caused economic activity volatility. Previous research studies the influence of oil prices on stock prices that OP indirectly or directly affect SP and EXR. According to Ferson and Harvey (1995), different results are found in oil exporting and importing countries. Oil price changes influence directly economic activity in oil importing countries and OP changes affect indirectly economic activity in oil-exporting countries. The changes in OP have great importance to changes in SP's return (Abel and Bernanke, 2001). Most of the researchers study the impact of OP on Unites States

International Journal Of Economics Social and Technology
member of scientific research institute
ISSN 2830-5132

stock market (broodstock and files, 2014). In Jordan (Bouri et al., 2016), and Europe (Arouri et al., 2012).

The stable period for oil prices, were from 1986 to 2006 in global economy. The oil prices rose over the period of 2007 to 2009 from 60 dollar to 145 dollar. After 2009, decreases in OP, occurred due to many factors such as high supply of crude oil worldwide. High production of oil countries are Iraq, Libya and Saudi Arab. While, downturn faced by various countries such as recession in japan and European country (e.g. Germany). In addition demand and supply dynamics the world know about to live environment friendly. Now oil has replaced by gas, bio fuel etc.

Pakistan is depend on oil and gas resources more while, OP is more volatile in Pakistan. Its variation influence Pakistan economy as well. 33 percent oil import in Pakistan. High prices can effect badly on transportation and can benefit for stock market's return. Fall in the oil prices can also effect many factors positively such as electric bills, low imports bill, transportation and low stock prices by which people can buy more stocks. In 2014-15, the oil import bill decrease from &15.36 billion to $11.86 billion in 2013 and 2014. These changes have put positive influence on exchange rates (Atiq and Farhan, 2919). There are only few studies on relationships between oil price and stock price (Nurmakhanova and Katenova, 2019).

Similarly, the influence of oil price on exchange rate is positive because increases in oil price can leads to increases in exchange rates (Chen and Chen, 2007). Lizardo and Mollick (2010), investigates the impact of oil prices on exchange rates and stock prices. The results found that increases in oil prices leads to appreciation exchange rates rises in oil price have positive impact on stock price and exchange rate for oil exporting countries. While, rises in oil prices decreases stock market or it have negative impact on stock price in oil importing countries. Increases in oil prices lead to depreciation in exchange rate for oil importing countries (nurmakhanova and ketnova, 2019). Oil importing countries have negative impact of oil price, as oil prices increases then stock market index decrease (Basher et al., 2016).

From previous studies, several studies have been conducted in different countries to investigate the oil prices changes impact on exchange rates and stock prices. However, stock prices effected by oil prices movement more in importer countries than exporter countries. Moreover, previous studies support that the changes in oil prices have great importance to changes in stock prices return (Abel and Bernanke, 2001; broadstock and filis, 2014; Bouri et al., 2016; Arouri et al., 2012). This study aim is to give more attention toward the investment in stock market fluctuation, if oil prices rise or fall. Moreover, Country economic conditions has been effecting by oil prices movement. From the last few years, to overcome to this problems various country wanted to produce its own oil but did not achieve the goal. Pakistan depends on hydrocarbon imports. Pakistan is energy deficient country. Oil prices and its changes effect more on oil importer countries' development and economic sector. Oil prices and its changes effect firm performance and stock return also. As Pakistan is one of the oil importer country so to fill the gap this study will add the growing literature to investigate the impact of oil price on exchange rate and stock price in Pakistan.

Pakistan had resumed crude oil export in 2014. Pakistan is one of the oil importer country. The use of oil increases day by day in Pakistan are oil prices are increases constantly. Demand of the oil is also increases day by day. After the crises of 2008, oil prices fluctuation strike economic activities, stock prices and exchange rates. In Pakistan, oil prices are very high due to various factors, which effect stock prices. (Ansar and Asghar, 2013). There are only few studies on relationships of oil price and stock price (Nurmakhanova and Katenova, 2019). Similarly, the influence of oil price on exchange rate is positive because increases in oil price can leads to increases in exchange rates (Chen and Chen, 2007).

Literature Review

Theoretical Reviews

International Journal Of Economics Social and Technology
member of scientific research institute
ISSN 2830-5132

Oil prices movement plays an important and significant role in global economy particularly in oil importing countries than oil exporting countries (Yousef and Mokni, 2019). Over few decades, researchers examine the impact of oil prices movement on stock price and exchange rate. There are various theories discussed in research articles related to oil prices shocks, stock price volatility and exchange rate. Several theories applied for this research such as economic theory implies that asset price indicated by its discounted cash flow, which effect on others asset price (Wiliams, 1930; Youssef and Mokni, 2019). However, increases in oil price reduce production because oil price become more expensive for oil importing countries, which effect business cycle, firm performance, stock markets and economic activities. In addition, high oil price volatility leads to decrease stock price (Arouri and Nygyun, 2010).

The Efficient Market Hypothesis theory proposed by Professor Eugene Fama (1960). This theory considered important for this study as this theory stated, as the stock markets are efficient consider availability of information of asset price in a financial market. Moreover, all available information reflects by stock prices. There are three forms of efficient market hypothesis includes weak form, semi-strong form and strong form. According to weak form of efficient market hypothesis, the current stock price considers all previous available information only. While, the semi-strong form of efficient market hypothesis stated that the prices of asset do not only reflect the public available information but also incorporate adjusted new information as well. According to strong form of efficient market hypothesis that the market is efficient as the price of asset reflect past public available information, new adjusted information and contain hidden information. Strong forms of EMH have all public and private information. Public information includes previous and present information respectively (Siddiqui, 2013).

Empirical Reviews

Oil Price and Stock Price

The oil price can defined as the balance between its supply and demand or it is the reference price for sellers or buyers of crude oil. It refers to the price of spot of 1 barrel of the crude oil benchmark (Byrne et al., 2018). Moreover, the stock price is a company's market value and its show stock trades at the price agreed upon by a seller or buyer. If there are more seller, it represent the SP will drop. While if there are more seller, it represent the SP will drop (Pearce and Roley, 1984). Previous research found significant relationship between OP and SP (Ansar and Asghar, 2013; Alqattan and Alhayky, 2015; Nurmakhanova and Katenova, 2019)

Ansar and Asghar (2013) investigate the impact of oil price on Stock exchange and consumer price index at Pakistan. The results found that there is positive linkage between oil price, consumer price index (CPI) and stock exchange of Pakistan but the results are not very strong. Due to high import and usage of crude oil by importer countries, oil prices effect more on those countries than exporter countries. High oil prices effect on transport, which effect the performance of firm and stock market returns. This research also found that high inflation rate effect stock market return which brings difficulties to stay in the financial markets for investors. This paper is very helpful to determine and improving important factors of economy of Pakistan. By the help of research economic activity will also be improve by making certain strategies for Pakistan.

Alqattan and Alhayky (2015) investigate the impact of oil price on stock markets in Gulf Corporation Council's (GCC) stock markets. The results found that there is no co-integration found among oil price and stock price in long run, countries include Saudi Arab, Kuwait, Bahrain Qatar and UAE. The long run co-integration between variable found in Oman only. Furthermore, the shoestring relationship shows between oil prices and stock market prices in all (GCC) countries. There is positive relationship between oil price and stock market return in all (GCC) countries. Tie results suggest as in the short run cointegration found between oil price movement and stock price in oil exporter and producer country.

Youssef and Mokni, (2019) examine the relationship between Crude oil price and stock markets of oil exporting and oil importing countries. The results represent that there is time varying relationship between oil prices and stock market in oil importer and exporter countries. In addition, there is strong association between crude oil price and stock market in oil importing countries than oil exporter countries due to the cost of transportation. The result implies that the changes of oil prices effect on stock market, which effect the global business cycle.

Nurmakhanova and Katenova (2019), investigate the impact of oil price on stock market and exchange rate in Kazakhstan. The results represent there is no long run connection between oil price, stock price and exchange rate in bivariate model. While, there is long run relationship between oil price, stock price and exchange rate in multivariate model. The result implies that oil price movement positively effects on stock price and exchange rates, which based on granger causality test in Kazakhstan. This study results were helpful for policy makers and monetary authorities. The results suggest that policy makers should consider the financial market implication before making policies. These results are also helpful for the policy makers and exchange authorities to improve condition of financial and economic market.

Siddiqui (2014) determine the oil price and its fluctuations OPV impact on stock market performance in Pakistan. The purpose of this research was to investigate the oil price fluctuation impact on stock market in Pakistan because stock market influence by external and internal economic factors such as global, local, etc... The study also examines the development level and investment activities in Pakistan. The results obtained from this research are that oil price has positive influence on stock market. The result implies that increase in oil price increase the stock price and vice versa.

Atiq and Farhan, (2019) investigate the impact of oil prices on stock return in Pakistan. The purpose of this study was to found the oil prices fall reason, due to decreasing demand of oil, oil price also decrease. The main reason might be shale gases' discovery and rapidly increase in the demand of shale gases. These changes also influence on the financial and economical market all over the world. The results found that there is negative impact of oil price movement on stock price return. the results implies that Pakistan is an oil importer, oil prices increase due to the cost of production and transportation which effect stock price return in negative manner.

Oil Price and Exchange Rate

The oil price OP can defined as the balance between its supply and demand or it is the reference price for sellers or buyers of crude oil (Byrne et al., 2018). Moreover, exchange rate is the rate decided at which 1 currency rate will be exchange for another country's currency rate. It is also refer as the one country's value relative with another country's currency value in which different rates quoted by dealers of money (Yeng and Zeng, 2014). Previous research found significant relationship between OP and ER (Iqbal and Raziq, 2018; to Siddiqui and Muhammad, 2013; Nurmakhanova and Katenova, 2019)

Iqbal and Raziq (2018) investigate the impact of crude oil price on exchange rate Nexus at Pakistan. The data is collected as daily time series data. Eview software was used to analyze the impact of oil price on exchange rate. The technique is used for this study was Asymmetric Power Autoregressive Conditional Heteroscedasticity test (APARCH). The results found that the high variability in crude oil price effect exchange rate. There is positive relationship between exchange rate and crude oil price.

According to Siddiqui and Muhammad (2013), the development level is depend on the investment rate in the economy. Stock market recognized as best platform for the funds for productive investment and diversion from the unit of surplus to deficient. The pessimistic and optimistic in the market of stock determines the stock index fall and rise. Moreover, stock market prices influences by global or local macroeconomics variables that significantly effects the performance of the stock market. Moreover, the oil price positively influences the stock price and exchange rates in Pakistan. The result suggests that increases in the demand of oil increases the oil prices, which positively effects

International Journal Of Economics Social and Technology
member of scientific research institute
ISSN 2830-5132

the stock market price and exchange rate in Pakistan. However, it is favorable to investors to sell stock or US Dollar when oil price grow up at Pakistan. On other hand, it is favorable for investors to buy the stock or US Dollar, when oil price decreases or falls.

Nurmakhanova and Katenova (2019) found that there is no long run connection between oil price, stock price and exchange rate in bivariate model. While, there is long run relationship between oil price, stock price and exchange rate in multivariate model. The result implies that oil price movement effects on stock price and exchange rates that based on granger causality test in Kazakhstan. This study results were helpful for policy makers and monetary authorities. The results suggest that policy makers should consider the financial market implication before making policies. These results are also helpful for the policy makers and exchange authorities to improve condition of financial and economic market. According to Chen and Chen, 2007, there is positive relationship between oil price movement and exchange rate. The results found that the influence of oil price on exchange rate is positive because increases in oil price can leads to increases in exchange rates

Oil Price Volatility and Stock Price

The price volatility is define as the degree to which prices changes occur such as fall or rise over a period. The OP volatility measure by for any given year is an average change in that year and the previous two years changes in OP (Degiannakis, Filis, & Kizys, 2014). The stock price is a company's market value and its show stock trades at the price agreed upon by a seller or buyer (Pearce and Roley, 1984). Previous researchers found significant relationship between OPV and SP (Degiannakis et al., 2014; Kang, Ratti and Yoon, 2015; Lawal, Somoye, and Babajede, 2016).

Degiannakis et al. (2014), investigated the impact of OPV on stock market in European countries. The study measures three types of volatility include realized implied and conditional volatility. The VAR regression applied to identify the results. The results suggest that volatility at supply side with specific demand do not has any impact on stock market. Oil price fluctuations at demand side tend to decreases stock markets. Moreover, there is negative relationship found between OPV and Sock market price. The finding suggested that the study would help in managing and measuring divestment risk present at market, selecting stock or portfolio, financial derivatives pricing. The managers will understand the model of supply and demand and its impact on market.

Kang, Ratti, and Yoon (2015), examined the impact of OPV on the covariance of U.S. stock market. The daily time series data collected for this study. The three types of volatility model is used in this study include conditional, implied and realized. At demand side, OPV is associated with negative effects on the SM returns and volatility. While, at supply side; OPV is associated with positive effects on SM return and volatility. Lawal, Somoye, and Babajide (2016), investigated the impact of ERV and OPV on the stock market in Nigeria as country's economy heavily depend on oil. The study was used EGARCH estimation techniques to examine the ERV and OPV on stock market volatility in Nigeria. Thus, it has recommended that policymakers should pursue policies that lead to stabilize ER and OP. Practitioner of market should formulate the accurate and reliable strategies of portfolio regarding to ER, OP and SP.

Oil Price Volatility and Exchange Rate

The price volatility is define as the degree to which prices changes occur such as fall or rise over a period. The OP volatility measure by for any given year is an average change in that year and the previous two years changes in OP (Degiannakis et al., 2014). Exchange rate is the rate decided at which 1 currency rate will be exchange for another country's currency rate (Yeng and Zeng, 2014). Previous researchers found significant relationship among OPV and ER (Qiang et al., 2018; Narayan, Narayan, and Prasad (2008).

(Qiang et al., 2018), investigated the impact of OPV on exchange rate in oil importing countries. The VAR regression applied to identify the results. The results found that OPV has negative impact on

International Journal Of Economics Social and Technology
member of scientific research institute
ISSN 2830-5132

exchange rate. However, high oil price fluctuation at increases or decreases the exchange rate in oil importing countries. Moreover, there is negative relationship found between OPV and exchange rate. The finding suggested that the study would help in managing and measuring investment at US dollar. Narayan et al. (2008), investigated the impact of OPV on exchange rate in Fiji land. The daily time series data collected from 2000 to 2006. The GARCH (EGARCH) regression applied to identify the results. The results found that, there is positive relationship found between OPV and exchange rate. The result identified that rises in OP in 10% increases the 2% in exchange rate. Liu, Failler, Peng, and Zheng (2020), investigated the time varying relationship between OPV and exchange rate in Fiji land. The daily time series data collected from 1996 to 2019. The TVP-VAR regression applied to identify the results. The results found that high oil price fluctuation decreases exchange rate in short term, medium and long term.

Methodology

Research Design

The research purpose is explanatory as this paper aims to examine the relationship between oil price, exchange rate and stock price. Explanatory study is conducted to support the concept which has been discuss poorly in previous research and give strength to the previous studies concept. The research purpose is to create the stability in Pakistan economy and finance market. The research approach is quantitative and the research is based on numeric data. Quantitative approach is used because it gives most accurate, effective and valid results. However, there are many studies has been done that collected published data according to the need of the researcher's studies. In this study, inductive approach is used. Moreover, hypothesis has developed that based on previous studies such as Pakistan is oil-importing country so oil-importing countries have negative impact of oil price on stock price (Ansar and Asghar, 2013). This study based on correlational research design.

The research aims to examine the relationship between dependent variables and independent variables to find out oil price fluctuation (fall or rise) and stock market is efficient or inefficient in Pakistan. The study has used regression analysis to examine the impact of independent variable on dependent variable. To find out the influence of sentiment of oil price on exchange rate and stock price, this study will collect financial data from secondary source, Pakistan stock exchange (PSX) and economic data from World Bank web sites. The time series, annually, 23 years data will collect for this research over the period of 1995 to 2018.

Research Model

Independent variables are oil price and oil price volatility and dependent variables are stock price and exchange rate in Pakistan (e.g. Siddiqui, 2014; Atiq and Farhan, 2019; Iqbal and Raziq, 2018; Youssef and Mokni, 2019; Willem 2019). In this study, two model are used, that are follows (Nurmakhanova and Katenova, 2019):

$$SP = c + OP + OPV + \varepsilon_t \quad (1)$$

$$ER = c + OP + OPV + \varepsilon_t \quad (2)$$

In model 1, (SP) stock price is dependent variable, C is constant, and (OP) oil price and (OPV) oil price volatility are independent variables. In model 2, (ER) exchange rate is dependent variable, C is constant, and (OP) oil price and (OPV) oil price volatility are independent variables.

Hypothesis

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member of scientific research institute
ISSN 2830-5132

Hypothesis is different for the oil exporting countries and oil importing countries. Pakistan is oil-importing country so these hypotheses are develop by considering the oil importing countries' previous results and predictions. High oil prices have negative impact on stock price for oil importing countries. Increases in oil prices lead to depreciation in exchange rate for oil importing countries (nurmakhanova and ketnova, 2019). Oil importing countries have negative impact of oil price on SP, as oil prices increases then stock market index decrease (Basher et al., 2016).

H1: there is negative relationship between oil price and exchange rate.
H2: The relationship between oil price and stock price is negative.
H3: there is negative relationship between oil price volatility and exchange rate.
H4: The relationship between oil price volatility and stock price is negative.

Statistical Technique

The techniques used in this study include unit root test, descriptive statistics, OLS ordinary least square regression. In unit root test (augmented-dickey fuller (ADF)) will apply to check the stationary of the data. Ordinary least square test has conducted to check the positive or negative influence between dependent (SP and ER) and independent variables (OP and OPV).

Data Analysis

This study objective is to examine the impact of oil price on stock price and exchange rate in Pakistan. To investigate the relationship between dependent and independent variables, following test are performed which include descriptive statistics; unit root test and OLS ordinary least square test are performed. To check each variable properties at time series data, ADF Test of unit root run at the level and at first difference. For empirical results, (OLS) test has performed to identify the positive and negative relationship between variable for Model 1 and 2. In model 1, the study objective is to determine the impact of oil price and its volatility on stock price in Pakistan. In model 2, the study objective is to determine the impact of oil price and its volatility on exchange rate of Pakistan.

The descriptive statistics of variables are summarizes in the table 1.1. The mean of exchange rate ER is PKR. 72.44. The mean of stock price SP is PKR. 13223.55. The mean of oil price OP is 4353.155 per barrel and the mean of oil price volatility OPV is 1.8%. The standard deviation of stock price is high than other variables, indicates that SP is highly volatile during the sample period. The standard deviation of exchange rate ER is less volatile during the sample period.

	ER	SP	OP	OPV
Mean	72.44685	13223.55	4353.155	-1.814583
Median	60.93000	9196.655	3703.355	47.07000
Maximum	139.8000	50591.57	11470.97	1382.880
Minimum	30.82900	841.7000	480.0600	-7484.700
Std. Dev.	24.84934	13878.54	3316.925	602.0728
Skewness	0.309609	1.162001	0.552101	-7.025381
Kurtosis	2.107719	3.098092	2.009871	84.94917
Jarque-Bera	14.15517	64.92730	26.39540	82957.09
Probability	0.000844	0.000000	0.000002	0.000000
Sum	20864.69	38083811	1253709.	-522.6000
Observations	288	288	288	288

Table 1: Descriptive Statistics; exchange rate ER, stock price SP, and oil price OP, oil price volatility OPV

Augmented Dickey-Fuller test ADF proposed by fuller (1975), stated that it is Unit root tests that performed to check whether the data is stationary or not. Unit root test results shows in table 2. The results indicate that variables include OP, SP, and ER, are non-stationary at level while OPV is

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ISSN 2830-5132

stationary. At first difference, results suggesting each variables' properties of time series are stationary. The result of unit roots indicates appropriateness to apply the OLS test.

Augment Dickey-Fuller Test		
	Prob. At Level	Prob. at First Difference
Mean	0.4342	0.0000
Median	0.9782	0.0000
Maximum	0.9979	0.0000
Minimum	0.0001	0.0000

Table 2: Unit Root Test; exchange rate ER, stock price SP, and oil price OP, oil price volatility OPV

Empirical Results of Model 1 and Model 2

OLS test results of Model 1 are show in table 3 to determine the impact of OP and OPV on SP. In model 1, results represent, as the impact of oil price volatility OPV is negative on stock price SP in Pakistan. While oil price has positive impact on SP in Pakistan (Degiannakis et al., 2014). The results suggest that increases the OP leads to increases the SP in Pakistan. In contrast, increases the volatility in OP reduce the SP. R-Squared value is 98%, indicates that 98% of variation in the stock price explained by independent variables changes in oil price OP and OPV. The Durbin-Watson value is 1.9, indicates that there is no autocorrelation issue. Overall results provide the evidence that there is significant association among OP, OPV and SP, which support the previous studies (Youssef and Mokni, 2019; Alqattan and Alhayky 2015; Ansar and Asghar, 2013; Degiannakis et al., 2014).

Dependent Variable: SP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
OP	2.508405	0.131349	6.182039	0.0002
OPV	-0.382888	0.139165	-2.751331	0.0063
C	5.460648	139.8149	0.039056	0.9689
R-squared	0.989808			
Adjusted R-squared	0.989699			
Durbin-Watson stat	1.908085			
F-statistic	9128.597			
Prob(F-statistic)	0.000000			

Table 3, Model 1: OLS Test

OLS test results of Model 2 are show in table 4 to determine the impact of OP and OPV on ER. In model 1, results represent, as the impact of oil price volatility OPV is negative on exchange rate ER in Pakistan, while oil price has positive impact on exchange rate ER in Pakistan. The results suggest that increases the OP leads to increases the ER. In contrast, increases or decreases the volatility in OP reduce or decreases the ER. R-Squared value is 98%, indicates that 98% of variation in the stock price explained by independent variables changes in oil price OP and OPV. Past researchers argued that more cost of transportation, oil prices rise, which effect stock prices. In contrast, High oil prices have positive impact on stock price in Pakistan. Increases in oil prices lead to increases in exchange rate. The Oil price volatility have negative impact on stock price, as oil prices increases lead to increases the stock market and vice versa (Basher et al., 2016). The Durbin-Watson value is 2.0, indicates that there is no autocorrelation issue. Overall results provide the evidence that there is significant association among OP, OPV and ER, which support the previous studies (Youssef and Mokni, 2019; Alqattan and Alhayky 2015; Ansar and Asghar, 2013; Degiannakis et al., 2014).

Dependent Variable: ER

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ISSN 2830-5132

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OP	0.005999	0.000260	23.11590	0.0000
OPV	-0.003536	0.001430	-2.473093	0.0140
C	46.32448	1.417321	32.68454	0.0000
R-squared	0.660557			
Adjusted R-squared	0.658175			
Durbin-Watson stat	2.071521			
F-statistic	277.3059			
Prob(F-statistic)	0.000000			

Model 2: OLS Test

Discussion

In descriptive statistics table, the standard deviation of SP is highly volatile during the sample period. However, the standard deviation of ER is less volatile during the sample period. After that unit, root test has applied, at level and at first difference, results suggesting each variables properties of time series are stationary at first difference. The results of unit roots indicate appropriateness of data to apply the OLS test. However, OLS test results of Model 1 shows that there is negative impact of oil price volatility OPV on stock price SP in Pakistan. While oil price has positive impact on SP in Pakistan (Degiannakis et al., 2014). The results suggest that increases the OP leads to increases the SP. in contrast, increases the volatility in OP reduce the SP. Results support previous studies' results, Siddiqui (2014) determine the oil price fluctuation impact on stock market performance in Pakistan, found that oil price have positive influence on stock market. The results implies that increase in oil price increase the stock price and vice versa (Youssef and Mokni, 2019; Alqattan and Alhayky 2015). Atiq and Farhan, (2019) investigate the impact of oil prices on stock return in Pakistan, found that there is negative impact of oil price movement on stock price return.

Moreover, OLS test results of Model 2 are show in table 4 to determine the impact of OP and OPV on ER. In model 1, results represent, as the impact of oil price volatility OPV is negative on exchange rate ER in Pakistan, while oil price has positive impact on exchange rate ER in Pakistan. The results suggest that increases the OP leads to increases the ER. In contrast, increases or decreases the volatility in OP reduce or increases the ER. Results support previous studies' results, Iqbal and Raziq (2018) investigate the impact of crude oil price on exchange rate at Pakistan, found that the high variability in crude oil price effect exchange rate. There is positive relationship between exchange rate and crude oil price. According to Chen and Chen, 2007, there is positive relationship between oil price movement and exchange rate. The results found that the influence of oil price on exchange rate is positive because increases in oil price can leads to increases in exchange rates Similarly, the influence of oil price on exchange rate is positive because increases in oil price can leads to increases in exchange rates (Siddiqui and Muhammad, 2013). Lizardo and Mollick (2010), investigates the impact of oil prices on exchange rates and stock prices. The results found that increases in oil prices leads to appreciation exchange rates rises in oil price have positive impact on stock price and exchange rate for oil exporting countries.

Furthermore, Based on previous studies, researchers predicted that oil-importing countries' has negative impact of oil on stock price (Basher et al., 2016). Due to more cost of transportation, oil prices rise which effect stock prices more than oil exporting countries. As Pakistan is an oil importing country, and results is not supporting past researchers prediction, high oil prices have negative impact on stock price in Pakistan. Increases in oil prices lead to depreciation in exchange rate. The Oil price have negative impact on stock price, as oil prices increases then stock market index decrease and vice

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ISSN 2830-5132

versa (Degiannakis et al., 2014). In addition, High oil prices volatility have negative impact on stock price and exchange rates. Increases in oil prices volatility lead to depreciation in exchange rate for oil importing countries (nurmakhanova and ketnova, 2019). Oil importing countries have negative impact of oil price volatility on SP, as oil prices volatility increases then stock market index decrease (Basher et al., 2016). Ansar and Asghar (2013) found that there is positive linkage between oil price and stock exchange of Pakistan but the results are not very strong.

According to Siddiqui and Muhammad (2013), the development level is depend on the investment rate in the economy. Stock market recognized as best platform for the funds for productive investment and diversion from the unit of surplus to deficient. The pessimistic and optimistic in the market of stock determines the stock index fall and rise. Moreover, stock market prices influences by global or local macroeconomics variables that significantly effects the performance of the stock market. Moreover, the oil price positively influences the stock price and exchange rates in Pakistan. The result suggests that increases in the demand of oil increases the oil prices, which positively effects the stock market price and exchange rate in Pakistan. However, it is favorable to investors to sell stock or US Dollar when oil price grow up at Pakistan. On other hand, it is favorable for investors to buy the stock or US Dollar, when oil price decreases or falls (Ansar and Asghar, 2013).

Conclusion

This study investigates the influence of oil prices OP changes and its volatility OPV on stock price SP and exchange rate ER in Pakistan. For this research, 23 years monthly time series data has used in this study, from 1995 to 2018.. The study applied OLS ordinary least square test to examine the impact of OP and OPV on SP and ER. The techniques will use for this study include unit root test, descriptive statistics, OLS ordinary least square regression. In unit root test (augmented-dickey fuller (ADF)) will apply to check the stationary of the data. Ordinary least square test has conducted to check the positive or negative influence between dependent (SP and ER) and independent variables (OP and OPV). Pakistan is oil-importing country so these hypotheses have developed by considering the oil importing countries' previous results and predictions. High oil prices have negative impact on stock price and exchange rate for oil importing countries. Increases in oil prices lead to depreciation in exchange rate for oil importing countries (nurmakhanova and ketnova, 2019; Basher et al., 2016).

However, this study results is not supporting past researchers prediction, as oil prices have negative impact on stock price and stock exchange in oil importing countries such as Pakistan (nurmakhanova and ketnova, 2019). Model one shows that there is negative impact of oil price volatility OPV on stock price SP in Pakistan. While oil price has positive impact on SP in Pakistan (Degiannakis et al., 2014). The results suggest that increases the OP leads to increases the SP. in contrast, increases the volatility in OP reduce the SP. Results support previous studies' results, (Siddiqui, 2014; Youssef and Mokni, 2019; Alqattan and Alhayky 2015; Atiq and Farhan, 2019)

Moreover, Model 2 results represent, as the impact of oil price volatility OPV is negative on exchange rate ER in Pakistan, while oil price has positive impact on exchange rate ER in Pakistan. The results suggest that increases the OP leads to increases the ER. In contrast, increases or decreases the volatility in OP reduce or increases the ER. Results support previous studies' results, (Iqbal and Raziq, 2018; Chen and Chen, 2007). The result suggests that increases in the demand of oil increases the oil prices, which positively effects the stock market price and exchange rate in Pakistan. However, it is favorable to investors to sell stock or US Dollar when oil price grow up at Pakistan. On other hand, it is favorable for investors to buy the stock or US Dollar, when oil price decreases or falls (Ansar and Asghar, 2013).

Implication

This study will help investors to know about the impact of oil prices volatility on stock price and exchange rates. This study will be helpful when investor decide to invest in the stock market or in

currency of the country. Before making decision, investor will enable to understand the impact of inflation, oil price high volatility and stock market bullish and bearish condition. The researchers and marketers will follow the important steps for the improvement and growth of the economy this research will help in identifying what are the key variables that will help to earn benefits. This study will also helpful for the government to check the reason of decline of economy and oil price impact on Pakistan economy. This research is useful for the business analyst, investors, economist, and other researches who are interested in the investment.

Moreover, the results suggest that policy makers should consider the financial market implication before making policies. . This study results will helpful for policy makers and monetary authorities. However, policy makers and exchange authorities to improve condition of financial and economic market. This study will help to determine and improving important factors of economy of Pakistan. By the help of research economic activity will also be improve by making certain strategies for Pakistan. This study will also helpful for the firm. They can use certain strategies to maintain firm performance. It is also helpful at downward trend follows by financial market in which investor can gain more return. This study will also helpful for international as well as domestic investors. The results of this research will add the body of existing knowledge for academics and industries researchers for control purpose. This research will be very helpful for company's owner, businessperson, managers, policy makers, academic and industry researchers and individual investors to reduce uncertainty and volatility in financial market. The finding suggested that the study would help in managing and measuring divestment risk present at market, selecting stock or portfolio, financial derivatives pricing. The managers will understand the model of supply and demand and its impact on market. Investors will able to understand that how to face challenges and problems or meet to opportunities about ups and down of stock market. Furthermore, we will be able to explain the correct results after collecting, analyzing data. We will find valid conclusion and will give future recommendation.

Recommendation

This literature examines the impact of oil price and its changes on stock price and exchange rate in Pakistan. Due to the short period, this research is limited to Pakistan only. Therefore, for the future researcher this study recommends that researcher should include number of countries like Asian countries because poverty may be high in Asian countries. This research could be done on other countries as well. The future researchers will do comparative analysis in different countries. We do not have enough resources to conduct this research on a huge scale. The availability of data is limited as it ranges from 1995 to 2020 this year range will be increased and more years will be taken into considerations. This study examines impact only these variables OPV, in future, more variables can use for this research to investigate stock price volatility or exchange rate volatility.

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