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Factors Influencing Domestic Credit to Private Sector in Malaysia: Application of Vector Auto-Regressive Method

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Abstract

The private sector is the engine of economic growth for a country, especially for developing economies like Malaysia. The post-pandemic recovery will need to be more strongly supported by the private sector due to the medium-term fiscal space being limited. This study makes some important contributions in analyzing and deepening understanding of the determinants of credit to private sector in Malaysia. The main objective of the study is to investigate the factors that influence domestic credit to private sector in Malaysia over the period of 1960 to 2020 by applying Johansen cointegration and Vector Auto-Regression method. It is revealed that gross capital formation and broad money have a negative relationship with domestic credit to the private sector. The long-run relationship does not exist among the variables. This study also found that general government final consumption expenditure is an important factor to fuel the financial strength of domestic banks in providing credit facilities to the private sector. The findings provide valuable insights for guiding the policymakers in strengthening the private sectors as a key driver of economic growth. Further research should be done to investigate the implications of credit to private sector on economic growth.

Keywords: Credit, Private Sector, Broad Money, Gross Capital Formation, Economic Growth

Introduction

Prior to the global financial crisis of 2008, there was an excess of global liquidity and a rapid expansion of credit, particularly to the private sector. However, because of the global financial crisis, banks reduced their lending to the private sector as banks struggled to improve their balance sheets after plummeting asset values, take on more non-performing loans, and generally decrease risk through deleveraging. Bank credit growth has dropped significantly in real terms, and it is expected to stay low throughout most of the world's major economies and country groups. Massive government spending and credit-easing measures

implemented in advanced economies to combat the recession and support bank balance sheets did not result in more credit being extended to the private sector. Bank loan growth in mature markets began to drop in the middle of 2008 after increasing at an average annual pace of about 7 percent up until that point. By the end of 2009, it had become negative. The biggest decline in bank credit growth in 2009 was recorded in the United Kingdom, at about 20 percent. By the beginning of 2010, credit had decreased by almost 10 percent in the United States. A similar pattern was observed throughout the eurozone (Cartas and McConagha, 2010).

Credit growth had a sharp decline during the financial crisis and has yet to begin to recover, in part due to a reversal in foreign financial support for the banking industry. As of the end of 2009, credit growth rates in Latin America, sub-Saharan Africa, and the Middle East and North Africa all fluctuated between zero and five percent (Cartas and McConagha, 2010). In Malaysia, domestic credit to the private sector in 2020 was 134 percent. It grew at an average annual rate of 4.27 percent from 22.6 percent in 1971 to 134 percent in 2020 (Knoema, n.d). There is still some positive news for Malaysia about its pursuit of the high-income nation status, even though it has been delayed by the pandemic and has taken longer than expected. The post-pandemic recovery will need to be more strongly supported by the private sector due to the medium-term fiscal space being limited due to mounting debt burdens. As this situation puts the private sector under the spotlight (Kuriakose, 2021), there is an urgent need to empower the small and medium industries (SMEs), to allow them to open more job opportunities in Malaysia.

Therefore, credit facilities play a crucial role in the contemporary economic landscape, according to various scholars. According to these researchers, companies of all sizes, from Small and Medium Enterprise (SMEs) to large conglomerates rely heavily on credit facilities (such as loans, borrowing obtained through the issuance of non-equity securities, trade credit, etc.) to carry out their daily transactions and production activities as well as long-term investments. For instance, Sutton and Jenkins (2007) indicated the vitality of financial services such as banking, saving, and debt and equity financing for economic growth and development. Sutton and Jenkins (2007), for instance, highlighted the importance of financial services including banking, saving, and debt and equity financing for economic growth and development. In a similar vein, Ahiawodsi and Adade (2012) noted the significance of credit facilities in the growth of SMEs in Ghana in their study on access to credit and growth of SMEs. Additionally, Krshnankutty (2011) underlined the critical function of the credit market in fostering economic growth in developing nations in his study on the impact of bank lending in economic growth. Thus, this study is designed to investigate the factors influencing domestic credit to the private sectors for the case of Malaysia. Based on this objective, the sub-objectives are formulated as follow

- To determine the significant relationship between gross capital formation, general government final consumption expenditure, broad money, net official development assistance with domestic credit to the private sector in Malaysia.
- To analyze the long run relationship between gross capital formation, general government final consumption expenditure, broad money, net official development assistance with domestic credit to the private sector in Malaysia.

- To examine the short run equilibrium relationship between gross capital formation, general government final consumption expenditure, broad money, net official development assistance with domestic credit to the private sector in Malaysia.

Literature Review

Domestic credit to private sector by banks is defined as financial resources provided to the private sector by other depository corporations (deposit taking corporations other than central banks), such as through loans, purchases of non-equity securities, trade credits, and other accounts receivable that create a claim for repayment. For some countries these claims include credit to public enterprises (TheGlobalEconomy, n.d). The financial institutions comprise deposit money banks and monetary authorities in addition to other financial institutions for which data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). The finance and leasing firms, the money lenders, the insurance companies, the pension funds, and the foreign exchange companies are a few examples of other financial corporations.

Importance of Domestic credit to Private Sectors

SMEs are crucial for Malaysia's growth and development because they account for about 97 percent of the nation's business establishment, making them a key driver of job creation. These small firms occasionally begin as an idea from a few individuals who invest their own funds or borrow from friends and family (Mitra, 2018). Driving small and medium companies (SMEs), the backbone of the manufacturing industry and other sectors as well, is essential from an economic and business perspective as they significantly contribute to the gross domestic product (GDP). Strict loan requirements, such as requiring collateral when starting a business, are a dominant contributor of complaints from SMEs. Another issue is difficulties acquiring loans. For the economy to run smoothly, credit is essential. It enables consumers to buy homes, vehicles, and other commodities as well as new investments. Credit availability is generally beneficial for economic growth, even though excessive lending and borrowing can result in financial crises. If the banking credit to the private sector is at least 70 percent of GDP, the nation's financial system is relatively well-developed. The amount of credit can even exceed 200 percent of GDP in some very advanced economies. In some poor countries, the credit could be less than 15 percent of GDP. In these countries, firms and households essentially do not have access to credit for investment and various purchases. Bank Negara Malaysia, commercial and development banks, and other agencies must take heed to fine-tune and introduce financial reforms including reforming loan application procedures in line with Malaysia Madani (Bernama, 2023).

The Determinants of Domestic Credit to Private Sectors

In Nigeria, Gbenga et al (2019) study the determinant of private sector credit and its implication on economic growth from the year 2000 until 2017. Their study revealed there is a significant relationship between total credits to the private sector and money supply in Nigeria. This study also discovered there is a significant relationship between private sector credit and economic growth in Nigeria. Begum & Aziz (2019) have conducted an empirical analysis by employing VAR (Vector Autocorrelation) to determine the relationship between domestic credits to the private sector, domestic credit to the public sector on real Gross Domestic Product. They have concluded that domestic credit to the private sector has a

significant impact on the GDP of Bangladesh economy. Hina and Anayat (2019) have determined the importance of money supply in attracting FDI and enhancing GDP growth. The researchers have identified money supply as a mediator which positively affects foreign direct investment which in turn enhances economic growth in a country like Pakistan.

Obeng-Amponsah et al (2019) in their study analyze the determinants of domestic credit to the private sector in Ghana. This study used annual time series data from 1961 to 2016 by using the VAR method. The study concluded that money supply and gross capital formation are the important factors in developing the financial strength of domestic banks in providing credit facilities to the private sector. The study concluded that money supply and gross capital formation are necessary factors to address in the quest for developing the financial strength of domestic banks in providing credit facilities to the private sector for economic growth. The key findings of the study by Mukuka (2019) found that money supply is a significant determinant of private sector credit growth in sub-Saharan Africa showing a positive correlation coefficient. It is also revealed that GDP growth was statistically insignificant in determining private sector credit growth, with recessionary periods experienced by the sample countries yielding a marginal negative correlation coefficient. Interest rates were also statistically insignificant with a negative correlation to private sector credit showing that credit growth was driven by the underlying need, rather than the cost of credit, in sub-Saharan Africa.

Edward (2018) has examined the dynamic linkage between domestic credit to the private sector and economic growth in Nigeria using time series data set from 1970 to 2015. By applying VAR and Impulse response functions (IRFs), the researcher has also determined the positive but insignificant impact of domestic credit to the private sector on gross domestic product. Another study was conducted in Uganda by Katusiime (2018) to investigate the effect of inflation volatility on private sector credit growth. The study finds that the lagged private sector credit growth, nominal exchange rate, and inflation have a statistically significant effect on private sector credit growth while financial innovation, interest rates, and GDP growth appear not to be important determinants of private sector credit growth. Mahmood et al (2017) have presented a time series data analysis to find the long-run relationship between money supply (M2) and Gross Domestic Product for a data set from 1983 to 2013. They have confirmed that M2, government spending and inflation rate, all have a significant positive impact on GDP, whereas interest rate has a negative impact on economic growth which concludes that low-interest rate triggers economic growth.

Aslam & Awan (2018) have also witnessed a strong relationship between broad money and real Gross Domestic Product. Anyanwu et al (2017) examines the crowding out effect of government domestic borrowing using a panel data model for 28 oil-dependent countries over the period 1990 to 2012. This study estimates the model, using both fixed effects and generalised method of moments estimators and finds that a one percent increase in government borrowing from domestic banks significantly decreases private sector credit by 0.22 percent and has no significant impact on the lending rate banks charge to the private sector. This finding suggests that government domestic borrowing has resulted in the shrinking of private credit and works through the credit channel and not the interest rate channel.

Methodology

To analyze the factors influencing domestic credit to the private sector of Malaysia, this study suggests the following model

$$DCP_t = \alpha_0 + \alpha_1 GDI_t + \alpha_2 GCEXP_t + \alpha_3 M2_t + \alpha_4 NDA_t + \alpha_2 u_{t-1} + \varepsilon_t$$

where, DCP	=	domestic credit to the private sector
GDI	=	gross capital formation
GCEXP	=	general government final consumption expenditure
M2	=	broad money
NDA	=	net official development assistance

To determine the significant relationship between domestic credit to the private sector and its variables; gross capital formation, general government final consumption expenditure, broad money, and net official development assistance, this study applying the multiple linear regression to evaluate the independent effects of each explaining variable on the dependent variable. This study uses Granger-causality test in VAR framework to study causal relationship among the variables. The process starts by first reducing the data to bring out some of its characteristic features, which are not legible immediately; followed by diagnostic tests to check for stationarity of the time series using Augmented Dickey-Fuller (ADF) test equations as described in subsection 3.2 below. The next step is to check for the lag length to be included in the model by employing various lag length selection criteria. To investigate the presence of long-run relationships among the variables, we employ Johansen cointegration by applying unrestricted cointegration rank test (Trace and Max-eigenvalue) and it followed by Granger-causality tests in VAR to establish which variables have causal effect on others. The analysis ends with discussions on the models obtained from the process.

Data Analysis

EViews 12 package and Microsoft Excel are used to analyze secondary data on the variables from 1960 to 2020 retrieved from the World Bank's World Development Indicator (WDI) database. All the variables are ratios of gross domestic product, except net official development assistance, data are in constant 2020 U.S. dollars.

The Newey-West Methods

This study uses a procedure developed by Newey and West (1987) to correct the OLS standard errors. The corrected standard errors are known as HAC (heteroscedasticity- and autocorrelation-consistent) standard errors or simply known as Newey-West standard errors. Our sample of 60 observations is reasonably large, so we can use the HAC procedure.

Augmented Dickey-Fuller (ADF) Test

A stationary series can be defined as a series with a constant mean, constant variance, and constant auto-covariances for each lag. The presence of unit roots in series may pose autocorrelation problems, which may lead to spurious regression estimation. The ADF test proposed by Dickey and Fuller (1979); Dickey and Fuller (1981); Lei and Ma (2012) are used to test for the presence of unit roots in each of the series. This test is conducted by "augmenting" the preceding three equations by adding the lagged values of the dependent variable. The ADF test consist of the following regression;

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-1} + \varepsilon_t \quad (1)$$

where

ε_t = pure white noise error term and
 ΔY_{t-1} = $(Y_{t-1} - Y_{t-2}), \Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$ etc.

the number of lagged difference term to include is often determined empirically, the idea being to include enough terms so that the error term in Equation is serially uncorrelated, so that we can obtain an unbiased estimate of δ , the coefficient of lagged Y_{t-1} . The basic aim of the ADF test is to examine the null hypothesis H_0 against the alternative H_1

$H_0: \delta = 0$ (ΔY_y is not stationary or has a unit root)

$H_1: \delta < 0$ (ΔY_y is stationary or has no unit root)

Johansen Cointegration Test

According to Yang et al (2012), the original non-stationary vector of time series data is said to be co-integrated if each element of the vector achieves stationarity after differencing, but a linear combination is already stationary. The VAR based co-integration test using Johansen's approach (Johansen, 1991) is described below. The set of five variables under consideration are integrated of order one and may be cointegrated. A VAR with k lags containing these variables is set up as:

$$y_t = \sum_{i=1}^k \beta_i y_{t-i} + u_t \quad (2)$$

To use the Johansen test, the equation (2) above is converted into a vector error correction model (VECM) of the form:

$$\Delta y_t = \Pi y_{t-k} + \sum_{i=1}^{k-1} \Gamma_i \Delta y_{t-i} + u_t'$$

$t = 1, 2, 3, 4, 5$

where $\Pi = (\sum_{i=1}^k \beta_i) - I_5$ and $\Gamma = (\sum_{j=1}^i \beta_j) - I_5$

This VAR contains five variables in first difference form on the left-hand side, and $k-1$ lags of the dependent variables (differences) in the right-hand side, each with a Γ coefficient matrix attached to it. The hypotheses being tested are as follows;

H_1 : There is no cointegration among the variables

H_2 : There is at most 1 cointegration equation

H_3 : There are at most 2 cointegration equation

H_4 : There are at most 3 cointegration equation

H_5 : There are at most 4 cointegration equation

Granger Causality test

Granger-causality test examines the direction of causal relationship (if any) between the variables, since cointegration does not guarantee causality. Economic theories have firmly established the existence of causal relations in at least one direction. Numerous of studies has been done in this regard, Yang et al (2011); Granger and Weiss (1983); Engle and Yoo (1987); Granger (1969); Granger (1981) concluded that the variable X is said to granger-cause variable Y if using the past values of both Y and X gives a better forecasting result of Y than depending only on variable Y . Sample F -test is applied to examine causality in the variables. A significant F -statistic implies that lagged changes in a variable j Granger-cause changes in variable i .

Findings and Discussions

The trends in the series used are as in Figure 1 below. All the five graphs exhibit the presence of trend and intercept. Based on the figures, it show steadily increasing trend from year 1960. DCP and GDI shows sharp decline around 2008 because of the deterioration in global economic conditions. On the other hand, GCEXP, M2 and NDA showing a significant decline around 1990s when Malaysia's economic vulnerabilities stepped up significantly from early 1997.

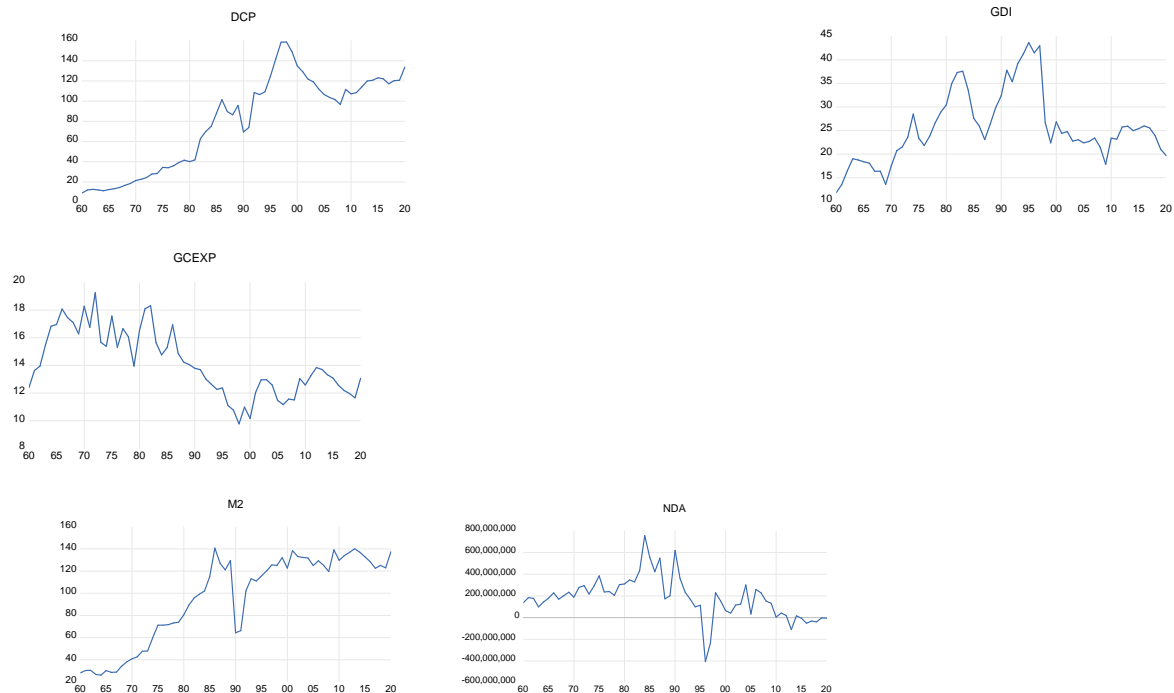


Figure 1: Line Graphs of Series 1960-2020

Table 1

Multiple Linear Regression

Variables	Coefficient	Std. error	t-Statistic	Prob.
C	0.751229	0.217880	3.447905	0.0011
GDI	-5.488719	0.904011	-6.071518	0.0000
GCEXP	0.788396	0.051526	15.30083	0.0000
M2	-2.36E-08	8.93E-09	-2.647194	0.0105
NDA	66.70112	18.08403	4.147040	0.0001
R-squared	0.941577	Mean dependent var		79.25916
Adjusted R-squared	0.937404	S.D. dependent var		46.35367
S.E. of regression	11.59733	Akaike info criterion		7.817840
Sum squared resid	7531.896	Schwarz criterion		7.990862
Log likelihood	-233.4441	Hannan-Quinn criter.		7.885649
F-statistic	225.6311	Durbin Watson stat		0.702012
Prob(F-statistic)	0.000000			

$$\widehat{DCP}_t = 0.751229 - 5.488719GDI_{2t} + 0.788396GCEXP_{3t} - 2.36E-08M2_{4t} + 66.70112NDA_{4t} \quad (1)$$

From Table 1, p value is used to test a hypothesis about individual regression coefficients. Thus, it can be concluded that the null hypothesis is rejected with 95 percent confidence. Meanwhile, Prob(F -Statistic) test for overall significance of the regression. As per the above results, probability is zero. This implies that overall, the regression is meaningful. The R^2 of about 0.94 means that 94 percent of the variation in the domestic credit to the private sector were explained by the variables which includes gross capital formation, general government final consumption expenditure, broad money, and net official development assistance. From the equation 1, if gross capital formation decreases by 1, on average, domestic credit to private sector goes up by 5.49. Secondly, if general government final consumption expenditure goes up by 1, on average, domestic credit to private sector goes up by 0.79. Thirdly, if broad money increase by 1, on average, domestic credit to private sector decreases by 2.36. This is in contrast with the findings by Mukuka (2019) who found a positive correlation between money supply and credit to private sector in sub-Saharan Africa. Lastly, if net official development assistance goes up by 1, on average, domestic credit to private sector goes up by 66.7. As the results suggests, government final consumption expenditure and net official development assistance have a positive relationship to the credit to private sector while general government final consumption expenditure and broad money are negatively related to the credit to private sector.

The Newey-West Methods

This study uses correcting OLS standard errors for autocorrelation. From the data given in Table 1, the estimated d value can be shown to be 0.702012, suggesting that there is positive autocorrelation in the residuals. From the Durbin Watson table, we find that for 60 observations and four explanatory variables, $d_L=1.444$ and $d_U=1.727$ at the 5 percent level. Since the computed d of 0.702012 lies below d_L , we cannot reject the hypothesis that there is positive serial correlation in the residuals. Based on Table 1, the regression suffers from autocorrelation. Using *EViews 12*, the results are as follows.

Table 2

Multiple Linear Regression (Correcting the OLS Standard Errors)

Variables	Coefficient	Std. error	t-Statistic	Prob.
C	0.751229	0.239387	3.138129	0.0027
GDI	-5.488719	1.671960	-3.282805	0.0018
GCEXP	0.788396	0.065934	11.95738	0.0000
M2	-2.36E-08	9.18E-09	-2.577049	0.0126
NDA	66.70112	28.19036	2.366097	0.0215
R-squared	0.941577	Mean dependent var		79.25916
Adjusted R-squared	0.937404	S.D. dependent var		46.35367
S.E. of regression	11.59733	Akaike info criterion		7.817840
Sum squared resid	7531.896	Schwarz criterion		7.990862
Log likelihood	-233.4441	Hannan-Quinn criter.		7.885649
F-statistic	225.6311	Durbin Watson stat		0.702012
Prob(F-statistic)	0.000000	Wald F-statistic		110.4796

$$\widehat{DCP}_t = 0.751229 - 5.488719GDI_t + 0.788396GXEXP_t - 2.36E-08M2_t + 66.70112NDA_t \quad (2)$$

Comparing this regression with Equation 1, we find that in both equations, the estimated coefficients and the R^2 value are the same. But, importantly, note that HAC standard errors are much greater than the OLS standard errors and therefore, the HAC t ratios are much smaller than the OLS t ratios. This shows that OLS had in fact underestimated the true standard errors. Even though the d values in both equations are the same, but the HAC procedures have already taken this into account in correcting the OLS standard errors.

Stationary Test

The models excluded from the analysis are the models of no intercept and no trend because the line graphs in Figure 1 above suggests that the series have intercept and/or trend. The hypothesis for the ADF test: Each of the five series is non-stationary. The results of the ADF test are in Table 3 below. From the results in the table below, we tested for stationarity in the dataset for the two models considered, thus, the model that includes intercept only and the one that includes both intercept and trend. In both cases, the test statistic is less negative than the critical value in each case that we run the test on the level data; hence, the null hypothesis of the presence of a unit root in the level data series cannot be rejected. According to Table 3, the tests confirm that all variables are integrated in order one or $I(1)$. Since the unit root statistical tests at levels are beneath the critical values for all certain approaches, the null hypothesis of unit root at the 1% significance level is accepted. Nevertheless, as the unit root statistical tests in first difference are above the critical values for all the approaches, the null hypothesis of unit root at the 1% significance level is rejected, and therefore the variables are integrated of order one ($I[1]$). These results indicate that there is a likelihood of cointegration between gross capital formation, general government final consumption expenditure, broad money, net official development assistance and domestic credit to the private sector. Therefore, we employed Johansen cointegration test to examine the existence of a long-run relationship between gross capital formation, general government final consumption expenditure, broad money, net official development assistance and domestic credit to the private sector. We proceed to the next step to find the number of lags to be included in the VAR model.

Table 3
Summary of Augmented Dickey Fuller Test

Variables	At level		First Difference		Remarks
	Intercept	Intercept and trend	Intercept	Intercept and trend	
DCP	0.7132	0.6673	0.0000*	0.0002*	$I(0)$
GDI	0.1466	0.5012	0.0002*	0.0009*	$I(0)$
GCEXP	0.4834	0.1162	0.0000*	0.0000*	$I(0)$
M2	0.5150	0.3197	0.0000*	0.0000*	$I(0)$
NDA	0.0797	0.0731	0.0000*	0.0000*	$I(0)$

Significant at 1% level of significance

Lag Length Selection

The optimal lags required in the co-integration test were selected using the most common traditional information criteria; Akaike Information Criteria (AIC), Schwarz Criterion

(SC) and Hannan & Quinn’s (HQ) proposed by Nadeem (2016), Schwarz (1978), and Hannan and Quinn (1979), respectively. The results are shown in Table above. From the results in table 4, all the three criteria have selected one lag to be included in the model, which is consistent with financial theories for the selection of lag lengths.

Table 4
Lag Length Selection Criteria

Lag	AIC	SC	HQ
0	69.04447	69.04447	69.11412
1	62.41362*	62.41362*	62.83151*
2	62.67308	64.64445	63.43922
3	62.99652	65.86396	64.11091
4	63.40294	67.16645	64.86557

Johansen Cointegration Test

From table 5 below, the trace statistic for all hypotheses are greater than their corresponding critical values, and the probability values are also greater than 0.05, which indicate the failure to reject H_1 at 5% level of significance, to yield the conclusion that there is no cointegration among the variables at the 5% significance level. In the same vein, the max-eigenvalue test results also show similar results. Therefore, we conclude that there is no long-run relationship between the variables. The result is in line with findings by Obeng-Amponsah et al (2019) investigated the factors that influence domestic credit to the private sector in Ghana. The study uses the Johansen cointegration and vector auto-regression model to analyze panel data spanning the period from 1961 to 2016. Findings from the study revealed that though there is no long-run association among the variables, there exist significant short-run relationship between domestic credit to the private sector, broad money, and gross capital formation. Hence, we estimate unrestricted VAR models in the next section.

Table 5
Unrestricted Cointegrated Rank Test (Trace)

Hypothesize d No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	59.17145	60.06141	0.0593	24.94896	30.43961	0.2071
At most 1*	34.22249	40.17493	0.1746	18.83385	24.15921	0.2235
At most 2*	15.38864	24.27596	0.4252	9.292844	17.79730	0.5618
At most 3	6.095798	12.32090	0.4244	6.080512	11.22480	0.3406
At most 4*	0.015286	4.129906	0.9195	0.015286	4.129906	0.9195

Significant at 5% level of significance

Unrestricted VAR Model Estimation

We obtained the following VAR models for the variables by applying the least squares method:

$$GDI_t = 3.5356 + 1.0181GDI_{t-1} - 0.0115GDI_{t-2} - 0.0409DCP_{t-1} + 0.0299DCP_{t-2} \quad (3)$$

$$DCP_t = 5.7728 + 1.1298DCP_{t-1} - 0.1638DCP_{t-2} - 0.6327GCEXP_{t-1} + 0.5400GCEXP_{t-2} \quad (4)$$

$$M2_t = 27.4689 + 0.9017M2_{t-1} - 0.0116M2_{t-2} - 2.1235GCEXP_{t-1} + 1.0564GCEXP_{t-2} \quad (5)$$

$$NDA_t = 31796035 + 0.6523NDA_{t-1} - 0.0482NDA_{t-2} + 5619217GDI_{t-1} - 4856035GDI_{t-2} \quad (6)$$

Granger-Causality Test

We employ the granger-causality test to investigate the causal relationships that exist among the variables; table x contains the results of the test. From Table 7, results show that at 5% level of significance, the direction of causality is from GDI to DCP, DCP to GCEXP, M2 to GCEXP and NDA to GDI. On the other hand, there is no “reverse causation” between the variables mentioned. These results indicate that using the past values of both GDI to DCP gives a better forecast of DCP than depending on only DCP. Also, depending on past values of both DCP to GCEXP, it will yield better forecast values of GCEXP than depending on only GCEXP values. Furthermore, past values of both M2 to GCEXP produces better GCEXP estimates than only GCEXP values. Finally, using past values of both NDA to GDI forecasts GDI better than depending on only GDI values. From the analysis, the estimated model (4) is the best model for forecasting of DCP values. This is consistent with the finding by Obeng-Amponsah et al (2019) who found that other than money supply, gross capital formation is the important factors in developing the financial strength of domestic banks in providing credit facilities to the private sector.

Table 7
Granger Causality Test Results

Variables	DCP	GDI	GCEXP	M2	NDA
DCP		0.42656 (0.6321)	10.9814 (0.0001)* *	1.27760 (0.2870)	1.73878 (0.1854)
GDI	8.21313 (0.0008)**		3.26859 (0.0457) **	2.39709 (0.1006)	0.43076 (0.6522)
GCEXP	0.17976 (0.8360)	0.37018 (0.6923)		1.18947 (0.3122)	2.89526 (0.0639)
M2	2.70740 (0.0758)	0.08019 (0.9231)	4.85344 (0.0115)* *		1.16930 (0.1432)
NDA	1.95491 (0.1515)	3.56372 (0.0352)**	0.42573 (0.55306)	2.01497 (0.1432)	

DCP: Domestic Credit to Private Sector; GDI: Gross Capital Formation; GCEXP: General Government Final Consumption Expenditure; M2: Broad Money; NDA: Net Official Development Assistance

**represents significant at 5% level of significance

Conclusion and Recommendations

This study investigates the factors influencing domestic credit to private sectors in Malaysia. This study employed VAR method using the annual data from 1960 until 2020, which represents 60 data points by utilizing four variables to explain the domestic credit to private sectors which includes the gross capital formation, general government final consumption expenditure, broad money, net official development assistance. Using yearly time series data, we examined the short- and long-run relationships between the selected variables and private sector credit in Malaysia. According to the models, this study reveals that general government final consumption expenditure and net official development assistance have a positive relationship with credit to private sector. Meanwhile, gross capital formation and broad money are negatively related with credit to private sector. After estimating the associated long-run cointegration parameters by utilising the Johansen cointegration test, there is clear evidence that there is no long-run relationship between the gross capital formation, general government final consumption expenditure, broad money, net official development assistance with credit to private sector.

This study applies Granger causality to find the direction of causality among the variables. Based on the results, it is found that there is unidirectional causation between gross capital formation to domestic credit to private sectors, domestic credit to private sectors to general government final consumption expenditure, broad money to general government final consumption expenditure, and net official development assistance to gross capital formation. However, there are no “reverse causation” between the variables mentioned. It can be concluded that gross capital formation is an important factor to address in the quest for developing the financial strength of domestic banks in providing credit facilities to the private sector for economic growth of Malaysia as it is the second largest component of Malaysia’s gross domestic product (GDP) with a 20.1 per cent share of the total economy in 2020. Following the UN Millennium Summit’s adoption of the Millennium Development Goals (MDGs) in 2000, one of the strategies for poverty alleviation is to increase access to credit (Ayenew and Zewdie, 2010).

Commercial and development banks, Bank Negara Malaysia, and other organisations must pay attention to adjusting and implementing financial reforms, including reforming loan application to comply with Malaysia Madani. The government must endeavour to help Malaysia overcome its financial difficulties by encouraging entrepreneurship among public servants and the populace based on a just economy. This also requires the government to collaborate with the private sector to develop Malaysia's competitiveness and raise the country out of its current economic rut which calls for the government and all segments of the business community to work together (Bernama, 2023). In future investigations, it might be possible to investigate the impact of domestic credit to private sectors on economic growth.

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