

Effect of External Debt on Real Estate Investment in Kenya

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Received July 01, 2020; Revised August 02, 2020; Accepted August 11, 2020

Abstract Real estate sector immensely contributes to the economic growth of the country by upgrading the people's living standards. Development of real estate comes along with better infrastructural facilities, social amenities and better housing. Kenya recently experienced a surge in the growth of real estate sector in the suburbs of its major towns and cities. This emanated from increasing demand for modern housing by middle-income class. In addition, there has been an upsurge in external debt. The effect of this increase in external debt to real estate investment is not known. The objective of this study was to examine the effect of external debt on real estate investment in Kenya. The study adopted analytical research design and a stochastic model using quarterly time series data. Data ranging from 2007-2017 was sourced from Kenya National Bureau of Statistics, World Bank and United Nations Conference on Trade and Development websites. Augmented Dickey Fuller test for unit root revealed the presence of unit root that was corrected by first difference. Correlation analysis revealed moderate negative relationship between external debt and real estate ($r = -0.51$). Variance Inflation factor test for Multicollinearity value was ($1.62 < 10$) and Durbin Watson test for serial correlation value was ($1.912 < 2.5$) indicating the absence of Multicollinearity and serial correlation respectively. Regression results indicated a statistically significant negative effect of external debt on real estate investment in Kenya (-0.155869 , $p < 0.0500$). The study recommends the government to adopt public private strategy (PPP) to attract more investors, provide incentives on building materials, reduce taxes on land and other vital resources associated with construction industry. Similarly, Interest on mortgage loans should be reduced to allow more people buy homes. The government should also reduce external borrowing by ensuring efficient revenue collection. This will lead to narrowing budget deficit and reduced external borrowing.

Keywords: *real estate investment, external debt*

Cite This Article: Hutton Ndombi Wanyama, John Byaruhanga, and Consolata Ngala, "Effect of External Debt on Real Estate Investment in Kenya." *Journal of Finance and Economics*, vol. 8, no. 4 (2020): 183-189. doi: 10.12691/jfe-8-4-4.

1. Introduction

Globally there has been a rise in demand for real estate properties with cities in American and Asian continent recording tremendous growth of mega structures. North America comprises just 7 percent of the global population but 22 percent of all value-added residential properties. Europe on the other hand contains 11% of the world's population but 23% of residential property by value [1]. In Africa, real estate sector has been ballooning in countries such as Nigeria, Egypt and Cameroon as a result of rapid growth in urban population [2]. This has created pressure on the available infrastructural facilities, social amenities and housing units [2]. In Nigeria and Cameroon the government through partnership with both local and foreign investors resolved to increase funds in the development of sustainable modern housing and other social facilities to accommodate the needs of the future generation [3]. Similarly Tanzania has experienced rapid

growth in the real estate sector as a result of rapid urbanization in the suburbs of its major town and cities such as Arusha, Dodoma, Dar salaam and Tanga [4].

Kenya on the other hand has enjoyed several developments in terms of infrastructure. Kenya has attracted foreign capital and its real estate sector has become an area of interest to external investors [5]. The movement of expatriates into the country and inflow of businesses has led to increased demand for residential as well as commercial housing. This increased demand further lead to development in satellite and commuter town evidenced by Tatu City in Kiambu and Konza City in Machakos, [5]. Therefore in order to meet the expatriate demand for housing, developers have resorted to developments that are geared towards the quality demanded by the expatriates. An example is Migaa gated community in Kiambu County which is a modern, developed, equipped project with commercial and retail space, hospital, museum and a golf course, [5]. Further investors in the real estate sector have been seen to explore alternative means of capitalizing on the

promising sector through partnership with the government and financial institution [5]. According to the Cytonn Investment Real Estate Report of the third quarter of 2015, the largest increase in the various sectors of the economy was posted by the construction sector and the property sector at 14.1 per cent ahead of agriculture, which reported 7.1 per cent and financial services at 10.1 per cent. However, the housing demand in Kenya supersedes housing supply as evidenced by the fact that the country faces an annual house demand of 200,000 units per annum but only about 50,000 units were constructed per year from 2009-2012 [6]. Similarly, from the period 2013-2017, Kenya has been experiencing a rise of over 300,000 new households per year with more than half of the new households being in urban centers juxtapose less than 200,000 new households that have been constructed yearly from 2013 - 2017, [6]. Further Hass Consultant Real estate investment Report asserted that Nairobi County is suffering from middle income housing deficit attributable to high land prices, high cost of construction permit which has risen to 1.25% from the previous 0.006% of construction cost, high lending rates for those opting for mortgage use and high infrastructure costs accounting for 30% of construction. This high costs has contributed to slow growth of real estate sector in Nairobi amidst rising population [7].

To meet the demand for financial requirements and budget deficit most of the countries borrow funds either within or outside the country. Globally Debt ratio in OECD countries rose from 70% in the 1990s to almost 110% in 2012. It was projected to increase to 112.5% of GDP by 2014 and even rising higher in the years to follow, [8]. The trend is seen not only in countries with a past of debt problems like Italy, Japan, Belgium, and Greece - but also in countries where the debt ratio was low including the US, UK, France, Portugal and Ireland [8]. Many economists see this increased level of debt as being unsustainable in many countries which in the long run affects the economic expansion in terms of real estate development. [9] Point out that external debt has weak influence on the real estate sector in developed countries as opposed to developing countries. Many countries in Africa are facing an increase in unrelated debt levels. Tanzania's debt rose steadily and was close to Tshs 28 trillion in January 2015, a pattern that was predicted to remain against declining revenues [4]. According to [10] Tanzania's Gross Domestic Product (GDP) stood at Tshs 52 trillion at current prices as of November 2013, which exceeded 50 percent. This was one of the variables responsible for the decline in growth in the real estate sector in Tanzania in the context of rising population growth, [11].

In the last five years Kenya has experienced a consistent rise in public debt as a percentage of GDP. Kenya recorded 51.45% in the year 2015, 54.50% in 2016, 55.18% in 2017 and 60.15% in 2018, [12]. This trend is worrying especially in an economy where the majority live below the poverty line. Kenya has a 2.1 million-unit shortfall for small and medium-sized homes and almost 51% of residential households' live in the slums. The state has not so far achieved its goal of officially increasing the supply of affordable housing to the citizens particularly those living in the slums. The initial target of the Kenya

Vision 2030 medium-term plan (MTP I, 2009-2012) was to provide 200,000 housing units per annum at all income levels by 2012 but the outcome was dismal as only 3000 housing units were constructed against the targeted 200,000 units. Even though Kenya identified affordable housing as a paramount pillar in the Big 4 agenda geared towards transforming Kenya into a middle income economy, problem of housing shortage may become acute in future if the rapid development and urbanization rates are not coupled with increasing investment in the real estate sector. Observed also in Kenya is the recent surge in external borrowing to finance major development projects in the country which has caused the debt to GDP ratio to rise. The effect of this rising external debt on real estate investment in Kenya warrants an examination.

According to [13] who used data from 1970 to 2007 on selected West African states and using the Granger Causality Error Correction Model found out that external debt had specific effects in the real estate sector in different countries due to structural differences and appears to have significant immediate impacts. Similarly, [14] using Nigerian External Debt Causality Tests from Granger, found that the link is adverse between economic growth and Nigeria's current extent of external debt. Furthermore, the Pairwise Granger Causality test showed that there was a uni-direct causality between international debt service payments and 10% economic growth. In addition, Granger's economic growth was found to have a 1% importance of external debt service payment. The above study employed non-linear models to depict the relationship between the variables and only focused on effects of external growth on economic growth in general. In contrast, this study used the Vector Error Correction Model (VECM) to depict the long run causality in the real estate development in Kenya and focused on the effects of external debt on the real estate development as an individual unit in the general economic growth in Kenya.

A study done in Kenya, using a simultaneous equation models, founds a negative relationship between debt-servicing and economic growth rate, [15]. Similarly [16] using gravity and probit model found that external debt has negative impact on economic growth and there also existed a "crowding out" effects (effects of huge external debt stock). However the studies failed to confirm the presence of debt "overhang" effects (effects of external debt service payments) on Private investment in Kenya, [15,16]. In a study in Kenya on the effect of external debt on Economic growth [17] using linear and quadratic models, found out that external debt has negative impact on economic growth. However, this study findings generalizes the impact of external debt on the economic growth without pointing out how it affects individual macroeconomic variables in the economy and how they contribute to the growth of the economy. Few studies have attempted to investigate external debt-growth relationships using a non-linear model and found the relationship to be insignificant for both developing and developed countries, [18,19]. This raises concern as, to what extent, could be the effect of external debt on real estate investments in Kenya. This study sought to examine the effect of up surging external debt on real estate investment in Kenya. It is apparent that many studies done on real estate investment have made little emphasis on the effect of

external debt on real estate investment in Kenya. Economic theory and literature review established that real estate was affected by real exchange rate, inflation, institutional quality, tax rate, gross domestic product, political stability and labor costs, trade balance, GDP growth rate, wage rate, urbanization and incentives by the government to attract real estate investments. However, this study has introduced External debt as new factor.

This current study expounded clearly how External debt affects real estate in particular as a unit in economic growth using a time series data and analytical research design. The study tested the null hypothesis that there is no statistically significant effect of external debt on real estate investment in Kenya using time series data from 2007-2017. The eleven years was good enough to cater for any structural changes that had occurred on the real estate sector. The choice of 2007 to 2017 for analysis was influenced by the fact that it was the time during which Kenya started experiencing tremendous structural breaks in the real estate sector. Kenya experienced post-election violence in 2007 that had huge effects on foreign direct investment inflows in the real estate sector and loans from external borrowers. Similarly many structural changes occurred in Kenya between 2007 and 2017 that had impact on real estate development amongst them is the constitutional change in 2010 which guaranteed investors favorable business environment and government support through Public Private Partnership (PPP) agreements. The inception of Flagship projects including the Standard Gauge Railway (SGR) in (2013) Mombasa Port Modernization (2015) Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET) project (March 2012), rehabilitation of airports and airstrips (2015) tremendously influenced the rates of real estate development.

This study provides information to both local and international investors on the effect of external debt on real estate investment in Kenya. Finally, the Government of Kenya may find it useful especially in the development of policies and regulations to attract more investors in the real estate sector for economic prosperity and achievement of housing pillar in the big 4 agenda. The study also contributes to the body of knowledge that already exists.

2. Theoretical Framework

This study was modeled on Debt- Overhung theory of External Debt. According to [20], debt overhang model postulates that if a prospective debt is more likely than the repayment capacity of the country, expected debt-service costs are likely to diminish further domestic and foreign investment because the expected return on productive investment projects is very low, which is a major share of economic support. This will ultimately decrease domestic

and foreign investment and thus reduce economic growth, [21]. This argument is represented in the debt "Laffer curve" in Figure 1, which demonstrate how larger debt stocks tend to be associated with lower probabilities of debt repayment.

The increase in debt factor, which is upward or "good" in the curve, is linked with an exponential rise in expected debt refund, while the increase in debt reduces expected debt repayment in the downside or downward side of the curve. [20] noted that if certain likelihood exists for potential debt to be greater than that of the country, the projected cost of debt servicing would prevent further domestic and foreign investment as the anticipated return on successful investment projects would be very small to sustain the economy. This will eventually discourage further domestic and foreign investment, [22].

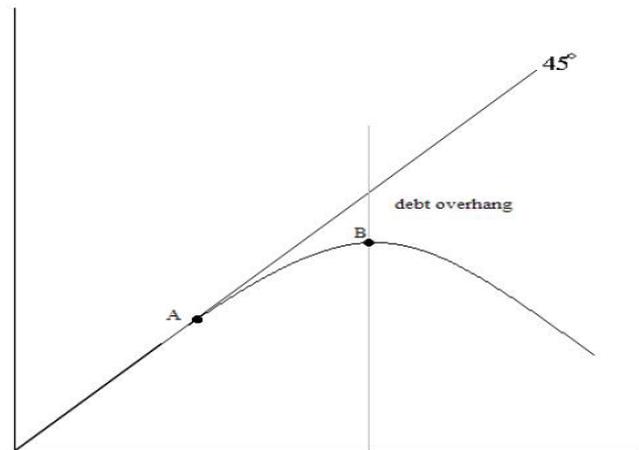


Figure 1. Debt Laffer curve (Source: IMF Quarterly Magazine - Finance & Development (2013))

3. Methodology

The study adopted analytical research design using time series data from 2007-2017. Secondary data was sourced from Kenya National Bureau of Statistics (KNBS) publications as well as economic surveys and World Bank website. The analytical research design was used in order to gain a better understanding and a more insightful interpretation of the result. The study data which were quantitative in nature were analyzed using descriptive as well as inferential statistics. Descriptive statistics included frequency distributions, mean, standard deviation and percentages. Inferential statistics included the estimation of regression analysis to evaluate the effect of External debt and real estate investment in Kenya. Real estate investment was measured by annual capita investment as a percentage of GDP and external debt also as a percentage of GDP.

Table 1. Description and Measurement of Variables

Variable	Description	Measurement	Prior-Expected Sign
Real estate	This is the growth of real estate investment	Annual capita investment in it as a percentage of GDP	+/-
External Debt	This is the long-term debt owed to non-residents repayable in foreign currency, goods and services	As percentage of GDP	+/-

Source: Author (2020).

Time series data were subjected to pre-estimation tests to find if the data exhibits desirable statistical properties remove estimator’s biases and enable suitable analysis. Further, estimating time series variables that contain unit root leads to a spurious regression results. The Augmented Dickey-Fuller test for stationarity (integration of order 1) or non-stationarity (integration of order 0) of real estate investment and external debt variables was done. The Augmented tests were applied because of its robustness. The hypotheses for Augmented Dicker Fuller test were:

- H_0 :Series is non-stationary versus alternative hypothesis
- H_1 :Series is stationary.

Table 2. Dickey-Fuller Unit Root Test

Number of observations = 42						
At Levels						
Variables	Z(t)	Prob> t	Critical values			Conclusion
			1%	5%	10%	
RES	-1.154	0.6930	-3.6280	-2.950	-2.6080	Unit root
EXD	3.237	0.9989	-3.628	-2.950	-2.6080	Unit root

Source: Researcher (2020).

The null hypothesis for ADF test states that series have unit root against alternative hypothesis that the time series data are stationary. The variables exhibited unit root at levels, RES (p-value 0.6930 > 0.0500) and EXD (p-value 0.9989 > 0.0500) as shown in Table 2. Therefore the null hypothesis was accepted and the alternative hypothesis rejected. This showed that the variables contained unit root. However, upon first difference, they all became stationary as shown by the probability values in the Table 3. All the variables had (p-values < 0.0500).

Table 3. Dickey Fuller Unit root test at first difference

Number of observations = 42						
First difference						
Variables	Z(t)	Prob> t	Critical values			Conclusion
			1%	5%	10%	
RES	-3.676	0.0045	-3.634	-2.952	-2.610	I(1)
EXD	-3.643	0.0281	-3.534	-2.952	-2.610	I(1)

Source: (Author, 2020).

Table 3 shows that all the variables had a (p-values < 0.0500) thus the series were stationary at first difference denoted as I (1). Therefore the null hypothesis of series having unit root was rejected in favor of alternative hypothesis that the series contain no unit root and it was therefore concluded that the series were stationary at first difference denoted as I (1).

In addition, the study carried a skewness kurtosis test to determine how likely it is for a random variable underlying the data sets to be normally distributed. Skewness is a measure of symmetry of the probability distribution of a random variable about its mean. It represents the amount and the direction of skew. On the other hand, kurtosis represents the height and of the central peak relative to that of the standard bell curve, [23]

Table 4. Test for Skewness and kurtosis

Equation	pr(skewness)	pr(kurtosis)	Adj.Chi2	Prob>chi2
D_res	0.2780	0.7654	2.63	0.0962
D_exd	0.5116	0.8973	1.34	0.2623

Source: Author’s Computation based on STATA 2020.

From Table 4 it was established that the probability chi2 value of skewness and kurtosis were above 0.05 for all variables. This is an indication that the direction of distribution of variables around their means was asymptotically normally distributed for both skewness and kurtosis of the data. Hence the null hypothesis H_0 -Data follows asymptotic normal distribution was accepted and the alternative hypothesis H_1 - Data does not follow asymptotic normal distribution was rejected.

Further, Durbin Watson test was also carried out to test for autocorrelation or serial correlation. The Durbin Watson statistics was found to be (1.915158) which lie between 1.5 and 2.6 hence no presence of autocorrelation in time [24]. Lastly, the study tested for the presence of heteroscedasticity which takes place when the variance of the error term keeps changing for all the values of independent variables. The error term can vary from one observation to another meaning the variance of error term is dependent on the magnitude of the independent variable. This study used the Breusch-Pagan test to check for the presence of heteroscedasticity [25]. The result obtained is shown in Table 5.

Table 5. Breusch- Pagan / Cook-Weisberg test for Heteroscedasticity

Chi 2 (1)	3.10
Prob> chi 2	0.0782
Ho: Constant variance	
Variables: fitted values of Dltxr	

Source: Author’s Computation based on STATA 2020.

From Table 5 it can be observed that the Prob> chi 2 value is 0.0782 which is greater than 0.05 therefore indicating that heteroscedasticity is absent hence the null hypothesis is accepted and the alternative hypothesis is rejected.

A stochastic model was then adopted to represent the estimated effect of external debt on real estate investment in Kenya.

The model was modified as;

$$RES_t = f (EXD_t) \tag{1.0}$$

In expansion equation 3.1 becomes

$$RES_t = \beta_0 + \beta_1 EXD_t + \varepsilon_t \tag{1.1}$$

Where, RES_t is the real estate, β_0 is the intercept, EXD_t is the external debt, ε_t the stochastic error term, t is the time, β_1 , is the regression estimate parameters.

4. Results and Discussion

The study determined the descriptive nature of the data in order to check for the presence of outliers in the variables values. Mean was used to locate the center of the relative frequency distribution while the standard deviation measures the spread of a set of observations. The results presented in Table 6 showed that Real estate investment (RES) had a mean of (6.7636) and standard deviations of (1.3103)

Table 6. Summary of Descriptive Statistics

Variable	Observation	Mean	Std. Dev	Min	Max
RES	44	6.7636	1.3103	4.35	8.59375
EXD	44	26.4	4.4742	21.4	37.8843

Source: Researcher, (2020).

External debt measured as percentage of total debt had a mean of (26.4) and standard deviation of (4.4742). External debt was widely spread as it registered the highest standard deviation of (4.4742) which indicated that majority of the values lie away from its mean value. The range of data, which is the difference between the maximum value and minimum value was a huge gap which demonstrates fluctuations in this economic variable. This fluctuation is attributed the post-election violence in 2008-2009 which painted a bad picture of Kenya to the international lenders and scared investor and external lenders who issued little loans as compared to loans issued from 2013 -2017 from external lenders due to steady political climate, favorable economic policies and huge government projects that required heavy funding from external loans, [26].

In addition, pair wise correlation analysis done between real estate investment and external debt indicated a moderate negative relationship as shown by the coefficient value of $r = -0.5105$ an indication that as external debt increases real estate investment decreases but moderately. This could be explained by a steady increase in foreign debt from commercial banks which was largely non concessional observed between March 2015 and September 2017 (20.3 and 30.7 respectively) while concessional multilateral loans on Real estate investment was declining steadily due to the rising debt to GDP ratio that had scared the external lenders doubting the ability of Kenya to repay the loans in due time, [27]. The results further agree with the findings of [14,28] who found out that real estate negatively and moderately related with the external debt.

Further, results from regression analysis revealed a significant negative effect (-0.155869, $p < 0.0500$) of external debt on real estate investment in Kenya as shown in Table 7. This showed that for a percentage increase in external debt real estate investment decreases by -0.155869 as a percentage of GDP.

Table 7. Results from Regression Analysis

DRES	Coefficients	Std. Err.	z	P> z	[95% Conf. Interval]
DEXD	-.155869	.0509283	-3.06	0.004	-.2587995-.0529397
Constant	.1423108	.0333107	4.27	0.000	.0749874-.2096342

Number of observations = 43 $F(2, 40) = 61.21R\text{-squared} = 0.8195$
Adjusted R-squared = 0.8033 $\text{Prob} > f = 0.000 \text{Root MSE} = .1835$

Source: Researcher (2020).

Moreover 81 percent of the variations in real estate investment are explained by variations in external debt. The null hypothesis was therefore rejected and alternative accepted that there is a statistically significant effect of external debt on real estate investment in Kenya was accepted. This study concluded that high external debt induces the government to divert finances from real estate investment as part of development projects to pay the external debt. Thus external debt crowded out real estate investment in Kenya.

According to [29], Kenya's total debt burden has been rising steadily since 2013. Kenya's total debt burden was 21.3%, up from the 2008-2012 with an 5-year average of 15.1%, indicating that public debt has been growing at an

increasing rate over the years when compared with GDP growth, which has been growing by 5.9% on average over the last 5-years. This has raised much concern to investors in real estate sector and resulted to decline in the development of real estate sector as investor fear the depreciation of the Kenya currency against other currencies particularly the dollar which may have huge impacts on yearly yields from their investments. As a result the real estate sector has continued to record a slowdown in its activity. In 2018, KNBS released their August issue of The Leading Economic Indicators (LEI), highlighting that the value of building plans approved by Nairobi City County between January and July 2017 decreased by 18.4% to Kshs 149.5 billion from Kshs 183.2 billion between January and July 2016. The value of residential approvals during the same period declined by 17.4% to Kshs 88.5 billion in 2017 from Kshs 107.2 billion in 2016, while the value of commercial approvals declined by 15.1% to Kshs 61.0 billion from Kshs 76.1 billion during the same period in 2017 and 2016, respectively.

According to the study findings, this decline in approvals could be explained by: First increase in tax duty levied on construction materials as a strategy by the Kenya Revenue Authority (KRA) to raise more revenue to service the external loans [30]. The second reason could be reduced credit to the private sector by banks as a result of the enactment of the Banking Amendment Act 2015 that has seen concessional credit growth on real estate sector decrease to 1.6% in August 2017 compared to 5.4% in August 2016. Finally the wait and see attitude adopted by real estate investors during the electioneering period, Kiprotich [22]. Consequently, Foreign debt from commercial banks, which is largely non-concessional, has been rising steadily from 20.3% in March 2015 to 30.7% in September 2017 while largely concessional multilateral loans on Real estate investment have been declining steadily due to the rising debt to GDP ratio that has scared the external lenders doubting the ability of Kenya to repay the loans in due time [27]. According to [31], should the Debt to GDP ratio continue to rise, the concessional loans on real estate sector are going to decrease further and this will have a huge negative effect on housing units constructed yearly. These findings concur with Debt-Overhung Theory which argues that if there is some likelihood that in the future, debt will be larger than the country's repayment ability, expected debt-service costs will discourage further domestic and foreign investment because the expected rate of return from the productive investment projects such as the real estate and manufacturing will be very low to support the economy. This eventually will further reduce both domestic and foreign investments and hence downsize the growth of economic units such as the real estate sector, Manufacturing, exportation and industrialization. The results further agree with the findings of [14] who found a negative relationship between external debt and Economic growth in terms of real estate investment. These findings however, contradict the findings of [18,19] who found the relationship between external debt and real estate growth to be insignificant. Poor financial condition of a country clearly indicates a relatively unfavorable environment for foreign investors in real estate sector.

The study estimated a regression equation of the form:

$$DRES = 0.1423108 - 0.155869DEXD_t \quad (4.1)$$

Where DRES is the first difference of Real estate, DEXD the first difference of external debt whereas t = Time series data. The above estimated model shows that if external debt is held constant, the annual real estate investment will be (0.1423108) as a percentage of GDP and as external debt increases by 1 as a percentage of GDP, real estate investment decreases by 0.155869 as a percentage of GDP.

5. Conclusion and Recommendations

The study concluded that external debt has a negative effect on real estate investment in Kenya. It was affirmed that there was a negative and marginal relationship between external debt and real estate investment in Kenya. External debt therefore is a hindrance to real estate investment in Kenya. Kenya is experiencing increasing population of middle income people and thus increasing demand for better and affordable housing. This requires major investments in the real estate sector which can be achieved through partnership with both foreign and local investors. Therefore the government need to adopt public private strategy (PPP) to attract more investors, provide incentives on the building materials, and reduce taxes on land and other vital resources associated with construction industry. Similarly, Interest on mortgage loans should be reduced in order to allow more people to buy their own homes. This will stimulate investors in this sector to construct more housing units at affordable prices. This will enable the government to achieve its big 4 agenda on affordable housing and the vision 2030. The government should also reduce external borrowing by encouraging the Kenya Revenue Authority to improve revenue collection mechanisms to maximize the amount collected in revenue, which will lead to a narrowing budget deficit and reduced total borrowing. Building an export-driven economy by encouraging growth in the manufacturing sector to increase the value-added exports and hence increasing the value of our exports vis-à-vis imports, leading to an improved current account deficit. This will attract more investors into different economic sectors particularly the real estate sector. Lastly, external commercial borrowing should be limited to development projects with high financial and economic returns, a move that will ensure the expensive debt is invested in projects that yield more returns.

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