



The relationship between the Dubai-Oman crude oil and Oman stock market prices and political instability in the Middle East

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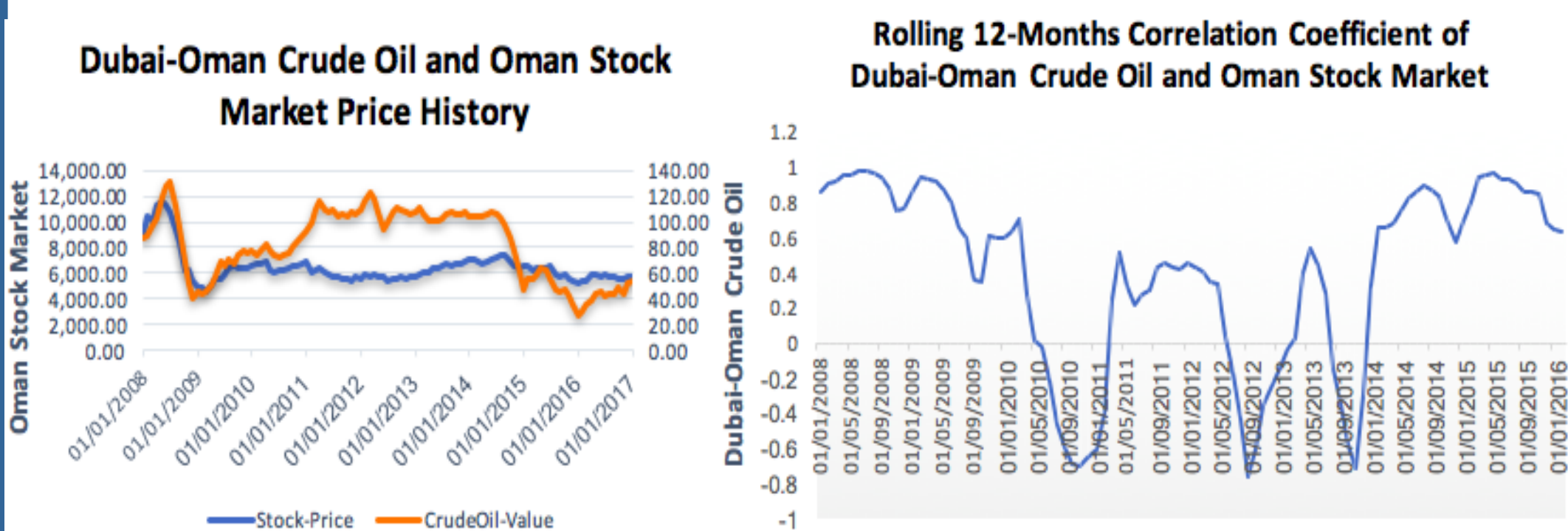
Abstract: The aim of this research to clarify if there is any relationship and correlation between the Dubai-Oman crude oil (also called Fateh) and Oman stock market return and volatility with the political instability in the Middle East. This study aims to use technical financial analysis and modeling like Multivariate regression and linear regression to investigate and provide empirical evidence regarding the existence of a correlation between the aforementioned variables. To do this the author collected historical data about Dubai-Oman crude oil, that is a Middle Eastern benchmark in oil pricing to export crude oil of the Persian-Gulf to the Asia-Pacific region. In addition, the historical data of the Oman stock market was extracted to achieve further information, such as to calculate the risk and volatility of the Oman stock market prices from 2008 to 2016. The data included monthly stock and Crude oil index observations and annually political stability, corruption perceptions and inflation, GDP, and constant prices. It has been collected, manipulated, and analyzed in order to provide a comprehensive report for this study. The results of the present study are useful for energy policy makers, investors, and researchers for framing sound asset pricing models and making global asset allocation decisions; for the market participants in understanding the interaction of the stock markets of Middle East and African countries in relation to the crude oil market, as well as the global equity market uncertainties; and for those investors who make use of new financial tools to hedge oil price volatility risk and are potentially interested in futures and option trading on OVX.

Introduction: The objective of this study is to identify if there is a positive or negative relationship and correlation between the Dubai-Oman crude oil prices and the Oman stock market prices with the low political stability in Middle East region (38.31%). The goal of this paper is to provide empirical evidence to identify the relationship between political instability and oil price fluctuation in the Middle East marketplace by conducting technical financial analysis. In addition, the result would raise awareness for financial market participants about the possible effects of the linkage between these factors while diversifying the risk related variables to investing in MENA region. The author considers a hypothesis test of the significance of the correlation coefficient between variables related to stock market and Crude oil prices alongside political stability to identify whether the linear relationship in the data is strong enough to use to model the relationship in the population.

Null hypothesis, H_0 : There is a relationship between stock market, crude oil prices and they are affected by the political instability of the Middle East.

Alternative hypothesis: There is not any significant relationship between stock market and crude oil prices. In addition, they are not affected by the political instability of the Middle East.

Methodology: First, the author collected the historical data of Dubai-Oman crude oil and Oman stock market in order to calculate their rolling correlation coefficient over a time period of 12 months from 2008 to 2016 to visualize how these two variables prices are related.



Secondly, the author ran a linear regression between the Dubai-Oman crude oil and Oman stock market prices. The author decided to use linear regression to analyze the relationship between the Dubai-Oman crude oil and Oman stock market and implement MVA to analyze multiple regressions between a variety of political and financial variables. In order to conduct technical analysis in this study, which contains more than one variable, namely Dubai-Oman crude oil value, Oman stock market prices, and the political instability in the MENA region, the author used a Multivariate Analysis (MVA) model. The reason for choosing this corresponding analysis model is its ability to identify which variables are important in the relationship. This study analyzed a variety of financial and political variables' data via MVA, from 2008 to 2016, by linking independent variables. These variables were: Inflation, GDP, constant prices, Corruption perceptions, Stock-Price, Stock-Volatility, Crude Oil Value, and Crude Oil Volatility to the dependent variable Political Stability to process the information in a meaningful approach.

Results: As Table 1 indicates, the p-value is bigger than 0.05, so our correlation is not statistically significant and there is not a significant. Also the value of Pearson's is $r(107) = 0.40$, which shows that there is not a relationship or correlation between stock market and Crude oil prices.

Table 1

| Regression Statistics | |
|-----------------------|------------|
| Multiple R | 0.40572762 |
| R Square | 0.1646349 |
| Adjusted R Square | 0.15680757 |
| Standard Error | 1201.77173 |
| Observations | 109 |

| ANOVA | | | | | |
|------------|-----|------------|------------|------------|----------------|
| | df | SS | MS | F | Significance F |
| Regression | 1 | 30451604.2 | 30451604.2 | 21.0846409 | 1.204E-05 |
| Residual | 107 | 154535316 | 1444255.29 | | |
| Total | 108 | 184986920 | | | |

| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
|--------------|--------------|----------------|-------------|------------|------------|------------|-------------|-------------|
| Intercept | 4841.53485 | 368.967495 | 13.1218466 | 5.0784E-24 | 4110.09982 | 5572.96988 | 4110.09982 | 5572.96988 |
| CrudeOil-Val | 19.5587317 | 4.25948981 | 4.591802149 | 1.204E-05 | 11.1147899 | 28.0026735 | 11.1147899 | 28.0026735 |

As Table 2 indicates, the r square is very high, which shows how perfectly this model fits this study's data. However, because of the high p-value (p-value > 0.05 of different variables), it provided weak evidence against the null hypothesis. As a result, we fail to reject the null hypothesis.

Table 2

| Regression Statistics | |
|-----------------------|-----------|
| Multiple R | 0.95857 |
| R Square | 0.918694 |
| Adjusted R Square | 0.9108509 |
| Standard Error | 5.187207 |
| Observations | 8 |

| ANOVA | | | | | |
|------------|----|-----------|-----------|-----------|----------------|
| | df | SS | MS | F | Significance F |
| Regression | 7 | 304.6915 | 43.527357 | 1.6176804 | 0.3424851 |
| Residual | 1 | 26.907117 | 26.907117 | | |
| Total | 8 | 331.59861 | | | |

| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
|---------------------------------|--------------|----------------|------------|-----------|------------|-----------|-------------|-------------|
| Intercept | 56.44025 | 161.45639 | 0.3495606 | 0.7899103 | -1995.0577 | 2107.9382 | -1995.0577 | 2107.9382 |
| Inflation(%) | -4.9396333 | 4.4175316 | -1.1181886 | 0.4645133 | -61.06964 | 51.190427 | -61.06964 | 51.190427 |
| GDP, constant prices (% change) | 1.0673093 | 3.6347115 | 0.2936435 | 0.8181719 | -45.11608 | 47.250698 | -45.11608 | 47.250698 |
| CORRUPTION PERCEPTIONS INDEX | -0.206146 | 4.2531465 | -0.0484691 | 0.9691678 | -54.247496 | 53.835204 | -54.247496 | 53.835204 |
| Stock-Price | -0.0022078 | 0.004247 | -0.284878 | 0.8236209 | -0.0551713 | 0.0527557 | -0.0551713 | 0.0527557 |
| Stock-Volatility | 0.0125786 | 0.0076859 | 1.6365749 | 0.3491808 | -0.0850802 | 0.1102373 | -0.0850802 | 0.1102373 |
| CrudeOil-Value | 0.2771048 | 0.27047 | 1.0245307 | 0.4922886 | -0.1599425 | 3.7137521 | -0.1599425 | 3.7137521 |
| CrudeOil-Volatility | 0.4442422 | 0.7789413 | 0.5703153 | 0.6703058 | -0.4531458 | 10.342163 | -0.4531458 | 10.342163 |

Conclusion: The main concern of this study was to identify the possibility of a relationship between the Dubai-Oman crude oil prices, the Oman stock market prices, and the political instability in the MENA region. The author considered a hypothesis test of the significance of the correlation coefficient to identify whether the linear relationship in the data was strong enough to use to model the relationship in the population. The data for political instability measured political stability by: corruptions perceptions, Inflation, GDP, and constant prices from MENA region countries. The reason for conducting a measurement of the relationship between political stability and stock market and crude oil prices was that most scholars have posited that a politically stable region will assist investors in maximizing their profits. However, when the study test was conducted via a linear regression model on the possibility for the relationship between stock market and Crude oil prices the result indicate that these two variable are not related to each other. Secondly, when conducting a multivariate analysis, again the result of regression and correlation did not exist. Surprisingly, none of the p-values were lower than 0.05. Therefore, we conclude this regression is not good. The reason for this conclusion is that none of the variables in this case are statistically significant.