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Nexus between Financial Development and Economic Growth: Evidence from Sri Lanka

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Abstract

This paper examines the long-run relationship between financial development and economic growth. The effective function of financial development is crucial to promote the economic development of the country. To achieve the objective, this study used Gross Domestic Product as a dependent variable and Credit to The Private Sector, Ratio of the Gross Fixed Capital Formation to GDP, Trade, Consumer Price Index and Labour Force as an independent variable. Augmented Dickey-Fuller test statistic (ADF) to check the stationary. Bounds test for cointegration and Auto-Regressive Distributed Lag Models (ARDL) are used to check cointegrating relationship amongst the variables and causality between financial development and economic growth. Moreover, the Model selection method is Akaike Info Criterion (AIC). This result demonstrates that the labor force and trade hold a significantly negative relationship with economic growth. Nevertheless, inflation, Credit to The Private Sector, and Ratio of the Gross Fixed Capital Formation to GDP show a significantly positive relationship with economic growth. Therefore, there is a statistically significant relationship between Financial Development and Economic growth in Sri Lanka and the Sri Lankan government should reform its trade policies.

Keywords: Economic growth, financial development, Private Sector, Gross Fixed Capital Formation, Consumer Price Index

JEL Classification Code: C21, C24, C58, F43, G19

1. Introduction

Finance refers to the management of money by people, investors, and financial institutions. In the financial system, a major role is played by financial intermediaries and financial markets, where the Bank is at the center of the financial intermediaries. In contrast, non-bank financial institutions are at the border of the financial system. Major players handle the money for borrowing, lending, investing, forecasting, and saving. The development of manage money is called as financial development. In other words, financial development means the development of financial intermediaries and the financial market. According to the World Bank definition of financial development is "about overcoming "costs" incurred in the financial system. This process of reducing the costs of acquiring information, enforcing contracts, and making transactions resulted in the emergence of financial contracts, markets, and intermediaries". Financial development may successfully relate to the effective functioning of the financial system that facilitates the trading of goods and services, assemble the saving, encourage the exchanging, manage investment and risk and effectively allocate the resource and capital.

Financial sector development refers to both the stock market development as well as the banking sector's growth. A well-developed financial system enhances capital formation and efficient resource allocation, which triggers growth (Kumar & Paramanik, 2020).

Financial development plays a significant role in promoting economic growth. It is essential to enhance economic development with economic growth, capital accumulation, technological progress, and innovation by encouraging investment and saving and efficiently managing the finance of an economy. Financial development plays a

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crucial role in developing the industrial sector by helping enterprises create a job. It also plays the right way of reducing poverty in a country. Several studies find that measurement of financial development, not an easy task. It is an extensive study. Based on the World Bank and the study of Gadanecz and Jayaram (2006), financial development measures use some proxy variables: depth, access, efficiency, stability, and Capital accumulation.

Depth measured by private sector credit to GDP, money supply, Financial Institutions' asset to GDP, Gross value added of the financial sector to GDP, and Debt Securities to GDP. Access variable used Trade, percentage of firms with the line of credit (all firms), and Ratio of domestic to total debt securities. Efficiency variable used net interest margin, lending-deposits spread, the turnover ratio for the stock market and employment rate as sub-variables and price indicators and capital formation variables are used to calculate the stability and capital accumulation proxies. In Sri Lanka, the economic system enables the state and central governments to boost both short-term and long-term funds through the difficulty of bills and bonds that carry attractive interest rates besides tax concessions. Furthermore, as a developing country, Infrastructure development, and budgetary gap filled with the help of financial development. The financial market enables investors, servers, and the government to meet their financial needs in Sri Lanka. In this way, the development of the economy is ensured by the financial system. So, the question of this study is how the financial system affects economic development. Therefore, this study aims to investigate the long-run relationship between financial development and economic growth using panel unit root Autoregressive Distributed Lag (ARDL) cointegration technique in Sri Lanka using 28 years of data from 1990 to 2018.

2. Literature Review

The study of Tariq et al. (2020) about how financial development impacts economic growth in Pakistan? New evidence from the threshold model explored that there is a negative impact between economic growth and financial development when the threshold value blow than 0.51 and the threshold value up to 0.51, it had a positive relationship. Therefore, it is revealed that the relationship between economic growth and financial development shows U shaped relationship in Pakistan.

Like that, Zhang and Yin (2018) found the nexus between regional financial development and corporate investment efficiency and the relationship between firm-level characteristics and corporate investment efficiency based on China using data from 2003 to 2016. According to the heterogeneous stochastic frontier model nature of property rights, namely firm size and Institutional factors, affect the regional financial development indirectly.

Another study was made by De Gregorio and Guidotti (1995) to investigate the empirical relationship between financial development and economic growth in the higher, middle- and low-income countries. Based on the results of this study said that large financial development leads to improved growth performance. However, the experience of Latin America from 1970 to 1980, unregulated financial liberalization, and government bailouts' expectations can lead to a negative relationship between financial intermediation and growth. This study also suggested the efficiency of investment effect by the transmission from financial development to growth using review of literature method.

In line with this, the study was done by Calderona and Liu (2003) to find the direct relationship between financial development and economic growth using pooled data of 109 developing and industrial countries from 1960 to 1994 by Granger causality method. The findings of this study was that finance contributed to the growth of developing countries than in industrial countries and that productivity growth and capital accumulation lead to a significant relationship between economic growth and financial development. Demetriades and Hussein (1996) discussed that whether financial development causes economic growth? Using 16 developed countries tested by causality method. This study provided that financial development slightly leads to economic development. Those countries' data implies the mixed results that considerable evidence shows bi-directional causation and some evidence of a reverse relationship between financial development and economic growth. Moreover, the strongly highlighted based on cross-section country studies, the difficulties of statistical inference treat different economies as homogeneous entities. Further, the Augmented Dickey Fuller test is carried out, as a prerequisite test, to check the stationarity property (Mustafa et al., 2019).

Furthermore, in Sri Lanka, the study about financial development and economic growth done by Perera and Masaru (2016) using vector error correction methodology period from 1952 to 2014. This study used real per capita GDP as a dependent variable and the ratio of broad money to GDP, the ratio of investments to GDP, the deposit interest rate in real terms, and trade ratio as an independent variable. They found financial development reflects unidirectional effects on economic growth in Sri Lanka. Nevertheless, the investment ratio and trade ratio negatively affect the time broad money ratio, and the deposit interest rate positively affects the real per capita GDP. The error correction coefficients show economically and statistically significant results among the five variables based on the two cointegrating relationships. This is in line with the short term, money supply affected economic growth, and the government should consider the open economic policy to ensure the significant effect of the money supply.

Another research done in Sri Lanka by Amarathunga (2008) states that the relationship between financial development and economic growth of Sri Lanka from 1960 to 2008. Cointegration and causality method used to find the results and saving, investment, trade, and real interest rate into account are the variables of this research. This research discussed that there is no reverse causation between financial development and economic growth in Sri Lanka. This study also identified that investment significantly affects growth in the real sector of the economy.

3. Data Collection and Methodology

This research will be a panel data research; data will be collected from World Bank open data and Central Bank Annual report published by Central Bank of Sri Lanka from 1990 to 2018. Besides, this research employed Gross Domestic Product as dependent variable (GDP) and Credit to The Private Sector (PRVT), Ratio of the Gross Fixed Capital Formation to GDP (GFC), Trade (TRD), Consumer Price Index (CPI), and Labour Force (LF) are the independent variables. As a methodology, the data analysis procedures involve checking the stationary unit root level using Augmented Dickey-Fuller test statistic (ADF), testing for the long-run cointegrating relationship amongst the variables using Bounds test for cointegration, and finally testing for the long-run causality between financial development and economic growth by Auto-Regressive Distributed Lag Models (ARDL). Moreover, the Model selection method is Akaike Info Criterion (AIC), and lag choose using automatic selection.

So, the model specification is

$$\mathrm{GDP}_t = \beta_0 + \beta_1 \mathrm{PRVT}_t + \beta_2 \mathrm{GFC}_t + \beta_3 \mathrm{TRD}_t + \beta_4 \mathrm{CPI}_t + \beta_5 \mathrm{LF}_t + \mathrm{U}_t \quad (1)$$

Here,
GDP – Gross Domestic Product
PRVT – Credit to The Private Sector
GFC – Gross Fixed Capital Formation
TRD – Trade
CPI – Consumer Price Index
LF – Labour Force

4. Results and Discussion

The objective of this study to investigate the causality relationship between financial development and economic growth. To achieve this, the ADF unit root test method is applied to check out the stationary properties of the data. Furthermore, Bound Test has been used to select a cointegrating relationship amongst the variables. Lag length for the data selected by automatic selection. ARDL test is used to determine the long-run relationship between variables.

H0: *There is Unit Root*.
H1: *There is no Unit Root*.

Before the long-run relationship between GDP, PRVT, GFC, TRD, CPI and LF is determined, it is important to carry out a unit root test for these variables. The first step: to determine whether the variables researcher use is stationary or non-stationary. If a series is non-stationary, regression results may lead to spurious conclusions; the Augmented Dickey-Fuller (ADF) Unit Root Tests are performed on both the levels and the first differences of the variables. The result of the unit root test (Augmented Dickey-Fuller) is given in Table 1.

The Augmented Dickey Fuller Test results confirm that the time-series data of the variables GDP, PRVT, TRD, and LF in the model are non-stationary in their levels. If these variables are stationary in their first difference, variables are stated as integrated of order one, I (1), but the variables GFC and CPI integrated of order I(o). Some variables stationary, I(0), and some are nonstationary, I(1) then the most appropriate method is the ARDL.

ADF test implies that all the variables are stationary at their first difference with intercept, suggesting that all variables considered under this study are integrated in order one in the ADF test. Before estimating this relationship, the model's optimal lag length needs to be identified. For this study, Akaike Information Criterion (AIC) proposed using one lag as an optimal lag length in an automatic selection.

According to conducted the bound test to cointegration relationship in ARDL method between variables, the hypothesis is stated as:

H0: *No cointegrating equation*.
H1: *H0 is not true*.

According to Table 2, since *F*-statistic 15.44227 higher to the critical value for the lower and upper bound of I(0) and I(1). Therefore, this research concluded that there is cointegration among the variables. In other words, there is a long-run relationship, and estimating an error correction model is necessary, as indicated by the results from the bound test. Consequently, rejection of the null hypothesis, Table 3 denotes the results of a long-run relationship between financial development and economic growth using the ARDL method shows below.

Table 3 denotes how the selected variables effect the financial development in Sri Lanka in the long run. There is a positive and significant adjustment towards the long-run equilibrium between Consumer Price Index, Gross Fixed Capital Formation, Credit to The Private Sector, and Gross Domestic Product. Moreover, Labor Force and Trade show a negative and significant relationship with financial development.

Table 1: Stationary Test Result: Using Augmented Dickey-Fuller Test

Variables	Level Intercept (ADF Test)	First Difference Intercept (ADF Test)	Order of Integration
GDP	−2.4205 (0.1427)	−4.9452* (0.0002)	I(1)
PRVT	−0.9737 (0.7485)	−4.0313* (0.0047)	I(1)
GFC	−4.7047* (0.0009		I(o)
TRD	−0.6416 (0.8455)	−4.0941* (0.0041)	I(1)
CPI	−4.4395* (0.0016)		I(o)
LF	1.1380 (0.9965	−4.3639* (0.0028)	I(1)

Note: * indicates significance at 1% level. P-value is in parenthesis. Unit root test regression model is selected with intercept.

Table 2: *F*-Bound Test

Test Statistic	Value	Significant	I(0)	I(1)
F-statistic	15.44227	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Rejection of the null hypothesis is at the relevant statistical level, 10%, 5% level, 1%.

So the equation shows the following as,

$$GDP = 38.35 + 0.0647CPI + 0.2258GFC - 0.5577LF + 0.0355PRVT - 0.01TRD \quad (2)$$

According to the equation, the error correction coefficient of CPI 0.0647 (p value = 0.0251) significantly shows a positive convergence to equilibrium. When inflation leads to an increase in the income of entrepreneurs. As a consequence, inflation positively affects economic growth. As well as if a country increases the capital formation, investment also increases. As a result, an economy successfully goes on the path of economic development. In this way, these results also show the upward movement that GFC is increased by 1 percentage leads to the economic development as 0.2258 (p value = 0.0000). The error correction coefficient of PRVT 0.0355 (p value = 0.0018) also shows upward movement onwards to the economic development. On the other line, Labor Force and Trade move downward towards the long-run equilibrium path while error correction coefficient of GDP.

In Sri Lanka, trade continuously trended a deficit account. Its mean trade of Sri Lanka recorded that import is higher than the export. Therefore, inflow is less than outflow in the Circular Flow of National Income. Consequently, of above situation, the error correction coefficient of TRD 0.01 (p value = 0.0239) shows adverse relationship between economic growth. Like this, the relationship between the labor force and GDP implies a negative path in the long run at the error correction coefficient of 0.5577 (value = 0.0065). Therefore, the error correction model of the Auto-Regressive Distributed Lag method resulted in a long-run relationship, Long-run equilibrium, and there is a positive and statistically significant relationship between Financial Development and Economic growth in Sri Lanka.

Table 3: Results of A Long-Run Relationship between Financial Development and Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.064732	0.055547	1.165369	0.0251
GFC	0.225888	0.037349	6.047961	0.0000
LF	−0.557777	0.273706	−2.037872	0.0065
PRVT	0.035536	0.037975	−0.935757	0.0018
TRD	−0.011058	0.023217	−0.476296	0.0239
C	38.35463	16.39524	2.339376	0.0310

5. Conclusion

This paper's purpose is to examine the relationship between financial development and economic growth in Sri Lanka. To review the long run nexus among different variables, this study used Gross Domestic Product as a dependent variable, and independent variables are Credit to The Private Sector, Ratio of the Gross Fixed Capital Formation to GDP, Trade, Consumer Price Index and Labour Force are the independent variables. World development indicators of the World Bank and the Annual Report of the Central Bank of Sri Lanka were used to get the data from 1990 to 2018. Augmented Dickey-Fuller test statistic (ADF) used to check the stationary and testing for the long-run cointegrating relationship amongst the variables using Bounds test for cointegration and finally testing for the long-run causality between financial development and economic growth by Auto-Regressive Distributed Lag Models (ARDL). Moreover, the Model selection method is Akaike Info Criterion (AIC), and lag choose using automatic selection.

Results demonstrate that all variables are non-stationary at the level; however, it becomes stationary at first difference. Auto-Regressive Distributed Lag Models results explain that the Sri Lankan economy's labor force and trade imply the significantly negative relationship with economic growth. Nevertheless, inflation, Credit to The Private Sector, and Ratio of the Gross Fixed Capital Formation to GDP shows a significantly positive relationship with economic growth. Therefore, the ARDL results show a statistically significant relationship between Financial Development and Economic growth in Sri Lanka.

6. Recommendation

According to the result of the ARDL method, labor force and trade show a negative relationship with economic growth. Based on that, Sri Lanka should be taken into more consideration about the export and import. Sri Lanka has reformed the trade policies. The characteristics of trade in Sri Lanka, they export essential goods which the price and income elasticity are less than one. It means there is no significant change in goods and profit when the price is changed.

On the other hand, the elasticity of Sri Lanka's imports is more than one, which means when the price change leads to a major change of expenditure. Furthermore, Sri Lanka imports the industrial goods and services which used row materials export from Sri Lanka. Here, the notable point is that Sri Lanka exports the raw material at a low price and import the goods which are used row materials export from the Country in the higher price level. In this way, Sri Lanka's inflow is less than outflows. Consequently, trade negatively impacts economic growth. Therefore, the country should reform the types of goods and services export and import in Sri Lanka. To solve this situation, Sri Lanka considers technology's progress and promotes technical studies in education from the secondary level. Vice versa, the Labor force also reflects the negative sign with the economic growth. So, Sri Lanka may take action to increase the productivity level of laborers to balance the wage level given to them.

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