

# The Effect of Economic Constraints on Direct Real Estate Market

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## ARTICLE INFO

## ABSTRACT

*Keywords:*  
Direct real estate market,  
financial stock exchange market

*Kata kunci:*  
*pasar real estate langsung,*  
*pasar saham*

The objective of this research to investigate the interactions between the direct real estate markets with the financial stock market changes. To accomplish this objective data was collected of different official secondary sources. The collected data entered to SPSS and E-views for analysis. The results of this research showed that there is high interaction between the real estate market performance in Jordan and stock exchange market.

## SARI PATI

*Penelitian ini bertujuan untuk mengetahui interaksi antara pasar real estate langsung dengan perubahan pasar saham. Untuk mencapai tujuan ini, data dikumpulkan dari berbagai sumber sekunder resmi. Data yang terkumpul dimasukkan ke SPSS dan E-views untuk dianalisis. Hasil penelitian menunjukkan bahwa terdapat interaksi yang tinggi antara kinerja pasar real estate di Yordania dengan pasar bursa.*

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## INTRODUCTION

Real estate market (REM) performance is connected to other economic sectors and economic performance. The research in real estate sectors requires deep understanding to figure the mechanism and trend of this important market with other economic variations. High arrangement of this sector within the economic variations creates deep understanding and provides real numbers that can be used to understand different relations.

Cash holders refrain to keep high cash in hand and their accounts. The high inflation recorded numbers decrease the money value over time and maximize suffering overtime of this category of people (Rose, 2003). Instead, cash holders try to invest their money differently to avoid this puzzle. Some of this category deposit their money in financial markets using investment accounts or using these money in other sectors such as REM. They tend to search for investments that are characterized with high returns and low risk, which is represented in REM.

One of the procedures used to minimize the risk and followed by different investors is the distribution of investment on different interests. Most of portfolio managers tend to utilize the economic changes to draw their own investment plans for the short run and long run. They consider the economic indicators as the light that direct their movement in the investment activities (Al-Ajmi, 2008).

Investors' directions concentrate on two markets in most countries. These two markets are REM and stock market. The mutual relationship between these two markets draw the different believes the investors may have to lead their investment (Reily and Brown, 2003). The dealing procedures are different between these markets. In stock exchange markets mediations are required to perform transactions, while in REM the transactions can be performed directly by the investor or indirectly through REM companies listed in the change markets. Real Estate Investment Trust (REIT's and Corporate Real Estate Companies (CRE) are

examples of stock market companies that handle RE transactions (Nneji *et al.*, 2011).

According to the two types of deals, REM can be classified as private (PREM) or direct (DREM), which is the concern of this paper and public REM (PREM) (Nneiji *et al.*, 2011). The investment in these markets is a question of different variation including the current economic indicators, the predictions, and the risk evolved of these investments. One of the important issues that can raise from this classification and diversification is the liquidity issue. In DREM, the liquidity can be achieved more easily compared to the indirect market due to the procedures following in indirect REM (Reily and Brown, 2003). In both cases, the constraints that play a role in investment are different according to procedures. The Jordanian REM requires high and deep research to understand the dynamics of this market and how it is connected with other economic indicators.

## METHODS

The objective of this research is to investigate the mutual effect of DREM, stock exchange market and other economic indicators. To accomplish this objective secondary data were collected from official sources. These sources include Department of Land and Survey, Central Bank of Jordan, Amman Stock Exchange Chamber and Department of Statistics in Jordan. The data collected for the period of 1991-2016. The collected data were entered to Excel, SPSS and Eviews for analysis.

Different data management analysis were used to help reaching the objective of this research. These analysis included the changes percentage of time, REM index calculations. On the other hand, different analysis procedures were applied for economic data including the changes overtime and the growth rate over different period of time. The relationship between the DREM and economic variables will be tested using the following model:

$$DREM_r = f(GDP, MS, IR, FE, ER, IRT, CF)$$

where;

GDP: Gross domestic product for the studied period

MS : Money Supply

IR : Inflation rate

FE : Foreign investment

ER : Expatriate remittances

IRt : Interest rate

CF : Credit facilities

Double logarithmic function and linear regression will be used to test this relationship and Durban Watson coefficient will be calculated to test autocorrelation of the model variables.

**RESULTS AND DICUSSIONS**

Direct RM data was collected through the Department of Land and Survey in Jordan (1990-2016), while the data of Central Bank of Jordan was used to collect the data of housing sector inflation for the same period. Figure 1 shows the values of DREM and the inflation figures for 1991-2016. The results shows that the revenues of DREM increases in 1991 to 2009 with low changes over years, while high increase of DREM revenues were

witnessed after 2009. This increase can be justified due to the increases in prices followed the financial international crisis. This increase reached its peak in 2014 and dropped down in the successive years.

Figure 2 shows the growth rate of DREM for the study period. The results showed high fluctuation of annual growth rate. The growth rate of DREM was fluctuating from 15% to 25% for the period 1992 to 2001. The DREM witnessed negative growth in 2002 to 2004. This recession in DREM revenues may be resulted of the low demand for real estates in this period. The demand on real estates increased dramatically for the period 2006 to 2014 showing high rates of growth. The rate of DREM revenues growth was negative in 2015 and 2016 showing recession of demand for real estate in Jordan. The fluctuation of DREM revenues for the period of the study reflects high fluctuation of this sector affected by different economic factors. The inflation of housing sector for the study period reflects very high fluctuation in DREM sector in Jordan. High inflation either positive or negative reflects instability as well as lack of regulation for this sector.

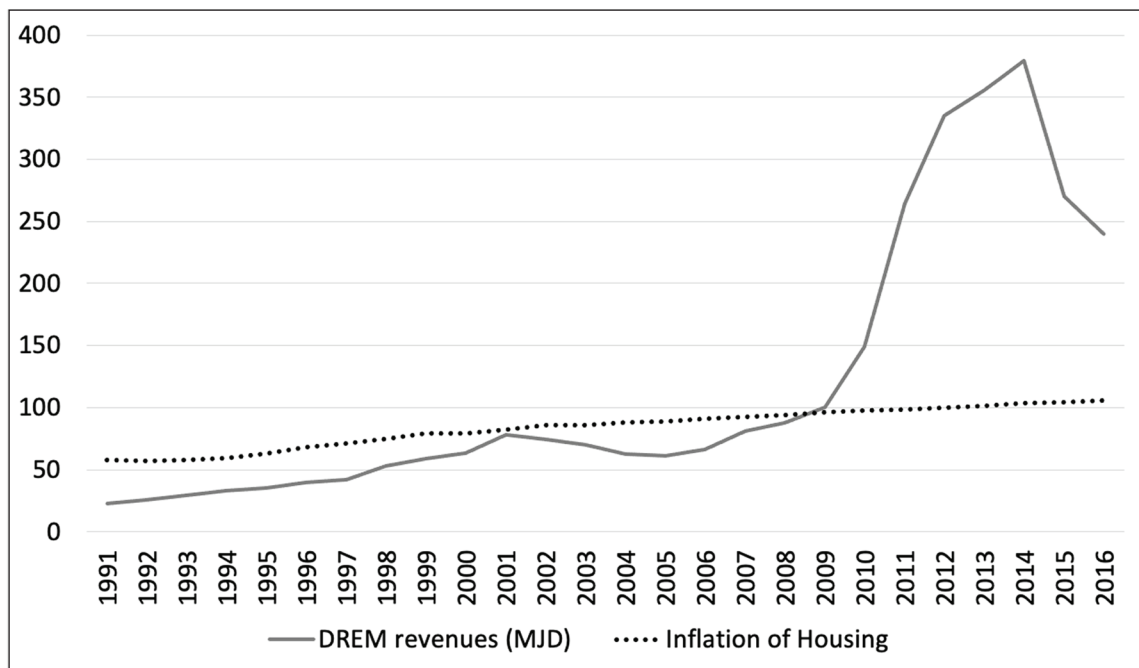


Figure 1. DREM revenues (MJD) and inflation of housing  
 Source: Department of Land and Survey, Annual Reports 1991-2016. Amman, Jordan.

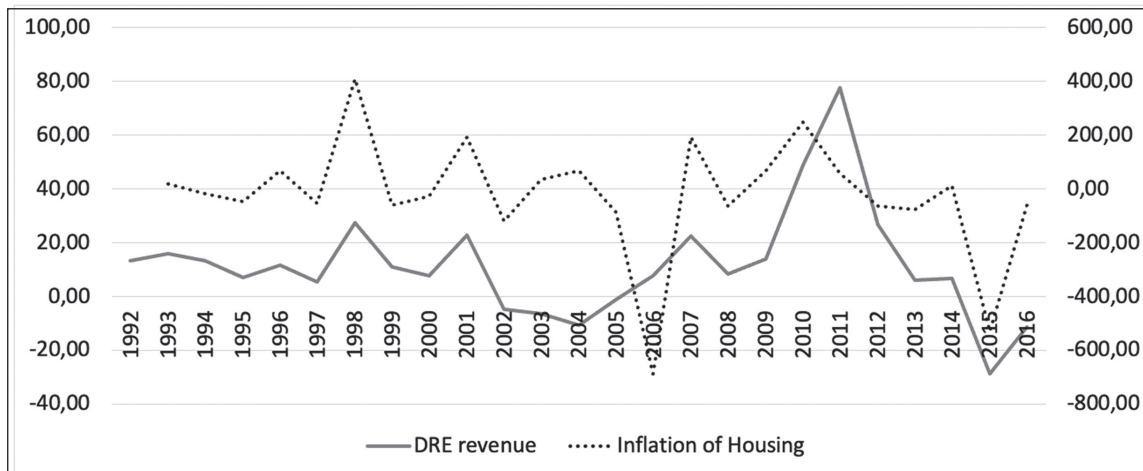


Figure 2. Annual growth rate of direct real estate revenue and inflation of housing sector

Figure 3 shows the relationship between the changes in DREM and GDP for the period 2006-2016. The trend of DREM and GDP shows increase of both of them for the period 2006 to 2011. After 2012, DREM shows decrease until the end of period. The GDP showed decrease in 2013 and increased in 2014 with a decrease in 2015 and 2016. The decrease the DREM witness is resulted of recession of economy after the international financial crisis, which also witnessed fluctuation in economic performance in Jordan. The correlation analysis showed that the relationship between DREM and GDP was not significant for the investigated period.

Figure 3 show the relationship between DREM and money supply. The results showed the inconsistent trend of DREM with money supply. Money supply shows fluctuation with positive annual differences over the studied period. For DREM, the change in revenue showed increase over the period 2006 to 2011 with sharp decrease in 2012. The change in revenue for the years 2015 and 2016 was negative compared to other years. For money supply, the results show decrease values in 2013, 2015 and 2016. The correlation value was 0.36 without any significant trends between both of them. This indicates that the DREM is not correlated directly to money supply variable.

The results for DREM and inflation show that both DREM and inflation values increased over the period 2006 to 2011 almost with increasing direction, in 2014 and more, the increase of inflation rates caused decrease in DREM. The high inflation rate caused low investment in DREM and increase the investment in other economic fields.

The results shows that there is a trend between the direct foreign investments and DREM for the period 2006 to 2011. The drop in direct investments in 2012 was accompanies by a decrease in the investment in DREM. In 2015 and 2016, the direct foreign investments increased while the investment in DREM decreased in these two years. The results showed that the correlation between DREM and Foreign exchange was significant with correlation value 0.62. This results is in harmony with economic fact that the foreign investment has direct effect on real estate markets (Neille et al., 2007).

Expatriate remittances is correlated with DREM for the period 2006 to 2011. The increase of expatriate remittances in 2012, 2013, and 2014 was not accompanies with increase in DREM revenues. This indicates that the investment directions was not in the real estate market in this period. The DREM was correlated highly with interest rates. The increase

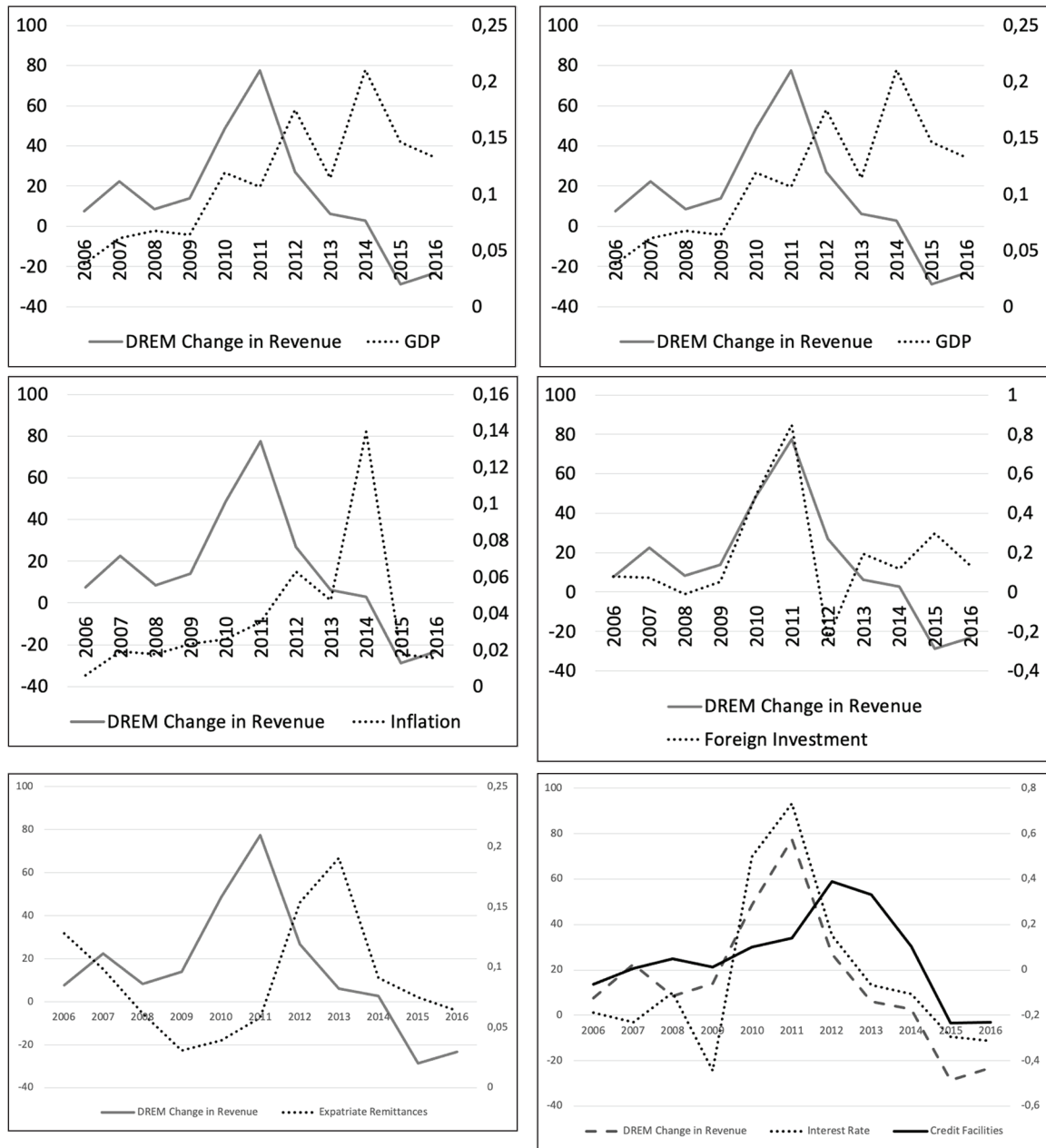


Figure 3. Change of DREM and economic variables over 2006 to 2016

or decrease of interest rate by Central Bank was accompanied with the decrease and increase of DREM revenues. This indicates that the interest rate is highly correlated with DREM. Moreover, the results showed that DREM is highly correlated with the crediting facilities. The increase of crediting facilities lead to an increase of the DREM revenues, also the decrease in credit facilities for the years 2014, 2015 and 2016 caused a decrease in DREM revenues.

Figure 4 shows the correlation between the economic variables and the DREM. The results showed that some variables has direct correlation, while others have inverse correlation with DREM. For DREM index, inverse correlation recorded for money supply and foreign investments. The highest direct correlation recorded for inflation rate. The correlation with GDP, expatriate remittances, interest rate and credit facilities was direct and very low. For DREM volume, the results showed that

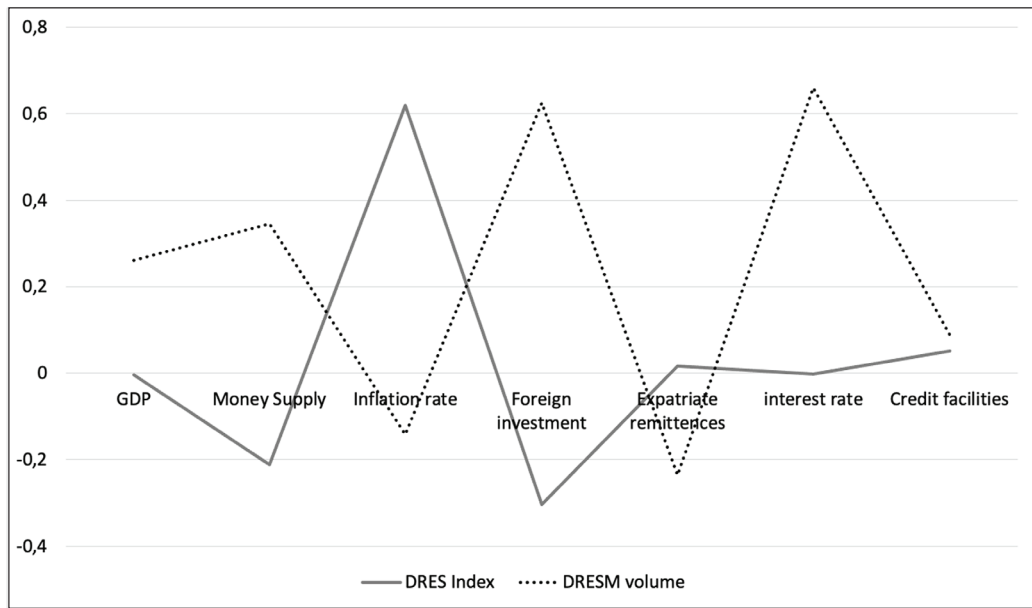


Figure 4. DREM correlation with economic indicators

inverse correlation was recorded for inflation rate and expatriate remittances. The highest correlations recorded for foreign investments and interest rate. The correlation with GDP and money supply was direct with lower correlation values compared to other positively correlated constraints.

**Research model**

One of this research objectives is to investigate deeply the behavior of DREM with the other economic variables. The general model explained in the methodology will be tested in details using linear regression and Durbin Watson test for autocorrelation for the models included more than two independent variables. Different partial models will be built connecting each economic variable with DREM returns and index to configure the variable performances.

To study the effect of GDP on DREM, double logarithmic function used applying linear regression (eq 1). The results showed that the increase of GDP will increase the DREM. The analysis showed that the regression coefficient was significant and positive. This indicates that the DREM is highly connected to economic growth.

$$\ln DREM_R = -7.864 + 1.421 \ln GDP \dots\dots\dots(1)$$

Prob 0.002

The results showed that the effect of money supply was positive (Eq 2). The increase of money supply will affect positively the DREM. Money supply justifies 83.3% of the changes in DREM (Table 1). The increase of money supply will improve the returns of DREM.

$$\ln DREM_R = -11.064 + 1.728 \ln MS \dots\dots\dots(2)$$

Prob 0.0001

The regression results showed positive effect of foreign investment on DREM (eq 3). Regression coefficients showed that foreign investments explains 79.4% of the variation of DREM (Table 1). The results indicate positive relationship between the foreign investment and DREM.

$$\ln DREM_R = -4.542 + 1.065 \ln FI \dots\dots\dots(3)$$

Prob 0.0001

The results showed that the expatriate remittances affect positively DREM (Eq 4). The expatriate remittances justifies 68.5% of the variation in DREM (Table 1).

$$\ln DREM_R = -10.063 + 2.049 \ln ER \dots\dots\dots(4)$$

prob                      0.0001

Function 5 shows the multiple regression analysis of the economic variables and its effect on DREM. The significant effect was recorded for money supply and credit facilities. The results showed that the effect of money supply on DREM was direct, also the effect of credit facilities was positive on DREM. The effect of interest rate (IR) was negative DREM. This justifies the recession of returns when increasing the interest rate as it increases the financial overburden on borrowers. The effect of inflation index (II) was negative, which indicates the increase of inflation will affect negatively the returns of DREM. The effect of GDP on DREM was positive and not significant. The effect of expatriate remittances as negative and insignificant.

$$DREM_R = 1088.611 + 0.049 MS - 3.082 IR + 0.362 CF - 14.96 II + 0.06 GDP - 0.602 ER \dots\dots\dots(5)$$

Prob                      0.02                      0.050

**Discussion**

Economic indicators considered motives of the real estate market. The results showed the economic performance affect the real estate market through different aspects. The results showed that the trends of DREM is connected to GDP. The effect of GDP was approved by different researchers (Musyoki, 2015; Zandi et al. 2015; Hongyu et al., 2002). Gross domestic product reflects the performance of different economic sectors of a country. The

increase of GDP indicates the high performance of different sectors, which reflected positive on DREM. The inflation rate is considered driving force for the effect on DREM. The results showed that the increase of inflation rate will decrease the DREM returns. The increase of inflation rates will increase the prices of real estates, which will lead to decreasing the purchases of real estates and so decreasing DREM returns. Similar results found by Ding (2014).

Interest rate is one of the economic variants that affect directly the real estate market. The interest rate increase will increase the load on loaning through the increase of the real estate value. As indicated economically, the interest rate is connected to inflation rate. The increase of inflation rate will call for the increase of interest rate, which will lead to increase overburden and so decrease the attractiveness for real estate market. The increase of interest rate will decrease the DREM revenues. Hong-Yun (2015) indicated that fixing the interest rate lead to real estate growth.

The effect of expatriate remittances (ER) on DREM was not significant. This may resulted because the effect of ER does not affect the real estate market directly. Its effect on the economy performance is more direct than its effect on real estate market. The increase of ER not necessarily will increase the attractiveness for the real estate market and so it did not affect DREM in Jordan.

Crediting facilities is one of the economic factors that showed direct effect on DREM. The increase of

Table 1. Regression parameters of different functions relating DREM to economic variables

Model	R <sup>2</sup> <sub>adj</sub>	Model F	Model Prob	Durbin Watson
GDP	0.643	19.026	0.002	--
MS	0.833	50.925	0.001	--
FI	0.794	39.574	0.001	--
ER	0.685	22.71	0.001	--
IR	0.126	2.445	0.152	--
CF	0.794	39.465	0.001	--
All variables	0.927	22.154	0.005	1.728

crediting facilities increases the revenues of DREM. Despite the positive effect of crediting facilities, still it is connected to other issues related to crediting securitization, interest rate and inflation rates.

## CONCLUSION

The objective of this research is to investigate the effect of economic variants on direct real estate market in Jordan. Gross domestic product, inflation rate, interest rate, crediting facilities, expatriate remittances were studied as economic variants. The Direct real estate was measured through the returns of the real estate market recorded by the Land and Survey Department in Jordan. The trends of different economic variants with DREM revenues were studied. The results showed that the DREM is highly affected by the inflation rate and the interest rate in the first position. Crediting facilities was a major contributor to the DREM. The extent

of crediting facilities will determine the market expansion or recession.

Also, the results showed effect of the other economic variants on DREM. The economic performance represented in GDP showed direct effect on DREM in Jordan as it is considered the measure of the different economic sectors. Expatriate remittances did not show an effect on DREM. The effect of ER appears indirectly through its effect on the economy in general and the economic performance of the country.

In general, DREM is connected and affected by the different economic variants. The extent of effect is resulted of the contribution of one variant to DREM directly or indirectly. Direct real estate market in Jordan is connected to different other variables related to social factors and the political stability. ■

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