



INVESTIGATING THE POSSIBILITY OF CHANGING THE SAUDI ARABIAN RIYAL EXCHANGE RATE REGIME

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ABSTRACT

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This study examined the determinants of the Saudi riyal real effective exchange rate (REER) and the possibility of changing Saudi Arabia's exchange rate regime from pegged to floating. A regression model was used to investigate the impact of Saudi Arabia's total reserves, cost of living, money supply, non-oil exports, interbank lending rate, and crude oil production on the REER. The results revealed crude oil production as the only significant determinant: a 10% increase in production will reduce the rate by 1.32%. Although Saudi Arabia is cannot yet change its exchange rate regime, the goals of Vision 2030 are achieved and Saudi Arabia is no longer an oil-dependent economy, a change may be possible.

Contribution/Originality: This study contributes the determinants of the Saudi riyal real effective exchange rate and the possibility of changing Saudi Arabia's exchange rate regime to the existing literature. The findings indicate that, as Saudi Arabia's economy is still dependent on oil exports, any change in the exchange rate regime will significantly affect the Saudi riyal's value and stability.

1. INTRODUCTION

For nearly three decades, the Gulf Cooperation Council (GCC) countries have been pegged to the US dollar (USD) to provide stability and reduce transaction costs, as their economies depend on oil exports. Many countries pegged their currencies to the USD, but following the Bretton Woods Agreement, most decided to adopt free-floating currencies: in mid-1981, the Saudi Arabia stopped pegging the riyal to the IMF's special drawing rights (SDR), free-floating its currency until June 1986, when it pegged the riyal to the USD. In January 2003, the exchange rate was officially fixed it at 1 USD to 3.75 riyals (or 1 riyal to approximately 0.266667 USD) and has maintained the riyal's stability over the past few decades (Figure 1).

There are advantages and disadvantages to every exchange rate regime, which are each adopted to achieve certain economic goals. The purpose of fixed exchange rates includes to: secure the exchange rate, achieve price stability, and control the inflation rate. Thus, Saudi Arabia pegged its currency to the USD, fixing the exchange rate and reducing the transaction costs of the oil trade, which was hugely beneficial for the economy (Frankel, 2003). However, according to the impossible trinity (trilemma) hypothesis (Figure 2), it is impossible to simultaneously achieve monetary independence, exchange rate stability, and financial integration. Therefore, although Saudi Arabia can achieve exchange rate stability and financial integration, it cannot attain monetary

independence, being obliged to follow the monetary policy of the US Federal System (Aizenman and Hiro, 2011). Such lack of control could be a great disadvantage to Saudi Arabia, such as higher inflation rates when the US Federal System reduces their interest rates, which compels the same in Saudi Arabia.

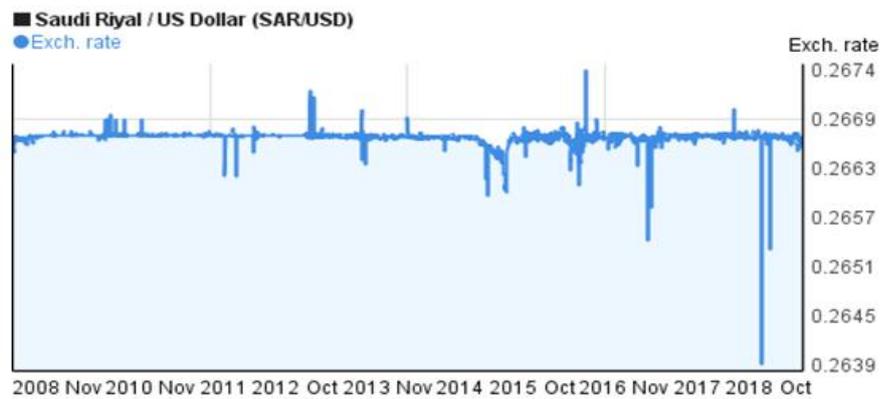


Figure-1. Saudi Riyal–US Dollar exchange rate 2008–2018 (Chartoasis, 2019).

Source: Chartoasis.com

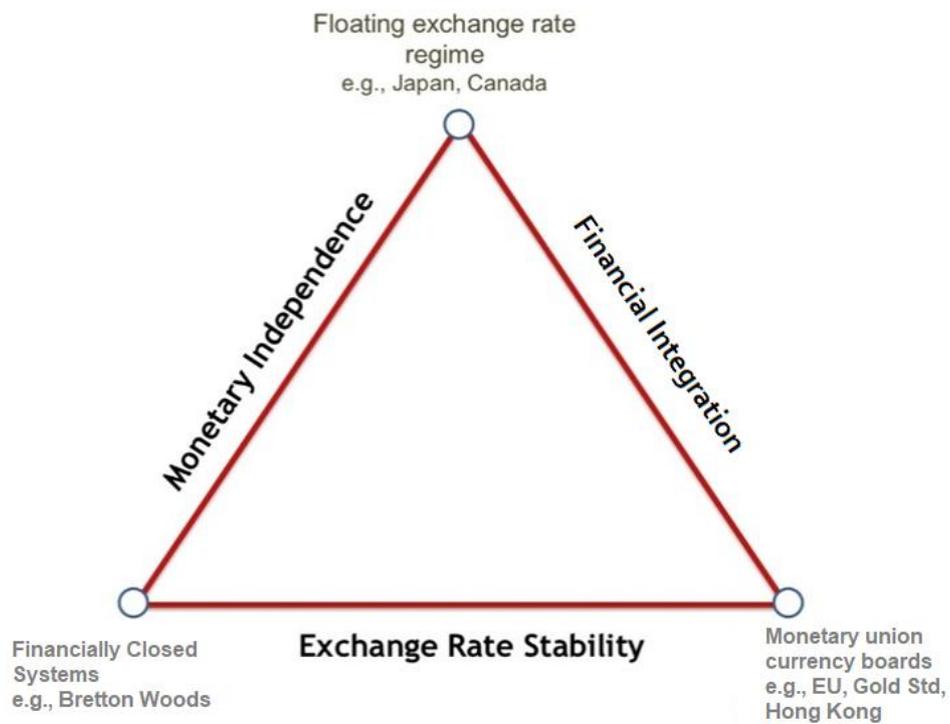


Figure-2. Impossible trinity.

Source: Aizenman and Hiro (2011).

Despite such risks, Saudi Arabia still preferred a currency peg, or fixed exchange rate, due to the numerous pros as well as cons. Countries peg their currencies to those with whom they conduct most trade: according to the United States Trade Representative (USTR), around \$35.2 billion of trade conducted between the US and Saudi Arabia in 2017, with the potential for further growth in trade. There are thus many advantages to a currency peg to counterbalance the aforementioned disadvantage of an imported monetary policy preventing inflation control (Algahtani, 2015).

1.1. Currency Peg

1.1.1. Trade

Pegging a currency to another actually facilitates trade; in this case, pegging the Saudi riyal to the USD benefits Saudi in trading with the US. Variability in exchange rates creates uncertainty and increased risk, which discourages both imports and exports between the two currencies. A fixed exchange rate thus eliminates risk and encourages trade (Martí *et al.*, 2014).

1.1.2. Speculative Bubbles

Pegging can prevent speculative bubbles, which are spikes in prices due to exaggerated expectations rather than actual market values (Zheng, 2014).

1.1.3. Large Reserves

To ensure the fixed exchange rate functions, the country's central bank is required to maintain large reserves. However, large reserves can cause higher inflation rates and in turn, rising prices, which undermines the country's economic stability (Alkhareif and John, 2016).

1.1.4. Foreign Influence

Pegging exposes the country to increased foreign influence in their domestic affairs, as their monetary policy is not independent. In this case, Saudi Arabia imports the US monetary policy, so that when inflation increases in the US, it exerts more of an impact on Saudi Arabia (Algahtani, 2015).

1.1.5. Speculative Attacks

Pegging results in vulnerability to speculative attacks, as it permits a difference in the fundamental and market values of a currency, which is artificially manipulated by the country's central bank. Various methodologies will be discussed in this paper that explain how countries choose their exchange rate regimes based on the pros and cons, with some real-life examples (Cheung and Friedman, 2009).

1.1.6. International Capital Flows

As well as trade, pegging facilitates capital flows between trade partners, because the financial risks involved in exchanging currencies is eliminated. Despite the advantages of a currency peg, there are still disadvantages to be considered (Abdullah *et al.*, 2010).

This paper consists of three parts: first, a discussion of the different exchange rate regimes; second, an examination of the factors affecting the Saudi riyal real effective exchange rate (REER); and third, a reflection on the possibility of changing the exchange rate regime from pegged to free-floating in the future and recommendations on the most suitable options for Saudi Arabia's current and future economic situation.

2. METHODOLOGY AND DATA ANALYSIS

2.1. Methodology

This study employed the variable models of linear regression, correlation matrix, and stepwise regression to analyze the descriptive statistics for the dependent variable, the Saudi riyal REER (Y), and the six independent variables affecting it: Saudi Arabia's total reserves assets (X1), cost of living general index (X2), money supply (X3), foreign trade—non-oil exports (X4), Saudi riyal average 1-month interbank rate (X5), and revenue from OPEC crude oil production (X6). The data were collected from the Bloomberg Terminal and analyzed using SPSS software.

2.1.2. Regression Model

A regression model expresses linear regression, a widely used type of predictive analysis, that reveals a set of predictors (independent variables) for an outcome (dependent variable), which are significant predictors of that outcome, and the magnitude by which they affect it. The simplest form of a regression model is expressed as:

$$y = c + b * x$$

Where y = dependent variable, c = constant, b = regression coefficient, and x = score of the independent variable.

There are three main uses for a regression model: first, to determine the strength of the predictors' effect on the outcome; second, to predict any effect, understanding how a change in one predictor affects the outcome; and third, to predict trends and future values.

The type of regression model used depends on the research being conducted: simple or multiple Linear, logistic, ordinal, and multinomial regressions (Montgomery, 2013).

2.1.3. Descriptive Statistics

This refers to statistical analysis that aims to describe, present, or summarize data points in a meaningful way, without drawing conclusions beyond that data, unlike inferential statistics. However, descriptive statistics improve the understanding of the data—particularly as they are often illustrated with basic visualizations—which is a prerequisite for advanced analysis. Descriptive statistics are classified into two categories: measures of central tendency and measures of spread (Holcomb, 2016).

Measures of central tendency refer to ways of describing the central position of a data set: the mode, the most frequently occurring data point; the median, the middle data point from those in order of value; and the mean, the average of the sum total of data points.

Measures of spread refer to ways of summarizing how widely the data points are dispersed from the central position: the range, quartiles, absolute and standard deviations, and variance. Their interpretation is presented through not only written accounts but also tables and graphical visualization.

2.1.4. Linear Regression (Head-to-Head Comparison)

Simple linear regression is the most basic of its type and enables the relationship between two continuous (quantitative) variables to be studied. One variable, usually identified as x , acts as the explanatory, or independent, variable, while the second variable, denoted by y , is regarded as the outcome, or dependent, variable. It is considered simple because it involves a single variable, in contrast to multiple linear regression that involves several.

2.1.5. Covariance Matrix Model

The covariance matrix measures the extent to which corresponding points from two sets of ordered data follow or move in a similar direction. This matrix consists of the covariance, which measures the simultaneous variation of two variables, and variance, which measures the variation of a single variable, that are calculated, respectively, as follows:

$$Cov(X, Y) = \sum \frac{(X_i - X_m)(Y_i - Y_m)}{N}$$

$$Cov(X) = E(E(X - X_m)' * E(X - X_m))$$

Where X and Y represent the two sets of ordered data.

The covariance matrix can be represented by a square matrix, which is represented as:

$$C_{IJ} = \sigma(x_i, x_j)$$

Uniquely, the covariance matrix is symmetric:

$$\sigma(x_i, x_j) = \sigma(x_j, x_i)$$

The diagonal entries in the covariance matrix represent the variance and the others, the covariance, so it is also known as a variance–covariance matrix. The calculation of the covariance matrix can be expressed as:

$$C = \frac{1}{n-1} \sum [(X_i - \bar{X})(X_i - \bar{X})^T]$$

Where X represents the data set.

For a two-dimensional case, the covariance matrix would be:

$$C = \begin{pmatrix} \sigma(x, x) & \sigma(x, y) \\ \sigma(y, x) & \sigma(y, y) \end{pmatrix}$$

which is easily generalized to cases with more dimensions.

2.1.6. Stepwise Regression Model

In regression, there is always a need to ensure the most relevant variables exert an actual effect on the outcome. These variables are determined through a selection process involving two opposing objectives: on one hand, a complete and realistic model that includes even the most remotely important variable; on the other hand, a more precise model that includes as few variables as possible. Thus, this process is one of parsimony: achieving fit (the most regressors) and simplicity (the least regressors). Several procedures can be employed, all of which should produce a common regression model except in the presence of outliers and collinearity issues (Johnsson, 1992).

The variable selection methods include forward selection, backward selection, minimum mean square error (MMSE), and stepwise regression (Johnsson, 1992), which is a combination of the forward and backward selection methods. Stepwise regression is a modified form of forward selection in which all the variables are checked after the addition of the next variable. Thus, each step verifies whether the significance of the variables has reduced and a non-significant variable is removed. There are two significance levels: one for adding and another for removing variables; however, the two probabilities should not be the same (Wang, 2003).

2.2. Data Analysis

2.2.1. Statistical Stationarity

A unit root test was performed first and the data proved as non-stationary: the time series was either seasonal or followed a certain trend. Non–stationary data cannot usually be predicted over time, due to regular fluctuations with constant variance.

To transform the data from non-stationary to stationary, the differencing logarithm method was applied to reduce seasonality and trend. After the transformation, the total observations were reduced from 97 to 96 and all the data were stationary according to the Dickey–Fuller test (Figures 3–9). All the results are presented as Stata output in the appendices.

$$R = R1 - R0$$

R = Observation one in transformed series.

R1: Observation 2 in original series.

R0: Observation 1 in original series.

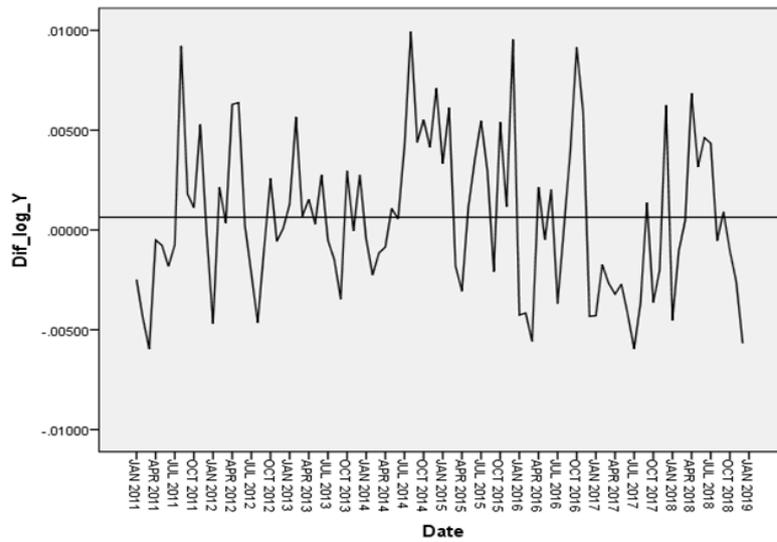


Figure-3. Differencing logarithm: Saudi riyal consumer price index (CPI)-based real effective exchange rate (REER) (IMF).

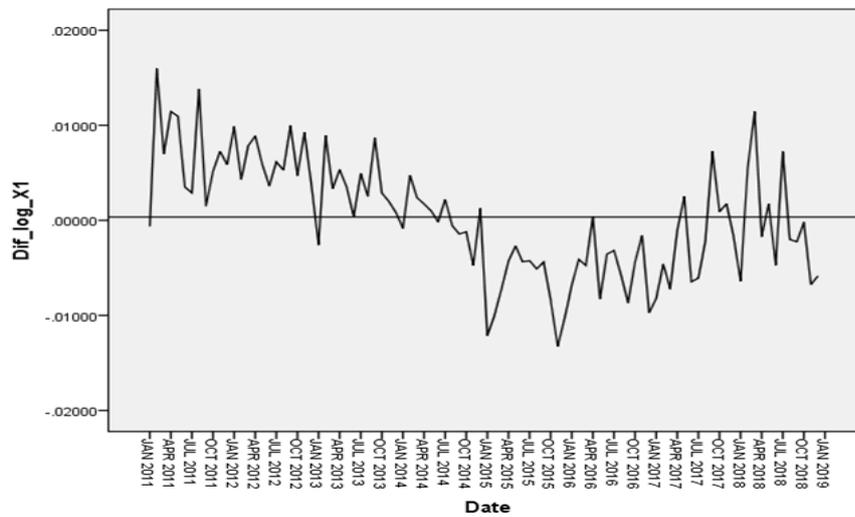


Figure-4. Differencing logarithm: Saudi Arabia's total reserves assets.

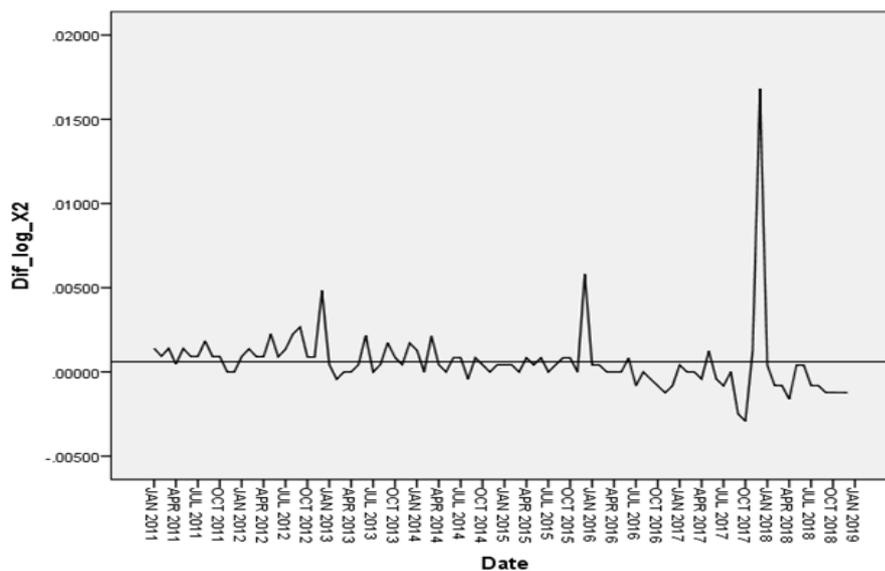


Figure-5. Differencing logarithm: Saudi Arabia's cost of living general index.

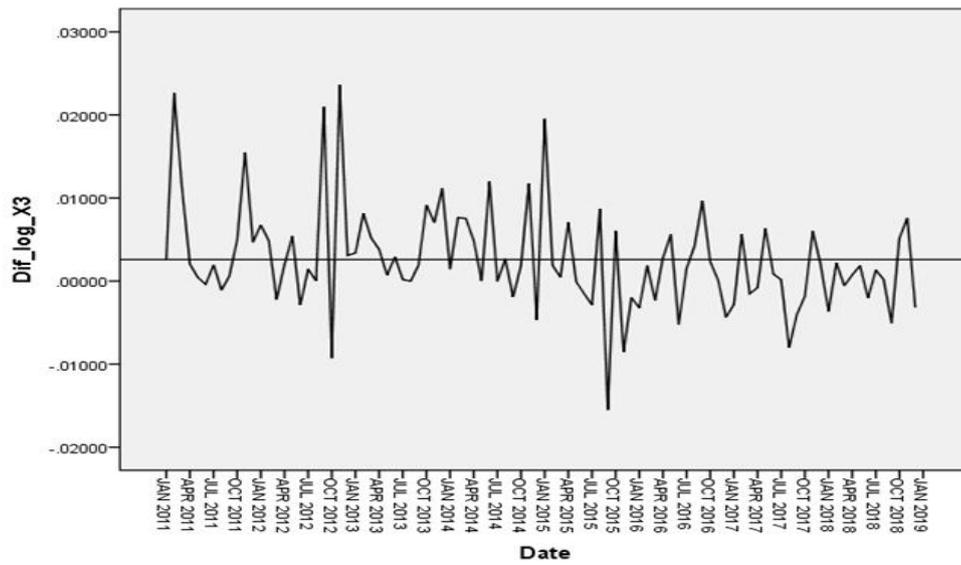


Figure-6. Differencing logarithm: Saudi Arabia's money supply.

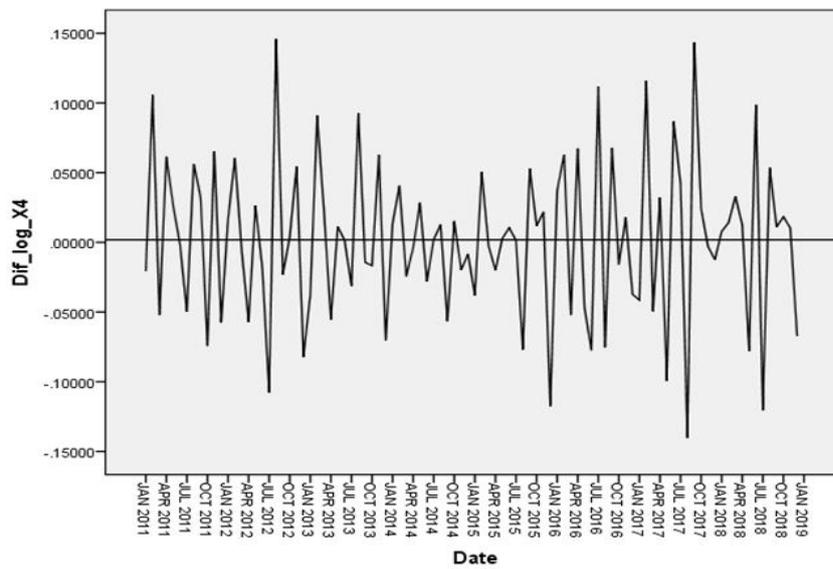


Figure-7. Differencing logarithm: Saudi Arabia's foreign trade—non-oil exports.

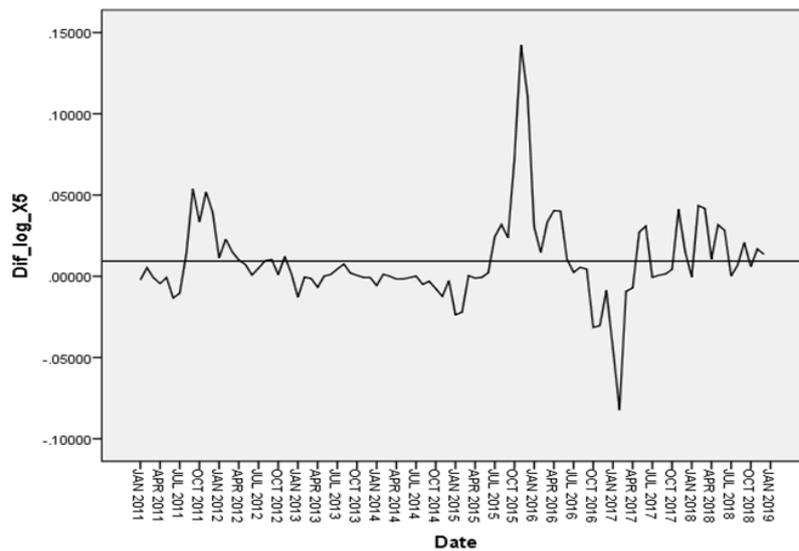


Figure-8. Differencing logarithm: Saudi riyal average 1-month interbank rate.

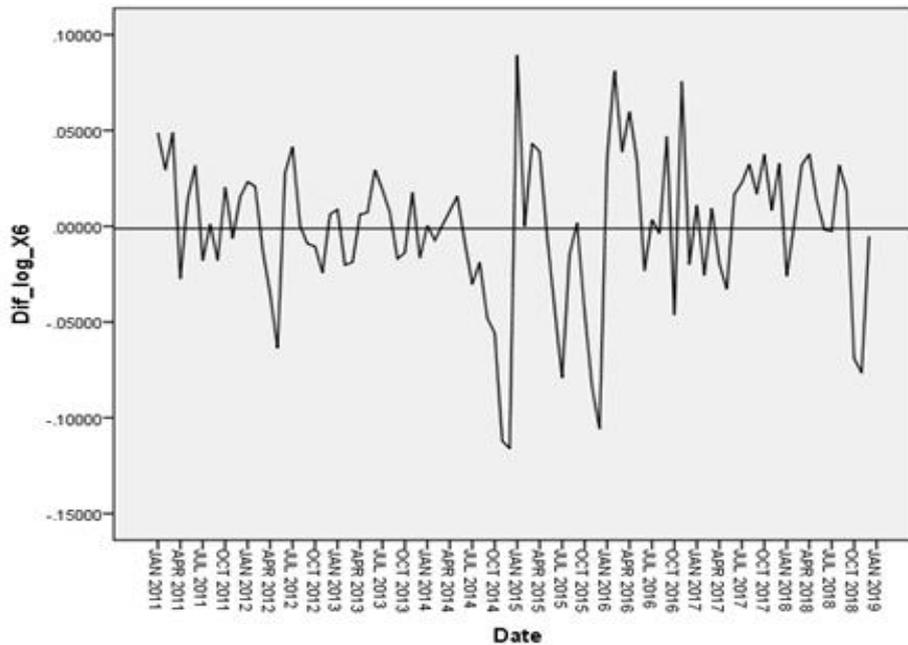


Figure-9. Differencing logarithm: Revenue from OPEC crude oil production (Bloomberg).

2.2.2. Descriptive Model

Monthly data were selected from January 2011 to January 2019 (97 months). The variables comprised the Saudi riyal REER (the dependent variable Y) and the six independent variables (X1–X6) by which it was affected:

- X1: Saudi Arabia’s consumer price index (CPI)-based total reserves assets.
- X2: Saudi Arabia’s cost of living general index.
- X3: Saudi Arabia’s money supply.
- X4: Saudi Arabia’s foreign trade—non-oil exports.
- X5: Saudi riyal average 1-month interbank rate.
- X6: Revenue from OPEC crude oil production.

The descriptive statistics following the log-difference transformation are shown in Table 1. The range of the data set show X4 with the highest value (0.286) and Y with the lowest (0.0159), while in descending order, the highest Standard deviations (the degree of fluctuation between the monthly data) were X4, X6, and X5 and the lowest, X2, Y, X1, and X3. Thus, there is little variance around the average.

Table-1. Regression model, log-difference transformation all variables (Y, X1–X6).

Variables	Range	Std. Dev.
Saudi riyal CPI-based Real Effective Exchange Rate (REER) (IMF) – Y	0.0159000	0.0038604
Saudi Arabia’s Total Reserves Assets – X1	0.0292400	0.0061643
Saudi Arabia’s Cost of Living General Index – X2	0.0197300	0.0020623
Saudi Arabia’s Money Supply (M2) – X3	0.0391100	0.0063347
Saudi Arabia’s Foreign Trade—Non-Oil Exports – X4	0.2863800	0.0582099
Saudi Riyal Average 1-Month Interbank Rate – X5	0.2246700	0.0272045
Revenue from OPEC Crude Oil Production (Bloomberg) – X6	0.2052500	0.03870757

2.2.3. Correlation Matrix

The correlation matrix in Table 2 shows low correlation among the variables, all being less than 0.5.

Table-2. Correlation matrix (Y, X1-X6).

Correlation	Y	X1	X2	X3	X4	X5	X6
Y	1						
X1	-0.09	1					
X2	-0.25	-0.09	1				
X3	-0.13	0.19	-0.02	1			
X4	0.05	-0.13	0.10	0.02	1		
X5	-0.05	0.00	-0.04	-0.06	0.17	1	
X6	0.05	-0.19	-0.36	-0.07	-0.30	-0.00	1

2.2.4. Linear Regression

Linear regression revealed a negative relationship between the Saudi riyal REER (Y) and Saudi Arabia's total reserves assets (X1), with a value of 91% for the coefficient of determination (R^2). Moreover, this relationship was significant (<0.05), with an ANOVA test producing calculated F -value larger than the F -critical value.

$$\hat{Y} = 0.001 - 0.036$$

2.2.5. Stepwise Regression

The stepwise regression model was generated once the data for all the variables affecting the Saudi riyal REER (Y) had been entered, showing a 16.6% change.

However, the results revealed only one significant variable: revenue from OPEC crude oil production (X6) exerted a 13.2% change. In other words, a 100% rise in crude oil production will reduce the Saudi riyal REER by 13.2%.

The other five independent variables were excluded from the linear model, as altogether, they affected the Saudi riyal REER by just 3.4% (Table 3).

Table-3. Stepwise regression (significant variables).

Variable	Sig.
Saudi Arabia's Total Reserves Assets – X1	0.75
Saudi Arabia's Cost of Living General Index – X2	0.06
Saudi Arabia's Money Supply (M2) – X3	0.60
Saudi Arabia's Foreign Trade—Non-Oil Exports – X4	0.84
Saudi Riyal Average 1-Month Interbank Rate – X5	0.71
Revenue from OPEC Crude Oil Production (Bloomberg) – X6	0.000

3. RESULTS

3.1. Saudi Arabia's Crude Oil Production

According to the results from linear and stepwise regression, and ANOVA, a negative relationship exists between the revenue from OPEC crude oil production and the Saudi riyal REER: a 91% variation in the REER is due to the 13.2% change caused by crude oil production.

Supplying 12.6% of the world's crude oil, Saudi Arabia sits third after the US and Russia in the top five countries that together produce half of the world's crude oil (Table 4).

In 2018, Saudi Arabia exported around 7.4 million barrels to United States (Organization of the Petroleum Exporting Countries, 2018); however, there has since been a 72.17% drop. Whereas 5.75 million barrels were exported in February 2018, only 2.69 million then 1.6 million barrels were shipped in January and February 2019, respectively (Bloomberg, 2019).

Table-4. Saudi Arabia's crude oil production.

Rank	Country	% of Crude Oil Production
1	United States	13.2%
2	Russia	13.0%
3	Saudi Arabia	12.6%
4	Iraq	5.6%
5	Canada	5.2%

Source: Energy Information Administration (2018), <https://www.eia.gov/>

3.2. Saudi Arabian Relations with the United States

According to the Saudi Ministry of Commerce and Investment, stated that the volume of trade between Saudi Arabia and the US reached 142 billion Saudi riyal (SR) in 2006. That same year, exports to the US were around 65.5 billion SR and imports from the US up to 75.8 billion SR. The main exports to and imports to and from the US are as follows:

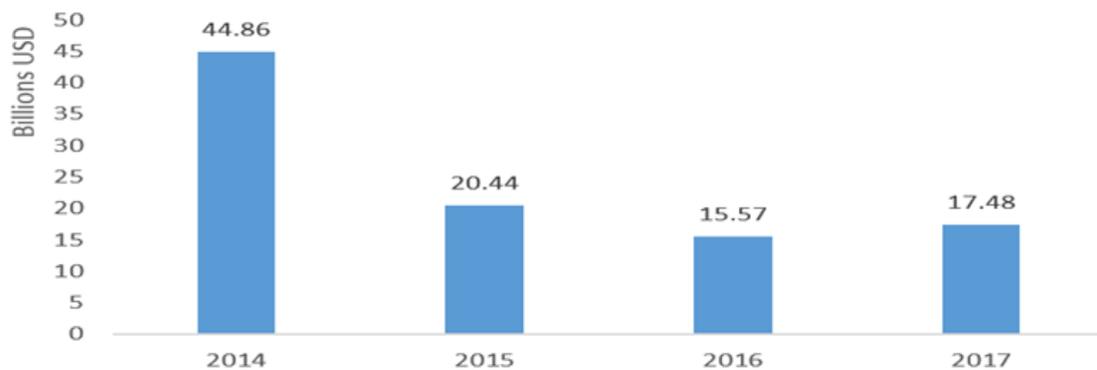
- *Exports:* Crude oil and associated products, such as urea (fertilizer), aluminum alloys, and ethylene glycol.
- *Imports:* Spare parts, aircraft, and various types of vehicles.

In addition to trade, 588 companies are joint ventures between Saudis and Americans, of which 123 are in the industrial and 436 in the service sectors. Furthermore, the largest proportion of US investment in Saudi Arabia includes manufacturing, administrative services, and information and communications technology, comprising 373 projects, 63% of the total projects.

3.3. Investment Relations with the United States

In light of the trade relationship and partnership, Saudi Arabia and General Electric (GE) signed a memorandum of understanding (MoU) in 2016 for \$3 billion of investment in Saudi Arabia.

Accordingly, a partnership between Saudi's Aviation Technology Co. and the US Skyrockki Co. was established in February 2016 to develop and manufacture the Black Hawk multipurpose helicopter. Simultaneously, a company was founded by Saudi's Space Technology Co. and the US DigitalGlobe Inc. to produce and market a range of small satellites for video observation. This was accompanied by another between Saudi's Energy Technology Co. and the US Sora Co. for light-emitting diode (LED) light bulbs. Likewise, Attkin Int'l formed a partnership with the US Do it Best Corp., the world's largest hardware retailers' cooperative. Previously, Saudi Aramco, the oil company, and Dow, the US chemical company, had cofounded Sadara Chemical Company in 2011 with a capital investment of \$20 billion. With the potential for constant growth, a strong, long-term relationship between Saudi Arabia and the US could be hugely beneficial to both countries: the US providing security, Saudi Arabia, oil and associated products. This exchange of imports and exports is depicted in Figures 10–12.

**Figure-10.** US Oil and gas imports from Saudi Arabia.

Source: US-Saudi Arabia Business Council (2018).

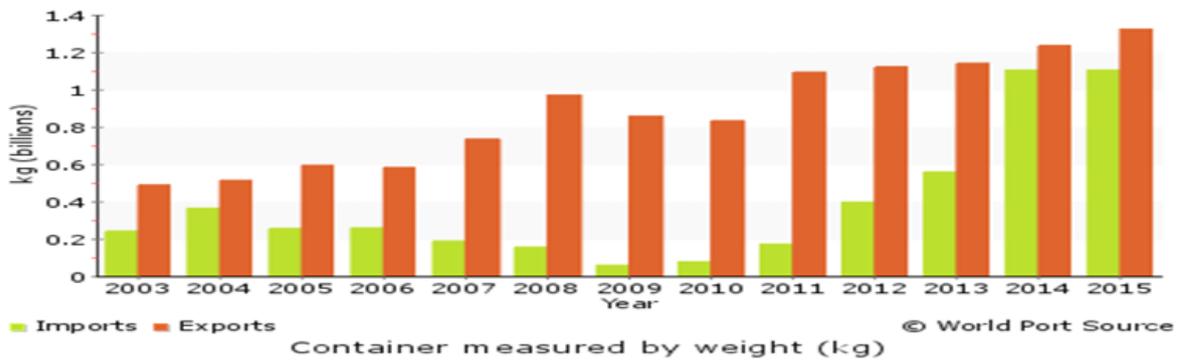


Figure-11. Waterborne foreign trade between US and Saudi Arabia.

Source: US-Saudi Arabia Business Council (2018).

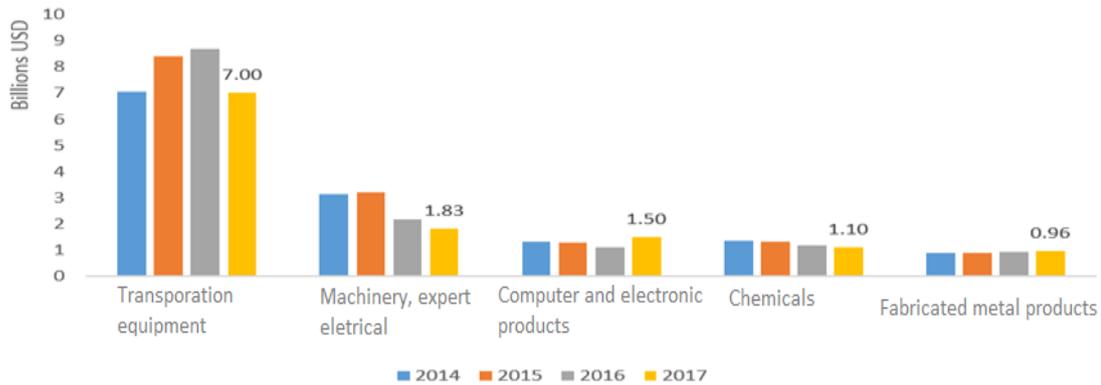


Figure-12. US Exports to Saudi Arabia.

Source: US-Saudi Arabia Business Council (2018).

3.4. The Benefit of the Currency Peg to Saudi Arabia

The Saudi economy has had to face serious challenges since 1986, such as two Gulf Wars and declines in oil prices; however, the Saudi riyal spot exchange rate only declined 10%. Pegging the Saudi riyal to the USD, though, helped control inflation rates and minimized the currency’s volatility: between 1970 and 1985, it ranged between – 3.06 and 34.58; after 1986, the range narrowed to –3.2–9.87 (Figure 13).

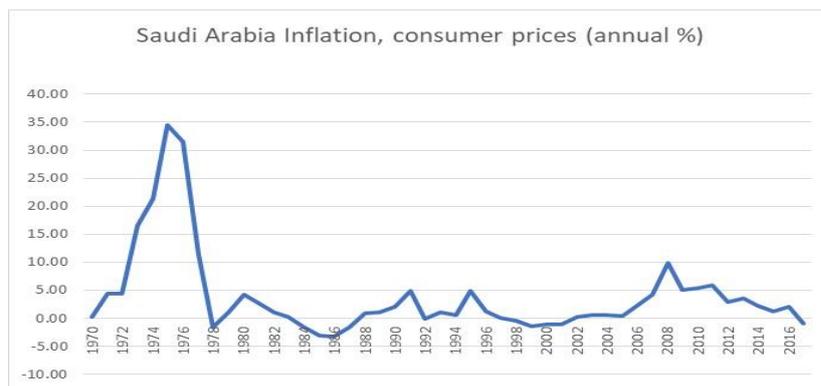


Figure-13. Saudi Arabian inflation (consumer prices).

Source: World Bank (2019).

Moreover, from 1986 to 2015, the growth rate in gross domestic product (GDP) for the non-oil, private sector remained not only positive but also smoother (Figure 14).

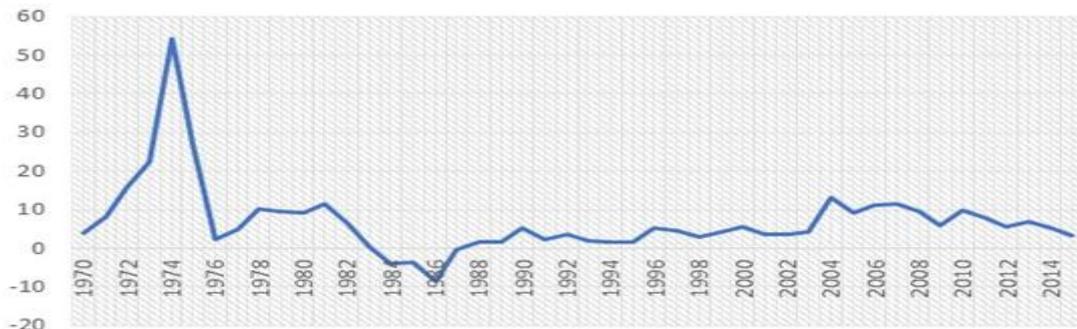


Figure-14. Annual growth rates in gross domestic product (non-oil; private sector).

Source: General Authority Statistics (2015).

4. DISCUSSION AND RECOMMENDATIONS

4.1. Vision 2030 Goals

In 2016, Crown Prince Mohammad Bin Salman Al Saud launched Saudi Arabia’s Vision 2030 for improving and developing the Saudi economy. The specific goals will be discussed in this subsection.

4.1.1. Non-Oil Exports

One of the main objectives is to diversify the Saudi economy by increasing the GDP share of non-oil exports from 16% to 50%. As a result, Saudi Arabia will become less dependent on oil exports and less affected declines in oil prices (Zheng, 2014; Saudi eGovernment Portal, 2017).

4.1.2. Foreign Direct Investment

There is also the intention to increase foreign direct investment (FDI) in Saudi Arabia from 3.8% of GDP to the international level of 5.7%. This will lead to an increase in economic growth, a reduction in unemployment, and provide more capital, as well as introducing technology and skills, which support the goals of Vision 2030 overall (Saudi eGovernment Portal, 2017).

4.1.3. Global Competitiveness Index

Another aim is to enhance the country’s competitiveness, raising Saudi Arabia from its current position at 39 into the top 10 countries in the global competitiveness index (Table 5). Considering the Saudi riyal REER shown in Figure 15, when it rises above the assumed fair value of 100, exports become more expensive than imports, trade competitiveness drops, and the country is ranked lower in the global competitiveness index. Consequently, improving its ranking will foster Saudi Arabia’s foreign trade, with other countries importing more Saudi products (Saudi eGovernment Portal, 2017).

Table-5. Global competitiveness index, 2018.

Global competitiveness index, 2018—score 0–100 (best)		
1	United States	85.6
2	Singapore	83.5
3	Germany	82.8
4	Switzerland	82.6
5	Japan	82.5
6	Netherlands	82.4
7	Hong Kong SAR	82.3
8	United Kingdom	82.0
9	Sweden	81.7
10	Denmark	80.6
39	Saudi Arabia	67.5

Source: Schwab (2018).

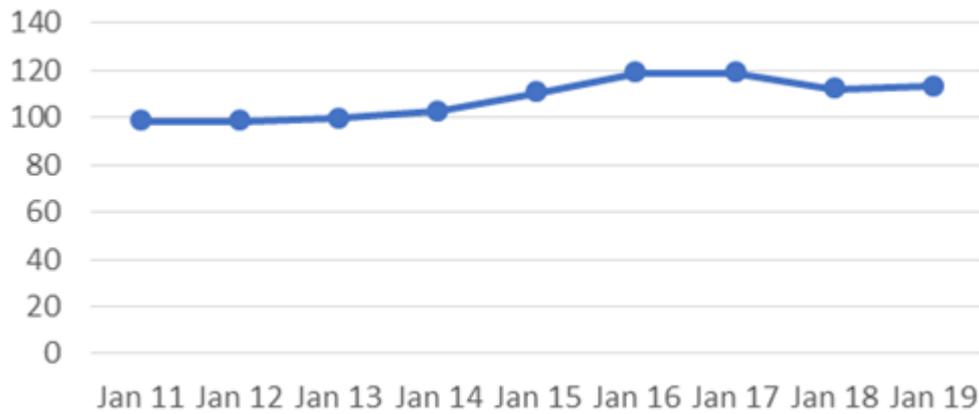


Figure-15. Saudi riyal real effective exchange rate (REER) (2011–2019).

Source: CEIC Data (2019).

In terms of this study, few recommendations are put forward for the future Saudi currency regime.

4.2. Currency Basket

A currency basket is a portfolio of selected currencies with different weightings, which are used to determine the value of another currency. Its purpose is to minimize the risk of currency fluctuations and support trade, as well as other benefits. A currency basket also functions as a benchmark for currency fluctuations within a region, of which some examples are the European Currency Unit, Asian Currency Unit, Special Drawing Rights (SDR) from the International Monetary Fund (IMF), and US Dollar Index.

4.2.1. Potential Advantages and Disadvantages of Currency Basket Regime

4.2.1.1. Advantages

4.2.1.1.1. Trade Competitiveness

A currency basket plays an important role in improving trade competitiveness, of which a long history of currency fluctuations undermining corporations and businesses is evidence. For instance, a local business in Saudi Arabia will pay more for the same amount of goods imported from the US when the USD appreciates, whereas the US business will receive more revenue for the same amount of goods exported. As a result, imports from, and ultimately trade with, the US will be discouraged, which will in turn affect local suppliers.

However, when currencies are pegged, trade between countries flows smoothly and encourages further trade. For example, without a currency basket in which the Indian rupee is pegged to the USD, UAE dirham, and Chinese Yuan, any currency fluctuations will affect the stability and volume of trade between India, the USA, UAE, China, and Hong Kong.

This is also applicable to governments planning to buy essential commodities from the international market: volatility in the exchange rate impedes any prediction of the budget required, a currency basket enables the amount needed to be determined more accurately.

4.2.1.1.2. Currency Fluctuations

A currency basket regime is preferred by most international investors to use minimize the risk of foreign investments. This is due to the vulnerability of investment in equity markets to currency fluctuations, which affects returns, whereas a currency basket optimizes investments.

4.2.1.1.3. Monetary Policy

Pegging a currency, and thus externalizing monetary policy, can help those countries that have been subjected to the manipulation and devaluation of their currencies to control their inflation. A free-floating currency,

particularly in developing countries, is more susceptible to such corruption by the political elite for personal gain, as happened in Zimbabwe under President Robert Mugabe.

4.2.1.2. Disadvantages

4.2.1.2.1. Automatic Adjustment

On the other hand, a currency basket regime prevents the automatic adjustment of exchange rates to correct deficits and maintain the equilibrium. Due to pegging the currency to a number of currencies from different countries, deficits, or disequilibrium, can be high, which is the current case with the US–Chinese trade.

4.2.1.2.2. Speculative Attacks

In the absence of automatic adjustment, a currency basket regime can lead to the currency being devalued: if the currency's market value deviates too far from its fundamental value, then speculators can devalue it. Such attacks might result in a country abandoning a pegged for a free-floating currency and exert a negative impact on foreign investments and trade, meaning both the general public and investors will incur huge losses.

4.2.1.2.3. Foreign Influence

In some respects, free-floating carry a lower risk than pegged currencies. For example, after the British government pegged its currency to Germany's, British domestic affairs and the Bank of England became increasingly influenced by the German Bundesbank: when the Bundesbank increased its rates in response to concerns over inflation in Germany, the British pound suffered severely.

4.2.2. Currency Basket Regime Solution for Foreign Trade

Although a currency basket regime can affect foreign trade negatively as well as positively, those disadvantages are outweighed by the advantages far more than under any other regime.

Trading with other countries is vital to a country's growth and development, and effective trade is more beneficial. Developing countries, therefore, try to maximize its trade; for instance, India looks to optimize relations with its major trading partners: China, the USA, UAE, and China and Hong Kong. Trading could be more effective if India pegged its currency, the rupee, to those of its partners, the USD, dirham, and yuan.

Such a currency basket regime would facilitate exports and imports. For example, an Indian businessman who imports computers and electrical appliances would be certain of the prices and protected from any unanticipated trade shocks due to currency fluctuations. Likewise, when businessmen in China and India trade spices at a pegged price, the transfer of payment is much easier for both parties.

Consequently, protection from trade shocks, guaranteed prices, and ease of payment encourages trade. Ultimately, the demand for domestic goods will increase in the international market, which will result in domestic industries expanding and producing more and better quality goods—an important factor in a country's growth and development.

In conclusion, unlike other currency regimes, a currency basket plays a significant role in the growth of foreign trade between countries (Labonte, 2004).

5. CONCLUSIONS

Exchange rates set the value of one currency against another, as the most crucial determinant of economic health it plays a significant role in trade, which is critical in an open market.

This study explored the determinants of the Saudi riyal REER to discover whether the exchange rate regime could be changed by 2030.

The exchange rate regime is integral to a country's monetary policy and is key to its economic stability and macroeconomic performance. The three main exchange rate regimes are:

- Floating.
- Managed floating.
- Pegged (fixed).

Until mid-1981, the Saudi riyal was loosely pegged to the USD, but from 1986, this was tightened, at the rate of 3.75 riyal = 1 USD, which has not changed for over three decades. Pegging has resulted in many advantages for Saudi Arabia, including economic success. Pegging the currency to the stronger USD helped stabilize the riyal's value, minimizing uncertainty and volatility in the exchange rate, which could potentially impact Saudi Arabia's economic health.

Stabilizing the riyal has also encouraged investment in Saudi Arabia, due to investors' increased confidence that they will not suffer losses as a result of fluctuations in the exchange rate. In addition, it provides greater stability for foreign trade and more protection against currency devaluation, as well as helping to maintain low inflation rates. It is evident, therefore, that pegging the currency is promoting investment in and international trade with Saudi Arabia, which in turn, exerts a positive impact on the economy.

Pegging the currency is an extremely stable foundation to Saudi Arabia's financial planning, as the government pays for essential commodities from the international market in a foreign currency. Frequent fluctuations in the exchange rate would prevent the government calculating how much riyal would be required to convert into foreign currency. Moreover, although Saudi Arabia would have to adopt the US monetary policy, this would reduce the risk of sabotage from its own government. As policymakers in a developed country such as the US formulate more responsible and beneficial monetary policies, the Saudi government will be unable to change interest rates or any other financial decisions for personal gain.

Data were collected on the Saudi riyal REER (dependent variable), and Saudi Arabia's CPI-based total reserves assets, cost of living general index, money supply, foreign trade—non-oil exports, Saudi riyal average 1-month interbank rate, and revenue from OPEC crude oil production (independent variables) between January 2011 and January 2019. The data were then analyzed using a regression model to examine how a change in any of the independent variables would affect the Saudi riyal REER, and the extent of that impact.

A range of regression statistics were calculated—stepwise and linear regression, coefficient of determination, or R-squared, and ANOVA—the results of which revealed that if Saudi Arabia adopted a floating exchange rate regime, then, a 100% increase in crude oil production would reduce the exchange rate by 13.2%, while the same rise in all the other variables would lead to just a 3.4% drop. Therefore, it can be concluded that should the Saudi Arabian Monetary Agency (SAMA) change the pegged to a floating exchange rate regime, there would be a significant impact on the stability of the riyal's value.

Following the statistical analysis, the null hypothesis that “the independent variables do not affect the stability of the Saudi riyal real effective exchange rate” could not be rejected: revenue from crude oil production does exert a significant impact on the Saudi's riyal REER. In fact, a floating exchange rate regime will both positively and negatively affect the stability of Saudi Arabia's currency.

However, it is suggested that it will be possible for Saudi Arabia to change its exchange rate regime by 2030, once the goals of Vision 2030 were achieved. Having secured greater FDI and foreign trade, an improved global competitiveness index ranking, less dependency on oil exports, Saudi Arabia will be able to adopt a different currency regime.

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