



Analytical Study of Factors Affecting Investment in Saudi Arabia from the Period of 1990-2017

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Abstract

This paper aims at estimating the effect of gross domestic product GDP and real effective exchange rate REER on investment. There is a long-run relationship between the model variables. Autoregressive distributed lag ARDL has been used for estimation covering the period 1970 – 2017. The results show that there is a long-term equilibrium relationship between the study variables and the effective real exchange rate. The one-unit increase in GDP increases the investment by 0.72 and the real effective single-unit exchange rate leads to an increase in GDP, Investment refers to the correction of the mistake that requires two years to reinvest the balance into equilibrium Since the exchange rate of the Saudi currency is pegged to the US dollar in the fixed term, The unit root tests reveal that all variable are integrated of order one and there one cointegrating equation relating them the Data have been transformed by natural logarithm to yield elasticities. Results gave the expected signs and all estimates are significant beside that economic policy makers in Saudi Arabia should pay attention to investing in the short and long term and create a good investment environment.

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1. Introduction

The study examined the factors affecting investment in Saudi Arabia during the period from 1990 to 2017 from the examination and testing of the impact of each of the GDP and real effective exchange rate and their reflection in the long term to stimulate, increase and encourage investment, which is directly correlated with GDP, is consistent with this result with its expected hypothesis, it also conforms to the economic theory as we also observe through the results of the analysis indicate that real effective exchange rate is directly correlated with investment and this means that low real effective exchange rate stimulates investors. GDP has a positive impact on investment which in turn will increase economic growth rates.

1.1. Problem Study

The size and diversification of investment in economic conditions and crises of the global economy may affect and overshadow the economies of developing countries and therefore we will dominate the study highlights of the factors affecting investment in the Kingdom of Saudi Arabia from 1990 to 2017, such as GDP and inflation.

The interest rate of the problem in answering the study questions:

- 1_ what is the impact of the GDP of investment in Saudi Arabia?.
- 2_ what is the effect of the real effective exchange rate on investment in Saudi Arabia??.

1.2. Objectives of the Study

- 1_Highlight the factors affecting investment in Saudi Arabia in the future of the short and long term.
- 2_Identify the impact of GPD on investment in Saudi Arabia in the short and long term.
- 3_examine the impact of real effective exchange rate on investment in Saudi Arabia in the short and long term.

1.3. The Hypothesis of the Study

1_ there is a statistically significant relationship between GDP and investment in the Kingdom of Saudi Arabia in the short and long term.

2_ there is an inverse relationship between statistical output and real effective exchange rate in the Kingdom of Saudi Arabia in the short and long term.

3_ there is cointegration among the model variables.

2. Previous Studies

1_ Dr. Majdi Alshorbaji presented at the second international scientific conference, November 14_15 the impact of foreign direct investment on economic 2005 growth in the middle east and north Africa.

The study aimed at measuring the impact of direct investment on economic growth in countries.

The results show that increased flows of these investments will lead to an increase of the economic growth rate in these countries, the study recommended attracting investment flows foreign direct investment to contribute to the economic growth of these countries.

2 _Khalid Hashim Ibrahim estimation of the FDI function in Sudan for the period 1989 to 2007 where the study aimed at the effect of both GDP and price and the cost of funding for investment in Sudan.

The results showed that the increase in GDP and the total of one unit is intended to increase investment as well as decrease the exchange rate by one unit.

The study recommended the need for an investment climate and stability of exchange of funds and setting up controls for investment financing.

3 _The study of [Tamar \(2016\)](#) is a standard study of the effect of real exchange rate fluctuations on foreign direct investment flows in Algeria for the period 1995 to 2014. The study aimed to highlight the effect of the actual real exchange rate fluctuations on investment and found that fluctuations in the exchange rate play an important role in increasing the effectiveness of foreign investment in Algeria

4_The study ([Azzam,1994](#)) this study aimed at shedding light on detail on the basic concepts of foreign investment and its forms, the reasons for the transfer of these investments between countries and statement of the attractive elements of foreign investment in Jordan, and identify the most important factors affecting the flow of foreign investments to Jordan, the study found that the size of GDP and the political stability, exchange rate and terms of trade play a large role in the interpretation of flows of the foreign investments to Jordan.

5 _The study ([Aswicahyono and Hill, 1995](#)) this study aimed at determining the determinants of participation of the foreign investment in the industrial sector in Indonesia as the case study, the study showed that factors affecting the participation of foreign capital for industry in Indonesia are the availability of hands and the level of technological progress, the extent of the ability to promote and market industrial products in addition to market size, and local economic policy.

6 _ [Chen, Chang and Zhang \(1995\)](#) this study aimed at analyzing the size structure and distribution of the foreign investment flowing to China and its impact on development during the period 1973_1993 and used the following two models of measurement, GNP, SAVt, FDI and time trend.

7- The study ([Samiah, 2016](#)) The Impact of Currency Fluctuations in China and its Impact on Industrial Development in the Kingdom of Saudi Arabia -This study was characterized by the novelty of the data, investigating a relationship between the exchange rate of China's currency and industrial development in through imports Saudi Arabia during the period (1980 -2014). Thus, it was concluded that the Chinese yuan currency fluctuations have an impact on the price of industrial development through imports, and accordingly the study hypothesis was accepted.

8_The study, ([Raghavender, Goapakumar](#)) Estimation of the investment function in India in the period from 1970 to 2009. The study aimed at identifying the factors affecting investment and variables of the study is a personal income interest rate and inflation study concluded for a positive relationship between personal income and investment.

3. Theoretical Background

First: Investment

In the cost of capital or credit during the year, it's a debt that is calculated as a percentage from the interest rate of the capital of the other tariffs to the interest rate is the amount and the financial expressed as a percentage, often apply interest rates according to annual basis, and include both of loans, consumer products, cash, and assets such as buildings or vehicles and earns a large interest rate in the economic sector by seeking to attract savings of surplus financial units, with aim of saving them which deficit units to achieve a balance of the amount of money offered with the amount of money required. As well as affect the size of the investment.

Second Gross Domestic Product

The concept of GDP is defined as a measure of the total value of goods and services produced by the state over a specified period of time, gross domestic product is of great importance, and the economic activities of a community are mentioned during the specific period.

Third: Effective Exchange Rate (REER)

REER is an index that describes the relative strength of a currency relative to a basket of other currencies. Then the effective exchange rate is calculated as:

$$E_{effective} = E_1 \frac{Trade_1}{Trade} + \dots + E_N \frac{Trade_N}{Trade}$$

4. Methodology

4.1. Mathematical Form of the Mode

Through experimentation using economic ,statistical and standard criteria .turns out that the best function to represent the investment model in Saudi Arabia is the logarithmic function ,where it is considered that the logarithmic formula is of high importance in estimating standard models, because it gives elasticities term variables of independent economic variables and their impact on the dependent variable and reduce data fragmentation .the final form of the model to be assessed becomes as follows:

$$\log(investment) = \alpha + \beta_1 \log(GDP)_t + \beta_2 REER_t - EC_t$$

5. Empirical Results

5.1. Unit Root Test Results

Table-5.1. Unit Root Tests.

| Variable | ADF | | Philips-Perron | |
|--------------------|----------|-------------------|----------------|-------------------|
| | Level | Intercept & Trend | Level | Intercept & Trend |
| Investment | 0.6889 | 0.9813 | 0.6387 | 0.9400 |
| <i>ΔInvestment</i> | 0.0167** | 0.0513* | 0.0167** | 0.0513* |
| GDP | 0.9394 | 0.6374 | 0.9394 | 0.6374 |
| <i>ΔGDP</i> | 0.0110** | 0.0022*** | 0.0110** | 0.0022*** |
| REER | 0.5122 | 0.7386 | 0.5122 | 0.7386 |
| <i>ΔREER</i> | 0.0146** | 0.0635* | 0.0146** | 0.0635* |

*, **, *** denotes rejection of the hypothesis at the 0.10, 0.05, and 0.01 level.

The unit root tests in the Table 5.1 reveal that all the model variables (investment, GDP, REER) are stationary after the first difference that is I(1).

5.2. Cointegration

Table-5.2 Cointegration Results.

| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
|--------------|------------|-----------|----------------|---------|
| None * | 0.561723 | 30.02778 | 29.79707 | 0.047 |
| At most 1 | 0.232834 | 8.580268 | 15.49471 | 0.4056 |
| At most 2 | 0.062894 | 1.688918 | 3.841466 | 0.1937 |

Trace test indicates 1 cointegrating equation at the 0.05 level.

* denotes rejection of the hypothesis at the 0.05 level.

In long run ARDL First lag of investment and PEER affects it negatively while GDP affect invest met positively. Table 5.5 explains the error correction term satisfies the three conditions whereas it is negative, less than 1, and highly significant. Even the bound test assures the adequacy of the model since the F-test exceeds the upper bound. The coefficient of speed adjustment is negative and less than one ant at the same time significant which indicates that if the investment deviates from it equilibrium it returns back to its normal state in less than two years.

Table-5.3. Empirical Results.

| Dependent Variable: LOG(INVESTMENT) | | | | |
|-------------------------------------|-------------|------------------------|-------------|----------|
| Method: ARDL | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
| LOG(INVESTMENT(-1)) | 0.41668 | 0.236045 | 1.76526 | 0.0902 |
| LOG(GDP) | 0.419433 | 0.174888 | 2.398289 | 0.0246 |
| REER | -0.0221 | 0.009551 | -2.31421 | 0.0295 |
| R-squared | 0.947488 | Mean dependent var | | 5.568397 |
| Adjusted R-squared | 0.943112 | S.D. dependent var | | 0.785633 |
| S.E. of regression | 0.187383 | Akaike info criterion | | -0.40688 |
| Sum squared resid | 0.842699 | Schwarz criterion | | -0.2629 |
| Log-likelihood | 8.49292 | Hannan-Quinn criteria. | | -0.36407 |
| Durbin-Watson stat | 2.014797 | | | |

*Note: p-values and any subsequent tests do not account for model selection.
 *, **, *** denotes rejection of the hypothesis at the 0.10, 0.05, and 0.01 level
 First lag of investment and GDP affect invest met positively while PEER affects it negatively.
 * All estimated parameters are significant.
 * Explanatory variable explains 95% of the variation in the dependent variables.
 * The estimated model does not suffer from autocorrelation.

Table-5.4. ARDL Long Run Form and Bounds Test.

| Dependent Variable: DLOG(INVESTMENT) | | | | |
|--|-------------|---|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| LOG(INVESTMENT(-1))* | -0.58332 | 0.129775 | -4.49484 | 0.0002 |
| LOG(GDP)** | 0.419433 | 0.091309 | 4.593546 | 0.0001 |
| REER** | -0.0221 | 0.005139 | -4.30066 | 0.0002 |
| * p-value incompatible with t-Bounds distribution. ** Variable interpreted as $Z = Z(-1) + D(Z)$. Levels Equation Case 1: No Constant and No Trend | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| LOG(GDP) | 0.719044 | 0.022747 | 31.61017 | 0.0000 |
| REER | -0.03789 | 0.00263 | -14.4063 | 0.0000 |
| EC = LOG(INVESTMENT) - (0.7190*LOG(GDP) - 0.0379*REER) | | | | |
| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
| Test Statistic | Value | Signif. | I(0) | I(1) |
| Asymptotic: n=1000 | | | | |
| F-statistic | 7.329534 | 10% | 2.17 | 3.19 |
| K | 2 | 5% | 2.72 | 3.83 |
| | | 2.50% | 3.22 | 4.5 |
| | | 1% | 3.88 | 5.3 |

* Bound test in the Table 5.4 shows the adequacy of the estimated model since the F-test exceeds the upper bound.

Table-5.5. ARDL Error Correction Regression.

| Dependent Variable: DLOG(INVESTMENT) | | | | |
|--|-------------|---|-------------|----------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| CointEq(-1)* | -0.58332 | 0.119516 | -4.88068 | 0.00010 |
| R-squared | 0.464184 | Mean dependent var | | 0.039457 |
| Adjusted R-squared | 0.464184 | S.D. dependent var | | 0.245947 |
| S.E. of regression | 0.180032 | Akaike info criterion | | -0.55503 |
| Sum squared resid | 0.842699 | Schwarz criterion | | -0.50704 |
| Log-likelihood | 8.49292 | Hannan-Quinn criteria. | | -0.54076 |
| Durbin-Watson stat | 2.014797 | | | |
| * p-value incompatible with t-Bounds distribution. | | | | |
| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
| Test Statistic | Value | Signif. | I(0) | I(1) |
| F-statistic | 7.329534 | 10% | 2.17 | 3.19 |
| K | 2 | 5% | 2.72 | 3.83 |
| | | 2.50% | 3.22 | 4.5 |
| | | 1% | 3.88 | 5.3 |
| t-Bounds Test | | Null Hypothesis: No levels relationship | | |
| Test Statistic | Value | Signif. | I(0) | I(1) |
| t-statistic | -4.88068 | 10% | -1.62 | -2.68 |
| | | 5% | -1.95 | -3.02 |
| | | 2.50% | -2.24 | -3.31 |
| | | 1% | -2.58 | -3.66 |

6. Discussion

1. Following results show that there is a long-term equilibrium relationship between the variables of the study the real effective exchange rate.
2. The decline in the real effective exchange rate leads to an increase in gross domestic product, which in turn leads to improvement and an increase in the volume of investment.
3. The explanatory variable explains 95% of the variation in the dependent variables.
4. The explanatory variable explains 95% of the variation in the dependent variables.
5. The explains the error correction term satisfies the three conditions whereas it is negative, less than 1, and highly significant. Even the bound test assures the adequacy of the model since the F-test exceeds the upper bound.

7. Conclusion

The objective of this paper is to assess the impact of GDP and real effective exchange rate on investment in Saudi Arabia during the period 1990 – 2017. The inclusion of REER in the model stems from the fact that part of the investment is in terms of foreign direct investment FDI and foreign portfolio investment FPI. Since the exchange rate of the Saudi currency is pegged to the US dollar in the fixed term, we used the real effective exchange rate. The unit root tests reveal that all variable are integrated of order one and there one cointegrating equation relating them. Thus it is possible to use the ARDL technique to estimate the impact of those explanatory variables on Saudi investment. Data have been transformed by natural logarithm to yield elasticities. Results gave the expected signs and all estimates are significant.

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