

# The Impact of European Uncertainty on the Gulf Cooperation Council Markets

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Abstract: The interconnectedness of global economies made it inevitable for countries to isolate themselves rather, they partner with each other majorly for economic and political gains. This often at times have a positive and negatives outcomes base on the fact that the more advanced economy tends to cast shadow on the smooth and predictable movement of some markets in the less advanced economy. On this note, it is essential for scholars to relate and determine the impact and the direction of the movement specifically with regards to stock market performance and Economic Policy Uncertainty (EPU), as it concerns the Gulf Cooperation Council (GCC) region and the continent of Europe. Hence, this study investigates the effect of the changes of European Policy Uncertainty index on net oil exporter countries of the GCC stock market performance. Using the Vector Autoregressive (VAR) methodology to estimate the result, the outcome of the result implies that the impact of the changes in European policy uncertainty index on GCC's stock markets is negative but not significant; the effect of Dollar exchange rate and US 3-month Treasury bill rate is not significant and finally, the effect of Brent Oil price on GCC countries' stock markets is positive and significant.

Keywords:GCC, Stock Market Performance, European Policy Uncertainty, VAR.JEL Classification:F38, D81 & G15.

# **1. Introduction**

In the last decade, there has been a pivotal shift of attention by economic scholars from financial crises and behavioral finance to the crave for more understanding of the subject matter called "Economic Policy Uncertainty" and how its impact can affect other

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macroeconomic variables in any economy globally. Nicholas Bloom in his work "The Impact of Uncertainty Shocks" (2009) has built a model with a time-varying second moment, which is used to simulate a macro uncertainty shock, which produces a rapid drop and rebound in aggregate output and employment. And this model has been adopted and used in some related economics works like (Giovanni Caggiano, Efrem Castelnuovo & Gabriela Nodari, 2017; Husted, Lucas, John Rogers, and Bo Sun, 2017; Scott R. Baker, Nicholas Bloom, and Steven J. Davis, 2016). The used of this model in these studies attested to the fact that higher uncertainty causes firms to temporarily withhold their future investment, hence, affecting future growth rate of employment, national output and Productivity, leading to some investors reallocating their resources to other production unit. Hence, affecting the normal movement of the business cycle of the economy.

This great abnormality which may first affect investment in the economy may occur base on the magnitude of the uncertainty shock, and the longevity of the transmission channels with which the shock have to penetrate to cause negative multiplier effects in the economy. The longer the transmission channel, the less harsh may be the outcome; because the effect may have been neutralized by proper economic policies; but the shorter the channel, the more harmful the effect can be to the economy. Hence, this study attempt to determine and construct a suitable methodology for the measurement of economic policy uncertainty index as it relates to GCC countries using a monthly data set from 2004M1-2018M8 and provides important implication for equity investment and risk management to the council by examining the impact of Europe's Economic policy Uncertainty on GCC stock markets. The remaining part of this study is written in sections and they are as follows: Section 2 accounts for the literature and stylized facts, section 3 unraveled the data and methodology that is used; Section 4 contains the empirical results and discussion of the results; and section 5 contains the conclusion.

# 2. Literature Review

Some recent studies have shown that uncertainty shocks may generate short sharp recessions and recoveries in some economies. Also uncertainty can affect or dissolve the bond that exist among councils that are formally integrated (Ludvigson et al 2017; Giovanni et al. 2017; Sum, 2013 & Mueller et al. 2012;). Studies like Vichet Sum<sup>2</sup>, (2013), uses VAR methodology to investigates if the changes of economic policy uncertainty in the US can explain the returns on stock markets of Indonesia, Malaysia, Philippines, Singapore and Thailand. The results suggested that the changes in economic policy uncertainty in the US are negatively linked to the returns on the five ASEAN stock markets. Also, (Palomaki, Roope, 2016 in his study, "Economic policy uncertainty and stock return synchronicity in the increasingly integrated European Union" analyzes how government policy uncertainty and economic integration affect stock return synchronicity in the

<sup>&</sup>lt;sup>2</sup> "The ASEAN Stock Market Performance and Economic Policy Uncertainty in the United States" (2013)



European Union over the period 1990 to 2015. The result reveled a higher synchronicity of stock markets between and inside the member states if there is a high economic policy uncertainty. Policy uncertainty is higher in weaker economic conditions, and synchronicity generally increases when economic conditions decline, when measured with GDP growth.

In other work like Orcun Kaya (2018) studied the impact of Economic Policy Uncertainty in Europe and discovered that banks could turn out to be a central channel to transmit EPU to the real economy, and these negative spillovers are heightened via stock market volatilities, higher bond spreads and subdued funding of the private sector. In another research "Economic Policy Uncertainty and Stock Market Performance: Evidence from the European Union, Croatia, Norway, Russia, Switzerland, Turkey and Ukraine" done by Vichet Sum,(2012) the negative effect of the change in economic policy uncertainty in Europe on stock market returns in European Union, Croatia, Norway, Russia, Switzerland, Turkey and Ukraine has found that there is need for good understanding and proper reaction whenever EPU sets in.

The research "Economic Policy Uncertainty and Long-Run Stock Market Volatility and Correlation" by Asgharian H., Christiansen Ch., Jun Hou A. (2018). investigates long-run stock market volatility and correlation for the US and UK using Baker, Bloom and Davis's (2016) economic policy uncertainty indices in combination with the mixed data sampling (MIDAS) approach. The results reveal that long-run US-UK stock market correlation depends positively on US EPU shocks. The important finding is that the dependence is asymmetric, with only positive shocks-increasing uncertainty-being of importance. Furthermore, Brexit is a recent example of economic policy uncertainty and its impact on stock market returns is an interesting topic for research. In "Policy Uncertainty and International Financial Markets: The Case of Brexit" by A.Belke et al (2016). the impact of the uncertainty caused by Brexit on both the UK and international financial markets, for the first and second statistical moments are assessed. Using panel and single country seemingly unrelated regressions estimation methods the authors analysed the effect of Brexit on levels of stock returns, sovereign credit default swaps, 10-year interest rates in 19 predominantly European countries, and those of the British pound and the euro. The results show that Brexit-induced policy uncertainty will continue to cause instability in key financial markets and has the potential to damage the real economy in both the UK and other European countries, even in the medium run. One of the findings is that the main losers of such economic policy uncertainty in UK are the GIIPS (Greece, Ireland, Italy, Portugal and Spain) economies

#### **Stylised Facts.**

The EU-GCC trade has been steadily growing between 2006 and 2016 raising by 53% in ten years. In 2017 EU exports to GCC countries were diverse but focused on industrial products (91.1%). Machinery and transport equipment (€47,3 billion, 47,4%) and chemicals (€11.6 billion, 11.7%) were the main categories of products exported in 2017. At the same time EU imports from GCC countries are mainly mineral fuels and mining products (€28,7 billion, 65,5%) and chemicals (€5,0 billion, 11,5%). The numbers show that the EU was the first trading partner for the GCC in 2018 accounting for 14.6% of its



total trade, followed by China (12.2%), Japan (8.5%) and India (8.4%). There is also an ongoing cooperation between the EU and GCC on trade and investment issues, macro-economic matters, climate change, energy and environment as well as research.<sup>3</sup>



Graph 1: The correlation between European Uncertainty Index and Saudi Arabia Stock market.

Given this increased economic integration between EU and GCC countries, shocks to the European economy can have a significant impact on GCC countries. Hence, it will be interesting to see whether changes of European economic policy uncertainty can affect the stock markets of the GCC countries. This correlation can be seen in the following graph, where the peak of European News Index are coincided with Saudi Arabia Stock market failures. In the course of our study, we found out that news changes in Europe have negative effect on GCC stock markets, but the results of our empirical analysis are not significant. This phenomenon can be explained by underdeveloped stock markets of GCC countries. The effect of two other variables (Dollar exchange rate, US 3-month Treasury bill rate) is not significant, but Brent oil prices has a positive and significant effect on GCC stock markets. These findings are reasonable because GCC countries are large producer and exporters of oil to the most global economies.

# 3. Data and Methodology

Monthly data are used for this analysis. European uncertainty policy index is provided by <u>policyuncertainty.com</u>. This index is constructed from three types of underlying

<sup>&</sup>lt;sup>3</sup> http://ec.europa.eu/trade/policy/countries-and-regions/regions/gulf-region/



components. One component quantifies newspaper coverage of policy-related economic uncertainty: the index of search results from 10 large newspapers. A second component reflects the number of federal tax code provisions set to expire in future years: draws on reports by the Congressional Budget Office (CBO) that compile lists of temporary federal tax code provisions. The third component uses disagreement among economic forecasters as a proxy for uncertainty: draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters.<sup>4</sup>

For our empirical analysis we have monthly data spanned from 2004 to 2018. We break this time series into two parts for more vivid analysis, from 2004 up to 2010 and from 2011 up to 2018, and examine them separately. The time frame is chosen to identify the pre and post crises periods in some GCC countries and global financial crises. On February 25, 2006, the Capital Market of Saudi Arabia had closed at its historic high of 20,634.86. The collapse began on the following day. By the end of 2006, the stock market's main index, the TASI, had lost approximately 65% of its value, and market capitalization had fallen by half, to \$326.9 billion. <sup>5</sup> As the global economic crisis took hold, the GCC countries were affected through trade and financial channels is reported in IMF's research GCC countries. During 2007-2008 GCC financial sector imbalances have arisen and came to the fore, especially in the United Arab Emirates (UAE), Kuwait and Bahrain, given these countries' close linkages with global equity and credit markets.<sup>6</sup> The monthly data on GCC countries' stock returns, Brent and OPEC oil prices are retrieved from Bloomberg.

In order to determine if the changes in EPU in the Europe can explain stock market returns in GCC countries, the time series regression was carried out. In this section we have the change of European EPU as a regressor, and Brent oil price, Dollar exchange rate and US 3-month Treasury bill rate as control variables. Next the vector autoregressive (VAR) analysis is employed to determine how stock market in each country responds to the economic policy uncertainty shocks in Europe. The model is presented below:

$$zR_{it} = \alpha + \beta \Delta EPU_{it} + \varepsilon_{it},$$

$$R_{it} = \alpha + \beta \Delta EPU_{it} + \gamma P_{it} + \theta DE_{it} + \pi TB_{it} + \varepsilon_{it},$$

<sup>&</sup>lt;sup>4</sup> http://www.policyuncertainty.com/methodology.html

<sup>&</sup>lt;sup>5</sup> The CMA and the Saudi Stock Market Crash of 2006, J.Lerner, A.Leamon, S.Dew, 2017

<sup>&</sup>lt;sup>6</sup> Impact of the Global Financial Crisis on the Gulf Cooperation Council and Challenges Ahead, M.Khamis, A.Senhadji, IMF, 2010



$$\begin{pmatrix} R_{t} = \alpha + \sum_{i=1}^{n} \lambda_{i}R_{t-i} + \sum_{i=1}^{n} \varphi_{i}P_{t-i} + \sum_{i=1}^{n} \vartheta_{i}DE_{t-i} + \sum_{i=1}^{n} \theta_{i}TB_{t-i} + \sum_{i=1}^{n} \pi_{i}\Delta EPU_{t-i} + \varepsilon_{t} \end{pmatrix} \\ P_{t} = \alpha + \sum_{i=1}^{n} \delta_{i}R_{t-i} + \sum_{i=1}^{n} \sigma_{i}P_{t-i} + \sum_{i=1}^{n} \varphi_{i}DE_{t-i} + \sum_{i=1}^{n} \vartheta_{i}TB_{t-i} + \sum_{i=1}^{n} \iota_{i}\Delta EPU_{t-i} + \eta_{t} \\ DE_{t} = \alpha + \sum_{i=1}^{n} \chi_{i}R_{t-i} + \sum_{i=1}^{n} \nu_{i}P_{t-i} + \sum_{i=1}^{n} \varrho_{i}DE_{t-i} + \sum_{i=1}^{n} \omega_{i}TB_{t-i} + \sum_{i=1}^{n} \sigma_{i}\Delta EPU_{t-i} + \mu_{t} \\ TB_{t} = \alpha + \sum_{i=1}^{n} \epsilon_{i}R_{t-i} + \sum_{i=1}^{n} \upsilon_{i}P_{t-i} + \sum_{i=1}^{n} \chi_{i}DE_{t-i} + \sum_{i=1}^{n} \sigma_{i}TB_{t-i} + \sum_{i=1}^{n} \rho_{i}\Delta EPU_{t-i} + \varsigma_{t} \\ \Delta EPU_{t} = \alpha + \sum_{i=1}^{n} A_{i}R_{t-i} + \sum_{i=1}^{n} B_{i}P_{t-i} + \sum_{i=1}^{n} \Gamma_{i}DE_{t-i} + \sum_{i=1}^{n} E_{i}TB_{t-i} + \sum_{i=1}^{n} Z_{i}\Delta EPU_{t-i} + \xi_{t} \end{pmatrix}$$

where

- $R_t$  return on a country's stock market index in month t;
- $P_t$  Brent oil price in month t;
- $DE_t$  Dollar exchange rate in month t;
- $TB_t$  US 3-month Treasury bill rate in month t;
- $\Delta EPU_t$  change in the European economic policy uncertainty index in month t.

### 4. Results

First of all some statistical analysis is presented to see the characteristics of the used data. The Augmented Dickey Fuller Unit Root test shows that our data series are not stationary at level hence, we integrated them to order 1 to make them stationary. After this simulation, we construct the pairwise correlation matrix of the data series. And from the table presented below, we can see that the GCC countries' stock markets move in the same direction: the correlation between GCC countries' stock market indices are positive. From the table further suggests that the correlation between GCC countries' stock indices and European Uncertainty index is negative. It means that the stress in European markets spillover to the GCC countries have been a negative effects. This phenomenon is presented in Table 1 below.

	Bahrain	Kuwait	Oman	Qatar	Saudi	UAE	EU EPU
					Arabia		
Bahrain	1.0000						
Kuwait	0.7147	1.0000					
Oman	0.5555	0.5947	1.0000				
Qatar	0.4437	0.4110	0.4973	1.0000			



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Saudi	0.4058	0.4041	0.4033	0.3332	1.0000		
Arabia							
UAE	0.5146	0.4677	0.4872	0.5342	0.4479	1.0000	
EU EPU	-0.1039	-0.0969	-0.1651	-0.1501	-0.0262	-0.0553	1.0000

Table 1: The table of pairwise correlations

Table 2 shows descriptive statistics of the used data:

Variable	Mean	Standard Deviation	Observations
Saudi Arabia	8145.093	2593.351	170
Kuwait	7830.05	2400.527	170
UAE	3759.713	988.7101	170
Qatar	9070.823	1981.118	170
Bahrain	1610.782	493.4037	170
Oman	5999.2	1376.941	170
Brent Oil Price	77.39	25.6	170
Dollar Index	85.27	7.59	170
European EPU	157.88	68.05	170
US 3 months treasury bill	1.29	1.68	165

**Table 2: Descriptive Statistics** 

#### The Ordinary Least Squares Regression Result

From the regression result table below, where monthly returns on each stock market are regressed on the changes of European economic uncertainty index using time-series OLS regression. The exercise was done for two time periods: from 2004 up to 2010, and from 2011 up to 2018. From the table below, it is seen that the increasing uncertainty in Europe has its negative effects on GCC countries' stock markets.

Country	Coefficient	Sig.	R <sup>2</sup>
Time frame 2004M1-			
2010M12			
Bahrain	-0.5223	0.142	0.0289
Kuwait	-3.8439	0.133	0.0302
Oman	-5.2450	0.004	0.1044
Qatar	-6.8384	0.042	0.0545
Saudi Arabia	-5.3048	0.182	0.0240
UAE	-1.8652	0.192	0.0229
Time frame 2011M1-2018M8			
Bahrain	-0.0580	0.364	0.0092
Kuwait	-0.3252	0.547	0.0041
Oman	-0.2899	0.481	0.0055
Qatar	-1.2090	0.255	0.0144



Saudi Arabia	0.7975	0.354	0.0096
UAE	0.1514	0.667	0.0021
Time frame 2004M1-2018M8			
Bahrain	-0.1481	0.198	0.0099
Kuwait	-1.0266	0.226	0.0088
Oman	-1.3089	0.037	0.0259
Qatar	-2.3471	0.056	0.0216
Saudi Arabia	-0.3856	0.771	0.0005
UAE	-0.3086	0.783	0.0005

Table 2: Time series regressions

From the presented Table 2 it can be seen that the change of European Uncertainty Index has the negative effect on GCC countries' stock markets. For 2004M1-2010M12 time frame only the regressions for stock markets of Oman and Qatar are significant at 5 per cent significance level. For 2011M1-2018M8 time frame all regressions are not significant. These results can be explained by the fact that GCC stock markets are relatively new compared to many other markets in the world and the impact of the change in European Uncertainty Index can be not significant. While Kuwait and Saudi Arabia can boost of some good history, other markets are of recent phenomena.<sup>7</sup>

We augmented the empirical model to incorporate the control variables. In this analysis Brent oil price, Dollar exchange rate and US 3-month Treasury bill rate were included as control variables and the results is presented in Table 3 below:

Country	Coefficient	Sig.	<i>R</i> <sup>2</sup>
Time frame 2004M1-			
2010M12			
Bahrain	-0.0263	0.939	0.2311
Brent Oil price	4.9279	0.002	
Dollar exchange rate	-2.0834	0.667	
US 3-month Treasury bill rate	61.1322	0.125	
Kuwait	-1.3397	0.585	0.2452
Brent Oil price	39.3376	0.001	
Dollar exchange rate	-34.2870	0.322	
US 3-month Treasury bill rate	73.898	0.793	
Oman	-4.3595	0.006	0.4430
Brent Oil price	42.8343	0.000	
Dollar exchange rate	2.2784	0.917	
US 3-month Treasury bill rate	-326.4656	0.069	

<sup>&</sup>lt;sup>7</sup> https://www.linkedin.com/pulse/modernising-gcc-capital-markets-5-important-steps-mandagolathur

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Qatar	-4.1685	0.187	0.2962
Brent Oil price	54.2493	0.000	
Dollar exchange rate	-59.1633	0.182	
US 3-month Treasury bill rate	-125.5738	0.727	
Saudi Arabia	-1.9600	0.645	0.0535
Brent Oil price	33.0795	0.086	
Dollar exchange rate	40.8790	0.495	
US 3-month Treasury bill rate	518.0641	0.291	
UAE	-1.3636	0.379	0.0373
Brent Oil price	14.2511	0.043	
Dollar exchange rate	7.3631	0.735	
US 3-month Treasury bill rate	-41.9969	0.813	
Time frame 2011M1-2018M8			
Bahrain	-0.0512	0.448	-0.0121
Brent Oil price	0.0209	0.976	
Dollar exchange rate	-2.5876	0.292	
US 3-month Treasury bill rate	58.9983	0.339	
Kuwait	-0.2989	0.613	-0.0244
Brent Oil price	-1.8288	0.767	
Dollar exchange rate	-25.7380	0.231	
US 3-month Treasury bill rate	-19.1934	0.972	
Oman	-0.1660	0.679	
Brent Oil price	7.4257	0.080	
Dollar exchange rate	-7.1719	0.623	
US 3-month Treasury bill rate	-571.0013	0.121	
Qatar	-1.0776	0.345	
Brent Oil price	5.8765	0.621	
Dollar exchange rate	-45.4272	0.273	
US 3-month Treasury bill rate	-1383.473	0.184	
Saudi Arabia	1.2556	0.094	0.1531
Brent Oil price	30.6327	0.000	
Dollar exchange rate	19.4674	0.471	
US 3-month Treasury bill rate	-272.0683	0.688	
UAE	0.1407	0.703	0.0010
Brent Oil price	0.3467	0.928	
Dollar exchange rate	-17.4122	0.195	
US 3-month Treasury bill rate	-315.8535	0.348	
Time frame 2004M1-2018M8		1	
Bahrain	-0.0057	0.959	0.1706
Brent Oil price	2.7127	0.002	
Dollar exchange rate	-2.6768	0.348	
US 3-month Treasury bill rate	82.2357	0.002	



		1	
Kuwait	-0.1624	0.848	0.1441
Brent Oil price	20.6797	0.002	
Dollar exchange rate	-34.8325	0.104	
US 3-month Treasury bill rate	293.8715	0.139	
Oman	-0.6979	0.228	0.2585
Brent Oil price	26.9815	0.000	
Dollar exchange rate	-6.7984	0.641	
US 3-month Treasury bill rate	-52.6512	0.697	
Qatar	-1.2500	0.303	0.1690
Brent Oil price	32.1303	0.001	
Dollar exchange rate	-62.3185	0.043	
US 3-month Treasury bill rate	145.3978	0.608	
Saudi Arabia	0.7579	0.571	0.0836
Brent Oil price	31.4399	0.003	
Dollar exchange rate	27.5954	0.413	
US 3-month Treasury bill rate	602.8298	0.055	
UAE	-0.0862	0.868	0.0233
Brent Oil price	7.9103	0.049	
Dollar exchange rate	-4.4582	0.732	
US 3-month Treasury bill rate	57.8449	0.632	

Table 3: Time series regressions

From the results presented in Table 3 it's obvious to depict that the regressors are not significant at 5 per cent significance level and only Brent Oil price is significant at 5 per cent significance level for 2004-2018 time horizon. The GCC countries are large suppliers of oil for the world, hence their stock markets can be influenced by the change of it. We can see that the relationship between Oil prices and GCC stock markets is positive. Using a VAR-GARCH model, Al-Maadid et al. (2016) also found out that GCC stock markets and oil prices are highly and positively correlated. Two other variables are not significant at 5 per cent significance level. These insignificant results can be attributed to model misspecification, which means that the relationship between Dollar exchange rate, US 3-month Treasury bill rate and Stock markets is non-linear.

Presented below are the Impulse Response Functions from the VAR analysis.

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Figure 1: The Orthogonal Impulse Response Functions (OIRF) of the Returns on GCC countries'

stock markets to Changes in European Uncertainty index, Brent Oil price, Dollar exchange rate and US 3-month Treasury bill rate (2004M1-2018M8)

### **5.** Conclusions

This study investigates if the change of European uncertainty index has significant effect on GCC countries' stock market returns. We also examine the impact of Brent oil price, Dollar exchange rate and US 3-month treasury bill rate on GCC countries' stock market returns. Findings suggest that the change of European economic uncertainty index has not significant effect in GCC countries' stock market returns. The impact of Dollar exchange rate and US 3-month Treasury bill rate on GCC countries' stock market returns are not significant too in case of our time framework, and only the positive impact of Brent oil price is significant in our empirical analysis.

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