The Impact of Credits on the Economic Growth in Cambodia

Chanrey Pang, Pisith Hok, Mady Sen, Sokhom Ma, and Chandara Sam

Corresponding Author. Email: hok.pisith@acleda-aib.edu.kh
ACLEDA INSTITUTE OF BUSINESS, Phnom Penh, Cambodia

ABSTRACT

This research aims to investigate the existing empirical literature on the factors that affect Cambodia's economy, particularly the impact of credits on the economic growth. It examines the relationship between microfinance institutions (MFIs) and commercial banks (CBs) loans and Gross Domestic Product (GDP) in Cambodia from 2009 to 2018 and analyzes their respective significant impacts on economic growth. This research employed simple and multiple regressions to develop the effects' conceptual models. The results showed that loan supply had a significantly positive relationship with GDP, while 1% increase in MFIs' loan volume led to an increase of 1.30% in GDP and 1% increase in CBs' loan volume led to an increase 0.38% in GDP, with an R-square of 95%. Furthermore, loan supply was found to have a significant positive relationship with GDP per capita, with an R-square of 95%, while $1 billion increase in MFI loan volume leading to an increase of $68.95 in GDP per capita and $1 billion increase in CB loan volume leading to an increase of $16.11 in GDP per capita. Hence, the study indicated that loan supply had positively contributed to the economic development of Cambodia. The findings of this study contribute not only to assessing the role of credits in stimulating the growth of the Cambodian economy but also to yielding some implications and recommendations for future research, the banking industry, and policymakers.

Keywords: Credits, microfinance institutions (MFIs), commercial banks (CBs), Gross Domestic Product (GDP), and GDP per capita

1. Introduction

Cambodia is a developing country located in Southeast Asia. People in this region know it as a small and low-income country, while the Gross Domestic Product (GDP) per capita was only 302.58 dollars in 2000, with a population of 12.16 million (Global Economy, 2021). The economic history of this country was mainly dependent on two main factors: tourist inflow and agriculture. This traditional behavior of economic activities spent Cambodia in a low-income country over the past two decades. In the early 2000s, the government set a priority plan to reduce the poverty in this country. In order to meet this plan, Cambodia first needed to have a stable economy. Controlling the component of the economics sectors such as monetary policy, inflation and promotion of the financial system to support financial private sectors. Moreover, government has also set a strategy of "Financial Sector Blue print for 2001-2010" by promoting foreign direct investment to Cambodia (ADB, 2001). A convenience of conducting financial transaction had become a main attraction to the foreign investors. A significant in changing some traditional economics activities moved from a low-income country to reaching lower middle-income status in 2015, GDP per capita was $1,192.60 and continued increasing steadily to $1,512.13 in 2018. The Association of Banks in Cambodia has claimed that "Cambodia is a bank-based economy, n.p" which means the financial institutions, especially commercial banks, are the primary source of funding" (ABC, 2021). Ninety percent of Cambodia's financial 'assets are in the country's banking system. Banking system assets increased by 20.9% in 2017 to approximately $34.93 billion in 2018, equivalent to 143% of the GDP (Privacy Shield Framework, 2021). Moreover, this sector has been an important sector since 2009, while the total commercial loan to GDP was 24.3%, 47.7%, and 83.5% in 2009, 2013, and 2018, respectively (ADB, 2021).

Since credits concentrated in vital economic sectors such as wholesales and retails (27.5%), agriculture (8.9%), construction (9.2%), real estate activities and owner-occupied housing (17.4%), and other sectors (37.5%) (Privacy Shield Framework, 2021), it demanded that loan plans and actions be taken into account. Hence, specific plans must be designed to meet Cambodia's future demands for loan services. Thus, keeping the above in mind, the present study makes a modest attempt to analyze how the demand for loans impacts the growth rate, with particular reference to its problems and prospects.

The main objectives of this study are to investigate the existing credit trend related to GDP in Cambodia from 2009 to 2018 and to analyze the significant impact of credits on the economic growth in Cambodia.

This study will investigate the existing empirical literature on the factors that push the Cambodian economy while studying the relationship between credits on the economic growth in Cambodia by testing the most recent data from 2009 to 2018. The findings of this study will

not only help us assess whether the role of banks stimulates the growth of the Cambodian economy but will also indicate the direction of loan performance in the economy.

2. Literature Review

Definitions of key terms

There are many studies of how loans affect GDP. Some researchers reviewed the effects of loans on GDP by examining different sectors of loans while other researchers examined the effects of performing and non-performing loans on GDP. This study aims to investigate the appropriate term of loan by focusing on the Impact of credits on the economic growth of Cambodia.

Credits is a contractual agreement in which a borrower receives loans now and agrees to repay the lender later —generally with interest (Kenton, 2020). On the other hand, Twin (2020) defined bank credit as the amount of credit available to a business or individual from a banking institution in the form of loans. Bank credit, therefore, is the total amount of money a person or business can borrow from a bank or other financial institutions. It depends on the borrowers' ability to repay the loans and the lenders' total credit amount available to lend (Twin, 2020). Types of bank credit include car loans, personal loans, and mortgages.

Economic growth, in general, is defined as a percentage increase in the total amount of goods and services produced per head of the population over a period of time. Investopedia (2021) has defined economic growth as an increase in the aggregate production of a country's goods and services, compared from one period to another. The aggregate level can be measured by the GDP or the gross national product (GNP). It can be forecasted in a nominal or real (inflation-adjusted) term.

Credits and economic growth

It is essential to know the role of loans in the economic development of Cambodia since the concept of loans has become more widespread in the last few decades. Before that, it had traditionally been a minor subject for a study involving the identification of the causes and implications for banking and financial distress since households were considered trustworthy borrowers or typically had collateral pledged with their borrowing. These enable banks to prevent excessive losses on household lending compared to corporate lending. The concentration of studies and examination of loan performance and its implication for the banking crisis has been put on the corporate sector.

The correlation between loans and economic growth has been a theme in numerous theoretical and empirical studies. Some papers demonstrate the pros and cons of loans on economic growth in Romania, Nigeria, Saudi Arabia, and the Arab world. The conclusion that can be drawn is

that financial development leads to the economic growth when forecasting future economic growth rates or technological change. Moreover, the quality of the financial system is influenced by economic activities.

A study on the implications of credit activities on the economic growth in Romania by Duican and Pop (2015) had to include data pre- and post-crisis. The study observed the history of Romanian business activities before and during the crisis. It was found that, while in crisis, loans played an essential role in this country since the results of the study showed that credit has a significant influence on the evolution of GDP in the eight development regions of Romania, while an increase of one monetary unit in credit would determine an increase of 1.47 monetary units in GDP. Based on the results of the study, banks should continue to finance the economy through credit as it contributes significantly to GDP growth in Romania.

In the same results, a study by Aniekan and Jimoh (2011) on the topic of banking sector credit and economic growth in Nigeria investigated the relationship between banking sector credits and the economic growth in Nigeria over the period 1970–2008, found that the banking sector-credit positively impacted the economic growth over the period covered. Moreover, some studies, such as those by Walter Bagehot (1873) and John Hicks (1969) argued that the financial system played an essential role in leasing capital mobility in England. In 1912, Joseph Schumpeter argued that identifying and funding the entrepreneurs with the best chances of implementing innovative products would encourage banks to innovate technologically. On the other hand, Joan Robinson claimed that the financial system automatically responded to requests from various financial arrangements created by economic development. In addition, Robert Lucas (1988) and Nicholas Stern (1989) do not support the notion that the financial system-economic growth relationship is significant.

Ananzeh (2016) employed time series data with vector autoregressive (VAR) from 1993 to 2014. He investigated the relationship between banking credit and the economic growth in Jordan. Banking credit was divided into five different sectors: bank credit facilities for all sectors, bank credit facilities for the agriculture sector, bank credit facilities for the industry sector, bank credit facilities for the construction sector, and bank credit facilities for the tourism sector. As a result, he found that banking in different sectors played a positive role in the growth of the Jordanian economy.

During the world economic crisis in 2008–2009, there was a study about the credit growth rate in Romania (Tiberiu, 2009). The study investigated the change in credit ratio that had been divided into two main factors. It conducted an analysis to forecast the credit growth rates for both domestic and foreign currencies. This analysis showed that the growth rate of domestic currency decreased from 40% in April 2008 to 8% in April 2009, while the foreign credit rate dropped from 25% in May 2009 to 22% in October 2009. This transaction led Romania to

register a transition from a credit boom to a credit crunch. The study concluded that absent credit activities led a whole country into an economic crisis.

Gaffar and Osman (2014) investigated the relationship between commercial bank credits provided to the private sector and GDP growth in Saudi Arabia using annual data from 1974–2012. Two main variables are the private sector and GDP, while four other variables—commercial bank's deposits, government expenditure, inflation rate, and open economy—are control variables. The study used the autoregressive lag (ARDL) approach, and the elasticity of GDP to the private sector was (0.054) and (0.051) for the long-run and short-run, respectively. This indicated that credit provided by the private banking sector was essential to the economic growth of Saudi Arabia.

In the same way, another study by Ayuba and Zubairu (2015) in Nigeria concluded that banking sector credit had a significant impact on small and medium enterprises in Nigeria. The study revealed that during the high unemployment rate, credit to SMEs played an essential role in the overall success of Nigeria, which was a catalyst for the Nigerian economic growth.

Conceptual framework

The various empirical literature reviews addressed the significant impact of banking credit on economics in different ways. Some focus on credit provided by the private sector, while others estimate the relationship using the individual characteristics of countries with different forms of time series data.

To describe Cambodia's characteristics, with no different data from different regimes, we construct the equation by a simple linear equation with cross-sectional data from 2009 to 2019 using two main variables: banking credit as an independent variable, and GDP indicating Cambodia's economic push as a dependent variable. Firstly, we investigated the existing trend of the volume of loans and GDP per capita from time series data from 2009 to 2018. Secondly, we employed a more advanced econometrics technique with two simple linear equations and multiple regressions.

The first simple linear regression equation is about the impact of credits from Microfinance Institutions (MFIs) to Cambodia’s nominal GDP.

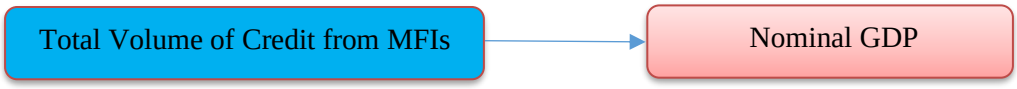

Figure 1: The Impact of MFIs’ Loan on nominal GDP in Cambodia.

Secondly, we observe linear equation 2, which is about the impact of credits from Commercial Banks (CBs) to Cambodia's nominal GDP.

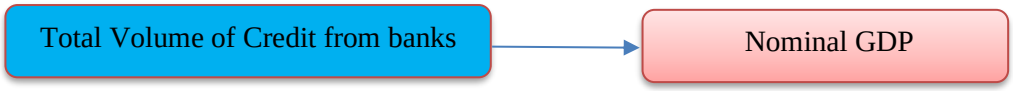

Figure 2: The Impact of CBs' Loan on nominal GDP in Cambodia.

Thirdly, we mixed those factors into a multiple regression model to ensure that credits from MFIs and Credit from CBs impact Cambodia's nominal GDP.

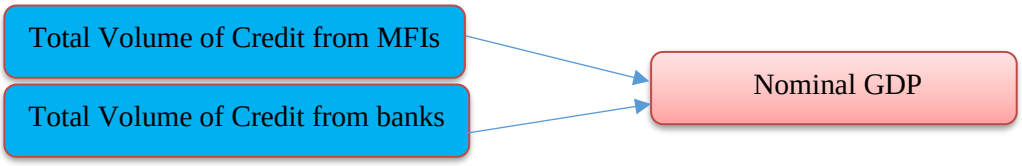

Figure 3 The Impact of CBs and MFIs' Loans on nominal GDP in Cambodia.

Last but not least, we investigate if credits from MFIs and CBs impact Cambodia's GDP per capita.

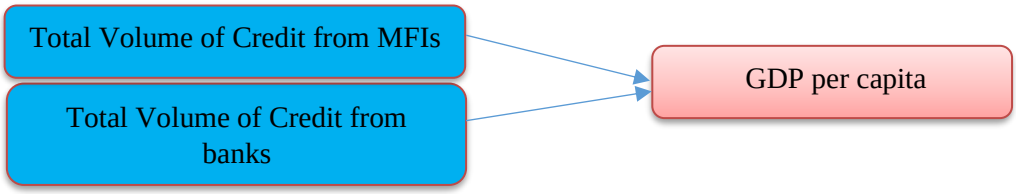

Figure 4: The Impact of CBs and MFIs' Loans on GDP per capita in Cambodia.

3. Research Methodology

Research design

This study used a quantitative method and secondary time series data to test the hypothesis of a correlation between MFI, bank credit, and GDP from 2009 to 2018; MFI and bank credits are considered independent variables (IV), while GDP is the dependent variable (DV).

Types and sources of data

In order to reach the objective of this study, some statistical techniques were employed. The tables of the increasing volume of loans from 2009 to 2018, a graph of the correlation between the volume of loans and GDP in the same period, a table of independents and the correlation between independent variables and dependent variables were illustrated. The correlation testing, simple regression, and multiple regression were also employed.

There are two steps to investigate this study, firstly, we observed the existing trend of the variables by using a histogram graphic. If the result showed a trend, a second step needed to be done with the correlation of credits toward GDP. Secondly: We examined the impact of MFI loans on GDP, the impact of bank loans on GDP, and the combined impact of the two loan factors on GDP. In order to study this, a secondary time series of macroeconomic data for each of the three indicators were employed; that is, the data on MFI and bank loans were selected from the report of the National Bank of Cambodia, while GDP was from the World Bank. Overall, the study used histograms and secondary data, and, it employed quantitative analysis by using both simple and multiple regressions.

Statistics tools

The secondary data collected for the study were processed and tabulated, keeping the study's objectives in mind. The interrelationships among the data form the basis for tabulation. Simple statistical calculations, such as simple and multiple regression and relevant statistical tools, were used in the study to accomplish its objectives. To assess the growth of the tourism sector over the period 2000–2017 in terms of inflows of domestic, international, and total tourists; tourism income; and employment generated in the tourism sector, the following models were used:

MODEL 1: $GDP_t = \alpha + \beta X_t + u_{it}$

Where ***Dependent Variables:***

GDP_t = Nominal GDP for the period of 2009 to 2018

Independent Variable:

X_t = Volume of MFIs' Loan for the period of 2009 to 2018

α = Constant

β = Slope

u_{it} = Error term

MODEL 2: $GDP_t = \lambda + \omega X_t + u_{it}$

Where ***Dependent Variable*:**

GDP_{it} = Nominal GDP for the period of 2009 to 2018

Independent Variable:

X_t = Volume of CBs' Loan for the period of 2009 to 2018

λ = Constant

ω = Slope

u_{it} = Error term

MODEL 3: $GDP_{it} = \gamma + \upsilon X_{1t} + \varphi X_{2t} + u_{it}$

Where ***Dependent Variable:***

GDP_{it} = Nominal GDP for the period of 2009 to 2018

Independent Variable:

X_{1t} = Volume of MFIs' Loan for the period of 2009 to 2018

X_{2t} = Volume of CBs' Loan for the period of 2009 to 2018

γ = Constant

υ = Slope of MFIs' Loan

φ = Slope of CBs' Loan

u_{it} = Error term

MODEL 4: $GDP_{it}, P = \gamma + \upsilon X_{1t} + \varphi X_{2t} + \varepsilon_{it}$

Where ***Dependent Variable:***

GDP_{it}, P = GDP per capita from the period of 2009 to 2018

Independent Variable:

X_{1t} = Volume of MFIs' Loan for the period of 2009 to 2018

X_{2t} = Volume of CBs' Loan for the period of 2009 to 2018

γ = Constant

υ = Slope of MFIs' Loan

φ = Slope of CBs' Loan

ε_{it} = Error term

To understand Cambodia's characteristics, with no different data from different regimes, we constructed the equation by multiple linear equations with time series data from 2009 to 2019 with three main variables: volume of credits from MFI and the volume of credit from Commercial bank as independent variables, and GDP as a dependent variable. Thus, simple regression and multiple regression models were used since they were mentioned in 3.3 Statistics Tools.

4. Results and Discussion

The volume and percentage growth of loans in Cambodia

Table 1 presents the volume of loans from MFIs and banks in billions of dollars separately and the sum of those two sectors from 2009 to 2018. Further, we investigated the growth rate of Cambodia's total volume of loans.

Table 1: The Growth of the Volume of Loans in Cambodia (2009-2018)

No	Year	The volume of MFIs' Loans (Billion US)	The volume of Banks' Loans (Billion US)	Total Volume of Loans (Billion US)	Increase (%)
1	2009	0.300790046	2.546600909	2.847390955	
2	2010	0.412246893	3.159880294	3.572127187	25.45264222
3	2011	0.638556646	4.356798913	4.995355559	39.84260071
4	2012	0.877483094	5.891790745	6.76927384	35.5113517
5	2013	1.306618242	5.900569177	7.207187419	6.469136712
6	2014	2.016965937	9.530975597	11.54794153	60.22812871
7	2015	3.033033598	5.885952954	8.918986552	-22.76557233
8	2016	3.136361223	14.12613908	17.2625003	93.54777808
9	2017	5.428880134	16.99132103	22.42020116	29.87806384
10	2018	4.289807049	21.08914582	25.37895287	13.1968116
			Average Annual Compound Growth Rate (%)		27.51419

Note: i. The total number of Loan is the sum of the number of MFIs and Banks' Loan in a particular

As revealed in Table 1, the total volume of MFIs' and banks' loans in the country reached $25.37895287 billion in 2018, up from $2.847390955 billion in 2009. Further, the average annual compound growth rate was estimated to be $27.51419. The volume of MFIs' loans had continuously increased over the study period (2009–2018), except for one year, 2015. As such, compared to 2014, the percentage change was -22.77. Among the 10 years, the percentage change in the volume of MFIs' loans was the highest (93%) in 2016 and the lowest (6.46%) in 2013.

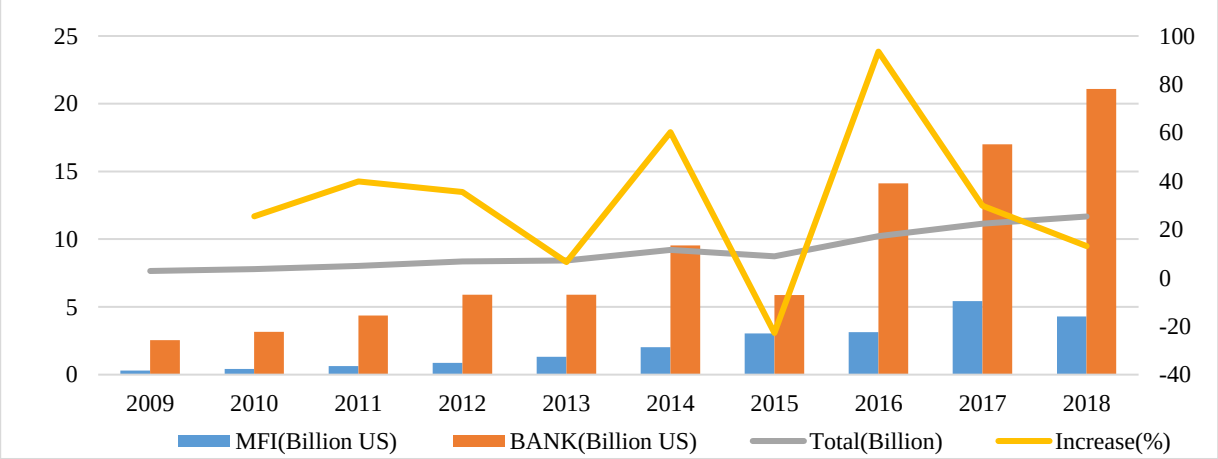

Figure 5: The Growth of Volume and Rate of Loan in Cambodia

The change in volume of both MFIs and banks separately and in total, with their year-over-year change in percentage over the study period, it shown that these factors correlated with each other and their existing trend since 2009 to 2018.

Descriptive statistics

The data in Table 2 illustrates the level of variation for each variable in this study. Table 2 includes the type of variable, minimum, maximum, mean, and standard deviation (SD) analysis within the study period. Since this research employed MFIs and Banks' loans with a ten-year time series, each variable's mean explained each factor's effective level over the ten years. As seen in Table 2, the lowest volume of MFIs is $0.30 billion, while the highest is $5.43 billion, with a mean of $2.14 billion and a standard deviation of 1.76 in the study period. Furthermore, the lowest volume of bank loans is $2.55 billion, while the highest is 21.09 billion, with a mean of $8.94 billion and a standard deviation of 6.35 in the same period.

Table 2: Descriptive Analysis

	N	Min (Bil-)	Max (Bil-)	Mean	Std. Deviation
Nominal GDP	10	10.40	24.57	16.5275	4.69152
MFIs' Loan	10	.30	5.43	2.1441	1.76869
CBs' Loan	10	2.55	21.09	8.9479	6.34926
Valid N (listwise)	10				

The annual existing trend between loan and GDP in Cambodia

Figure 6 illustrates existing needs with three variables: MFIs' loans, CBs' loans, and nominal GDP. In 2009, their volumes in billions of USD were 0.30, 2.55, and 10.40, respectively. Those volumes increased tremendously in 2018, at 5.43, 21.09, and 24.57, respectively. As a result, while the volume of loans increases, it directly increases the GDP; in other words, there are existing trends among variables.

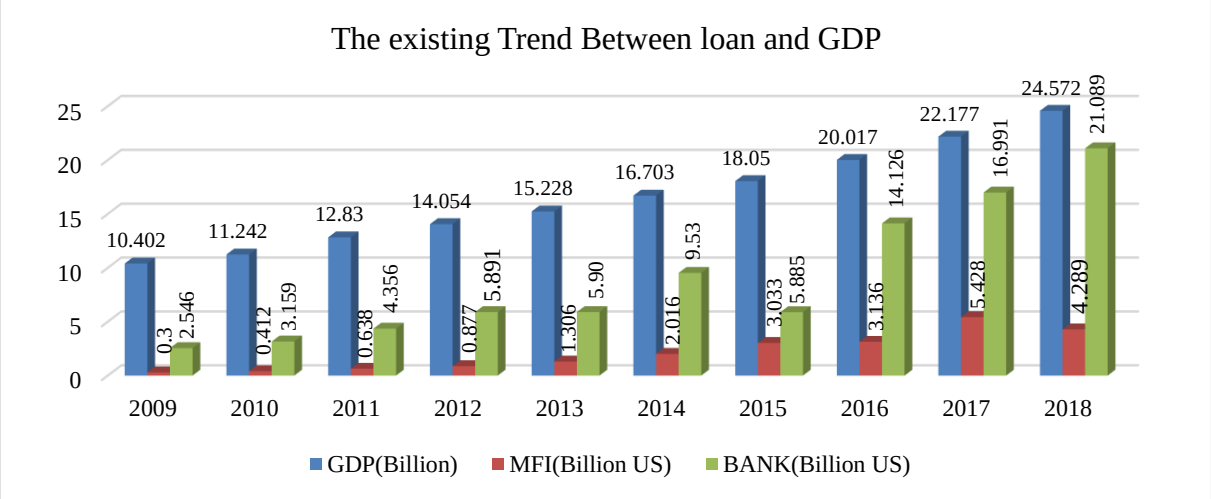

Figure 6: The existing trend of the volume of loans (MFIs) and GDP

Correlation analysis

Since the results show an existing trend between bank credit and GDP, another step is to investigate the relationship between those two variables. The growth of banking credit over the period 2009–2018 and the role of credit in the economic development of Cambodia, considering relevant indicators during the study period, have been analyzed quantitatively based on secondary time series data. Finally, quantitative analysis and regression models have been used to analyze the impact of bank credit on economic growth.

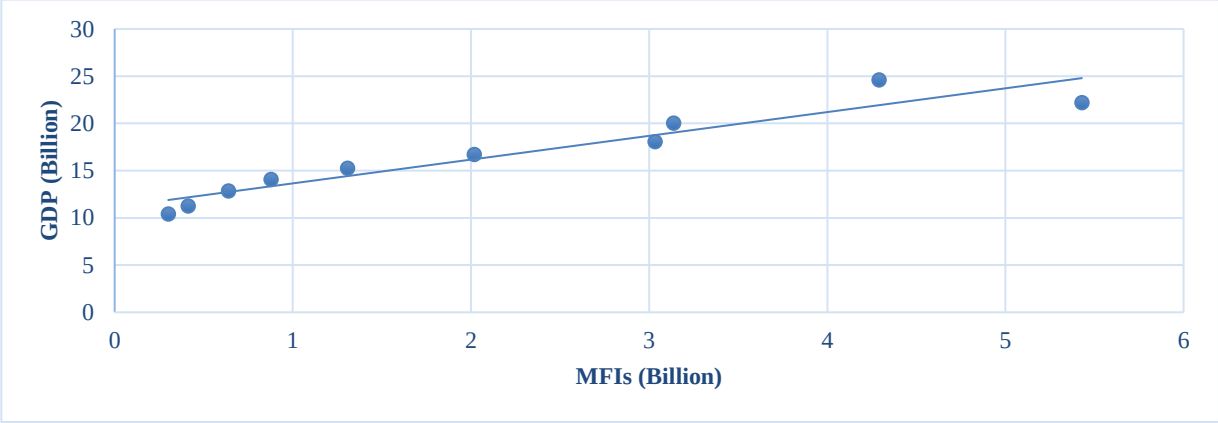

Figure 7: Correlation of volume of loans (MFIs) and GDP by Using Dot Plot.

Figure 7 illustrate the correlation between MFIs' value of loan and GDP by dot plot with the regression line. We can observe that data are cluster around the regression line with positive a linear relationship between variables, so this fit regression line is taken to study the impact of MFI's on GDP for the next step.

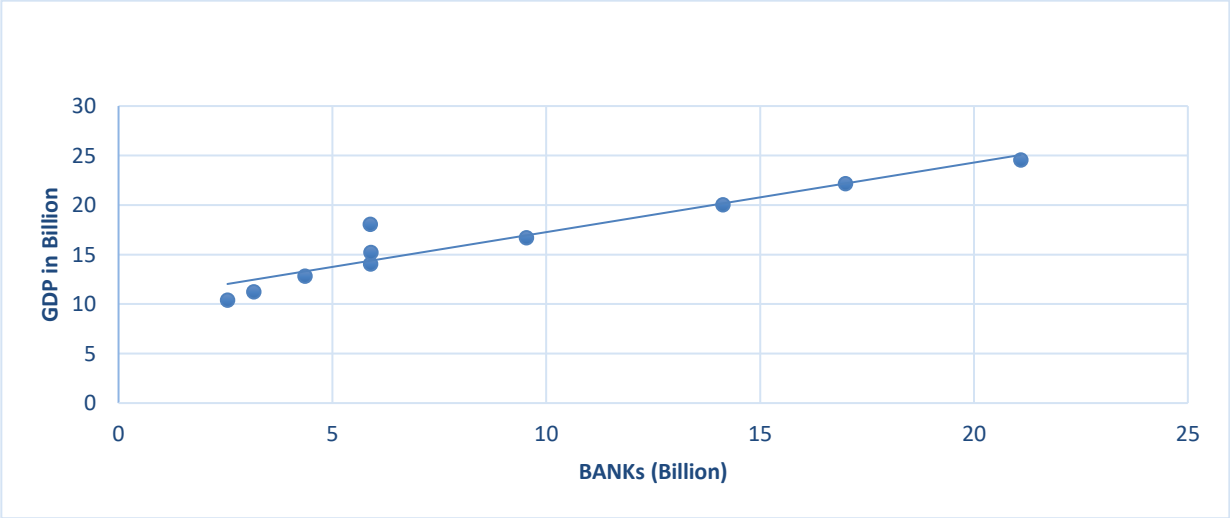

Figure 8: Correlation of volume of loans (Banks) and GDP by Using Dot Plot.

In Figure 8 illustrate the same way as figure 7 with value banks' of loan and GDP by dot plot with the regression line. We can observe that data are cluster around the regression line with positive a linear relationship between variables, so this fit regression line is taken to study the impact of banks' loan on GDP for the next step.

Test for autocorrelation

This research employed a time series data, so testing autocorrelation was necessary.

- If the Durbin-Wastson is less than a critical value (DW<2), it is statistically negative relationship to the next value.
- If the Durbin-Wastson is equal to a critical value (DW=2), it is statistically no relationship to the next value.
- If the Durbin-Wastson is equal to a critical value (DW>2), it is statistically positive relationship to the next value.

Table 3: The Negative Impact of MFIs' Loan on GDP

Model 1	R	R Square	Adjusted R Square	Durbin-Wastson
1	.949	.900	.887	2.36

Dependent Variable: GDP
Independent Variable : MFIs' Loan

Since the DW = 2.36 is more than 2 (Table 3), it shows that if the value of GDP in t period is higher than the average, so the prediction for next period is also higher than the average.

Table 4: The Positive Impact of Bank's Loan on GDP

Model 2	R	R Square	Adjusted R Square	Durbin-Wastson
2	.951	.904	.892	1.760

Dependent Variable: GDP
Independent Variable : CBs' Loan

Since the DW = 1.760 is less than 2 (Table 4), it indicates that if the value GDP in t period is lower than the average, so the next period will be lower than the average.

Table 5: The Positive Impact of Banks and MFIs' Loans on GDP

Model 3	R	R Square	Adjusted R Square	Durbin-Wastson
3	.977	.954	.941	1.643

Dependent Variable: GDP
Independent Variable : CBs' Loan, MFIs' Loan

Since the DW=1.643 is less than 2, it indicates that if the value GDP in t period is lower than the average, so the next period will be lower than the average.

Pearson's correlation matrix

Table 6 shows that all variables are significant and positive correlations between variables: 0.949 of MFIs loans toward GDP, 0.951 of Banks loans toward GDP, and 0.890 of Banks loans to MFIs loans.

Table 6: Pearson's Correlation Matrix

	Nominal GDP	MFIs' Loan	CBs' Loan
Nominal GDP	1		
MFIs' Loan	0.949**	1	
CBs' Loan	0.951**	0.890**	1

Simple and multiple regressions

First block of regression analysis

The first simple regression analysis was run with MFIs' loans as the independent variable and nominal GDP as the dependent variable. The R-square value of 0.900 means that the independent variable explained 90.00% of the validity of our dependent variable, which means that only 10.00% of the independent variable is not mentioned in the model. The coefficient, showing the validity of the chosen model, has a value of around 0.949, which is close to 1, indicating that the model chosen is valid. The result of the regression model shown in the equation reflects the correlation between the nominal GDP and the volume of MFIs' loans, as shown in Table 7:

Nominal GDP= 11.1323+ 2.5163 MFIs^' Loan

This equation illustrates that, if 1% increase in the volume of MFIs' Loan leads to increase 2.5163% increase in volume of Nominal GDP.

Table 7: Regression of the impact of MFIs' Loan towards Nominal GDP

Regression 1	Dependent Variable Nominal GDP	$R^2 = 0.900$ Ad. $R^2 = 0.89$	$F = 71.939$ $Sig = 0.00***$
	Independent Variable MFIs' Loan	Regression Coefficient	't' Value and Sig Level
		2.516	$t = 8.48$ $Sig = 0.00***$

*** $p < 0.01$.

Second block of regression analysis

The second block of this study is a simple regression analysis run with CBs' loans as the independent variable and nominal GDP as the dependent variable at a significance level. The result of the regression model shown in the equation reflects the correlation between the nominal GDP and the volume of CBs' loans:

Nominal GDP= 10.2405+ 0.7026 CBs^' Loan

The data analysis shows that R-square = 0.9041, which means that independent variables explained 90.41% of the validity of our dependent variable, meaning that only 9.59% of the independent variables are not mentioned in the model. The coefficient, showing the validity of the chosen model, has a value of around 0.90. This value is close to 1, indicating that the chosen model is valid.

Table 8: Regression of CBs' Loan towards Nominal GDP.

Regression 2	Dependent Variable Nominal GDP	$R^2 = 0.90$ Ad. $R^2 = 0.89$	$F = 75.48$ $Sig = 0.000***$
	Independent Variable CBs' Loan	Regression Coefficient	't' Value and Sig Level
		0.70	$t = 8.68$ $Sig = 0.00***$

*** $p < 0.01$.

Third block of regression analysis

Table 9 shows the third block of this analysis is the multiple regression, in which the MFIs' and CBs' loans are the independent variables, and the nominal GDP is the dependent variable. The result indicates the significance level of both:

The F-statistics value is 62.08 points which is higher than the upper-bound critical value with 0.00*** significance levels. This means that there is at least one variable impacting the GDP.

Multiple = 0.976, measuring the strength of the relationship between MFIs' and CBs' loans (X) with nominal GDP (Y) close to 1, is very high.

R^2 = 0.9544, meaning that independent variables explained 95.44% of our dependent variable's validity, meaning that only 4.56% of the independent variables are mentioned in the model.

The results of the multiple regression model shown in the equation below reflect the correlation between GDP and the volume of Banks' loans:

Nominal GDP= 10.3384+ 1.3058 MFIs^' Loan + 0.3788 CBs^' Loan

Table 9: Regression of the volume of MFIs and Banks Loan impact GDP

Regression 3	Dependent Variable Nominal GDP	$R^2 = 0.96$ $Ad.R^2 = 0.94$	$F = 77.16$ $Sig = 0.000***$
	Independent Variables MFIs' Loan CBs' Loan	Regression Coefficients 1.31 0.38	't' Value and Sig Level $t = 2.78$ $Sig = 0.02*$ $t = 2.89$ $Sig = 0.02*$

*** $p < 0.01$.

The fourth block of regression analysis

The last block of this analysis is the multiple regression, in which the MFIs' and CBs' loans are the independent variables, and the GDP per capita is the dependent variable. The result indicates the significance level of both:

The F-statistics value is 62.08 points which is higher than the upper-bound critical value, with 0.00*** significance levels. This means that at least one variable impacts Cambodia's GDP per capita.

R^2 = 0.9544, meaning that the independent variable explained 95.44% of the validity of our dependent variable, which means that the model did not mention only 4.56% of the independent variable.

The results of the multiple regression model shown in the equation below reflect the correlation between GDP per capita and the volume of MFI and CB loans:

GDP, p= 743.4520+ 71.2337 MFIs^' Loan + 20.4720 CBs^' Loan

Table 10: Regression of the Volume of MFIs and Banks Loan Impact GDP per Capita.

Regression 4	Dependent Variable GDP per Capita	$R^2 = 0.95$ $Ad.R^2 = 0.94$	$F = 66.20$ $Sig = 0.00***$
	Independent Variable MFIs' Loan CBs' Loan	Regression Coefficients 71.23 20.47	't' Value and Sig Level $t = 2.65$ $Sig = 0.03$ $t = 2.74$ $Sig = 0.02$

5. Conclusion and Implications

Summary of findings

The analysis carried out in this study sheds significant light on the growth in the volume of loans and the impact of those loans on Cambodia's economy. In other words, it discusses the role of loans in the economic development of Cambodia. Based on the availability of data, indicators of loan growth, such as MFIs' and banks' loans over the period 2009–2018, were examined to determine if there is a significant effect of loans from MFIs and loans from banks on the economic growth of Cambodia for the period 2009–2018. As a result, loan supply is found to have a significantly positive relationship with GDP. In contrast, a 1% increase in the volume of loans from MFIs could lead to an increase in real GDP of 1.30 percent, while a 1% increase in bank loans could lead to an increase in real GDP of 0.38% with an R-square of 95%. In addition, loan supply was also found to have a significantly positive relationship with GDP per capita. In contrast, 1 billion dollar increases in the volume of loans from MFIs could lead to an increase of 68.95 dollars in GDP per capita, and 1 billion dollar increases in the volume of bank loans could lead to an increase of 16.11 dollars in GDP per capita with an R-square of 95%. Based on this finding, it can be concluded that loan supply has positively contributed to the economic development of Cambodia.

Implications

The implications of this study will be for future research, as the researchers left behind a model and extended variables. Since the role of loans in Cambodia's economy will not last for this study period (2009–2018), policymakers should develop appropriate policies for loan performance in each institution to protect against loan defaults that may cause risk. These ideas should help policymakers create new models for the actual practice of lending in this society.

This study has also captured the potential components for analyzing the factors that impact GDP and GDP per capita. The study's results have demonstrated a slight concern about loans from MFIs and loans from banks. In other words, although MFIs and banks' loans have positively benefited the national GDP and helped push the economic growth, they cannot avoid indebtedness, especially in rural areas where some institutions raise high-interest rates (Thiel, 2001). To reduce the negative impacts, all relevant banking sector authorities must take a clear strategic plan and well-being action plans to orient benefits by linking with the rest of the direct and indirect economics to decrease non-performing loans.

Limitations and future research

To examine the role of loans in economic development, dependent variables such as GDP per capita and GDP have been considered. The study could have provided better results with more

independent variables. Future researchers may therefore consider taking into account specific areas of loan contribution in some sectors, such as agriculture, real estate, wholesale and retail, owner-occupied housing, and others.

The development of loan services depends on a clear strategic plan that the government and private sector are willing to implement. Cambodia's first principal action plan is ensuring political stability, followed by an improved modern banking system and improvement in interest rate policy. There should be a committee to control loan performance in any banking institution, including both the public and private sectors, to ensure that those institutions follow the instructions of NBC, which will increase loan quality. Furthermore, policymakers and planners should develop appropriate plans and policies to promote loan services to attract more investment and domestic enterprises to start a business in Cambodia. In future research, specific measures, as suggested in the study, should be systematically implemented to increase the time-series data for 20 to 30 years in regression measurement.

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