

Residual Based Test for Cointegration between Oil Prices and Stock Prices in Saudi Arabia in the Presence of Structural Break

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Abstract

We test for the existence of long-run association between oil prices and stock prices in Saudi Arabia. Time series analysis is applied to monthly data from October 2008 to October 2013. Application of Bai-Perron test confirms the existence of at least one structural break in both stock prices and oil prices data. Since both data series are I(1), conventional Johansen test and Gregory-Hansen test that takes into consideration one endogenous break are applied to examine if oil prices and stock prices are related. Johansen test rules out cointegration between oil prices and stock prices. However, Gregory-Hansen test detects the presence of long-run association in the level shift model. The error correction model confirms the presence of long-run and short-run association between oil prices and stock prices. The study offers important inputs for decision-making for investors and policy makers in Saudi Arabia.

JEL classification numbers: G10, D53

Keywords: time series, cointegration, structural break, stock prices, oil prices

1 Introduction

According to discounted cash flow valuation method, a stock is valued by the discounted sum of forecasted cash flows. Future cash flows are impacted by the oil price changes among other factors. International Monetary Fund [1] argues that oil price changes can affect the financial markets both directly and indirectly. Oil price increases will be followed by actual as well as predicted changes in the level of economic activity, firm earnings and macroeconomic variables. Oil prices, hence, may influence equity and bond valuation. Oil is an important input in the production of various goods. Oil price variations are bound

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to impact the cost of production and alter the expected future cash flows. This affects the stock price. Oil price changes also affect the discount rate through its impact on projected inflation and real interest rates. (Huang et al. [2]) Nanda and Faff [3] study 35 global industry indices during the period, 1983-2005. They find that oil prices negatively affect the returns on equity of firms belonging to all the industries except mining and oil and gas industry. For the firms from the oil and gas industry, oil price rise should increase the expected future cash flows from investment in their stock and push up the stock price. Research by El-Sharif et al. [4] produces evidence to prove that oil prices and stock prices are positively related for the U.K. oil and gas industry. It can be concluded that oil price fluctuations move the stock prices of all firms irrespective of their industry. From a macroeconomic perspective, the influence of oil price variations on the stock prices is bound to vary based on if the economy is importing or exporting oil. Basher and Sadorsky [10] argue that volatile oil price pushes up the costs and risks for non-oil producing countries. This affects the stock prices reducing wealth and investment. According to Le and Chang [6], oil price increase results in higher income and wealth for oil exporting countries. Bjornland [7] argues that higher oil prices transfers wealth from importer to exporters of oil. Oil price rise affects stock prices in oil exporting countries positively and stock prices of oil importing countries negatively. This study examines the following question.

Is there a long-run and short-run relationship between oil prices and stock prices in Saudi Arabia?

Though many studies are carried out to scrutinize the association between oil prices and stock prices, works in the context of oil exporting Saudi Arabia are very few. The results of the works carried out on Saudi Arabia are contradictory and this calls for further research to bring out conclusive evidence. This study is an improvement over the existing studies as we employ Gregory-Hansen [8] cointegration test that takes into consideration one endogenous structural break into the study of the association between oil prices and stock prices. None of the research works carried out on Saudi Arabia till date have incorporated the impact of structural break in the analysis of the association between oil and stock prices. This study is structured as follows: Section 2 discusses the role of oil sector in Saudi Arabia; Section 3 reviews literature; Section 4 narrates the data and methodology used in the study; Section 5 presents the results and discussion of results.

2 Oil Sector and Saudi Arabia

Saudi Arabia's economy is predominantly dependent on oil revenues. Oil sector contributes 58 per cent to the country's gross domestic production as of 2011. (Saudi Arabian Monetary Agency [9]) Saudi Arabia produces over 78 billion barrels of oil which accounts for 13 per cent of global supply over the period, 1990-2011. Exports of crude oil and refined products constitute 87 per cent of its total exports. Besides, the country holds 16 per cent of global proven reserves of oil. Given the magnitude of the contribution of oil sector to the country's economy, it is bound to affect the stock prices of its firms. While economists generally agree that oil price changes can be an important factor contributing to stock price changes, there is no consensus on the direction of impact. Several works show that oil and stock prices are negatively related. (Sardorsky [12], Park and Rathi [11]) Some other works also show that oil and stock prices share a positive association. (Sardorsky [12], Yurtsever and Zahor [13])

Saudi Arabia's oil exports should fetch more revenues and the economic outlook should turn positive in case of oil price rise. This should have a positive impact on stock prices. However, Saudi Arabia imports manufactured products from some of the oil importing countries. The cost of such imports should increase in case of oil price rise, which should negatively impact the stock prices of firms that import. Hence, the association between oil prices and stock prices is ambiguous for Saudi Arabia.

Table 1: Contribution of Oil Sector to GDP
(At current prices)

Year	Total GDP (million riyals)	Oil Sector (million riyals)	Share (%)
2008	1,771,203	1,081,226	61.0
2009	1,399,701	662,212	47.3
2010	1,695,039	872,162	51.5
2011	2,221,773	1,288,599	58.0

(Source: Saudi Arabian Monetary Agency)

3 Literature Review

There is enormous literature that analyzes the relationship between oil prices and economic activity. However, works that examine the links between oil and stock prices limited. Most of the earlier works are carried out in the context of developed countries and the works that focus on emerging markets is scanty. Our review of literature focuses on the more recent studies in general and those carried out in the context of GCC countries in the second section.

Papaetrou [14] employs a multivariate VAR model on monthly data relating to the period, 1989-1999, to explore the dynamic relationship among the variables, oil prices, economic activity and employment in Greece. They show that oil price shocks affect stock markets negatively. Maghyereh [15] use daily data from the beginning of January 1988 to end of April 2004, to explore the relationship between oil price shocks and stock markets in 22 emerging markets. The work suggests that oil price shocks do not affect stock markets. Park and Rathi [11] analyze the influence of oil price shocks and oil price fluctuations on the stock returns of U.S. and 13 European countries during the period, 1986-2005. They find that the stock returns are negatively influenced by the linear oil price shocks. However, in case of Norway they find that stock return and oil price shock have a positive relationship. They find similar results when oil price variable is measured by scaled oil price. They show that for all the countries, Except U.S., the oil price volatility rise depresses stock returns. Apergis and Miller [16] adopt VAR model to evaluate the effect of structural shocks in oil price on stock market returns. They show that oil market shocks have no impact on international stock market returns. Aloui and Jammazi [17] employ Markove switching EGARCH model to show that net oil price contributes to the volatility of real returns and the probability of regime shifts in France, UK and Japan stock markets. Ono [18] studies the influence of oil prices on real stock returns in Brazil, Russia, India and China. They test the responses of stock returns to oil price shocks in linear, non-linear and symmetric form. They produce empirical evidence that shows that real stock returns of China, India and Russia react positively to some of the oil price variables, but this does not

hold true for Brazil. They also find a statistically significant symmetric effect for India and not for other countries.

It can be assessed that the works that examine the relationship between oil and stock prices have employed varied methodological procedures and have come out with mixed results.

3.1 Works on GCC Countries

Hammoudeh and Aleisa [19] bring out a two-way association between Saudi stock returns and oil price fluctuations. They show that the other GCC countries are not directly connected to oil prices and are less reliant on oil exports. These markets are found to be more swayed by domestic factors. Bashar [20] applies VAR model to explore the influence of oil price fluctuations on GCC stock markets. They produce results that show that Saudi and Omani markets can explain the oil price rise. Hammoudeh and Choi [21] study the association between GCC weekly equity index returns and oil price, U.S. Standard and Poor 500 index and the U.S. Treasury bill rate. They find that oil price has no direct influence on equity index returns. Zarour [22] studies the influence of the sharp oil price rises on stock markets of five countries from GCC using daily data from May 25, 2001 to May 25, 2005 applying VAR model. They produce evidence to show that oil price fluctuations affect stock returns in all GCC markets. They also show that stock markets in Saudi Arabia and Oman can foretell the stock price movements. Maghyreh and Al-Kandari [23] examine the connections between oil prices and stock market in GCC countries. They apply rank tests of nonlinear cointegration analysis. They show that oil price influences the stock market indices in GCC markets in a nonlinear fashion. Arouri and Fouquau [24] analyses the short-run association between oil process and GCC stock markets. They find that there is a significant association between oil prices and stock prices in the stock markets of Qatar, Oman and UAE. These markets respond positively to oil price rises. However, stock markets of Bahrain, Kuwait and Saudi Arabia are not influenced by oil price fluctuations. Arouri et al. [25] examine the reactions of GCC stock markets to oil price shocks. They show that stock returns of Qatar, Oman, Saudi Arabia and UAE respond significantly to oil price fluctuations. They prove that stock market returns and oil price fluctuations share a non-linear association and switch according to oil price values. They conclude that oil price variations do not influence stock returns in Bahrain and Kuwait. Al Janabi et al. [26] apply bootstrap test for causality to examine non-normal financial data of GCC markets. They show that GCC stock markets are informational efficient in respect of oil prices. They argue that oil prices do not influence stock returns in these countries and hence, cannot be used to forecast GCC stock markets. The results of studies that explore the association between oil prices and stock prices in GCC markets bring out contradictory results. This is quite surprising as GCC markets are major oil exporters and we would expect oil prices to influence stock prices in these markets. This issue needs further research to bring out conclusive evidence in GCC markets especially Saudi Arabia, which is the largest global oil producer. None of the studies carried out in Saudi Arabia have employed cointegration tests that considers the structural breaks as far as we know.

4 Data and Methodology

Stock price in Saudi Arabia is measured by the Tadawul All-Share Price Index (TASI). This measure comprises of share prices of all the listed companies excluding shares owned by government and institutions, the foreign partner if he or she is not permitted to sell

without the prior approval of the supervision authority, founder partner during restriction period and owners of 10 per cent or more from the shares of the listed company at the Saudi stock exchange member firm. TASI is sued as a proxy for Saudi Arabian stock prices. Brent oil prices are used in the study. Data relating to both the variables are monthly frequency running from October 2008 to October 2013. Data is obtained from Bloomberg database. Both variables are studied in their logarithmic form.

Table 2: Descriptive statistics

	TASI	OIL
Mean	8.802491	4.615432
Median	8.798363	4.682483
Maximum	8.966375	4.835409
Minimum	8.689739	4.269138
Standard Deviation	0.068109	0.161499
Skewness	0.380224	-0.789068
Kurtosis	2.462228	2.325375
Jarque-Bera	1.518090	5.154851
	(0.47)	(0.07)

Notes:

1. Probability in the parenthesis

We study the dynamic relationship between equity prices in Saudi Arabia with oil prices. The study applies cointegration analysis to study long-run relationship between oil prices and stock prices.

$$\ln TASI_t = \alpha_0 + \alpha_1 \ln OIL_t + e_t \quad (1)$$

In order to determine if there exist a structural break in the time series data used in this study, Bai and Perron [27], [28] test is employed. Bai-Perron (BP) methodology tests the null hypothesis of no structural break against the alternate hypothesis of unknown number of breaks with an upper bound M.

$$UD \max F_T (M, q) = \max_{1 \leq m \leq M} F_T (\hat{\lambda}_1, \dots, \hat{\lambda}_m ; q) \quad (2)$$

Where $\hat{\lambda}_j = \hat{T}_j / T$ ($j=1, \dots, m$) are the estimates of the break points obtained using the global minimization of the sum of squared residuals. $WD \max F_T (M, q)$ applies weights to the individual tests so that the marginal p-values are equal across values of m.

Taking the suggestion made by Jouini and Boutahar [29], we look at the $UD \max F_T (M, q)$ and $WD \max F_T (M, q)$ to assess the breaks in the data. We carry out additional test to confirm this first level analysis.

We first apply unit root tests to check if the variables are stationary. In time series analysis, if the variables are stationary, shocks will be transitory and will fade with time. The variables will return back to their mean values. Non-stationary variable has mean and variance that will depend on time. Non-stationary cointegrated variables are unstable in level exhibiting mean-reverting spreads that force the variables to move around common stochastic trends. Application of cointegration test requires pre-testing of data to check if

they are I(1) variables. Augmented Dickey Fuller (1979) test process relates to testing for α in the following model.

$$\Delta y_t = \mu + \beta_t + \alpha y_{t-1} + \sum_{j=1}^k c_j \Delta y_{t-j} + \varepsilon_t \quad (3)$$

Where Δ is the variable in the first difference form, y_t is the variable tested, t is the time trend, k is the number of lags added to the model to make residuals, ε_t white noise. Augmented Dickey Fuller (ADF) procedure adopts the null hypothesis of $\alpha = 0$ against the alternate hypothesis $\alpha < 0$.

In case of presence of structural break in the time series data, conventional unit root tests like ADF may lose power and support the unit root conclusion while the alternative hypothesis of stationary is true. Perron [31] first proposed a way to handle this problem by including a known structural break at time T_b . He modified Dickey-Fuller unit root test by including dummy variables to take into consideration one known structural break. His test considers three kinds of structural breaks in the data series; a crash model that considers a break in the intercept; a growth model that considers a break in the slope and the third one that accounts for both effects at the same time.

Dummy variables are included in the null hypothesis. All the three models test the null hypothesis of a unit root with a break and the alternative hypothesis tested is a broken trend stationary process. But, some works argue that choosing a structural break based on the prior knowledge of data could result in the rejection of the unit root hypothesis in excess of reality. (Zivot and Andrews [32], Banerjee et al. [33]) They argue that conventional critical values for test of parameter change are not valid if the break point is determined from the examination of data. According to Piehl et al. [34], dummy variable may not enter at the appropriate time when there is uncertainty about the precise time of the break. Zivot and Andrews [32] considers an endogenous break. However, the test does not incorporate the structural break in the null hypothesis of unit root. If a unit root exists and a break is found in the trend function, the test may either deviate or may not vary with the break parameters. (Haldrup et al. [35]) Perron and Vogelsang [36] test is designed for non-trending data. Banerjee et al. [33] use data generated structural break in the test. Non-sequential tests estimate the number of breaks from the sub-samples. The test does not use complete information which has important inferences for the power of the test. Perron [37] is an improvement over his earlier work. We employ Perron [37] test for examining the stationarity of the variables. Gregory-Hansen (GH) [8] proposes a cointegration test based on the residuals. They test for cointegration in the occurrence of a likely regime shift where the intercept and/or slope coefficients have one break at unknown time. GH tests the null hypothesis of absence of cointegration against the alternative hypothesis of the presence of cointegration with one structural break. They propose extension of ADF test for cointegration. We employ the GH cointegration method bearing an unknown structural break.

$$y_{1t} = \mu + \alpha^T y_{2t} + \varepsilon_t, t = 1, \dots, T \quad (4)$$

To ascertain the structural change in the intercept, μ and/or changes in the slope, α , the dummy variable $\varphi_{t\tau}$ is included in the model and three models are made.

Model 1: Level shift (C)

$$y_{1t} = \mu_1 + \mu_2 \varphi_{t\tau} + \alpha^T y_{2t} + \varepsilon_t, t = 1, \dots, n \quad (5)$$

Level shift measures the change in the intercept, μ , due to the structural change keeping the slope coefficient, α constant. Dummy variable $\varphi_{t\tau}$ is equal to 1 if $t > [\tau]$ and 0 otherwise. Unknown parameter $\tau \in (0,1)$ denotes the timing of the change point. $[\]$ denotes integer.

Model 2: Level shift with trend (C/T)

$$y_{1t} = \mu_1 + \mu_2 \varphi_{t\tau} + \beta t + \alpha^T y_{2t} + \varepsilon_t, t = 1, \dots, n \quad (6)$$

This model is derived by adding a time trend to the level shift model.

Model 3: Regime shift

$$y_{1t} = \mu_1 + \mu_2 \varphi_{t\tau} + \alpha_1^T y_{2t} + \alpha_2^T y_{2t} \varphi_{t\tau} + \varepsilon_t, t = 1, \dots, n \quad (7)$$

μ_1 and α_1 stand for the intercept and slope coefficients before the regime shift. μ_2 and α_2 denote the intercept and slope coefficients at the time of the shift. $\varphi_{t\tau}$ is the dummy variable indicating the time of the regime shift, τ . Residuals derived from the OLS estimate of the models are used for arriving at ADF* statistic highlighting the break point.

5 Results and Discussion

Bai-Perron test shows the presence of at least one structural break in Oil data. Majority of the test results also show the existence of one structural break in TASI data.

Table 3: Bai-Perron test results

Variable	UDmax	Wdmax	Schwarz Criterion	LMZ Criterion
TASI	10.96677	18.07522	-6.051430	-5.903886
Breaks determined	1	5	1	1
OIL	73.24726	73.24726	-5.146533	-4.998990
Breaks determined	1	1	1	1

BP argues that LMZ performs better under the null hypothesis when there is no serial correlation and a lagged dependent variable. But the test states the number of breaks as less. They suggest the sequential application of the $supF_T(\ell + 1\ell)$ test using sequential estimates of breaks. We apply this method to confirm the results of the tests mentioned earlier.

Table 4: Bai-Perron sequential F-statistic determined breaks

Variable	$supF_T(1)$	$supF_T(2)$	$supF_T(3)$	$supF_T(4)$	$supF_T(5)$	Breaks determined
TASI	10.09673*	0.500216	0.412344	3.733531	0.413898	1
OIL	94.04953*	1.145299	0.215861	0.137342	0.019530	1

Notes: 1. * denotes significance at 0.05 level

Sequential F-statistic determined one break each for both TASI and OIL data series. We tested for the unit roots in our variables in the presence of one structural break applying Perron unit root test. The computed test statistics for the level and first differences of the variables are given in Table 5.

Table 5: Perron Unit Root Test Results

Variable	Level		First difference	
	t-statistic	Break date	t-statistic	Break date
TASI	-3.803088(0)	2012:01	-5.320201(3)	2012:02
OIL	-4.570334(1)	2010:11	-6.039499(0)	2012:05
Critical value				
1%	-5.92		-5.92	
5%	-5.23		-5.23	
10%	-4.92		-4.92	

Notes: 1. Figures in parenthesis are the lags chosen.

Both TASI and OIL are non-stationary at the level and stationary at first difference. Johansen-Juselius (1990) cointegration test and GH cointegration test are, now, applied.

Table 6: Johansen test for multiple co-integrating vectors

Panel (a): Unrestricted Cointegration Rank Test Based on Trace Statistic Test

Hypothesized No. of CEs	Eigenvalue	Trace Statistic	0.05 Critical Value	P-values*
None	0.116170	8.599003	15.49471	0.4038
At most 1	0.092441	3.782889	3.841466	0.0518

Panel (b): Unrestricted Cointegration Rank Test Based on Maximum Eigenvalue Test

Hypothesized No. of CEs	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	P-values*
None	0.116170	4.816114	14.26460	0.7649
At most 1	0.092441	3.782889	3.841466	0.0518

* MacKinnon-Haug-Michelis [38] p-values

Both trace statistic and maximal Eigen statistic fail to detect cointegrating relationship between oil prices and stock prices. Gregory and Hansen show that it is possible that cointegration might shift to a new long run association. The series is cointegrated implying that a linear combination of non-stationary variables is stationary, but the cointegrating vector has shifted at one unknown point in the sample. Since, we have confirmed the presence of a break in data on stock prices and oil prices, we apply Gregory-Hansen cointegration test.

Table 7: Gregory-Hansen test of cointegration with structural breaks

	ADF	Break Date
Level shift model	-4.518113*	2011M11
Level shift with trend model	-4.446983	2011M11
Regime shift model	-4.019261	2012M04

Notes: 1. * denotes significance at 10% level

We arrive at the conclusion that oil and stock prices are cointegrated in the level shift model while the other models do not suggest the presence of cointegration. GH cointegration procedure is an extension of unit root tests with structural breaks. However, the structural breaks for unit root tests and cointegration are conceptually different and have different critical values. The level shift model identified the structural break at 2011:11. Cointegration equation is estimated applying OLS method for the first model, the model with the level shift, is derived applying a dummy for the structural break date.

Table 8: Cointegration Equation
Level Shift Model with dummy at 2011M11

Dependent variable: TASI

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	8.078139	0.253021	31.9267	0.0000
OIL	0.154237	0.054929	2.807948	0.0077
DUMMY	0.074894	0.023518	3.184511	0.0028
R-squared	0.35808	Mean dependent var.		8.802491
Adjusted R-squared	0.325096	S.D. dependent var.		0.068109
S.E. of regression	0.055954	Akaike info criterion		-2.859841
Sum squared resid.	0.122101	Schwarz criterion		-2.735722
Log likelihood	63.05666	Hannan-Quinn Criterion		-2.814346
F-statistic	10.87470	Durbin-Watson stat.		0.559012
Prob. (F-statistic)	0.000176			

The cointegration equation proves that oil prices and share prices share a positive association which is statistically significant. Saudi Arabia is the largest global producer of oil. The country's economy is greatly dependent on its oil exports. Obviously, the stock prices in Saudi Arabia are bound to be influenced by the variations in the oil prices. This result is in line with the results of Park and Rathi [11]. They find that stock return of Norway, the 11th largest producer of oil in the world, is positively influenced by oil price shock. The results are valid even when the scaled oil price is used to proxy oil price variable. Rodriguez and Sanchez [39] argue that oil price surge is expected to have a positive influence on stock markets in an oil exporting country. The increase in income from higher oil price is anticipated to result in a growth in expenditure and investments. This could result in better productivity and lesser unemployment. Stock market reacts positively to these events. Our results contradict the results of Arouri and Rault [40] who

find that oil price surges have positive influence on stock prices in GCC countries except in Saudi Arabia.

The dynamic association between stock prices and oil prices is examined by including the lagged value of the residual from the cointegrating regression along with the first difference of the variables that appear as regressors in the long-run relationship. Variables from the long-run relationship capture the short-run dynamics. A dynamic error correction model estimating the short-run performance is estimated. To derive the general error correction model, the lagged residual-error derived from the cointegrating vector is included. We started with many lags and reduced the system by removing all insignificant lags. Starting with higher lags and continuing until the model consists of significant parameters is called general to specific modelling. The error correction equation is given below.

Table 9: Error Correction Model

Dependent variable: $\Delta TASI_t$

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.000339	0.005641	0.060173	0.9524
$\Delta TASI_{t-1}$	0.276713	0.142273	1.944939	0.0596
ΔOIL_t	0.202859	0.097437	2.081945	0.0445
ECT_t	-0.547651	0.151172	-3.622700	0.0009
R-squared	0.454047	Mean dependent var.		0.003808
Adjusted	0.408551	S.D. dependent var.		0.045945
R-squared				
S.E. of regression	0.035334	Akaike info criterion		-3.753300
Sum squared resid.	0.044946	Schwarz criterion		-3.584412
Log likelihood	79.06599	Hannan-Quinn Criterion		-3.692235
F-statistic	9.979909	Durbin-Watson stat.		2.109482
Prob. (F-statistic)	0.000063			

Error correction model captures both the long-run and short-run association between oil prices and stock prices. The one period lagged error correction term captures the long-run association while the other variables represent the short-run relationship. The estimated coefficient of the error correction term has a negative sign and is significant. This provides additional evidence to the fact that the oil prices and stock prices of Saudi Arabia are cointegrated. Error correction term captures the long run relationship between oil prices and stock prices. Coefficient of the error correction term represents the speed of adjustment of the system in restoring the long-run equilibrium whenever there are deviations. The estimated error correction term of -0.547651 shows that around 54.76% of the short-run departures are corrected every month to get it back to the level of long-run stability. Both the one period lagged share prices and oil prices have statistically significant relationship with stock prices.

We test for the stability of the error correction model by carrying out CUSUM and CUSUM of squares test. Both the tests show that the estimated model is stable.

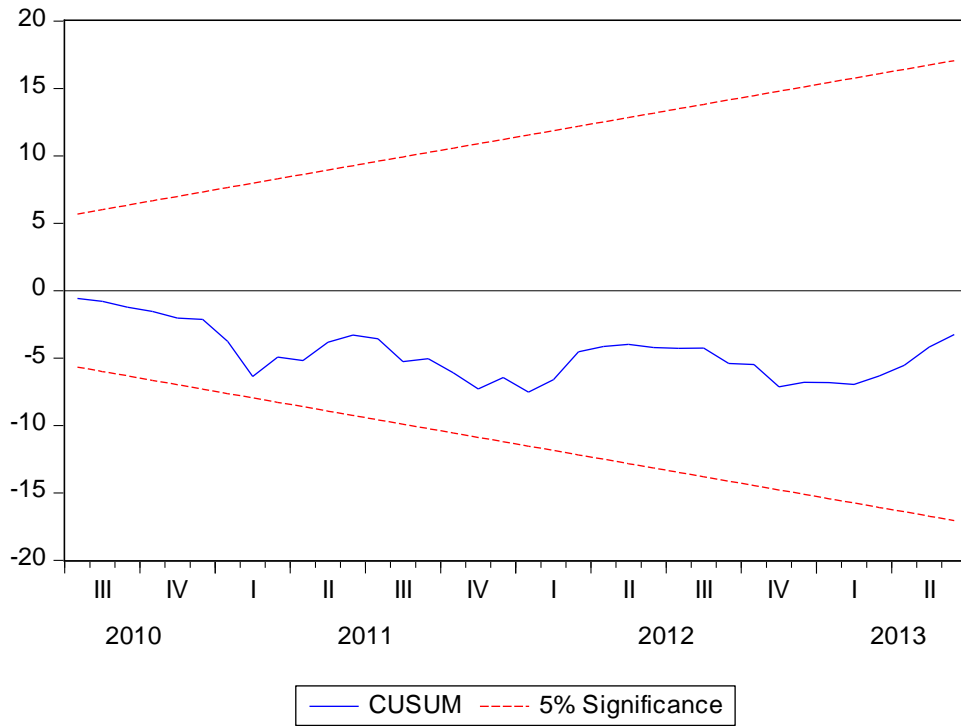


Figure 1 CUSUM test

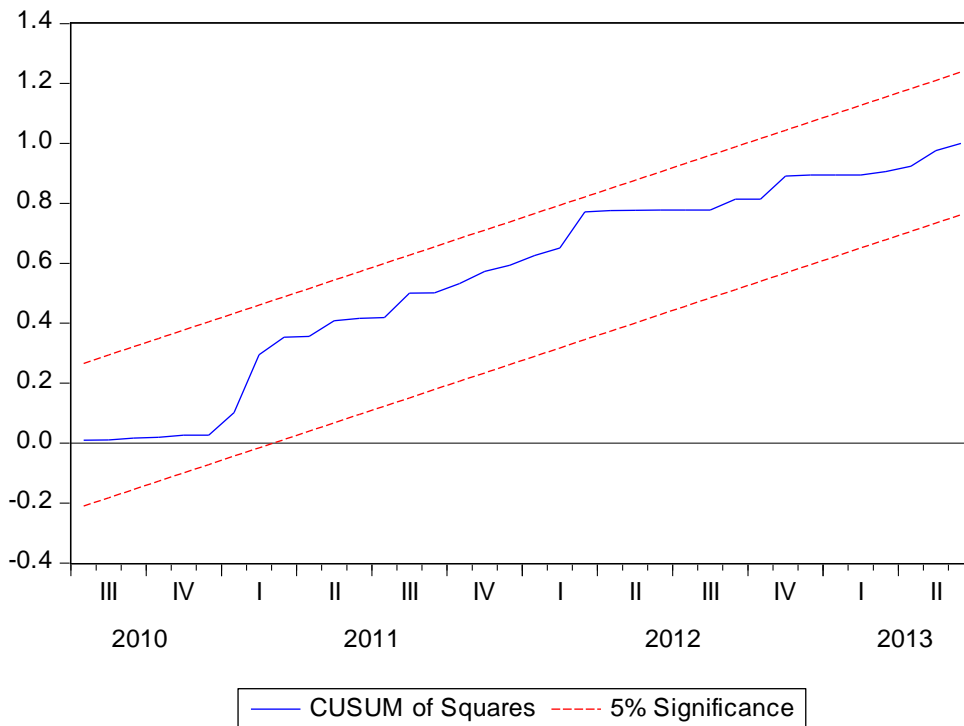


Figure 2 CUSUM of squares test

This study scrutinises the associations between oil prices and stock prices in Saudi Arabia. Since, Saudi Arabia is the world's largest producer of oil; we can expect the country's stock market to be affected by oil price fluctuations. We test the relationship between stock prices and oil prices by applying the classic and a residual based test of cointegration. The classic cointegration test fails to detect cointegration between the two variables; the residual based test that considers one break shows that the two variables are cointegrated. The relationship between oil prices and stock prices in Saudi Arabia is found to be statistically significant and positive as expected. We expect that the oil price increase should have a positive relationship with the stock prices in case of an oil exporting country. Increase in oil price increases the income and wealth for the oil exporting country which is bound to have a positive impact on the level of economic activity of the country. This should result in increased investment and productivity of the firms which will push up the expected cash flows on their stock investment. This optimistic outlook on future cash flows on investment will result in a higher valuation of the stocks. The error correction model shows that the deviations from the long-run equilibrium relationship are restored at a speed of 54.76% every month. This implies that any disequilibrium in the relationship between oil prices and stock prices is corrected at a fairly high speed. Historical stock prices also have a significant relationship with the current stock prices. This confirms that the Saudi stock market follows a weak form of efficiency. This has important inferences for the investors and policy makers in Saudi stock market. Investors in the country's stock market can use information on historical stock prices and oil prices for formulating investment strategies. The results of this study also present important information for the policy makers of Saudi Arabia. Since, the country is the largest producer of oil in the world and the country earns large revenues from oil exports, their outlook on oil pricing should be assessed in terms of its impact on its domestic stock prices.

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