Shariah Compliant Real Estate Investment and Economic Growth: The Case of KSA

Thesis submitted in partial fulfillment for the degree of Master in Islamic Financial Management in accordance with the requirements of Effat University

by

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امتثال أحكام الشريعة الإسلامية للاستثمارات العقارية والنمو الاقتصادي حالة المملكة العربية السعودية

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Declaration

This work is original and has not been previously submitted in support of any degree qualifications or course.

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Abstract

The Concept of Shariah compliant derive from Islamic law or the Shari'ah law, the roots of which in turn are derived from the: first Qu'ran,; second sunna, which are the binding authority of his maxims and decisions; third ijma, or consensus of the community of scholars; and finally qiyas, or analogical assumptions and reasoning. This study aims to examine the relationship between Shariah compliant real estate investment and economic growth in kingdom of Saudi Arabia, in addition investigating the effect (s) of Shariah compliant real estate on the GDP. Additionally, examine if other variables namely real estate development, and government expenditure interact with the real estate investment in the economic growth or GDP. We used an ordinary least squares (OLS) or linear least squares to analyze the data from 2002 to 2012 in Saudi Arabia. We found that real estate investment has a positive but non-significantly effects on economic growth. While the real estate investment has negative effects on gross domestic product. The main implications of this study is providing financial investment strategies for investors, where relying on the vision 2030. However the result of the study are limited due to the lack of availability of some other variables.

Keywords: Real Estate Investment, Real Estate Development, Economic Growth, Gross Domestic Product, Saudi Arabia.

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Chapter 1: Introduction

This chapter provides an introduction to the principles of Islamic financial system. After that provides overview on shariah law and real estate financing and the activities that are not allowed to invest on. Also provide some information about the advantages and disadvantages of investing in the real estate sector. After that, it compare between the Shariah compliant and Conventional real estate investments. Finally, it clarify the problem statement, objective, questions, motivations and the hypothesis of the study.

1.1 Principles of Islamic financial system

The principle framework of Islamic financial system is a set of laws and rules, referred as Shariah, governing economic, political, cultural and social, factors of Islamic societies. Shariah begins from the rules dictated and written in the Quran, and its practices and explanations are known as Sunnah. Further explanation of the rules is given by scholars in Islamic jurisprudence under the light of Quran and Sunnah. Ayodeji, A. O. (2013). Moreover, the primary principles of an Islamic financial system can be categorized as:

1. Prohibition of interest

Prohibition of interest a term which means “an excess” and considered as any unjustifiable increment of capital whether in forms of sales or loans is the central tenet of the Islamic system Ayodeji, A. O. (2013). Moreover, any fixed, positive and predetermined rate which is tied to the amount of the principle such as guaranteed regardless of the presentation regarding investment is considered as interest (Riba) which is not allowed Hanif, D. (2014). However, the general agreement among Islamic scholars is that interest deals with not only usury but it also charges interest that is practiced widely.

Furthermore, this prohibition supported arguments of equality, social justice, and property rights. However, Islam allows the earning of profits but impedes from charging the interest because profits deals ex post, considered as successful entrepreneurship and development of additional wealth whereas interest is like ex ante. It is a cost that charged irrespective outcome of business functions and may not establish wealth if there are losses regarding business. Besides this, the social justice quest for borrowers and lenders to share profits and as well as losses in an equitable manner and the procedure of wealth accumulation and distribution in the finance become fair and portray true productivity Asutay, M. (2012).

2. Risk sharing

In Islamic Finance the risk is sharing between all parties rather than transferred to the investor alone Ayodeji, A. O. (2013).

3. Prohibition of speculative behavior

The uncertainty which known as gharar is not allowed in Islamic finance. Excessive gharar (uncertainty and deceit) is forbidden Ayodeji, A. O. (2013).

4. Shariah-approved activities

For this purpose, only those activities of business that do not cross the rules of Shariah, qualifies for investment. For instance, any investment in businesses which deals with alcohol, casinos and gambling would not allowed Ayodeji, A. O. (2013).

1.2 Shariah Law and real estate financing:

Investment and finance play a significant role in a contemporary economic life, it became an essential functions through contractual operations acquired from funding to become known by the expression for financing role play in order to achieve their intended objectives. Based on the people need, the real estate financing take an important place between all other financing types, and this is reflected on all contractual formulas which the real estate is financing from. The real estate financing is relatively new way to finance property; to make the process much convenience for the people, and give them proper financing, the policies and ligament tool has been developed. Even though the real estate finance has many constrains but, the Islamic banks attempt to face this constraints very well.

The principle framework of Islamic financial system is a set of laws and rules, referred as Shariah, governing economic, political, cultural and social, factors of Islamic societies Wilson (2013). Shariah begins from the rules dictated and written in the Quran, and its practices and explanations are known as Sunnah. Further explanation of the rules is given by scholars in Islamic jurisprudence under the light of Quran and Sunnah.

As it clear from a Shariah law perspective that any company operating or investing in alcohol, pork products, gambling, arms define etc. are not allowed under Shariah law as they are classified as non-permissible investments. However, there are no strict guidelines for operating an Islamic real-estate company; except avoiding investing in these activities. In addition, an Islamic real estate company must adhere to certain financial screening conditions. Real-estate development and investment must be financed using Islamic financing, if capable (Ayodeji, A. O, 2013).

1.3 Advantages of investing in the real estate sector

There are some benefits regarding investing in real estate in a portfolio and these are described below:

1. Diversification

The positive aspects of verification of portfolio regarding asset allocation are well documented. As real estate returns have low correlations with other classes of the asset (traditional investment vehicles like bonds and stocks) which adds (conventional investment vehicles such as stocks and bonds), which adds to the radiation in the portfolio. Herring, R. J., & Wachter, S. M. (1999).

2. Return Enhancement

As the part of a portfolio, real estate encourages to achieve higher returns for presented degree of portfolio risk. Similarly, by adding real estate to a portfolio, return can be maintained with less chance of risks. Candidate (2002).

3. Inflation Hedge

Real estate returns are directly connected to the rents that are gained from tenants. Some leases have provisions for rent increases regarding index to inflation. Additionally, in other cases, rental rates are increased whenever the term of the lease expired and renewed the tenant. Moreover, either way, real estate income rises faster in environments of inflationary which allow an investor to maintain its actual returns. Herring, R. J., & Wachter, S. M.

(1999).

4. Ability to Influence Performance

The real estate is observed as a tangible asset. And as a result, an investor can do things to its property to increase and improve its performance, for instance, improving the exterior, replacing a leaky roof, and re- tenanting the building with great quality tenants. Also, an investor has a greater degree of control concerning the performance of a real estate investment than other kinds of investment. Hameed, I. (2013).

1.4 Disadvantages of real estate investment

There are some concerns regarding investing in real estate in a portfolio and these are described below:

1. Involvement of Big Amount of Money and Time

This business requires enormous investment and needs to be taken care once the individual owns property. Also, it is sometimes costly to manage the re-selling and functions regarding the property. Candidate (2002).

2. Well-timed Management

Real estate also requires day-to-day management, at both levels, operational and at selling strategy. Moreover, it requires more time and resources. Candidate (2002).

3. Challenge of Procuring

Investments in real estate become challenging when it comes to achieving various and diverse kinds of properties. But once the challenge is acquired substantial portfolio can be build regarding real estate business investment. Moreover, in the real estate market, no yardstick is present to compare investments and portfolio. Also, the risk is not much possible to measure and determine concerning real estate investment. Lawrence, Crosky, and Hillier. (2013).

There are no formal guidelines given regarding operation in an Islamic real-estate company; however from the perspective of Shariah law, a company function under Shariah law is not allowed to invest in conventional financial institutions, pork products, alcohol, gambling, arms and munitions and cinema, they are categorized as non-permissible investments. Moreover, an Islamic real estate business obliged to certain conditions of financial screening Hanif, D. (2014).

Real-estate establishment and investment must be financed using Islamic financing if available offers a comparison between conventional real-estate investments and Shariah-compliant real estate investments Hanif, D. (2014).

1.5 Comparisons between the Shariah compliant and Conventional real estate investments

Ayodeji, A. O. (2013).described the properties of sharia compliant investment in a precise & clear way that help investors to understand the rules of sharia compliant investment. Below mention table showed the difference between sharia compliant investment & conventional real estate investment. Table 1 display the differences between the two type of real estate investment.

Table 1. Comparisons between the two type of real estate investment

Characteristics	Shariah compliant real estate investments	Conventional real estate investments
Property Type	Prohibited from investing in alcohol, pork products, casinos and gaming establishments, arms and munitions, conventional financial institutions and pornography.	Any Property Type
Leverage to Compliance	Debt to market value of equity must be less or equal to 33%	No leverage compliance level
Cash Compliance	Account receivables to market value of equity must be less than 45%	No cash compliance level
Revenue Generation	In some cases, non-permissible activities are permitted, only if it does not exceed a 5% and in some instances 20% threshold of revenue.	No Revenue generation restrictions.
Shariah Committee/ Scholars	Real-estate investments are certified compliant by a Shariah scholar who is well versed in Shariah Law. Areas of advice include acquisitions and financing as well as tenant mix.	Shariah committee is not required.

1.6 Problem Statement:

Regardless of the growth of Shariah-compliant real estate investments, there was little or no research that has addressed the effects of the Shariah compliance real estate investment in Saudi Arabia. An observation analysis in real estate sector is thus appropriate. In the last period there have been some attempts to discover Shariah real estate investments; however, no such work has looked at the case of KSA, the center for Islamic finance. Most of the work on Shariah- compliant real estate investment trust has been qualitative and there is a lack of quantitative work on the effects of Shariah compliance. This thesis employs new data from the KSA Ministry of Finance, and Bloomberg.

The topics explored in this thesis have important inferences for Shariah-compliant real estate firms and investors in this sector. This research is to investigate relationship between sharia compliant of real estate investment on the economic growth of kingdom of Saudi Arabia & find whether it has a significance or insignificance impact of GDP growth.

1.7 Research Objectives:

The thesis attempts to answer the two main research question: Is the Shariah compliance real estate investment effect the GDP? And Is the Shariah compliance real estate investment has an impact on the economic growth?

The first model examined the relationship between Shariah compliance real estate investment and the GDP, with a brief about the effect of other variables which are real estate development and government expenditure on the KSA GDP.

The second model examined if the Shariah compliance real estate investment has an impact on the economic growth, with a brief about the effect of Shariah compliance of other variables which are the GDP and real estate development and government expenditure on the KSA economic growth.

This thesis purpose is to investigate whether there is a relation and effect (s) of investing in Shariah compliant real estate on the economy growth. Moreover, it provides a source of information on constrains and advantages of real estate investment in the market.

1.8 Motivation of the Study:

The research motivation is based on the emergence of Islamic finance which is a relatively new phenomenon and has grown in popularity in Islamic Countries as well as non-Muslim countries.

This study is not the only one in the field of real estate financing, but unusual kind which display the advantages and constraints of the real estate financing.

1.9 Research question

Q1: Is there a relationship between sharia compliant of real estate investment and the economic growth of kingdom of Saudi Arabia?

Q2: Is there a relationship between sharia compliant of real estate investment and the GDP of kingdom of Saudi Arabia?

Q3: How the Shariah compliance real estate investments affect the economic growth of KSA?

Q4: How the Shariah compliance real estate investments affect the GDP of KSA?

1.10 Hypothesis

This study was carried out to find the impact of Sharia Compliance Real Estate investment on the economic growth of kingdom of Saudi Arabia. Additionally to find whether it has a significance or insignificance impact of GDP.

H10: Sharia based real estate investment has no impact on GDP of KSA

H11: Sharia based real estate investment has an impact on GDP of KSA

H20: Real estate development has no impact on GDP of KSA

H21: Real estate development has an impact on GDP of KSA

H30: Government Expenditure has no impact on GDP of KSA

H31: Government Expenditure has an impact on GDP of KSA

H40: Gross domestic product has no impact on GT of KSA

H41: Gross domestic product has an impact on GT of KSA

H50: Sharia based real estate investment has no impact on GT of KSA

H51: Sharia based real estate investment has an impact on GT of KSA

H60: Real estate development has no impact on GT of KSA

H61: Real estate development has an impact on GT of KSA

H70: Government Expenditure has no impact on GT of KSA

H71: Government Expenditure has an impact on GT of KSA

1.11 Organization of the thesis:

This study comprised of five sections. First section consisted of introduction that defines overview of the study, problem statement, and objective, motivation of the study and research hypothesis. Second section of the thesis was about the investment and development of the real estate sector in general way in GCC countries and in more details about how the development of real state sector will be in KSA. And finally gave an overview of KSA macroeconomic in 2015. Third section consisted of literature review that discussed previous research in this regards and researchers finding about real estate investment on economic growth. Fourth section explained research methodology used for this study which included data analysis for this study. Fifth section described the result of this study and last section contained conclusion and future research in the field of Islamic real estate investment.

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Chapter 2: Shariah Compliant Real Estate in GCC / KSA

This chapter sheds light on the development and investment in the real estate sector in GCC, and provides information about the factors that cause the real estate development and investments in GCC to growth. After that, it specifically discusses the investment in this sector in KSA from the prospective of new vision 2030. Finally, it provides information about the Macroeconomic in oil and non-oil sector in KSA.

2.1 Development and Investment in the Real Estate sector in GCC:

For the last period of time the development and investment in the Gulf Cooperation Council were increased sharply; by several causes the growth of real estate development and investments in GCC drove, some of:

1. **The oil boom period (2002 to the mid of 2008) –** The economic growth in the region of the GCC were in a strong position; and that because the annual average of the oil during 2002 to 2006 were double the oil revenue five years before to the oil boom, and that oil revenues have increased exponentially. That led the gross domestic product (GDP) to increase, therefore investors has more cash to invest in assets, including real estate Ayodeji, A. O, (2013).

The below chart shows the changes in global oil supply and demand:

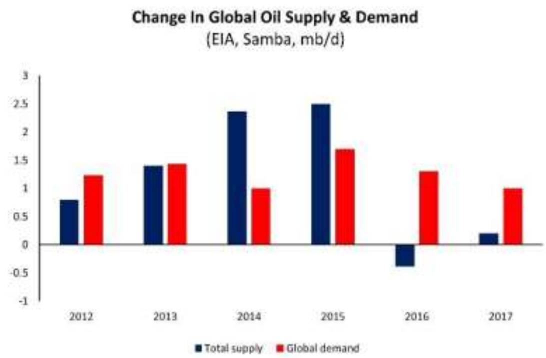

Figure 1. Change in Global Oil Supply & Demand

2. **Improved investment environments –** There were several measures and policies has been improved in the GCC recently in order to attract the investors to their environment Ayodeji, A. O, (2013).

For example, 100% foreign ownership of projects in most sectors are allowed in all countries in the GCC; except the Kuwait foreign ownership in residential as well as other real estate markets is allowed Ayodeji, A. O, (2013).

3. **The attacks of September 11, 2001**– There were a lot of money transfer from the USA back to the Gulf States and other regions in the world including Europe and Asia. As several reports mention that the increase in the investments in GCC countries to the attacks of September 11 in the United States Ayodeji, A. O, (2013).

However, after the global economic crisis that began in 2008, the investing in real estate sector has been decrease Ayodeji, A. O, (2013).

2.2 The Development of Real Estate sector in KSA:

The sector of real estate and construction is one of the biggest non-oil sectors in KSA. There were many researchers found that the sector contributed 10% to the GDP.

The sector is controlled by huge public real estate companies, also huge private real estate companies as well as the government.

Arab News reported in 2014 that the "The real estate market in the Kingdom is valued at more than SR1.3 trillion, and is expected to reach SR1.5 trillion in the next few years due to high demand from investors seeking a market with high returns."

2.3 The impact of real estate on Saudi economy

Saudi Arabia’s real estate sector has historically been a favorite among investors, thanks to the low risk and steady returns. But with lesser petrodollars, which previously fuelled much of the growth in the region, the Kingdom’s property sec-tor has taken a hit as transactions slow. According to property consultant JLL, real estate transactions across the Kingdom declined during Q1 2016 to their lowest level since 2011, falling by 7.7% to reach $22 billion from their previous highs. But the government has been quick to react as it revealed an economic plan to revive growth, especially in the non-oil sector. In line with this, in June 2016 Saudi Arabia’s cabinet approved a 2.5% tax on undevel-oped land plots located within the cities. As per the ruling, the tax will be applicable to owners of plots exceeding 5,000 square meters and will be executed in phases.

Real estate consultancies and experts welcomed the law with open arms, expecting the move to spur much needed development in the country, espe-cially in the affordable housing segment. “The new law will result in a fundamental change in Saudi Arabia’s real estate market and help stimulate fur-ther development to address the severe shortage of middle income housing,” Jamil Ghaznawi, JLL country head for Saudi Arabia said in a statement in the wake of the tax.

2.4 Real Estate Investment and the new Land Tax Law

Since the late 1970s investing in real estate sector determined as a safe investment specially investing in the empty land, or land developed with commercial or residential buildings. In 2002, real estate investment continues growing and the price for land and rents were decrease especially in urban areas (SAMBA 2006).

Samba Financial Group divided the real estate in to three types:

1. Raw Land
2. The housing market comprised of apartments, villas, floor in villas (duplex), traditional homes and housing compounds
3. Commercial units, which consists of office buildings, shopping malls, hotels, and industrial facilities including warehouses.

Based on comparison with similar countries of KSA in terms of GDP, population and income levels shows that only 30% of the Saudi population own homes, a ratio well below that of most developed and many emerging economies, while the global average stands at 70% ("Housing The Growing Population Of The Kingdom Of Saudi Arabia", 2013) as shows below:

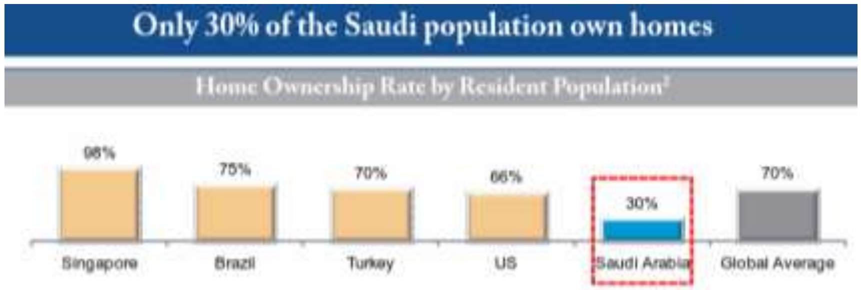

Figure 2. Percentage of Saudi's Whom Own Homes

At the end of 2014, The International Monetary Fund (IMF) advised Saudi Arabia to implement a tax on empty lands as a way to increase non-oil incomes. And in 2015 the government of KSA has been approved this plan the tax has been announced (at 2.5 percent), as this will help to develop and to activate the real estate market in KSA as getting involve in starting new projects and this will led to increase the overall real estate transactions. This came with announcement of the National Transformation Plan "Vision 2030" placed the improvement of non-oil revenue high on the government's project list.

1. Land Tax on Unused Urban Land in KSA- these big land parcels can be used to cover the huge number of demand for the housing shortages of Saudi nationals, who are currently living in rented accommodation. Because that this unused urban land or the "White Land" could be more benefit if we used them to meeting the growing housing demand in Kingdom of Saudi Arabia.

2.5 KSA Macroeconomic

1. Oil Sector during 2015-The crude production in KSA was up to 3.7% the second quarter in 2015 compared with the first quarter. Riyadh Real Estate Market Overview (2015)

Due to the increased in the domestic demand the production was increased for crude Oil Production in Saudi Arabia increased from 9,809 TB/D in the first quarter in 2015 to 10,184 TB/D in the second quarter 2015. Riyadh Real Estate Market Overview (2015)

The Government of KSA decided to focus more on the non-oil sector due to the drift in the oil. Riyadh Real Estate Market Overview (2015)

2. Non-Oil Sector during 2015- During 2015 the non-oil and construction private sector in each manufacturing, transport and communications, and wholesale and retail grew by 3.3%. Riyadh Real Estate Market Overview (2015)

And due to the huge improvement and focus in building infrastructure, commercial and, increasingly residential projects the construction sector's growth was robust at 7.1% each year. Riyadh Real Estate Market Overview (2015)

Non-oil manufacturing such as improved the production levels for petrochemicals and plastic products were also grew by 3.3% each year. Riyadh Real Estate Market Overview (2015)

Finally, the retail sector point at 4.0% as it increased, while the finance sector was 1.10%. Riyadh Real Estate Market Overview (2015)

Chapter 3: Literature Review

This chapter provides an overview about the demand for real estate investment. In addition, discuss the global financial crisis from the prospective of real estate investment. Finally, reviews some of the previous studies about the impact of real estate investment and development on the gross domestic product and the economic growth.

3.1 The Demand for Real Estate Investment

Investors keep different approaches for any type of investment which can be broken-down in very short run approach (0 month - 1 Yea), mid run approach (more than 1 Year to 5 Years) and long run approach that can vary from 5 Years to ten or more. When it comes from real estate investment their decision might go for commercial investment, housing investment or white land.

Like other factor real estate investment also plays vital role & many of the investors invest their saving in real estate as it is considered less risky & long term investment in order to double their saving. There are many type of real estate investment such as housing, Commercial & white land.

Despite conventional investment products, Malaysia took stand to initiated to introduce many sharia compliance products that are followed by Islamic principles of investment that are riba free (Usury), gambling & uncertainty. Apart of that they are also pioneered in introducing Islamic real estate investment trusts (iRETS). Nor (2015) concluded that in Malaysia, it was found that Sharia compliance real estate investment performed better than conventional real estate investment.

Chui & Chau (2005) discussed that they were two ways to measure the demand for real estate which are Price method another investment method of measuring. They concluded that there is positive relationship between price & real estate demand when price increases demand for real estate also raise & vice versa, that also enforce investor to invest more when there is high demand for real estate. They further concluded that price & investment in real estate case is proportional to the demand of real estate.

Liming (2014) studied China real estate data (from 1994 till 2010) & found that real estate investment had tremendously increased by 13.38 times if compared year 2000 & 2011 which were 3,311.98 hundred million & 44,319.50 hundred million respectively. He also declared real estate investment as one of the main element of macro economy. He further concluded that raise in the price of real estate caused fear in the national real estate industry as price per square meter was 2,112.00 Yuan in 2000 that outstretched to 5,357.10 Yuan per square meter in 2011 which was almost 1.5 times higher than 2000.

3.2 Does the Global Financial Crisis affect the Real Estate Investment?

As stated by Nor (2015) that Malaysia was the pioneer of many Islamic products such as riba free, uncertainty & gambling free investment products. Real Estate Investment trust (Boon & Abdul, 2015) can be categorized as income stock rather than growth stock. As growth stock substantial yield on capital whereas income stock yield higher dividend. They examined the impact of global financial crisis on real estate investment in Malaysia. They used the data set of 6 years from 2007 till 2012. They found that in Malaysia Islamic real estate investment performed much better than conventional real estate investment in term of growth of net asset value. Whereas in term of efficiency & yield distribution conventional real estate outperformed than Islamic Real estate investment. They further concluded that conventional real estate investment was better income stock than Islamic real estate investment in Malaysia during a period of global financial crisis.

3.3 Does Real Estate Investment Lead the Gross Domestics Product?

There are many factor that directly or indirectly contribute to gross domestic product (GDP) growth or decline. Many researches have been conducted on macro level & micro level in order to find correlation between GDP & various factors such as education impact on GDP Growth (Aghion, Boustan, Hoxby & Vandenbussche, 2009), Public & private investment (Aurangzeb & Anwer, 2012) etc.

As per expenditure approach of GDP, investment is also taken into consideration when GDP is calculated but either all type of investment are equally good for GDP growth or not, researches have also taken this factor up to micro level & argued on that. Aurangzeb & Anwer (2012) used the data of Pakistan GDP & correlated GDP growth with public, private & foreign direct investment and they concluded that each of the factor has significant & positive impact of Pakistan GDP growth.

3.4 Does Real Estate Investment Lead the Economic Growth?

There are many type of real estate investment it's not only limit to the housing it can be investment in commercial land, office building, business purpose etc. and each of them might have same impact on economic growth or may differ. In a combine study of Yu et al. found that housing investment had more influence of Chinese economic growth than other real estate investments. Similarly Liming (2013) concluded that housing investment was good option for short term economic variation than other.

Numerous study had been conducted in chine by different research to find the relationship between real estate investment & economic growth. The importance of housing investment cannot denied (Liu, Yun & Zheng, 2002) in their research's period. They used Granger causality analysis & examined interaction between housing investment on economic growth as well as relationship between non housing investments on economic growth. They found that housing investment had stronger & positive impact on economic growth in short term than non-housing investment. Further in long term they had found that housing investment has positive impact on economic growth whereas economic growth had impact on both type of investment (housing & non housing).

Liming (2014) used the panel data 284 China regions from 1994 to 2010 & found that there was positive & stronger relationship between real estate investment &economic growth in short term while in long term there is inverse or negative relationship between real estate investment & economic growth. He further concluded that in short term real estate investment in housing would be more beneficial than long term real estate investment.

Real estate investment could be seen (Paluku, 2016) as baseline for making more wealth & enhancing economic growth in many countries. Paluku (2016) conducted his research to find out the challenges had been faced by individual of Arusha, Tanzania. He collected the data of 87 respondents. His findings revealed that there was plenty of opportunity for the economic growth in Arusha Tanzania. They concluded that there were relationship between challenges faced by investors & economic growth. For instant 69% of investors thought the requisition of land was challenging for them. Apart of that 58% of the investors didn't find population growth as a challenging factor for them.

Real estate investment may vary region to region in a same country of may be in a same city. As all piece of land have their own value which are determined by many factors. Such as broadly urban or rural & further developed, under development or far future establishment scheme and many other factors. Yu et al. in their study found that housing investment, office building investment, investment for commercial, and other investment had different level of impact in different region. They used that data of China real estate investment from 2000 to 2012 on national level & provincial level. Liming (2013) described the impact of real estate investment depend on region economy development. Thus, we can conclude that each piece of land cannot be treated same in any economy & their contribution to economic growth also differ.

Kong, Glascock, (2016) used that data of investment in real estate in China & it's impact on national level & provincial level economic growth & found that it had a positive significant impact on both levels.

3.5 Predictability of Excess Return on the Real Estate Sector

Sing & Loh (2014) used the empirical data of Islamic global assets, S&P global property shariah Index and Eureka hedge Global Islamic Fund Index and two conventional global assets S&P Global REIT Index and S&P Global Property Index. They tried to explored predictability of excess return on Sharia Compliant real estate, Sharia Stocks, Conventional real estate and real estate investment trust (REITs). They used the data set of weekly observation of excess return from the period 2001 to 2010 & found that results do not reject the hypothesis that Shariah compliance risk was considerably estimated in the excess returns of a portfolio of the four global asset types that include Shariah-compliant real estate, Shariah-compliant stocks, conventional real estate and real estate investment trusts (REITs).

Chapter 4: Methodology and Data Analysis

This chapter presents the models of the study. After that is describe the dependent variables and independent variables with a clarification of the defendant between the two dependent variables. Then, it discusses the data used in this study. Finally, the chapter provides detailed information about test used in this thesis.

4.1 The Models of the study

Following the previous studies, we specify the relationship between real estate investment, economic growth, and GDP, in the linear regression form as follows:

$$\ln GDP_t = \alpha_0 + \alpha_1 \, rei_{t-1} + \alpha_2 red_{t-1} + \alpha_3 \, govexp_{t-1} + \varepsilon_t \qquad (1)$$

$$\ln GT_t = \alpha_0 + \alpha_1 \, gdp_{t-1} + \alpha_2 \, rei_{t-1} + \alpha_3 red_{t-1} + \alpha_4 \, govexp_{t-1} + \varepsilon_t \qquad (2)$$

Where GDP_t was the gross domestic product the year t,

$REI_{t-}$was the real estate investment during the period of 2002- 2012

$RED_{t-}$was the real estate development during year t;

$GOVEX[_{t-}$was the government expenditure during the year t

GT_t Was the economic growth during the year t.

4.2 The Variables Measurement

In this study we used two dependent variables and three independent variables. These variables and their symbols are listed in **Table 2 and Table 3** gives definitions and summary statistics.

Table 2. Symbols of the Time Series Variables

Variables	Symbol
Gross Domestics Product	GDP
Real Estate Investment	REI
Real Estate Development	RED
Government Expenditure	GOVEXP
Economic Growth	GT

Table 3. Summary of Statistics of the Variables

Variables	Mean	Std. Dev.	Min.	Max.
GDP	14.40800286	0.14965614	14.12685852	14.64373550
REI	10.31688716	0.51812278	9.67313684	11.18718524
RED	1.122436e+01	1.075623e-01	1.113767e+01	1.150888e+01
GOVEXP	13.02049994	0.45708487	12.36093736	13.68004014
GT	6.0207160	3.0075045	0.1277030	9.9589328

1. Dependent variables

We used the gross domestic product as a first dependent variable, which the two papers (Liu, Yun & Zheng, 2002) and (Liming,2014) have used it in their studies to examine the impact of the real estate investment on the GDP.

Second variable in this study was the economic growth as Kong,Y., Glascok, J. L. (2016) used it to study the relationship between the GT and the real estate investment.

Baruzzi, Cara (2008), define the GDP as the value of all goods and services produced within the countries. Also Brezina, C. (2011) said about GPD: “The GDP is the monetary value of all goods and services produced in a nation during a given time period, usually one year”

Feldman, M., Hadjimichael, T., Lanahan, L., & Kemeny, T. (2016).write about the economic growth and side “Economic growth has a strong theoretical grounding and is easily quantified as an increase in aggregate output. Its emphasis on increases in population, employment, or total output, despite the fact that increases in any or all of these could be associated with both improvements and/or declines in prosperity and quality of life”. Wolf e, D. (2014) side “Economic growth is simply an increase in aggregate output, economic development is concerned with quality improvements, the introduction of new goods and services, risk mitigation and the dynamics of innovation and entrepreneurship. Economic development is about positioning the economy on a higher growth trajectory”.

2. Independent variables

The number of observations in any particular regression depended on the specific variables used. Since our focus was on the relationship between real estate investment and economic growth and GDP, we were primarily concerned with the coefficient and significance for real estate investment and control variables that could be affecting its relationship with the dependent variable.

We used the real estate investment and development as an independent variables, in addition we used the real estate development and the government expenditure as an independent control variables as Kong,Y., Glascok, J. L. (2016) used in the investigation into real estate investment and economic growth in China.

4.3 The Data

The main purpose of this study is to explore the relationship between real estate investment and economic growth, and gross domestic product in Saudi Arabia. However, in order to estimate the impact of the variables of interest (real estate investment), we need to control other potentially important variables that can influence the economic growth and GDP such as real estate development and government expenditure. All the control variables can have bidirectional relations with economic growth and GDP.

We used annual data for this study from 2002 to 2012. The data were obtained from Annual Reports of Saudi Arabia Ministry of Finance and Bloomberg Database.

To get a stationary series simply, we take the natural logarithm of each variable.

4.4 Data Analysis

1. **Ordinary least square.**

This thesis used a quantitative study to investigate the relationship between the economic growth and the real estate investment and development in KSA. To test the model of the study, Ordinary least square (OLS) method was applied. We used log transformed dependent variables to reduce skewness and simplify to explain of the coefficients.

In statistical models such as ordinary least squares (OLS) regression, control effects often are tested by including the independent. When an interaction is found, it should be explored in order to understand the situations whether the relationship between the variables is positive or negative, strong or weak.

Chapter 5: Empirical Results

This chapter report the econometrics results from Ordinary least square regression. The first model explain the relationship between the GDP and the real estate investment. While the other model explain the relationship between the economic growth and the real estate investment.

5.1 Tests of the Normality and Heteroscedasticity.

Below tables are the result of the test for each model.

Table 4. The Normality and Heteroscedasticity for Model 1.

Test	Value	p-value
Global Stat	2.75	0.60
Skewness	0.24	0.63
Kurtosis	0.59	0.43
Link Function	0.18	0.67
Heteroscedasticity	1.74	0.19

Based on result on above table of skewness with value 0.24 and kurtosis result of the value 0.59, which are both less than one; with less than 0.05 level of significant, it is informs that the data is normally distributed. The test result shows that data does not has heteroscedasticity, or it is homoscedasticity.

Table 5. The Normality and Heteroscedasticity for Model 2.

Test	Value	p-value
Global Stat	1.196	0.88
Skewness	0.01	0.93
Kurtosis	0.78	0.38
Link Function	0.20	0.65
Heteroscedasticity	0.21	0.65

Based on result on the above table of skewness with value 0.01 and kurtosis result of the value 0.78, which are both less than one; with less than 0.05 level of significant, it is informs that the data is normally distributed. The test result shows that data does not has heteroscedasticity, or it is homoscedastic.

5.2 The Empirical Results for the model one.

For the Model 1 the multiple R-squared is 0.97, and the adjusted R-squared is 0.96.

$$\ln GDP_t = \alpha_0 + \alpha_1 \; rei_{t-1} + \alpha_2 red_{t-1} + \alpha_3 \, govexp_{t-1} + \varepsilon_t$$

Table 6. The main result for Model 1.

	Coefficient	T-statistic	P-Value
Intercept	7.28	4.62	0.00***
REI	-0.11	-3.01	0.01**
RED	0.32	1.85	0.10
GOVEXP	0.35	8.92	4.51e-05***

* Significant at 10%, ** Significant at 5%, *** Significant at 1%

From the above table 6 the coefficient of the lag of real estate investment is -0.11 with t-statistical of -3.01. The corresponding p-value 0.01 which less than 0.05. Hence, the null hypothesis of no impact of real estate investment on the GDP is rejected. In other words, real estate investment has a significant negative relationship with GDP.

While the coefficient of the lag of real estate development is 0.32 with t-statistical of -1.85. The corresponding p-value 0.10 which more than 0.05. Hence, the null hypothesis of no impact of real estate development on the GDP is accepted. In other words, real estate development has no significant positive relationship with GDP.

And the coefficient of the lag of government expenditure is 0.35 with t-statistical of 8.92. The corresponding p-value 4.51 which more than 0.05. Therefore, the null hypothesis of no impact of government expenditure on the GDP is accepted. In other words, government expenditure has no significant positive relationship with GDP.

5.3 The Empirical Results for the model two.

For the Model 2 the multiple R-squared is 0.83, and the adjusted R-squared is 0.72.

$$\ln GT_t = \alpha_0 + \alpha_1 gdp_{t-1} + \alpha_2 rei_{t-1} + \alpha_3 red_{t-1} + \alpha_4 govexp_{t-1} + \varepsilon_t$$

Table 7. The main result for Model 2.

	Coefficient	**T-statistic**	**P-Value**
Intercept	-705.5	-4.14	0.00***
GDP	98.35	4.84	0.00***
REI	6.61	2.29	0.06*
RED	-34.49	-3.00	0.02**
GOVEXP	-29.69	-3.97	0.00***

* Significant at 10%, ** Significant at 5%, *** Significant at 1%

From the above table 7 below, the coefficient of the lag of gross domestic product is 98.35 with t-statistical of 4.84. The corresponding p-value 0.00 which less than 0.05. Hence, the null hypothesis of no impact of gross domestic product on the GT is rejected. In other words, gross domestic product has a significant positive relationship with Economic Growth.

Second, the coefficient of the lag of real estate investment is 6.61with t-statistical of 2.29. The corresponding p-value 0.06 which more than 0.05. Hence, the null hypothesis of no impact of real estate investment on the GT is accepted. In other words, real estate investment has no significant positive relationship with GT.

Third, the coefficient of the lag of real estate development is -34.49 with t-statistical of -3.00. The corresponding p-value 0.02 which less than 0.05. Hence, the null hypothesis of no impact of real estate development on the GT is rejected. In other words, real estate development has a significant negative relationship with GT.

Finally, the coefficient of the lag of government expenditure is -29.69 with t-statistical of -3.97. The corresponding p-value 0.00 which less than 0.05. Hence, the null hypothesis of no impact of government expenditure on the GT is rejected. In other words, government expenditure has a significant negative relationship with GT.

Chapter 6: Discussion and Conclusion

This study investigates the impact of real estate investment on each of economic growth and the gross domestic product. This chapter discusses the findings of those models and conclude the study. Then, it provides recommendations for future studies.

6.1 Discussion and Conclusion

Studies on real estate in Shariah compliance investments and development are rare and limited, in additions, most previous studies have been qualitative in nature due to data limitations.

Overall, this thesis contributed to understand the real estate investments on perspective of Shariah compliant and its effect on the economic growth and gross domestic product. In addition, it gave a brief about the real estate investment and development in the GCC, and the reasons behind the increase the number of investors in this sector; such as, The oil boom which was in the period of 2002 to the mid of 2008, and Improved investment environments by allowed the foreign ownership in most of the countries with 100% which led to attract more investors and improved the trading in the GCC countries, finally, the attacks of 11 September and its effect for transfer most of the people funds from over the world to these countries as it’s the most safe for their Money. After that it give an overview of the real estate investment and development in kingdom of Saudi Arabia as per the new “vision 2030” will be developed more and the government will focus on this sector and other non-oil investment sectors, starting from applying tax on the unused land.

This study was carried out in order to find relationship between Sharia Compliant real estate investment & economic growth in kingdom of Saudi Arabia. We had used ten year data for this study from 2002 to 2012. Data were collected from annual Government reports & Bloomberg; from the first model we have concluded that there is a negative relationship exists between GDP and the real estate investment, surprisingly, we found the relationship between the GDP and all other variables which are real estate development and government expenditure are not strong enough. From the second model we have concluded that there is a positive relationship exists between GDP and the economic growth, while it tend to be negative between real estate development and economic growth and government expenditure. However, the relationship between the real estate investment and economic growth is not strong enough.

6.2 Implication and recommendation for Future research

As 10 years data was used in this research it is suggested to expend the time frame of the data & shall be studied. Apart of that it is also recommended to break the study into regional study or rural & urban to find the real impact of kingdom growth. It also can be further expend to the current scenario of Global crisis & Vision 2030 set by government of KSA. Due to drop in petro product price KSA economy got affected & also the war of yamen have impact on kingdom economy.

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