



10.5281/zenodo.10871024

Vol. 07 Issue 03 March - 2024

Manuscript ID: #01293

## Insurance Investments and Economic Performance in Nigeria

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### ABSTRACT

The study looks at insurance investment and economic performance in Nigeria between 1996: Q1 and 2022:Q4. Secondary series were obtained without bias from the Central Bank of Nigeria's statistical database. At the 95 percent confidence level, the Johansen co-integration, VEC Granger Causality, and VECM were used. The presence of long-run form among the variables is demonstrated by Johansen co-integration; the absence of joint supports for gross fixed capital formation (GFCF) and gross domestic product (GDP) is demonstrated by the VEC Granger Causality (GDP). For VECM, shares and bonds, and real estate and mortgage investment significantly retard GFCF, whereas government securities only significantly reduce GFCF; government securities and shares and bonds are negative but significant to GDP, but real estate and mortgage investment significantly promotes GDP. In addition, we find that errors in the short run are corrected at a rate of 6% and 7.7% in the long run for GFCF and GDP, respectively. In conclusion, insurance investments have a negative impact on Nigeria's economic performance. As a result, we advocate for an increase in the breadth of the Nigerian exchange's product offering; the revitalization of failing and ailing firms in terms of restructuring, where most of the funds of insurance firms have been channeled; and a halt to investment in government securities, which slows economic performance. Furthermore, more funds should be committed to real estate and mortgage in order to stimulate economic progress, as it promotes economic progress infinitesimally.

### KEYWORDS

Asset, Mortgage, GDP, Failing, Public sector.



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## 1. Introduction

Previous studies have found that countries with a well-functioning financial system tend to grow faster than countries with an unstable financial system for the reason that the financial system has positive and significant influence on real-sector growth, which translates into increased output (Olulu-Briggs, 2024; Olulu-Briggs & Sunday-Goya, 2023; Olulu-Briggs, 2021). Without a properly functioning financial system, the process of technological transformation will be subjected to no impact on the economy (Olulu-Briggs, 2021; Merton, 2004; UNCTAD, 1964; Solow, 1956). According to Yousouf (1998), the operation of the financial system is deliberate and conscious so as to promote economic progress. He went on to say that recent writings support his earlier claim, making it a necessary component of economic progress. In addition, Patrick's (1966) earlier theory supports the financial sector as the backbone of economic progress either supply-leading or demand-leading.

Insurance companies are part of the financial system that promotes economic growth and development. Given their contractual relationship, they accomplish this by channeling the excess of the premium paid by the insured after those who suffer loss have been fully indemnified against the risk insured. Excess funds are invested in various sectors of the economy with the goals of liquidity, safety, and growth. Section 25(1) of the Insurance Act of 2003 states that "an insurer shall at all times, in respect of the insurance transacted by it in Nigeria, invest and hold in such accounts of the insurer assets equivalent to not less than the amount of policy holder's funds." Insurance firms' investment options have been expanded because of financial sector reforms, of which they are a part (Akpan & Joseph, 2017). This includes bonds and stock, government securities, loans and mortgages, bills receivable and cash, and other miscellaneous items (Aderibigbe, 2004; Ojo, 2010).

The role of insurance firms in financial intermediation and economic growth generation is critical to the advancement of any economy (Cristea, Marcu & Carstina, 2014). As a result, Ahmed (2012) refers to these insurance firms as wealth creators and economic growth mobilizers. The premiums generated when diversified into various asset classes serve as booster-tonics in any economy. Even the government seeks funding from insurance companies to repair their budget deficits and help plan other governmental projects. Though, Akpan and Joseph (2017) argue that the amount of investment by insurance firms is insufficient, and thus may not be able to support the needed economic growth in Nigeria. Victor (2013) affirms that this gap exists because of the ailing economy's liquidity problems and poor savings. There are also issues with the government's constant changes, crises, and government regulations on investment options (NDIC, 2001; 2004).

Diverse reports have disclosed the relationship between insurance firm investment and economic performance. For example, no significant relationship was discovered between insurance firm investment and economic growth (Akpan & Joseph, 2017; Ubom, 2014); alternatively a positive and significant link was found between them in studies by Akinlo & Apanisile, (2014); Lee, Lee, & Chiu, (2013); Hatemi-J, Lee, Lee, & Gupta, (2019); Azman-Saini & Smith, (2011); and Chang, Lee, & Chang, 2014). In another study, Valentina, Kestutis, Gitana, and Kestutis (2019) discovered no link between insurance firms' investment and economic growth. Thus, by reconciling the divergent positions in the literature, this study fills a gap in the literature. In Nigeria, Akpan and Joseph (2017), Omoruyi (1984), and Udom (2014) investigated this link, but data were sourced from 1996-2011, 1969-1981, and 1990-2011, respectively, resulting in a time-frame gap. This study fills the identified gap by extending the study period from 1996 to 2022 using quarterly series. Another gap that this study fills is the separation of economic performance into gross fixed capital formation (GFCF) and gross domestic product (GDP) to determine whether insurance investment has contributed immensely to the nation's acquisition of produced assets and whether these assets have been used wisely to increase national output over time.

## 2. Literature Review

### 2.1 Theoretical Review

For an in depth understanding of this report, the underlying theories on finance-growth, insurance-growth path, and market-based asset allocation were adopted.

- 1. Nexus of Finance-Growth Theory.** Schumpeter (1911) opines that for entrepreneurs to be able to carry out innovations technologically and boost economic growth through increase in productivity, the activities of the financial sectors like the insurance firms are imperative. These activities include productive savings mobilization, improve resources allocation, and re-investment of allocated resources. The aspect of proper monitoring of the investment is equally sacrosanct. All these activities facilitate economic growth. Schumpeter further adds that these can create a robust macroeconomic structure for resilient economic growth. Thus, this theory is central here as a result of the need of insurance firms to boost productivity of the economy through its intermediation role. Also, its usage was seen in the study of the link between financial development and economic growth (Levine, Loayza & Beck, 2000; King & Levine, 1993).
- 2. Insurance-Growth Path.** Investment projects are carried out when resources are channeled from savers to utilizers by financial sector such as the insurance firms. In channeling the resources, they improve on resources mobilization, allocation (i.e. screening and monitoring of funds seekers and recipients respectively), lowering capital cost via specialization and economies of scale, providing cover for liquidity and risk management (Wachtel, 2001). Through effective and efficient intermediation role, insurance firms are able to impact on the economic positively. It has been said that financial intermediation role play by insurance firms is pivotal towards its progression (Cristea, et al., 2014). As a result of this, Ahmed (2012) describes them as wealth creators and economic growth mobilizers.
- 3. Market Based Asset Allocation Theory (MBAL).** The MBAL theory of Markowitz (1952, 1959) is a revolutionary theory in finance that sets the footing for modern portfolio theory (MPT). MPT focuses on portfolio selection, construction, risk preference and management, and expected return on investments. Rationally, it is assumed that fund managers do design their portfolios based on risk and return tradeoff as well as the covariance return between pair of assets. Assets in a portfolio are carefully selected from those that lies in the efficient frontier. Its efficient because it offers the highest level of return for a given set of risk. It is equally assumed that risk diversification is core for a fund manager when choosing assets in his portfolio. This makes this theory a significant aspect of this study. Judging from this, insurance firms will prefer to invest their resources on assets that lies on the efficient frontier given that it affords them the highest level of return with the minimum level of risk and at the same time aid them in diversifying their portfolio in order to totally eliminate all forms of unsystematic risk.

### 2.2 Empirical Review

The literature on insurance investment has been contrary. While some found a positive impact, others saw it negatively. Below are some of the discoveries made: Ndal (2016) investigates the relationship between economic growth and insurance penetration in Kenya between 2003 and 2008. The findings show that insurance penetration significantly improves economic performance. However, in a similar study conducted between 1970 and 2013 for eight African countries, Olayungbo and Akinlo (2016) found mixed results. Whereas South Africa, Mauritius, and Kenya have long-term positive relations; Zimbabwe, Nigeria, Algeria, and Tunisia have long-term negative relationships. Similarly, Akinlo and Apanisile (2014) found that insurance promotes GDP in SSA from 1986 to 2011. Using the static

panel technique, Zouhaier (2014) found that non-life insurance has a negative impact on GDP while life and total insurance have a positive impact on GDP in 23 OECD countries from 1990 to 2011.

Cristea et al. (2014) examine how insurance affects economic growth in Romania from 1997 to 2012. Using the Pearson correlation coefficient-PPE and OLS equation, the result shows a direct relationship between insurance and GDP.

Using the pooled regression method, Taiwo, Akinlo, Olumuyiwa, Tolulope, and Apanisile (2014) discover a significant positive relationship between insurance investment and economic growth in SSA between 1986 and 2011.

Verma and Bala (2013) examine how life insurance affects economic growth in India between 1990 and 2011. According to the findings, life insurance promotes economic growth.

Richterikova and Korab (2013) discover a positive relationship between insurance premiums and economic growth when they investigate the causal relationship between the variables.

Azman-Saini and Smith (2011) investigate the impact of insurance on growth channels using panel data from 51 developing and developed countries from 1981 to 2005. Evidence shows that insurance stimulates growth in developed countries primarily through productivity growth, while it promotes capital accumulation in developing countries.

Haiss and Siimegi (2008) found that insurance investment contributes positively to the GDP of EU member nations in a cross-sectional study of 29 European nations from 1992 to 2005.

In a later study, Omoruyi (1984) found insurance investments to be positive and significant to GDP in Nigeria in the period under review.

On the contrary, Joseph (2017) examine how investment by insurance firms and commercial banks contributes to economic growth in Nigeria from 1996 to 2011. Using the OLS method, the study concludes that insurance firms' investment does not contribute to economic growth, whereas commercial banks' investment does. Similarly, Udom (2014) employs inferential tools to analyze data collected between 1990 and 2011 and discovers that insurance firms' investments do not contribute to Nigeria's economic growth.

### 3. Methodology

This study sourced quarterly series from the Central Bank of Nigeria from 1996: Q1-2022Q4. For a detailed estimation, the descriptive statistics, unit root, VEC-Granger Causality, co-integration, and VECM methods were utilized. Firstly, GFCF is the proxy for economic performance to measure whether insurance investment has actually added to the nation's stock of productive assets. Exploiting the study by Valentina et al. (2019); Akpan and Joseph (2017); Cristea et al. (2014), GDP was utilized to know if productive assets were utilized judiciously to produce the final output of goods and services.

The model for this study is stated as follows.

$$GFCF = f(GSE, SBO, REAM) \tag{1}$$

$$GDP = f(GSE, SBO, REAM) \tag{2}$$

The econometric form of the model is given as:

$$GFCF_t = \beta_0 + \beta_1 GSE_t + \beta_2 SBO_t + \beta_3 REAM_t + \varepsilon_t \tag{3}$$

$$GDP_t = \beta_0 + \beta_1 GSE_t + \beta_2 SBO_t + \beta_3 REAM_t + \varepsilon_t \tag{4}$$

$$\beta_1, \text{ and } \beta_2 > 0, \beta_3 > 0$$

Where, GFCF = Gross fixed capital formation, GDP = real gross domestic product, GSE = Government securities, SBO = Shares and bonds, REAM = Real estate and mortgage investment,  $\beta_0$  = Intercept;  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  = Constant parameters,  $\varepsilon_t$  = Stochastic term

The Johansen co-integration model is given as;

$$\Delta Y_t = \lambda Y_{t-k} + T_1 \Delta Y_{t-1} + T_2 \Delta Y_{t-1} + \dots + T_k - I \Delta Y_t - (k - 1) + \epsilon_t \tag{5}$$

Where,

$$\lambda = (\sum_{i=1}^k \beta_i) - I_g \text{ and } T_i = (\sum_{i=1}^i \beta_i) - I_g \tag{6}$$

The ECM is given as;

$$\Delta GFCF_t = \beta_1 + \sum_{i=1}^p \beta_2 GFCF_{t-i} + \sum_{i=1}^q \beta_3 \Delta GSE_{t-i} + \sum_{i=1}^q \beta_4 \Delta SBO_{t-i} + \sum_{i=1}^q \beta_4 \Delta REAM_{t-i} + \alpha ECT_{t-i} + e_t \tag{7}$$

$$\Delta GDP_t = \beta_1 + \sum_{i=1}^p \beta_2 GDP_{t-i} + \sum_{i=1}^q \beta_3 \Delta GSE_{t-i} + \sum_{i=1}^q \beta_4 \Delta SBO_{t-i} + \sum_{i=1}^q \beta_4 \Delta REAM_{t-i} + \alpha ECT_{t-i} + e_t \tag{8}$$

#### 4. Results and Discussion

**Table 1: Descriptive Statistics**

	GDP	GFCF	GSE	REAM	SBO
Mean	48668.38	45933.73	22077.98	37142.29	209446.5
Median	49856.10	59584.50	21374.90	47348.50	232166.8
Maximum	73259.30	85749.70	59136.26	66732.24	501879.0
Minimum	21177.92	1727.979	1546.200	212.0000	3633.200
Std. Dev.	19336.83	26796.83	19692.86	24694.70	176205.5
Skewness	-0.146902	-0.568856	0.480183	-0.548420	0.112555
Kurtosis	1.444839	1.931682	1.798385	1.667156	1.589506
Jarque-Bera	2.817953	2.740151	2.661954	3.351971	2.295189
Probability	0.244393	0.254088	0.264219	0.187124	0.317399

Source: E-views10 output

Table 1 presents the quarterly average values of GDP, GFCF, GSE, REAM, and SBO as ₦48668.38, ₦45933.73, ₦22077.98, 37142.29, and ₦209446.5 billion respectively. Their levels of variability from average are 19336.83%, 26796.83%, 19692.86%, 24694.70%, and 176205.5% respectively. All the variables are negatively skewed in exception of GSE. All the variables are platykurtic given that is less than 3 and with a normal distribution since their JB p-Val is above 5% level.

**Table 2: Unit Root Test**

Variables	Level			First differenced			Remark
	ADF Test Statistics	T-Critical at 5%	P-value	ADF Test Statistics	T-Critical at 5%	P-value	
GFCF	-1.613570	-2.981038	0.4617	-5.279058	-2.986225	0.0002	I(1)
GDP	-1.273611	-2.986225	0.6253	-4.542060	-2.998064	0.0017	I(D)
GSE	1.128885	-2.981038	0.9966	-4.773413	-2.986225	0.0008	I(I)
REAM	-2.470777	-3.012363	0.1362	-3.093424	-3.004861	0.0419	I(1)
SBO	0.773031	-2.981038	0.9115	-3.165554	-2.986225	0.0344	I(1)

Source: E-views10 output

At the 95% confidence interval, all the variables are stationary at first difference as depicted in Table 2. This outcome necessitates the application of Johansen co-integration for the two equations to verify the presence of extensive-run form.

### 4.2 Co-integration Test

The Trace and Max-Eigen p-value of Johansen co-integration is used to verify the occurrence of long-run form. The criterion is that the p-value of the Trace and Max-Eigen must be less than 5% for the acceptance of long-run form.

**Table 3: Co-integration Outcome for GFCF**

Series: GFCF GSE REAM SBO

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.888007	85.61701	47.85613	0.0000
At most 1 *	0.616125	35.26264	29.79707	0.0106
At most 2	0.410297	13.24156	15.49471	0.1062
At most 3	0.046470	1.094446	3.841466	0.2955

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: E-view 10.0

Table 3 verifies the existence of long-run form for both the Trace and Max-Eigen test. Specifically, the both test show the occurrence of 2co-integrating equation.

**Table 4: Co-integration Outcome for GDP**

Series: GDP GSE REAM SBO

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.985635	143.6311	47.85613	0.0000
At most 1 *	0.762412	46.04354	29.79707	0.0003
At most 2	0.431295	12.98753	15.49471	0.1153
At most 3	0.000281	0.006474	3.841466	0.9353

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: E-view 10.0

Table 4 verifies the existence of long-run form for both the Trace and Max-Eigen test. Specifically, both test show the occurrence of 2 co-integrating equation.



### 4.3 Vector Error Correction Model (ECM)

**Table 5: VECM Model**

VECM			
Explained Variable: GFCF			
Standard errors in ( )& t-statistics in [ ]			
Explanatory Variables	Coefficient	Std. Error	t-Statistic
GSE(-1)	-0.046187	(0.05129)	[-0.90051]
SBO(-1)	-3.084454	(0.62352)	[-4.94684]
REAM(-1)	-9.556847	(1.76116)	[-5.42646]
C	-7.879878		
<b>Error Correction:</b>	<b>D(GFCF)</b>		
<b>CointEq1</b>	-0.060469	(0.02036)	[-2.97005]
<b>Adj. R-squared</b>	0.690824	<b>F-statistic</b>	16.70140

Source: E-view 10.0

Table 5 shows that SBO and REAM rate are negative (-3.084454 and -9.556847) and significant (-4.94684 and -5.42646) to GFCF respectively. Thus, a unit increase in SBO and REAM will lead to about 3.084454 and 9.556847 unit decrease in GFCF respectively in Nigeria. Though, GSE is negative (-0.046187) but insignificant (-0.90051) to GFCF. A unit increase in GSE will lead to about 0.046187 unit increase in GFCF. The ECM is negative (-0.060469) and significant (-2.97005). Thus, depicting those errors in the short-run are corrected at a speed of 6% in the long-run. Adjusted R-Square value of 0.690824 demonstrates that the SBO, REAM, and GSE account for 69.1% variations in GFCF while the remainder is accounted by other factors not included in this model. In addition, F-statistics shows the significance (16.70140) of the model.

**Table 6: VECM Model**

VECM			
Explained Variable: GDP			
Standard errors in ( )& t-statistics in [ ]			
Explanatory Variables	Coefficient	Std. Error	t-Statistic
GSE(-1)	-10.30164	(1.73591)	[-5.93443]
SBO(-1)	-1.711327	(0.30937)	[-5.53165]
REAM(-1)	4.698106	(0.92953)	[ 5.05429]
C	-5.007072		
<b>Error Correction:</b>	<b>D(GDP)</b>		
<b>CointEq1</b>	-0.076897	(0.02346)	[-3.27816]
<b>Adj. R-squared</b>	0.728845	<b>F-statistic</b>	19.30203

Source: E-view 10.0

Table 6 shows that GSE and SBO rate are negative (-10.30164 and -1.711327) and significant (-5.93443 and -5.53165) to GDP respectively. Thus, a unit increase in GSE and SBO will lead to about 10.30164 and 1.711327 unit decrease in GDP respectively in Nigeria. However, REAM is positive (4.698106) and significant (5.05429) to GDP. A unit increase in REAM will lead to about 4.698106 unit increase in GFCF. The ECM is negative (-0.076897) and significant (-3.27816). Thus, depicting that disequilibrium that occurs in the short-run returned at a speed of 7.7% in the long-run. Adjusted R-Square value of 0.728845 demonstrates that the SBO, REAM, and GSE account for 72.9% variations in GFCF while the remainder are accounted by other factors not included in this model. In addition, F-statistics shows the significance (19.30203) of the model.

**Table 7: VEC Granger Causality/Block Exogeneity Wald Tests**

VEC Granger Causality/Block Exogeneity Wald Tests

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Dependent variable: D(GFCF)

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Excluded	Chi-sq	df	Prob.
D(GSE)	2.677572	2	0.2622
D(REAM)	1.642579	2	0.4399
D(SBO)	3.488658	2	0.1748
All	4.462730	6	0.6143

Source: E-view 10.0

Table 7 reveals that none of the variables (i.e. GSE, SBO and REAM) influence GFCF individually. Similarly, no causality was found jointly.

**Table 8: VEC Granger Causality/Block Exogeneity Wald Tests**

VEC Granger Causality/Block Exogeneity Wald Tests

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Dependent variable: D(GDP)

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Excluded	Chi-sq	df	Prob.
D(GSE)	0.401539	1	0.5263
D(REAM)	0.461326	1	0.4970
D(SBO)	0.095051	1	0.7579
All	0.936583	3	0.8166

Source: E-view 10.0

Table 8 shows that none of the variables (i.e. GSE, SBO and REAM) influence GDP individually. Similarly, no causality was found jointly.

#### 4.4 Discussion of Findings

Shares and bonds are a key component of insurance investment in Nigeria, but they do not facilitate the acquisition of productive assets, thereby slowing economic progress. This is due to the capital market's low depth and illiquidity, as well as the relatively small fraction of investment. This is consistent with Akpan and Joseph (2017), who argue that insurance firms' investment is insufficient and, as a result, may not be able to support Nigeria's needed economic growth. It does not, however, agree with Ahmed (2012) that insurance companies are wealth creators and economic growth mobilizers. It also contradicts the claims of Akinlo and Apanisile (2014), Lee et al. (2013), Hatemi-J et al. (2019), and Chang et al. (2014) that insurance activity promotes economic growth.

Government securities are negative and insignificant in terms of GFCF, but significant in terms of GDP. This can be attributed to the unproductive nature of most investment outlets carried out by successive governments, which do not add to the nation's productive capacity and, as a result, do not foster an increase in the final output of goods and services. This supports the findings of Valentina et al. (2019) and Udom (2014) that insurance slows economic growth. It disagrees with Akinlo and Apanisile (2014) and Lee et al. (2013) that insurance investment promotes economic growth. Also, Olulu-Briggs (2021) supports that investments in equities and government securities causes very significant positive changes in the human development index.

Real estate and mortgage investment have a negative and significant impact on GFCF. However, it is a net positive and significant contributor to GDP. In terms of GFCF, it is attributed to the high level of non-payment of mortgage loans and insecurity that has bedridden real estate investments in most of



the country. Its contribution to GDP is infinitesimal, and as such, it adds a very negligible amount to the nation's output.

#### **4.5 Limitations**

This study has the limitation of not using all economic performance measures, such as the human development index, GDP per capita, and GNP, among others. As a result, their use may have an impact on the study's outcome. Furthermore, the use of a limited number of years, namely 1996-2020. This decision is based on data availability at the time of our study.

#### **5. Conclusions and Recommendations**

The research looks at insurance investments and economic performance in Nigeria between 1996: Q1 and 2022:Q4. GDP, GFCF, stocks and bonds, government securities, and real estate and mortgage investment are the study variables. The descriptive statistics, Johansen co-integration, VEC-Granger Causality, and VECM techniques were used at the 5% level. The study demonstrates that government securities, as well as shares and bonds, are two aspects of insurance investment that impede economic performance in Nigeria. This is consistent with the findings of Akpan and Joseph (2017), Valentina et al. (2019), and Udom (2019). This is due to the relatively small fraction of investment, the capital market's low depth and illiquidity, and the unproductive nature of most investment outlets carried out by successive governments, which do not add to the nation's productive capacity.

Real estate and mortgage investment are significant determinants of insurance investment, but the reaction has been mixed. In terms of GFCF, it is attributed to the high level of non-payment of mortgage loans and insecurity that has bedridden real estate investments in most parts of the country. Its contribution to GDP is infinitesimal, and as such, it adds a negligible amount to the nation's output. On recommendations, the study suggests that the depth of the product offer by the Nigerian Exchange Group be increased and or expanded; and that failing and ailing firms be revitalized in terms of restructuring, where most of the funds of insurance firms have been channeled to; and that investment in government securities be halted because it hinders economic performance. Furthermore, more funds should be committed to real estate and mortgage to stimulate economic progress, as it has proved to promote economic progress even though minimally.

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