

Oil Price and GDP of GCC nations and Net Oil Export

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ABSTRACT: *Our research paper aims to find out if there is a relationship between crude oil prices and GDP of GCC nations and the net exports of crude oil of these nations. We have tried to do so by obtaining relevant information and data from various secondary sources of data. The relationship is established mainly using the correlation tool in the SPSS software. Our research paper aims to find out if there exists a correlation between the price of crude oil and GDP of GCC nations and if so, the degree to which this exists. The result is achieved with the outcomes as there is a positive and strong correlation between oil price and GDP. And, all GCC nations exhibit positive correlation between oil price and net oil export.*

KEYWORDS: *Crude Oil, GDP, GCC Nation, Correlation, SPSS*

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I. INTRODUCTION

The Cooperation Council for the Arab States of the Gulf (GCC), originally known as the Gulf Cooperation Council, is a regional intergovernmental political and economic union consisting of six Arab states of the Persian Gulf, namely, United Arab Emirates, Saudi Arabia, Kuwait, Oman, Qatar and Bahrain. It was established on 25th May 1981. These are nations that thrive on their oil wealth as a source of government income to fund their public expenditure, need for development and infrastructure. Over the years, ever since the first discovery of crude oil in the region, in Saudi Arabia, this region has seen massive change in landscape. The region transformed from barren desert occupied by nothing but tribes, nomads and camels to the centre of the world. With massive inflow of immigrant work force, multinational companies and investments to this region in various forms in various industries, this region witnessed unparalleled spurt in growth. Although the leaders of this region were initially overwhelmed by the massive wealth they acquired over a very short period of time, it did not take long before they realised the fact that their sole source of income was an exhaustible natural resource. They realised the need to set up industries and develop other sources of income to sustain growth for a time when they ran out of oil wealth. So, the leaders of GCC nations set up various industries to further help their need for income. However, it is no secret that GCC nations are heavily reliant on oil wealth even though they set up numerous industries over the years.

II. REVIEW OF LITERATURE

- a) It is a very well known fact that oil price is the main determinant of foreign reserves of GCC countries as they are the largest producers of oil in the world. The rise in oil prices in 2007 led to the accumulation of large foreign reserves in these countries. The economies of these countries are clearly very vulnerable to oil price changes. There is also a chance of inflationary pressure an increase in oil prices could cause due to the increase in money supply to these countries. (Nakibullah, 2011)
- b) GCC nations are dependent on oil as a major source of revenue. Oil revenue forms more than three quarters of its total revenue. More than 9 per cent of the total GDP of these nations is spent on subsidies for hydrocarbon fuel. It is a well-known fact amongst investors and companies that government spending is based on oil price. As per this assumption, declining oil price leads to reduction in government expenditure. A decline in government spending inevitably leads to stagnation and even decline in the economy. Thus, the stock market in GCC nations is bullish when oil price is low. (Syndigate Media Inc, 2015)
- c) The economy of the UAE is expected to grow by 2.6% in 2018 and by around 3.8% in 2019 as per a report by the Institute of Chartered Accountants in England and Wales (ICAEW) and Oxford Economics. A key factor to this growth would be the increasing oil prices along with other factors such as new fiscal policies at national and emirate levels, booming trade and tourism and developments ahead of Expo 2020 to be held in Dubai. However, the growth would also have an adverse effect, i.e, inflation which is expected to be 4% in 2018. This article also talks about the introduction of VAT which is a method adopted by the government to diversify revenue. The report noted that although the oil sector contracted 1.6 per cent last year, and growth would be limited throughout 2018, the UAE's non-oil sector grew by 3% despite an unfavourable macroeconomic environment and regional economic slowdown. Regional growth is also

expected to rise, with average GDP across the Middle East reaching 2.4 per cent in 2018, up from 1 per cent in 2017. Within the GCC, GDP growth is expected to be 2.3 per cent in 2018, up from 0.1 per cent in 2017. (Reporter, 2018)

- d) GCC countries depend heavily upon oil export revenues. As a result, a shock in the crude oil world market can affect these economies extraordinarily. A change in oil revenues due to changes in the international oil market is a recurring event in the Gulf oil economies. Such a change should affect the formulation of economic policies in those economies characterized by high oil-export dependency. The heavy dependence on oil combined with instability and uncertainty in the world oil market have made the GCC's economies more vulnerable and exposed to external shocks such as oil price shocks. Oil prices were stable from 1960-1970. However, oil prices have fluctuated more since October of 1973. The first major oil shock was a result of the 1973 conflict between Arabs and Israel. The crude oil price increased from \$2.7 in 1973 to \$9.76 a barrel in 1974, a rise of more than 261%. Oil production in the Arab members of OPEC fell from 20 million barrels per day (mbd) in September 1973 to 15.5 mbd in November, or a loss of almost 8% of 1973 world production (OPEC). After this sudden and rapid rise, oil prices remained largely unchanged for almost the next five years. The second oil price shock was generated by uncertainties in the oil market due to the political situation in Iran in 1978. Subsequently the Iranian revolution and the Iran-Iraq war moved the price upwards. Prices increased from \$12.70 in 1978 to \$28.67 in 1980, a rise of about 126%. Adelman (1982) argues that Saudi Arabia was the cause of the price increase. In 1979, Saudi Arabia cut down its production from 10.4 to mbd (million barrels per day). This caused the oil price to skyrocket from \$12 per barrel to over \$31 per barrel. (Alotaibi, 2006)
- e) The decline in oil prices have caused the GCC Nations to experience slowdown of growth, expanding budget deficits, and shrinking current accounts. During the early 2000s, the petroleum sector accounted for roughly 4/5th of Saudi Arabia's budget revenues and almost half of its GDP and the nation enjoyed GDP growth of 6.3% in 2008 when oil prices were at its peak. In the case of Kuwait, the petroleum industry comprises half of its GDP and 90% of its government income. Whereas, Qatar's GDP grew by a whopping 18% in 2007. Moreover, during this period Qatar became the highest income per capita country in the world and thereby improved standard of living of its citizens. The UAE, however, benefitted from the price of oil during this time but experienced great fluctuations in its economic growth during the same time, evidenced by the fact that its GDP grew by 12.3% in 2000 but only by 3.2% in 2007. Whereas in the case of Bahrain, the GDP grew by 7.0% in 2000 and by 8.3% in 2007. Lastly, Oman experienced an increase in GDP by 6.5% in 2000 and 8.2% by 2008, despite some fluctuations in economic growth in-between that time period. (Vohra)

III. RESEARCH DESIGN

Our research design for this paper is quantitative design. Quantitative research refers to the systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques. In our research, we are trying to establish a relationship between crude oil prices and GDP of six GCC nations.

Statement Of Problem

The middle east is often considered to be a region that is very depended on their production and export of crude oil. In this paper, we try to find out if this is the case and if so, the extent to which it is true. We also aim to shed light on policies and world events that affected the oil prices globally which in turn affected the middle eastern economies.

Objective Of Study:

1. Find the impact of fluctuating oil prices on GDP of GCC nation
2. Find the relationship between oil prices and net export of crude oil

Sources Of Data

Secondary data has been used for the purpose of this research paper as it was beyond our capability to obtain primary data. We have downloaded historical data from various private and government websites. Some of the sources include:-

eia.gov

data.worldbank.org

Hypothesis :

H₀: There is no correlation between oil prices and GDP of GCC nations

H₁: There is a strong correlation between oil prices and GDP of GCC nations

DATA ANALYSIS TOOLS

The data analysis tools used are correlation and ANOVA.

Expected Outcome

As we all know, GCC nations are largely dependent on crude oil for their income. However, this is not their only source of income. Our research paper aims to find out if there exists a correlation between the price of crude oil and GDP of GCC nations and if so, the degree to which this exists.

IV. DATA ANALYSIS

Correlation between Oil Price and GDP

Country	Correlation
UAE	0.856520901
Bahrain	0.828790359
Kuwait	0.94036886
Oman	0.857496101
Qatar	0.858623242
Saudi Arabia	0.869543439
Yemen	0.920714155

Correlation between Oil Price and Oil Export (Net)

Country	Correlation
UAE	0.637675103
Bahrain	0.81463471
Kuwait	0.700021296
Oman	0.117239052
Qatar	0.665929536
Saudi Arabia	0.437787601
Yemen	0.036717524

ANOVA Test of Oil Price and GDP

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
UAE	Between Groups	62639801458259960 0000000.000	35	17897086130931418 000000.000	218.311	.005
	Within Groups	16395955395978770 0000.000	2	81979776979893850 000.000		
	Total	62656197413655940 0000000.000	37			
Bahrain	Between Groups	45924898415477297 00000.000	35	13121399547279227 0000.000	241.271	.004
	Within Groups	10876897532810337 30.000	2	54384487664051680 0.000		
	Total	45935775313010110 00000.000	37			
Kuwait	Between Groups	10138112388495313 0000000.000	35	28966035395700893 00000.000	206.393	.005
	Within Groups	28068817569186583 000.000	2	14034408784593291 000.000		
	Total	10140919270252232 0000000.000	37			
Oman	Between Groups	23567783278792540 000000.000	35	67336523653692970 0000.000	112.162	.009
	Within Groups	12006970493021487 000.000	2	60034852465107436 00.000		
	Total	23579790249285562 000000.000	37			
Qatar	Between Groups	16927075232436153 0000000.000	35	48363072092674720 00000.000	3953.818	.000
	Within Groups	24463985854938097 00.000	2	12231992927469048 30.000		
	Total	16927319872294703 0000000.000	37			

Saudi Arabia	Between Groups	18881153069908653	35	53946151628310435	77.931	.013
	Within Groups	0000000.000		000000.000		
	Total	18894997618632570	37	69222743619581200		
		000000.000		0000.000		
Yemen	Between Groups	39546626033982903	26	15210240782301115		
	Within Groups	.000	0	0000.000		
	Total	39546626033982903	26			
		00000.000				

ANOVA Test of Oil Price and Net Oil Export

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
UAE	Between Groups	8452596.178	34	248605.770	.943	.643
	Within Groups	527311.648	2	263655.824		
	Total	8979907.826	36			
Bahrain	Between Groups	154161.902	34	4534.174	8.705	.108
	Within Groups	1041.732	2	520.866		
	Total	155203.634	36			
Kuwait	Between Groups	9613725.821	34	282756.642	1.302	.528
	Within Groups	434238.625	2	217119.313		
	Total	10047964.446	36			
Oman	Between Groups	1049333.367	34	30862.746	5.131	.176
	Within Groups	12029.692	2	6014.846		
	Total	1061363.059	36			
Qatar	Between Groups	843479.899	34	24808.232	2.757	.302
	Within Groups	17997.334	2	8998.667		
	Total	861477.233	36			
Saudi Arabia	Between Groups	80967610.367	34	2381400.305	.327	.940
	Within Groups	14563751.973	2	7281875.986		
	Total	95531362.339	36			
Yemen	Between Groups	758016.565	34	22294.605	6.410	.144
	Within Groups	6956.659	2	3478.329		
	Total	764973.224	36			

V. FINDINGS

Correlation between Oil Price and GDP

From the correlation analysis, it is clear that there is a positive and strong correlation between oil price and GDP of these selected nations. This means that oil price and GDP of these nations move in the same direction and almost proportionally.

Kuwait has the highest correlation of 0.9404 (approximately).

Bahrain has the lowest correlation of 0.8288 (approximately).

Note: -

-It has been ignored if the above nations are oil exporters or importers.

-The data of the GDP of Yemen is not available for the years 2017 and 1980-1989.

Correlation between Oil Price and Net Oil Export

All GCC nations exhibit positive correlation between oil price and net oil export.

But not all nations exhibit strong correlation.

Amongst the GCC nations, only United Arab Emirates, Bahrain, Kuwait and Qatar exhibit positive and strong correlation.

Oman, Saudi Arabia and Yemen exhibits positive but weak correlation.
Bahrain has the highest correlation of 0.8146 (approximately).
Yemen has the lowest correlation of 0.0367 (approximately).
Note: - All GCC nations except Bahrain and Yemen have been exporting oil during the period of study.
Bahrain always imports oil.
Yemen imported oil from 1980 to 1988 and exported oil in the years after but at a marginally low rate.

ANOVA Test of Oil Price and GDP

If significance is greater than 0.05, it means that statistical difference is due to chance.
If significance is less than or equal to 0.05, it means that statistical differences are not due to just chance.
Here, all the GCC nations display significance less than 0.05. This means that statistical differences are not just a result of chance. It means that the dependent variable i.e. GDP is affected by the independent variable i.e. oil price.
Thus, changes in oil price significantly affect GDP.

ANOVA Test of Oil Price and Net Oil Export

If significance is greater than 0.05, it means that statistical difference is due to chance.
If significance is less than or equal to 0.05, it means that statistical differences are not due to just chance.
Here, all the GCC nations display significance greater than 0.05. This means that statistical differences are a result of chance. It means that the dependent variable i.e. net oil export is not affected much by the independent variable i.e. oil price.
Thus, changes in oil price do not significantly affect net oil export.

VI. CONCLUSION

From correlation analysis and ANOVA test, it is clear that there is a relationship between oil price and GDP of GCC nations. All nations exhibit positive and strong correlation between oil price and their GDP. In the ANOVA test, all nations exhibited significance of lesser than or equal to 0.05, implying that any changes in dependent variable GDP are due to the independent variable oil price rather than chance.

However, no relationship can be established between oil price and net oil export. This is so as not all nations exhibit strong correlation between oil price and their net oil export. In the ANOVA test, all nations exhibited significance of above 0.05, implying that any changes in dependent variable net oil export are due to chance rather than the independent variable oil price.

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