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RESEARCH ARTICLE

Impact of financial market development on economic growth: evidence from Sri Lanka

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Abstract: The study focuses on the impact of financial market development (FMD) on economic growth in Sri Lanka. The study investigates positive association flows from finance to growth, called the "supply-leading hypothesis", in different directions such as positive, negative, bidirectional and neutral. FMD impact is considered in both depth and efficiency aspects. Natural logarithms (Ln) form of all gross domestic production in real terms, total domestic credit, percentage of loans and advances to total deposits, inflation index, market capitalisation of listed domestic companies and money supply as liquidity indicator are concerned, first being the dependent variable, next two as depth indicators and last three explanatories as efficiency indicating variables. Changes in both private sector production volume Index and government expenditure are also included into the model as independent variables to represent the non-financial market impact. Secondary monthly time series data published by the Central Bank of Sri Lanka from January 2008 to June 2019 of 138 observations are analysed using the E-views version 10. The ARDL model is applied. The study suggests a significant long-run impact of FMD on economic growth in Sri Lanka. Furthermore, inflation hinders the FMD. Up to the bearable limit, financial depth positively affects, while the higher degree of financial depth negatively influences economic growth in Sri Lanka. The impact of the non-financial market is comparatively insignificant on economic growth.

Keywords: Financial market development, economic growth, financial market depth, financial market efficiency.

INTRODUCTION

The role of financial market development on economic progress has been investigated and received attention by every country in the world and by international financial policy-making institutions such as International Monetary Fund (IMF) and the World Bank. Both these institutions encouraged the countries to expand the financial sector by emphasising its importance to economic well-being. The primary reason is that financial markets are the key player in the intermediation? of the financial system, which efficiently directs the flow of surplus savings towards investment in an economy. This facilitates the accumulation of capital and thereby leads to an increase or value addition in the production of goods and services in an economy. Continuous increases in real production itself can be defined as economic growth.

It is apparent that the empirical relationship between financial development and economic growth is not yet well established. According to the literature review, the study provides evidence for five types of relationships between financial market development (FMD) and economic growth. These are categorised into supply-leading hypothesis, demand-leading hypothesis, bi-directional, antigrowth or negatively correlated and with no causal relationship between FMD and economic growth. The study focused only on the "supply-leading hypothesis" which is dominant in contrast to the empirical literature. This hypothesis suggests one of the unidirectional relationships which flows from financial market development to economic growth. Most economists and empirical studies reveal that financial market development is an important economic growth pillar.

Initially, the conceptual framework is adapted from the "endogenous growth model" developed by De Gregorio & Guidotti in 1995 and Abdurohman in 2003, which is also in line with the "supply-leading hypothesis.

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The model measures how indicators of financial development link with the economy turn to have an impact on economic growth. They derived the model as economic growth = f (financial development + macro-economic environment). They derived this function from the prominent pillar of neoclassical growth theory by giving more importance to financial development, expanding the factor "K" which represents both types of capital; financial and non-financial capital.

Statement of the research problem

The main research problem of this study is to find out whether the empirical findings on the supply-leading hypothesis of which unidirectional association from FMD on economic growth is applicable to the Sri Lankan context considering both the aspects of depth and efficiency in financial markets in Sri Lanka. The main reason behind this problem is, that many of the recent studies also sum up the empirical results conveying that finance has strong impact on economic growth rate, but the problem is that all these studies were based on Europe or developed economies. Very limited studies use data from South Asian countries like Sri Lanka. Thereby this main issue motivated the researchers to study this topic in the Sri Lankan context.

Furthermore, the research interest is geared towards the issue of the current over-debt burden in the financial market with underdeveloped financial markets in Sri Lanka and slow or continues low-digit figures in Sri Lankan economic growth. The reason is that some scholars, such as Creel *et al*. (2015), found that an oversized financial development may result in negative externalities on the economy by increasing financial risk by financial instability and generating negative effect on economic wellbeing such as misallocation of resources, imperfect competition, economic instability, implicit recovery costs due to bailouts and bankruptcy in the whole system.

Also, some other scholars indicated that there is a negative relationship between financial market development and economic growth; For instance, Lucas (1988) stressed that promoting financial system development would be a waste of resources as it shifts the focus of more important policies such as labour and productivity improvement programs, implementation of pro-investment tax reforms, encouragement of exports to subordinate policies in the economy.

Therefore under the main research problem, an analysis of the impact of the degree of the financial depth towards the real GDP growth in Sri Lanka might assist economic and financial policymakers to lead Sri Lanka towards an economic expansion with the performance of the country's financial market in a well- managed way in future by avoiding unnecessary depth in financial markets.

Research questions and objectives

Main research question

RQ: Is there an impact from FMD (both influenced by depth and efficiency of financial markets) on the economic growth in Sri Lanka?

This main research question is further extended according to the impact from financial depth measures and financial efficiency measures on economic growth, such as the impact of financial market depth on the economic growth in Sri Lanka. Also is there an impact of the efficiency of the financial markets on the economic growth in Sri Lanka?

Moreover, the study answers the following specific research questions: What is the impact of the degree of financial market depth on the economic growth in Sri Lanka? Is there a long-term impact/ prediction ability from FMD towards the economic growth in Sri Lanka? Is there a higher impact of non-financial market variables on the economic growth in Sri Lanka compared the impact of FMD variables?

Main research objectives

To analyse the impact of FMD on the economic growth in Sri Lanka.

Both financial market depth and efficiency level in the financial market are will be taken into account when measuring the FMD. Therefore the main objective is further categorised into two sub-objectives, 'to analyse the impact of financial market depth on the economic growth in Sri Lanka.' and 'to analyse the impact of the efficiency of financial markets on the economic growth in Sri Lanka.'

In line with the specific research questions, specific objectives will be as follows: ,

- 'To assess the impact of the degree of the financial depth on the economic growth in Sri Lanka.
- 'To check the prediction ability over the economic growth by FMD in Sri Lanka in the long run.'
- 'To check whether there is higher impact from non-financial market variables on the economic growth in Sri Lanka compared to FMD variables.

LITERATURE REVIEW

Neoclassical growth theory is the most prominent theory founded by Robert (1956) in economics, which highlights the three driving forces: labour, capital and technology toward the total production growth of a nation. Therefore this is the primary theory which explains the nexus going to be analysed. According to this theory, economic growth is a function of the capital accumulation of a country and its labour force, while technological change has a major influence on an economy. The growth function of an economy is derived as Y = AF (K, L). "Y" represents an economy's GDP, "K" denotes its volume of capital, "L" denotes the amount of unskilled labour in an economy and "A" stands as the determinant level of technology. Increasing any one of these inputs shows the effect on GDP and, therefore, the equilibrium of an economy. These three factors of neoclassical growth theory contribute to growth in exponential terms.

The supply-leading hypothesis further supports this application, as the theoretical background reflects that many scholars have taken economic growth as a dependent variable against FMD parameters treated as independent variables.

One of the oldest findings on the "supply-leading hypothesis" was found related to England's economy by Bagehot (1873). He identified that the financial system played a critical role in industrialising England through capital mobilisation. Furthermore, financial institutions in this market are the linkage between the surplus and deficit sectors of the economy through their intermediation. Schumpeter (1912) concluded that, the services provided by financial intermediaries are important for innovation and development. Also, he emphasised the importance of the banking system in economic growth; financial institutions support innovation and creativity and thus enhance future growth by identifying and funding productive investments.

Galbis (1977) and Fry (1978; 1980) indicated that imposing restrictions on the banking system, such as credit ceilings and high reserve requirements, negatively impacts the development of the financial sector, ultimately reducing economic growth. Also, McKinnon (1973), King & Levine (1993) found evidence for this supply-leading hypothesis and insisted that the financial intermediaries can obtain unavailable information to private investors and public markets about the quality of individual projects and, through that can facilitate the growth of a country by increasing the efficiency in the financial markets. This information also signals the economic actors to trade in the market by investing their savings. This effect will create an inflow into a nation's economic cycle, and the economy's circulatory expansion will be enhanced. Traders in financial markets evaluate future innovative projects and tend to invest in the most feasible projects by allocating nations' resources efficiently.

Levine (1997) suggests that aiding risk management, improving liquidity and reducing transaction costs leads to better developments in financial markets and thus encourages investments. As per Levine (2004), the overall functions of financial markets, return up with associate in improving accumulation of capital, economical allocation of financial resources and improvement in technological capability, which are being crucial ingredients for the economic progression. Further, "it is the mechanism for effective mobilisation of domestic savings for productive investment, thereby alleviation of poverty especially for developing nations" (Ellahi, 2011).

The investigation on how Pakistan's financial development affects economic growth by Tariq et al. (2020) shows a U shape association between economic growth and financial development subject to a threshold value relating to Pakistan. This model revealed that there is a negative impact between economic growth and financial development if the threshold value exceeds 0.51 and it had a positive relationship only up to threshold value of 0.51.

Meanwhile, some authors ended up with bidirectional causality. Demetriades and Hussein (1996) test the long-term causality between the development of financial intermediation and the real GDP per capita growth by using a vector error correction test using 16 and 10 developing countries. These authors found a strong presence of a bidirectional causality and conducted that reverse causality is very low, from the growth to the financial performance. Ozturk (2008) investigated the same bidirectional causality in Turkey for the period 1975-2004.

The theoretical background not only suggests a supply-leading hypothesis but also an opposite view, namely the "demand-following hypothesis" as discussed by Patrick (1966). Demand-following hypothesis supports developing economic processes and ends up creating sound financial markets. Gurley & Shaw (1955; 1960;1967) conducted an analysis and located that financial development may be a positive operation of real production growth. Goldsmith (1969) conjointly discovered that the magnitude relation of the establishment to production had driven an increase of financial gain and wealth in most of the thirty-five countries investigated from developed and developing countries. Zhang & Yin (2018) found an indirect impact towards regional financial development from corporate investment efficiency based on China using data from 2003 to 2016.

In contrast, some of the economists like Adusei (2012; 2013) insisted that FMD plays an insignificant and anti-growth role towards economic growth of South Africa for a time series data ranging from 1965 to 2010. Nwani & Bassey Orie (2016) on financial sector development and economic growth nexus suggest an equally weak and negative relationship with evidence from Nigeria. The author concludes negative results are based on the nature of the economy of the country.

Majority of the studies being reviewed in Sri Lankan literature, most of them concentrated on the nexus between the stock market and economic growth. For instance, the study by Gunasekarage *et al*. (2004) examined the dynamic interrelations between macroeconomic variables and the stock market index in Sri Lanka using monthly time series data from January 1985 to December 2001. Wickremasinghe (2011) also confirmed the causal relationship between stock prices and macroeconomic variables such as the exchange rate, three months deposit rate, the consumer price index and GDP using empirical data related to Sri Lanka.

Amarathunga (2010) finalised that economic growth causes to financial development in the, long run, using time series data from 1960 to 2008 and concluded that there is no reverse causation.

Kumari, Vinayagathasan and Abayasekara (2014) examined the post-liberalisation effects of financial development on Sri Lanka's economic growth between 1978 and 2012 and advises Sri Lanka's government to encourage the financial industry to raise the quality of its offerings instead of increasing the number of bank branches. Using vector error correction methodology, Perera & Ichihashi (2016) examined Sri Lankan data from 1952 to 2014 and discovered that financial development in Sri Lanka has a unidirectional impact on economic growth.

This concludes that previous studies in Sri Lanka and in other countries have different views on this relationship, and the majority concentrate on stock market developments (SMD) and they use different objectives and statistical approaches. Therefore, the researcher identifies an important research gap to be filled by further investigations into this relationship deeper concerning overall variables in the financial market not centralising to SMD and applying ARDL approach.

Negative impact of higher financial depth on economic growth

Though the positive effect of FMD on economic growth is the dominant view in the literature before the financial crisis, after the crisis in 2008, economists have done deeper assessments to analyse this relationship. For instance, Beck *et al*. (2014) insisted that an overperformed financial market may result in a misallocation of resources, instability, imperfect competition, rent extraction, implicit insurance due to bailouts and negative externalities from auxiliary financial services. Creel *et al*. (2015) found that the higher the level of financial depth in the European Union analysing proxy data from 1960 to 2011, the higher the financial instability and financial market effects are not favourable on economic growth, and it is generating a negative effect on economic wellbeing.

Key dimensions of financial market development and economic growth

Independent proxies are selected on the basis of World Developments Indicators (WDI). In 2019, the WDI database reports that the Majority of the with monetary authorities, foreign exchange companies, banks holding deposits, insurance corporations, pension funds, and other finance companies. In that report, IMF and World Bank use domestic private credit to the real sector by deposit money banks as a percentage of local currency GDP to approximate financial market depth. Further, to approximate the development extent of financial markets, they use stock market capitalisation as a percentage of GDP.

To approximate the efficiency of financial markets, they have used the total turnover value of shares traded during the period divided by the average market capitalisation for the period. Money and quasi-money (M2) were suggested liquidity indicator of the financial market as it increases the efficiency of the financial markets. The average annual percentage change in the consumer price index is the most accepted inflation index in a country which is a proper indication of influence on financial cost, which has an effect on efficacy in the financial market.

Being in line with the above indicators and with the support of empirical literature, five independent variables as indicators of FMD to Sri Lankan are selected for this study in natural log (Ln) form of each, namely total domestic credit and Percentage of Loans and Advances to Total Deposits as financial market depth proxies and Market Capitalisation, Broad Money (M2) as liquidity index and GDP deflator as the Inflation proxy for representing financial market efficiency factor.

The dependent variable is the change in real GDP in Sri Lanka. Relative change by concerning period to period itself as defined as the definition of economic growth as well as most accepted measurer by economist and based on that the economic growth to be measured using change in real GDP.

METHODOLOGY

The research method was an analysis approach on secondary data. Monthly regular frequency sampling was used as the sampling technique, and the sampling size is about 138 observations gathered from 2008 January to 2019 June monthly time series data.

The main source of the data is the statistics published by the Central Bank of Sri Lanka (Central Bank of Sri Lanka 2018-2019). As the proxies of FMD, the Ln form was used for all variables: Total Domestic Credits, Market capitalisation of listed companies, and GDP Deflator as an inflator proxy. Broad Money Supply (M2) also served as the liquidity proxy in Model I. Model II employed the same variable, replacing Total Domestic Credits with the Percentage of Loans & Advances to Total Deposits. The Domestic Credit proxy in the first model is replaced by Ln% of Loans and Advances to Total Deposits in the second model in order to analyse the impact of the degree of the financial depth on economic growth. The reason to include this proxy in the second model is being a narrow concept than the Total Domestic Credit value, which is considered a broader indication that includes all debt sources.

To represent the non-financial market, the natural logarithm (Ln) form of the Private Sector Permanent Voting Interest (PSPVI) is employed as a proxy for capital injection into the economy from private sector. Additionally, the Ln form of Government Expenditure is utilised as a proxy to represent the government's contribution to non-financial capital formation in the country in the equations. Natural log form of Real GDP in Sri Lanka is using as the proxy of the Sri Lankan economic growth is taking as the dependent variable.

The research instrument was based on applying statistical analytical tools and the units of analysis were Sri Lankan financial market and the Sri Lankan economy. Auto Regressive Distributed Lag (ARDL) with an Error Correction Model and other diagnostic and stability tests are used to analyse the data.

In addition, this study is undertaken with the intention of distinguishing itself by the methodology application of the ARDL model to analyse the topic as it is not popular in application in Sri Lankan empirical studies relating to this topic and is advantageous over Engle-Granger and conventional Johansson cointegration.

Three types of tests are employed. First, the most widely used unit-root test, Dickey-Fuller test was employed to check the integration orders of the variables. Then the ARDL was applied to investigate the long-run relationship among the variables on each model, which estimates the long-run effects jointly with the short-run effects. Thirdly, the long-run ARDL Bounds Test for Cointegration is run for error correction. Finally, coefficient diagnostic tests were carried out to estimate the fitness of the model. Wald Test, Heteroscedasticity test and Serial correlation test (Brush & Godfray LM test) are commonly applied as residual diagnostic tests. In addition, to test the stability of the estimated model, Normality (Jaque-Bera test), Cumulative sum (CUSUM) and Cumulative sum of squares (CUSUMSQ) tests were undertaken. These diagnostic tests ensure that long-run and short-run estimates are free from serial correlation, misspecification, non-normality of the error term, and heteroscedasticity. Version 10 of the E-views statistical package was used to analyse the data gathered.

After the unit root test is performed, the basic form of an ARDL model is generated using the following base model of ARDL form:

$$Yt = \beta 0 + \alpha\ 1Yt\text{-}1 + \ldots\ldots..+ \alpha\ kYt\text{-}p + \beta\ 1xt + \beta\ 2xt\text{-}1 + \beta\ 3xt\text{-}2 + \ldots\ldots\ldots+ \beta\ qxt\text{-}q + \varepsilon t \qquad \text{(Equation 1)}$$

All the variables used in the study were transformed into natural logarithmic form to avoid heteroscedasticity, and the re-written function represents the elasticity of the variables as below.

Model I

$$\text{Ln (Real GDPt)} = \beta 0 + \alpha 1 \text{Ln (RealGDPt-1)} + \ldots\ldots\ldots + \alpha\, kYt \text{ Ln (RealGDPt-p)} + \beta 1 \text{Ln (DCt)} + \beta 2 \text{Ln (MCt)} + \beta 3 \text{Ln (INFt)} + \beta 4 \text{Ln (M2t)} + \beta 5 \text{Ln (PSPVIt)} + \beta 6 \text{Ln (GEt)} + \varepsilon t \quad \text{(Equation 2)}$$

Model II

$$\text{Ln (Real GDPt)} = \beta 0 + \alpha 1 \text{Ln (RealGDPt-1)} + \ldots\ldots\ldots + \alpha\, kYt \text{ Ln (RealGDPt-p)} + \beta 1 \text{Ln (L\_ADV\_DEPCOMBt)} + \beta 2 \text{Ln (MCt)} + \beta 3 \text{Ln (INFt)} + \beta 4 \text{Ln (M2t)} + \beta 5 \text{Ln (PSPVIt)} + \beta 6 \text{Ln (GEt)} + \varepsilon t \quad \text{(Equation 3)}$$

Where, Ln (Real GDP t) is Economic growth, α for constant figure, β2 for Ln Market Capitalisation of listed companies t, β3 for Ln Inflation index (GDP Deflator) t, β4 for Ln Money Supply (M2) t, β5 for Ln % of Loans & Advances to Total Deposits t, β6 for Ln Private Sector Industrial Production Volume Index t, β7 for Ln Government expenditure t and εt for error term.

Main hypothesis

H00: There is no impact from FMD on the economic growth in Sri Lanka. (H01: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = \beta 5 = 0$)
The following two hypotheses were established for both perspectives of financial depth and financial efficiency.

1. H01: There are no impact from financial market depth on the economic growth in Sri Lanka. (H01: Coefficients of Ln DC, Ln L_ADV_DEPCOMB = 0)

2. H02: There are no impact from financial market efficiency on the economic growth in Sri Lanka. (H02: Coefficients of Ln MC, Ln Deflator, Ln M2 = 0)

Sub specific hypotheses

The following three hypotheses were tested to answer the sub-specific research questions and respective objectives.

1. H03: There is a positive impact from higher degree of financial market depth in Sri Lanka on the economic growth in Sri Lanka.

   Model I - (H03: coefficient of the variable "Ln-Total Domestic credit" > 0) and

   Model II - (H03: coefficient of the variable Ln-% of Loans & Advances to Total Deposits > 0)

2. H04: There are no any prediction ability over the economic growth in Sri Lanka by FMD in the long run. (H04: Coefficients of all Ln long run FMD variables= 0)

3. H05: Impact of Non-financial market variables on the economic growth in Sri Lanka is comparatively more significant than the impact from FMD variables. (H05: coefficients of the variables LnDC, LnL_ADV_DEPCOMB, LnMC, LnDeflator, LnM2 < coefficient of the variables LN_PSIPVI_CHANGE, LN_GE).

The relevant alternative hypotheses are set as not equal to zero and greater or less than.

ANALYSIS AND DISCUSSION OF RESULTS

Descriptive analysis

The summary statistics of the data set in Table 1 reveal central tendency, dispersion, skewness, and kurtosis. It is followed by a unit root test to avoid inheriting the non-stationary nature of times series data.

It is found that all the variables are highly volatile, having a coefficient of variance between 24% to 54%, except for the percentage of loans and advances to total deposits of commercial banks and change in PSPVI as highly consistent with a coefficient of variance around 4% to 9%. The P-value of the Jarque-Bera test check the normality of the data set. All the variables exceed the critical value for significance level (0.01). It concludes that no variable follows a normal distribution.

The Boxplot of individual series in Figure 1 provides the skewed direction. The shape of the tail relative to a normal distribution is the major indicator of Kurtosis. Except for the change in PSPVI, all the series have Kurtosis < 3. But for the data series, which percentage of loans and advances to total deposits of commercial banks, the market capitalisation of listed companies and government expenditure the values are more closure to 3 means that the series is closer to the reference standard which is considered a normal distribution. The percentage of loans and advances to total deposits of commercial banks and change in PSPVI and market capitalisation of listed companies are skewed to the left tail, whereas remaining series are skewed to the right. Outliers can be observed only in the non-financial sector variables.

Table 1: Descriptive statistics

	REAL_GDP__MN__	DOMESTIC_CREDIT__MN_	LOANS__ADVANCES_TO_DEPOSITS_COMBANK	DEFLATOR	MARKET_CAPITALIZATION_OF_LISTED__COMPANIE_RS_MN	M2_RS_MN_	GOVERNMENT_EXPENDITURE_RS_MN_	CHANGE_IN_PIPVI__(1997_100_)
Mean	1328162.	4291678.	78.87899	1.820164	2228379.	3270328.	153247.9	1.007213
Median	843722.0	3543369.	80.35000	1.799358	2481300.	2967475.	142067.9	1.005595
Maximum	2268801.	9003303.	83.80000	2.794150	3115300.	6661231.	354612.0	1.197558
Minimum	572711.3	1594084.	68.00000	1.277606	488800.0	1144361.	73536.00	0.646341
Std. Dev.	684095.0	2298384.	3.919602	0.456633	794116.0	1680477.	57847.81	0.085159
Skewness	0.147763	0.698782	-1.002342	0.370335	-0.939164	0.547908	0.685895	-0.561720
Kurtosis	1.129616	2.105092	2.999323	1.763937	2.538085	2.079537	2.971770	5.217180
Coefficient of variance%	51.50	53.55	4.96	24.72	35.63	51.38	37.74	8.45
Jarque-Bera	20.61762	15.83576	23.10785	11.93955	21.51352	11.77638	10.82498	35.52352
Probability	0.000033	0.000364	0.000010	0.002555	0.000021	0.002772	0.004461	0.000000
Sum	1.83E+08	5.92E+08	10885.30	251.1827	3.08E+08	4.51E+08	21148211	138.9954
Sum Sq. Dev.	6.41E+13	7.24E+14	2104.769	28.56641	8.64E+13	3.87E+14	4.58E+11	0.993539
Observations	138	138	138	138	138	138	138	138

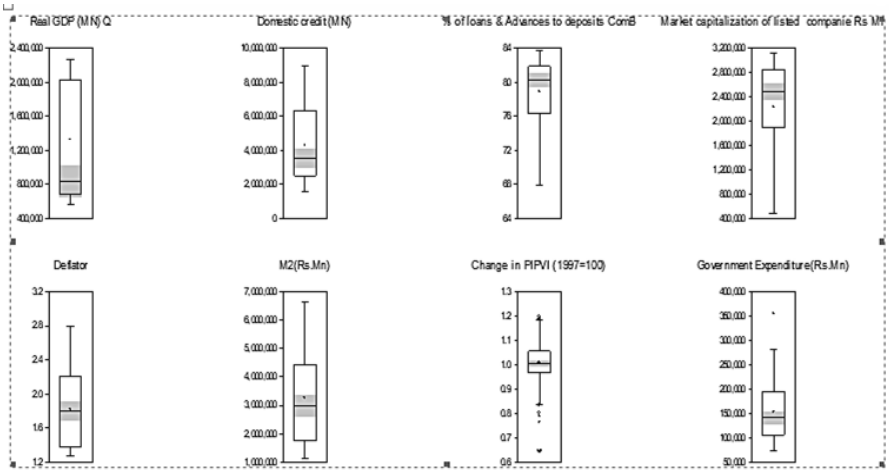

Figure 1: Box plots of individual series
Source: Author calculations

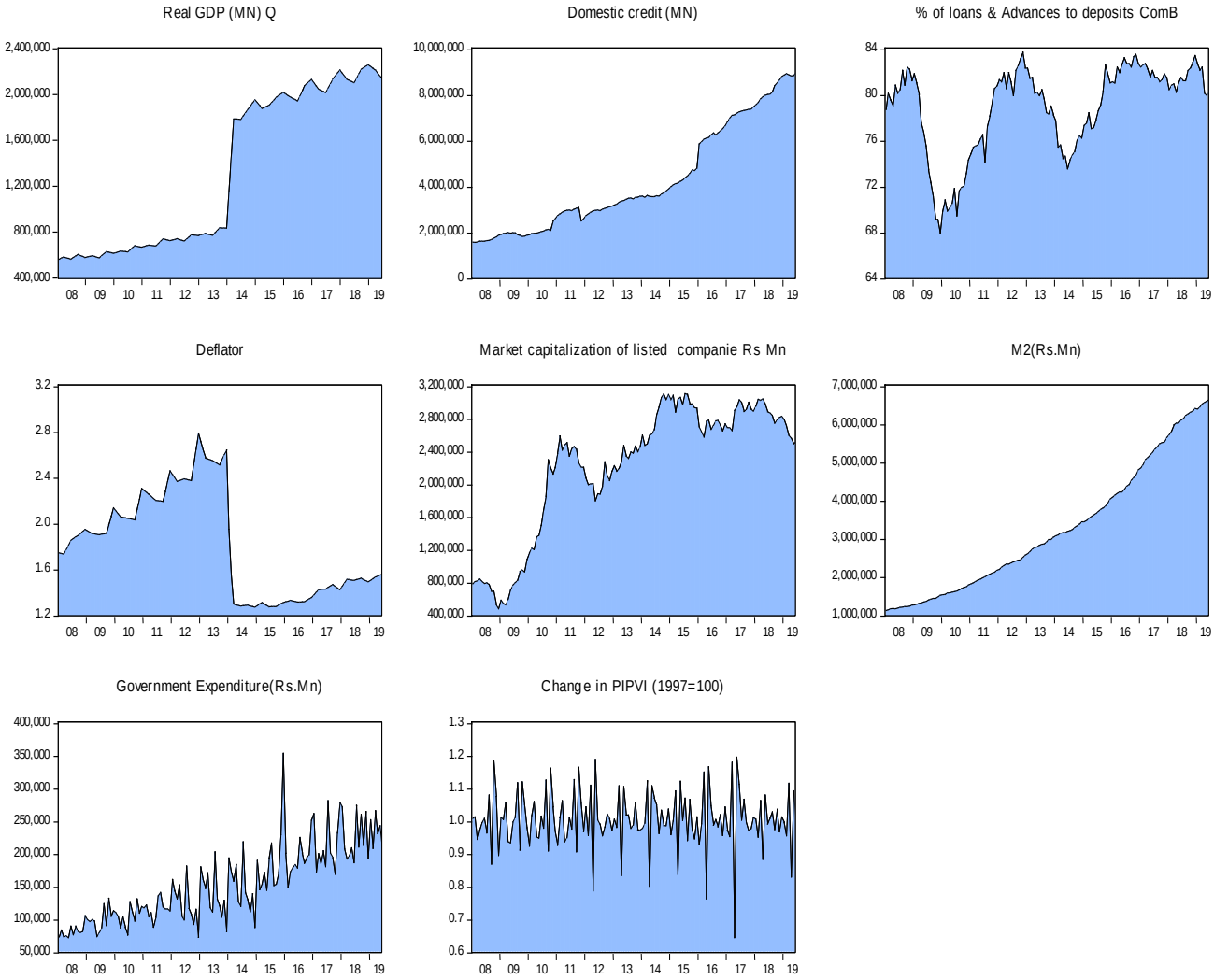

Figure 2: Raw data series in area graph
Source: Author calculation

Figure 2 illustrates the graphical area view of each individual variable. The graph clearly depicts the unit root problem of the raw variables. Figure 3 illustrates the behaviour of each explanatory variable over the dependent variable to have an idea on the trend of relationship. For M2, The percentage of loans and advances to total

deposits of commercial banks and Total Domestic Credit have a positive long-term relationship with Real GDP growth in Sri Lanka. But the growth is limited to a certain extent of an expansion of these variables, and after that capacity, it has a negative impact on Real GDP in the short run, but again, in the long run, it has an ultimate result of expansion in the real GDP. It implies that domestic credit injection into the economic system affects to increase in economic growth in the near future, and thereby we can predict the future GDP growth in the country by looking at the current behaviour of the domestic credit level.

Unit Root Test

The results of the unit root tests at the level are presented in Table 2 and Table 3 for model I and II, respectively. As per the test results, the null hypothesis of unit root is not rejected by the ADF test at level I (0), except for PSPVI Change and Percentage of Loans & Advances to Total Deposits, and the remaining series are non-stationary in the level.

The Optimal Number of Lags

Akaike Information Criterion (AIC) is employed to choose the best ARDL model at the maximum lag length of 6 months. first the criteria getting the lowest figure of lag by employing both the AIC and the Schwartz Bayesian Criterion (SBC) to determine lag lengths individually. The Vector Auto Regression (VAR) test results for each series provide lag length criteria results with the lowest information criteria with AIC. Therefore, the AIC is set as the criteria to specify the lag length of the equations under constant and trend specifications.

Table 2: Summary results of Unit Root Test at Level – Model I

Series	Prob. at Level Form	Prob. at 1st Difference	Order of Integration
LN_GDP_REAL_	0.5824	0.0061	I (1)
LN_DC	0.4518	0.0000	I (1)
LN_MC	0.5750	0.0194	I (1)
LN_DEFLATOR	0.5267	0.0025	I (1)
LN_M2	0.8877	0.0009	I (1)
LN_PSIPVI_CHANGE	0.0001	-	I (0)
LN_GE	0.3041	0.0000	I (1)

Source: Author calculations

Table 3: Summary results of Unit Root Test at Level – Model II

Series	Prob. at Level Form	Prob. at 1st Difference	Order of Integration
LN_GDP_REAL_	0.5824	0.0061	I (1)
LN_MC	0.5750	0.0194	I (1)
LN_DEFLATOR	0.5267	0.0025	I (1)
LN_M2	0.8877	0.0009	I (1)
LN_GE	0.3041	0.0000	I (1)
LNL_ADV_DEPCOMB	0.0001	-	I (0)
LN_PSIPVI_CHANGE	0.0001	-	I (0)

Source: Author calculations

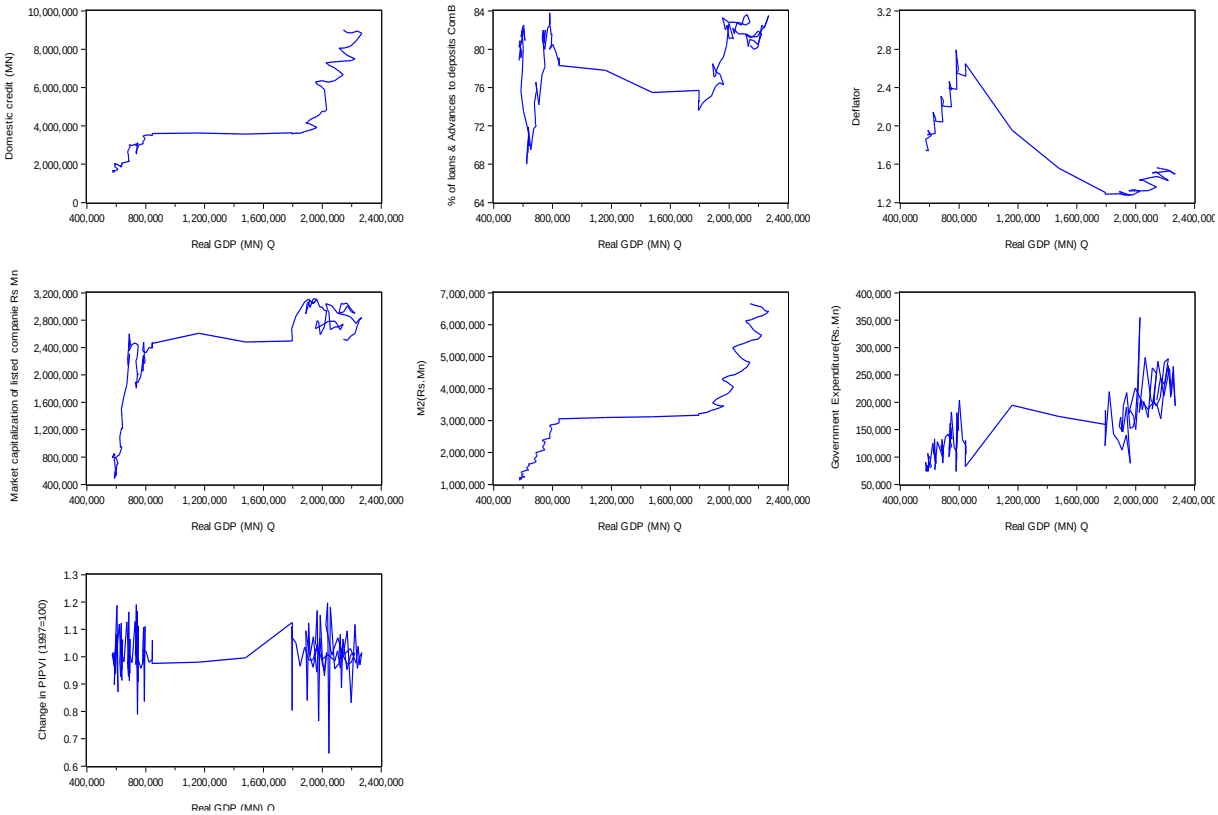

Figure 3: All independent variables vs. dependent variable in multiple graphs
Source: Author calculation

Auto Regressive Distributed Lag (ARDL) Estimates

Results propose an ARDL estimation for the univariate cointegration test, where the Real GDP (LN_GDP_REAL) is considered as the dependent variable, and all other variables are regressors. Under automatic test specifications, subject to maximum lag lengths 6 and 12 for the independent variable and regressors, respectively, tests were performed in terms of minimising AIC. This is the first stage of an ARDL estimation for the univariate cointegration test. The ARDL (5, 12, 10, 10, 10, 10, 0) and ARDL (6, 11, 2, 11, 8, 12, 11) are having the best level among the top twenty models under AIC.

Distributed lag Model I is generated with 99.9923% R-squared and 99.9843% of adjusted R-squared with a significant probability value of F-statistic. Its sum of squared residual stands at 00.2759% and also supports goodness of fit. R-squared and adjusted R-squared of the second model are 99.9944% and 99.9878% with a significant probability value of F-statistic. The sum of squared residual is reduced further in the second model to 00.2007%. Durbin-Watson stat in both models also stands at two, implying there is no autocorrelation. Accordingly, the Real GDP growth is affected by itself up to five months back figures in model I and six months back figures in model II. According to Model I, there are twelve months of back lags of Total Domestic Credit impact on real GDP growth and the value of replacing regressor in Model II, of which Percentage of Loans and Advances to Total Deposits stands as eleven in the model. It implies that the variations in Real GDP in Sri Lanka are the results of Total Domestic Credit capacity and the Percentage of Loans and Advances to Total Deposits in the country, and it has an impact around one year prior to the particular time concerned. The next three variables of FMD in Model I have explanatory power on the dependent variable distributed up to ten months back. PSPVI Change also seems to have ten months distributed impact over the dependent variable. According to Model II there are two, eleven, eight, and twelve months lag-back effects by the corresponding regressors.

According to Model I, government Expenditure is only having same-month impact on Real GDP growth in Sri Lanka. This implies that most government expenditure is incurred on the country's frequent monthly or recurrent activities, such as salaries and other monthly working capital requirements than for long-term production purposes. This kind of government involvement may not contribute directly to the accumulation of resources to enhance the real output in the island. But for the second model, the lag of government expenditure stands at eleven, and this model implies there is an eleven months back distributed impact on the Real GDP growth.

Coefficient Diagnostic Test

The results of both Wald Tests for individual explanatory variables and Long-Run ARDL Bounds Tests for Cointegration provide evidence for short-run and long-run association from FMD variables towards the dependent variable in both models.

The long-run coefficient of the first model is illustrated in Table 4. All four regressors of financial market development have significant coefficients having non-zero values. Negative coefficients of Total Domestic Credits and GDP Deflator show the presence of a negative impact towards the dependent variable, while the other two financial market performance regressors are also statistically significant and have a positive long-run impact towards the real GDP. The Non-financial market regressors of both models have none zero coefficients, but both are not significant as FMD regressors.

The long-run coefficients of Model II, as in Table 5, also suggest four FMD regressors have significant coefficients with non-zero values. GDP Deflator only show a significant negative impact under this model towards the dependent variable while other three FMD regressors are also statistically significant and have a positive lng-run impact on Real GDP growth. In the long run test, all the six coefficients of explanatory variables conclude expected theoretical conclusions with hypothesised signs except for Total Domestic Credit. Being consistent with theoretical literature, the Percentage of Loans and Advances to Total Deposits in Sri Lanka has a positive sign on real GDP. The long-run analysis reveals that a 1% increase in Total Domestic Credit leads to a decrease in economic growth by 0.28% in the model I, and a 1% increase in the Percentage of Loans and Advances to Total Deposits leads to an increase in economic growth by 0.98% as in model II. Also, a 1% increase in money supply triggers an increase in GDP by 1.57% as in Model I and 0.659% as in Model II.

Table 4: Long-run Coefficient - Model I

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_DC	-0.281230	0.057071	-4.927757	0.0000
LN_MC	0.057237	0.016083	3.558793	0.0007
LN_DEFLATOR	-1.026946	0.022522	-45.59805	0.0000
LN_M2	1.576758	0.235524	6.694688	0.0000
LN_PSIPVI_CHANGE	-0.486189	0.465032	-1.045498	0.2999
LN_GE	0.010603	0.016768	0.632329	0.5295

Source: Author calculations

Table 5: Long-run Coefficient - Model II

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNL_ADV_DEPCOMB	0.987862	0.131183	7.530418	0.0000
LN_MC	0.185450	0.018497	10.02583	0.0000
LN_DEFLATOR	-1.068536	0.017715	-60.31796	0.0000
LN_M2	0.659421	0.229708	2.870689	0.0057
LN_PSIPVI_CHANGE	0.168824	0.483635	0.349072	0.7283
LN_GE	-0.042864	0.052529	-0.816012	0.4179

Source: Author calculations

The results equally indicate that increasing market Capitalisation by 1% leads to an increase in GDP by 0.05%i Model I and by 0.18% in Model II. This means there is a long-run relationship between FMD and economic growth.

According to Model I, PSPVI has a negative and insignificant impact on economic growth in Sri Lanka, while Government Expenditure gets a positive sign, but again, it is insignificant, which suggests that non-financial market variables of the estimated endogenous growth model are not a significant and primary source engine for economic growth in Sri Lanka. The same insignificant coefficients are generated for these two non-financial market indicators in Model II, but both signs have changed due to the overall impact has changed due to replacement of a new regressor. It is observed here that Government Expenditure has an insignificant negative impact in the long run. Government short-term investments or higher recurrent consumption expenses could be reasons for this negative association with Real GDP in Sri Lanka. PSPVI has an insignificant positive impact, which mean that private-sector industrial investments have been focused towards expanding long-term Real GDP in Sri Lanka. The most important observation is that all the FMD proxies, regardless of the sign or direction, have significant and comparatively higher value coefficients than non-financial market variables.

ARDL Error Correction Regression and Bound Test

Under the Error Correction Regression output, the Coefficient of cointegration equation (CointEq (-1)) measures the speed of adjustment from short-run disequilibrium to long-run equilibrium or, in another way, measures the speed of convergence of short run towards the long-run equilibrium. Table 6 and Table 7 show the summary of test results of Error Correction Regression results for Model I and Model II, respectively.

The details of CointEq(-1)* is the important statistical figure in this test output. The value suggested by the CointEq(-1)* term in Model I is -0.326074 and -0.370822, which both are negative and statistically significant as the p-value is 0.0000. These statistics imply 32.6074% and 37.0822% of disequilibrium in the short run is corrected towards the long run monthly, as our time series are taken by monthly in Models I and II, respectively. It also evidences that only 32.6074% and 37.0822% of the gap between long-run equilibrium value and the actual Ln values of the dependent variable, Real GDP in this study, has been corrected in the two models, respectively. This is also said as speed of adjustment towards the long-run equilibrium. Accordingly, the estimated adjusted EC equations are elaborated under equations 4 and 5.

Model I

EC = LN_GDP_REAL_ - (2.7320*LN_DCGR -9.1397*LN_MC -22.2550 *LN_CCPI -8.7729*LN_M2 + 18.3474*LN_PSIPVI -5.7126*LN_GE)
(Equation 4)

Model II

EC = LN_GDP_REAL_ - (0.9879*LNL_ADV_DEPCOMB + 0.1855*LN_MC-1.0685*LN_DEFLATOR + 0.6594*LN_M2 + 0.1688*LN_PSIPVI_CHANGE-0.0429*LN_GE) (Equation 5)

Table 6: ARDL Error Correction Regression – Model I

Selected Model: ARDL(5, 12, 10, 10, 10, 10, 0)				
ECM Regression Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.326074	0.046271	-7.046988	0.0000
R-squared	0.986737	Mean dependent var		0.010273
Adjusted R-squared	0.975255	S.D. dependent var		0.040792
S.E. of regression	0.006417	Akaike info criterion		-6.954902
Sum squared resid	0.002759	Schwarz criterion		-5.626802
Log likelihood	497.1588	Hannan-Quinn criter.		-6.415336
F-statistic	85.94062	Durbin-Watson stat		2.038159
Prob(F-statistic)	0.000000			
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.458981	10%	2.53	3.59
k	6	5%	2.87	4
		2.5%	3.19	4.38
		1%	3.6	4.9

Source: Author calculations

Error correction model I has been adjusted with a sound R-squared of 98.6737% and Adjusted R-squared of 97.5255% where F statistics are 85.94062, and its probability value is highly significant at 5% which stands at 0.000000. Equally, Error correction model II has been adjusted with a sound R-squared of 99.0352% and Adjusted R-squared of 98.0857% where F statistics are 104.3010, and its probability value is highly significant at 5%, which stands at 0.000000. Finally, with these statistical outputs, we can derive the final summary equations for two ARDL models, as in equations 6 and 7. Accordingly, these two cointegration equations are the unrestricted error correction models (ECMs) for the ARDL bounds tests.

Table 7: ARDL Error Correction Regression – Model II

Selected Model: ARDL(6, 11, 2, 11, 8, 12, 11)				
ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.370822	0.047114	-7.870674	0.0000
R-squared	0.990352	Mean dependent var		0.010273
Adjusted R-squared	0.980857	S.D. dependent var		0.040792
S.E. of regression	0.005644	Akaike info criterion		-7.209627
Sum squared resid	0.002007	Schwarz criterion		-5.791486
Log likelihood	517.2065	Hannan-Quinn criter.		-6.633480
F-statistic	104.3010	Durbin-Watson stat		2.047793
Prob(F-statistic)	0.000000			
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	8.006821	10%	2.53	3.59
k	6	5%	2.87	4
		2.5%	3.19	4.38
		1%	3.6	4.9

Source: Author calculations

Summary of Co-integrating Equation - Model I

$$D(LN\_GDP\_REALt) = \beta_0 + \alpha Ln\,(RealGDPt\text{-}1) + \beta 1 Ln\,(DCt\text{-}1) + \beta 2 Ln\,(MCt\text{-}1) + \beta 3 Ln\,(INFt\text{-}1) + \beta 4 Ln\,(M2t\text{-}1) + \beta 5 Ln\,(PPVIt\text{-}1) + \beta 6 Ln\,(GEt) + \sum_{i=1}^{j=5} \alpha_{1i} \Delta Ln\,(RealGDPt\text{-}1) + \sum_{i=0}^{k=12} \alpha_{2i} \Delta\, Ln\,(DCt\text{-}i) + \sum_{i=0}^{l=10} \alpha_{3i} \Delta\, Ln\,(MCt\text{-}i) + \sum_{i=0}^{m=10} \alpha_{4i} \Delta Ln\,(INFt\text{-}i) + \sum_{i=0}^{n=10} \alpha_{5i} \Delta Ln(M2t\text{-}i) + \sum_{i=0}^{o=7} \alpha_{6i} \Delta Ln(PPVIt\text{-}i) + \sum_{i=0}^{p=0} \alpha_{7i} \Delta\, Ln\,(GEt\text{-}i) + \varepsilon t$$

(Equation 6)

Summary of Co-integrating Equation - Model II

$$D(LN\_GDP\_REALt) = \beta_0 + \alpha Ln\,(RealGDPt\text{-}1) + \beta 1 Ln\,(DCt\text{-}1) + \beta 2 Ln\,(MCt\text{-}1) + \beta 3 Ln\,(INFt\text{-}1) + \beta 4 Ln\,(M2t\text{-}1) + \beta 5 Ln\,(PPVIt\text{-}1) + \beta 6 Ln\,(GEt) + \sum_{i=1}^{j=6} \alpha_{1i} \Delta Ln\,(RealGDPt\text{-}1) + \sum_{i=0}^{k=11} \alpha_{2i} \Delta\, Ln\,(L\_ADV\_DEPCOMBt\text{-}i) + \sum_{i=0}^{l=2} \alpha_{3i} \Delta\, Ln\,(MCt\text{-}i) + \sum_{i=0}^{m=11} \alpha_{4i} \Delta Ln\,(INFt\text{-}i) + \sum_{i=0}^{n=8} \alpha_{5i} \Delta Ln(M2t\text{-}i) + \sum_{i=0}^{o=12} \alpha_{6i} \Delta Ln(PPVIt\text{-}i) + \sum_{i=0}^{p=11} \alpha_{7i} \Delta\, Ln\,(GEt\text{-}i) + \varepsilon t$$

(Equation 7)

Source: Author Calculations

Residual Diagnostic Tests

The Brush & Godfray LM test was conducted to test the serial correlation of the residuals of the two models. The test results are concluded in Table 8. The results of the Brush & Godfray LM test indicate that there is no error autocorrelation in both models. (Table 8). Prob. The Chi-Square of Obs*R-squared of both models at two lag levels are too greater than a 5% significant level. Therefore we fail to reject the null hypothesis, meaning there is no serial Correlation.

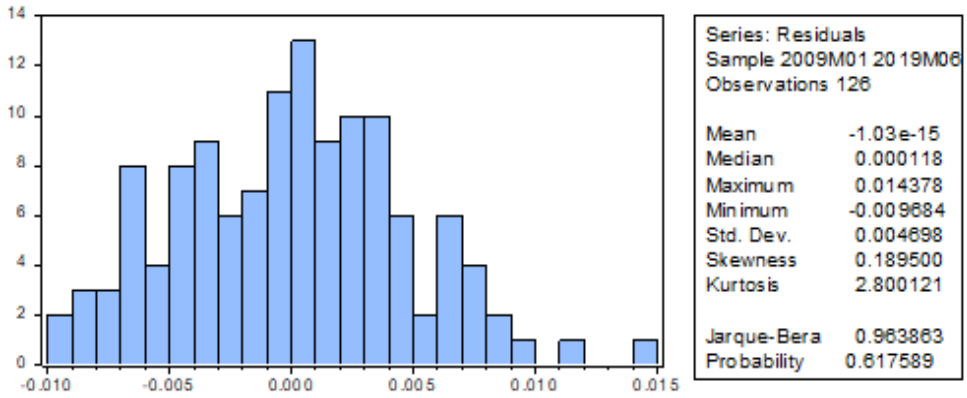

Figure 4: Histogram of Residuals – Model I
Source: Author calculations

Table 8: Serial Correlation Test Summary– Model I and Model II

Breusch-Godfrey Serial Correlation LM Test		
	Model I	Model II
F-statistic	0.173489	0.092590
Obs*R-squared	0.736673	0.422809
Prob. F(2,59)	0.8412	0.9117
Prob. Chi- Square(2)	0.6919	0.8094

Source: Author calculation

Table 9: Summary of Heteroskedasticity Test: Breusch-Pagan-Godfrey – Model I

Model I				Model II			
F-statistic	1.277898	Prob. F(64,61)	0.1683	F-statistic	0.827416	Prob. F(68,57)	0.7740
Obs*R-squared	72.17099	Prob. Chi-Square(64)	0.2260	Obs*R-squared	62.59078	Prob. Chi-Square(68)	0.6624
Scaled explained SS	15.22485	Prob. Chi-Square(64)	1.0000	Scaled explained SS	10.55121	Prob. Chi-Square(68)	1.0000

Source: Author Calculations

As the next residual test of coefficients, the test for Heteroscedasticity is tested to ensure all residuals have constant variance (homoscedasticity). In this thesis, we have used the Breusch-Pagan-Godfrey test for heteroscedasticity. According to the test results in below Table 9, we fail to reject the null hypothesis, which has no heteroscedasticity as all the three probability values of F-statistic, Obs*R-squared, and Scaled explained SS values are greater than 5% significant level for both models.

Model Stability Tests

Normality (Histogram with Jaque-Bera test) and CUSUM and CUSUM Square tests were undertaken to proceed with the model analysis to be stable. These test results indicated the model is free from misspecification and non-normality of the error term. As the first stability test for the model, the test for the Normality of the Residuals is used.

The Jarque-Bera test statistics for the normality of the residuals are used to ensure the normality of the models with their corresponding histograms. Figure 4 and Figure 5 provide the test outcome of the normality of residual of Model I and Model II, respectively. As the general econometrics defined, the histogram of both models generated are bell shaped, and the Probability of Jarque-Bera test statistics becomes significantly large, around 61% for both models. Therefore the test results fail to reject the null hypothesis of the presence of normality in residuals.

These plots repeat the results by providing evidence of behaviour of residuals that they are no specific trend and averagely distributed being actual and fitted are both inline without significant deviations. Predicted line has not fallen above or beneath any of the particular point. It means that the ARDL model is neither over-predicted nor under-predicted. The sum and mean of the residuals also lie within the error range of 0.5%. Further, support the soundness of the two models in explaining the dependent variable, Real GDP in Sri Lanka.

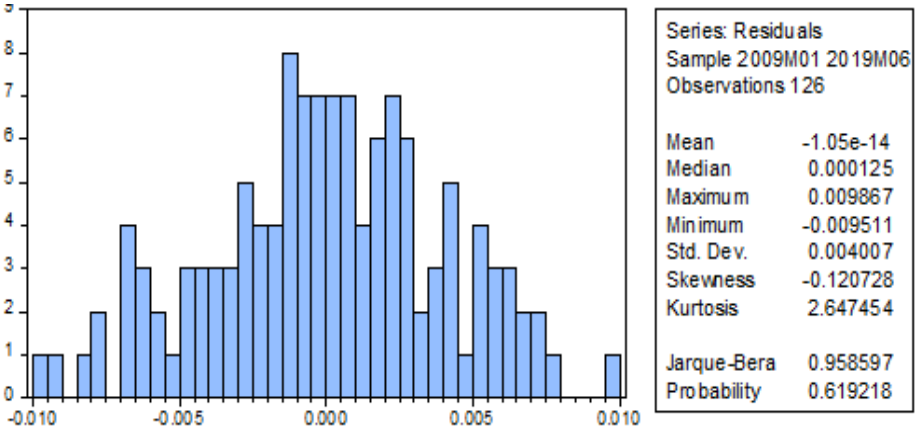

Figure 5: Histogram of Residuals – Model II
Source: Author calculations

Actual, Fitted, and Residual Graph forms also can be used to have an idea of residuals. It displays the actual and fitted values of the dependent variable and the residuals from the regression in tabular and graphical form. Figures 6 and 7 are the corresponding Actual, Fitted, and Residual results in graphical form of the two models of the study.

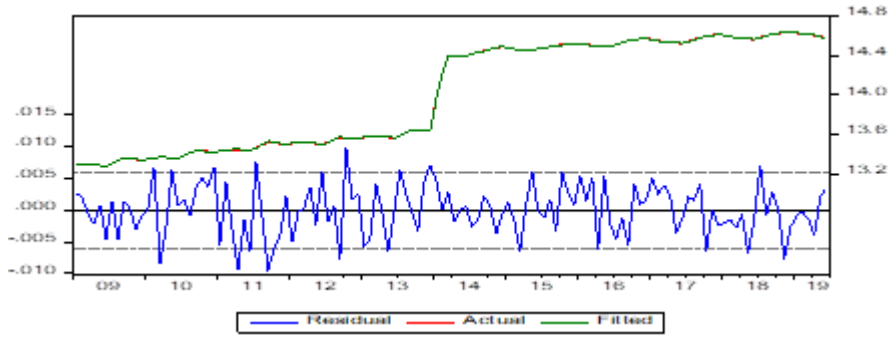

Figure 6: Actual, Fitted, Residual Graph – Model I
Source: Author calculations

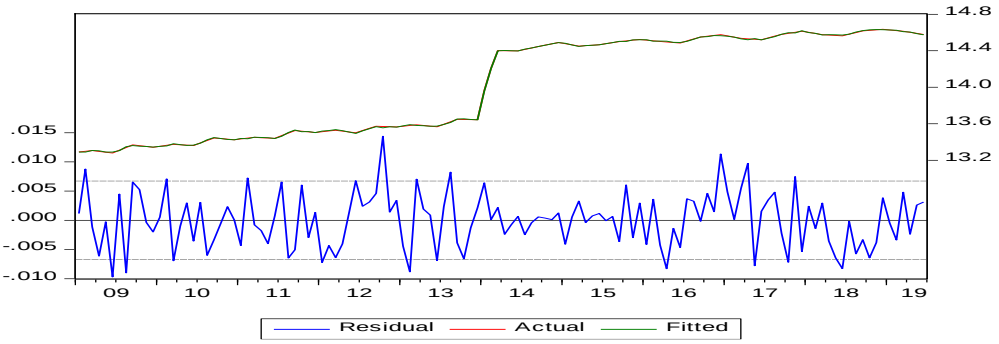

Figure 7: Actual, Fitted, Residual Graph – Model II
Source: Author calculations

CUSUM Test and CUSUMSQ Tests

Finally, to test the specification error of the estimated ARDL models, the CUSUM test and CUSUMSQ tests were performed. The test results of the CUSUM test are illustrated in Figure 8 and Figure 9. Under the CUSUM test, the cumulative sum of recursive residuals is plotted against the upper and lower 95 % confidence bounds. The concept remains the same for CUSUMSQ. Test results of the both models are as in Figure 10 and Figure 11.

Since both plots lie inside the lower and upper bound at a 5% significant level, implying the two models' stability is strong enough to apply in future related studies. The results of all plots fail to reject the null hypothesis of no misspecification in the models.

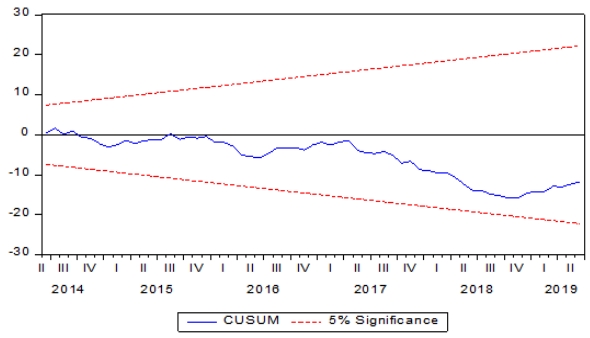

Figure 8: CUSUM test – Model I
Source: Author calculations

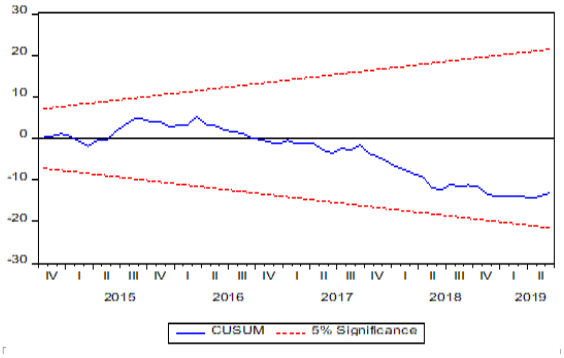

Figure 9: CUSUM test – Model II
Source: Author calculations

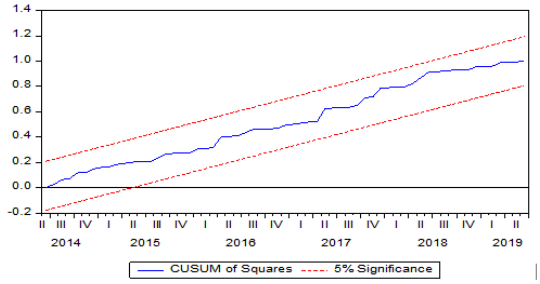

Figure 10: CUSUMSQ test – Model I
Source: Author calculations

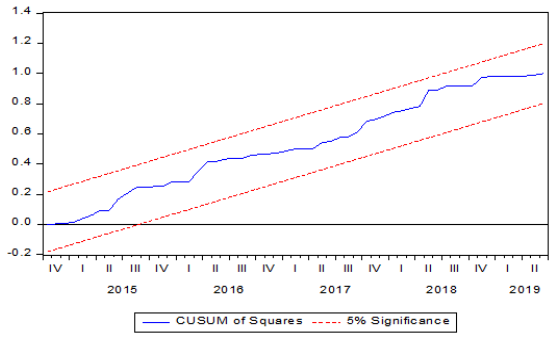

Figure 6: CUSUM SQ test – Model II
Source: Author calculations

Theoretical implications

The findings have significantly confirmed the theoretical view, which sustains that FMD has a positive and significant impact on economic growth. The the study's overall findings confirm the conclusions of the empirical

studies, that there is a supply-leading association from the exogenous component of financial market development on economic growth. Analysis rejects the $H_{04,}$ as all the long-run coefficients of explanatory variables get coefficients other than zero at a 95% confidence level up to 12 lag period for financial regressors. This result collaborates with Tabi *et al*. (2011), who used a time series data of 35 years to show that financial development had a positive and significant long-run effect on economic growth in 2011. This is also consistent with the theoretical literature of Luintel and Kaln in 1999 which verified a long-run cointegration between financial development and economic growth. According to the long-run coefficients of explanatory variables in the overall two models, conclude the expected theoretical long run as well as positive directions around the one-year lag impact of FMD on real GDP growth in the Sri Lankan economy.

Empirical results

The results of both models provide significant results to reject the null hypotheses. As the coefficients of FMD explanatories get values not equal to zero confirms that null hypotheses are rejected. First by rejecting H_{01} and H_{02}, indicate that from both financial depth and efficiency, which are the two perspectives of FMD have a significant impact on the economic growth in Sri Lanka in both models. Secondly by rejecting H_{04}, proves that there is a long-run prediction ability over the Real GDP growth by FMD of Sri Lanka.

To have a deeper review, as the results of model II depicts, the coefficient of the percentage of loans and advances to total deposits as a measurer of financial depth has a positive sign as predicted by the theory and is statistically significant at an even 1% significant level. This result also supports to reject the H_{01}.

This result is also similar to the long-run effect of that variable on real economic growth in Sri Lanka. It indicates that a 1% increase in the percentage of loans and advances to total deposits (financial depth) of Sri Lanka leads to an increase of 0.987862 per cent in aggregate output growth in Sri Lanka. This is the second highest positive impact among the explanatory variables, which implies that FMD is a proxy by the percentage of loans and advances to total deposits. The reason for facilitate supply of investible funds sources to the productive sector which influences overall output growth through increased economic investment levels. Loans and advances are the primary source of money creation in the country which inject the financial resources into the economic cycle through investments.

Conversely, the result of the Model I with replacing variable: Ln of Percentage of Loans and Advances to Total Deposits with Ln of Total Domestic Credit indicates the higher credit level is dangerous, and the credit burden on the economy or a higher degree of financial depth will result in a negative impact on real output growth in a country as Sri Lanka as the coefficient gets a negative sign. But still, the impact was reported as significant. To this end, the third research hypothesis, in which H_{03} is also proved as null, is rejected as per the results of the two models.

Further, PSPVI changes negatively and insignificantly determines economic growth in Sri Lanka according to the Model I, which signals as the credit level goes up in Sri Lanka, the financial distress has prevented the positive expansion of the real output as the real marginal revenue earned would be incurred to settle financial costs such as loan repayments and interest charges, penalty or default charge and other kind of debt service charges. In another way, the results indicate the rejection of the H_{03} and prove that there is no positive impact of the higher degree of financial depth in Sri Lanka on the growth of Real GDP in Sri Lanka. Further, this result is good evidence that Sri Lankan credit capacity in the financial market has exceeded the limit and thus has an unbearable risk to the Sri Lankan economy.

Results of Government expenditure in the Model I are consistent with literature as an endogenous growth model that incorporates government consumption or another way its economic involvement leads to economic growth, but the impact has become insignificant at a 5% significance level, and its supports to reject the $H_{05:}$ Non-

financial market variables on Real GDP growth in Sri Lanka is comparatively significant than financial market development variables.

Finally, the results emphasise that domestic credit in model I or as in model II, loans and advances in the domestic financial system can have a highly significant impact on aggregate real output growth up to a certain bearable level until the economy can absorb the credit risk level associated with the credit level. Therefore the economy must be vigilant to maintain optimum level of credit capacity in the country to make it an engine for long-run economic growth. The capacity of credit generates negative distress towards the economy and results in a downward impact on the real output, as currently, Sri Lanka is experiencing.

Researchers have identified such a correlation is, however, positive, but only to a certain point in countries where the financial market is small or medium. They also conclude with the reasoning that too much finance can increase the frequency of fluctuates and leave countries unstable with lower real GDP growth.

Figure12 shows the relationship between the levels of consolidated domestic credit, loans and advances to deposits of commercial banks and real GDP growth in Sri Lanka. The composite plot illustrates that the same negative impact on economic growth by increasing financial depth also applies to Sri Lankan economy. As the gap between financial depths between two explanatory variables increase, there is a negative and downward-sloping real GDP growth line and vice versa. It means that where the country is influenced by very high volumes of credit (as % of GDP) record, lower GDP growth rates. A negative impact of excessive credit capacity can be seen in the gap between consolidated domestic credit and loans and advances by the commercial banking sector only. At every point of the higher gap, it is apparent the real GDP growth rate has decreased, while if the gap is reducing, the growth rate has increased. The monthly data considered in the study indicates if the aforesaid gap of consolidated credits and loans and advances by the commercial banking sector exceeds the absorbable capacity in the country has created a repeated recession boom situation in short run also in GDP growth in Sri Lanka, which hinders the economic stability in the long run.

This kind of behaviour of financial depth is the aftermath of interest on the excessive level of debt being very high, and a lot of resources are then devoted to repaying debt. High debt service cost hampers economic growth in the short run as well as mainly over the long run. This will limit the inputs that can be used in stimulating output growth.

This is the scenario currently faced by many of the countries, even in the eurozone, with the global crisis, and this also assists in confirming this research results. Hence, this study has indicated sufficient to explain the negative long-term impact and short-term unstable fluctuation of real economic growth due to over performance of financial markets. Another way that excessive lending or too massive financial market may be a limiting factor towards the real growth of output.

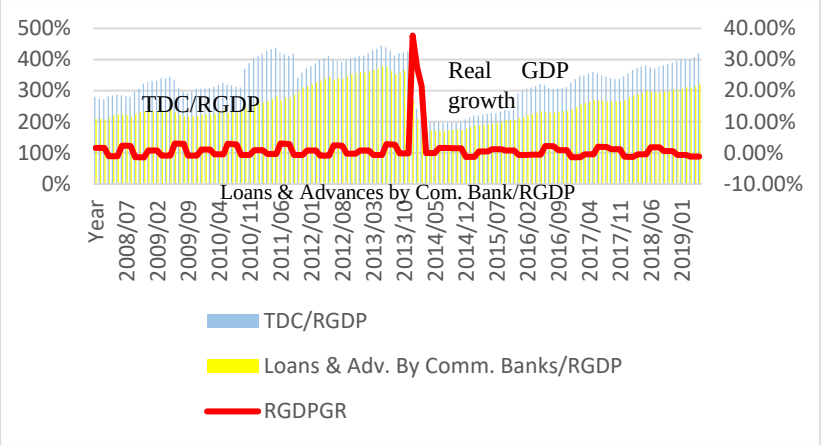

Figure 12: Financial Depth vs. Real GDP Growth in Sri Lanka
Source: Author calculations

The next variable, Market Capitalisation of listed companies (Ln conversion), gives many interesting findings on the impact of capital market development on economic growth. All the coefficients for a lag variable of the market Capitalisation regressor (in Ln form) in both models are statistically significant (with p values not exceeding 0.001 or 0.05). Regarding Model I, a 1% increase in the market Capitalisation of listed companies will result in real GDP growth of 0.057237%. This value is second largest positive coefficient next to the Domestic Credit proxy in the second model, which is 0.185450 of positive impact for 1% growth in the market Capitalisation of listed companies. It means that a positive impact is seen with respect to capital market development.

It further suggests increases in Market Capitalisation lead to the acceleration of output. Hence, the study also confirms a strong positive impact of development in market Capitalisation of listed companies on the growth rate of GDP as evidenced in the empirical literature.

In addition, the models indicate a negative impact of inflation on economic growth in both ARDL models. Coefficient estimations in the study show that increasing inflation is an obstacle to achieve real output growth in Sri Lanka. As the prominent economist insisted, inflation may causes to increase the financial service cost and discourage financial involvement in the financial market. The coefficient of the corresponding proxy in Model I is about negative 1.026946, and in Model II is 1.068536. This indicates that a1% increase of inflation effect can reduce Real GDP by respective percentages. The impact is significantly downward at an increasing rate. This finding emphasises the importance of pursuing anti-inflationary policies since, over a longer-run period, the impact of inflation on GDP growth is significantly negative at an increasing rate.

Next, as the proxy of liquidity, which indicates the efficiency in financial market, the supply of broad money (M2) has a positive and significant impact on economic growth in the short and long run. Through the financial market using intermediary institutes and financial market platforms, the stock of money available in country would be circulated towards the demanding sectors. Especially, commercial banking sector is involved in creating the supply of money through lending using the excess reserves which would finally facilitate the financing of economic activities in the short run and long term. The long-run coefficients reveal about 1.576758% and 0.659421% positive and significant increase over real GDP for a1% increase in liquidity in the economy.

While all the above relationships are in line with the theoretical structural model, the latter non-financial market proxies are not always confirmed by empirical findings of other studies. The results point to a negative impact of Ln PSPVI on economic growth in Model I, while it is positive in model II. In both models, the significance of these coefficients is very low, where coefficients stand at 0.2999 in Model I and 0.7283 in Model II. This is because for many mild developing countries like Sri Lanka, the degree of private sector investments is rather correlated with foreign investments and a huge percentage of the income generated is not directed to local

real output value addition inside the country and rather directed in return to profit distribution of the non-resident investors as a fund leakage to external nations. This emphasises the importance of local investments and dependency of higher foreign investments will hinder economic growth though it is expected to generate positive externalities to the economy.

Finally, the impact of Government Consumption or Expenditure on economic growth turns out to be positive in Model I but negative in Model II. Though the positive impact is agreed with the empirical literature again, the result is not significant at a 95% confidence level with the lowest coefficient of 0.010603 among model regressors. This means a 1% increase in Government Expenditure would explain a very small portion, around 0.01% variation in the real GDP growth. In Model I the significance of the coefficient is 0.5295, and it is in Model II is 0.4179, which concludes a very lower significance for the impact generated. This result again provides evidence that as a proxy for the non-financial market, the change in Sri Lankan government consumption impact on output growth is very limited and insignificant when comparing the impact of financial market development proxies. The latter result of Model II is opposite to views about the beneficial effects of public spending. This indicates that Sri Lankan Government Expenditures are not directing towards value-adding economic activities and rather the expenses may involve highly on recurrent activities which would not lead to output growth as not incurred any capital nature investment or long term perspective. In Model II, generated coefficient suggested 1% increase in government expenditure has a negative impact of 0.042864% variation in the real GDP growth that implies further that if the government expenditure is not directed to expected public investment and rather incurs on short-term working capital investments, the public consumption does not lead to expected rapid economic growth rather declines the existing economic output level. The reason behind this can also be due to the shift of resources from productive sectors to non-prominent areas in the economy. Finally, it also supports the final research objective, emphasising that the significance of non-financial market variables is less than the significance of FMD on Real GDP growth in Sri Lanka by rejecting the $H_{05.}$

CONCLUSION AND PRACTICAL IMPLICATIONS

This study used monthly time series data from January 2008 to June 2019 of Sri Lankan secondary data to examine the impact of FMD economic growth in Sri Lanka. The results of this study conclude that there is a long-run significant impact from FMD on economic growth relating to the Sri Lankan context. Even in the short-run, the impact indicates a strong positive impact on economic growth according to the ARDL model, which explained in lag period effect corresponding proxies of financial market performance measures. According to the ARDL model, the lag impact is around one year or twelve months back of each regressor on the Sri Lankan economic growth.

Further, the study highlights the overcapacity of financial activities in the Sri Lankan financial market has caused a negative impact on economic growth due to reasons such as increasing financial risk as the increase of financial distress, increasing misallocation of resources by exploiting the finance from prominent sectors and directing them on few sectors may increase in frequency of fluctuates in the financial market development. This kind of results in this paper emphasises the importance of optimum monetary policy, neither too lower nor too larger, as results suggest to pursue anti-inflationary policies because over a longer time period and as the final cyclical results would end up with the impact of inflation and then again real GDP negatively affected. Therefore the study guides to monitor optimum efficiency rather than overperforming in financial market is strictly required and emphasised to corresponding authorities in Sri Lankan economy.

Also concludes that an increase in liquidity can smooth the functions of the financial markets, and it will assist in efficient performance and finally be directed towards real production growth. As the inflation regressor gets the most significant negative effect on real GDP, complying with the economic theory as well, inflammatory situations would have a circular effect on the economy by demanding expansionary policies to be implemented such as salary increases. But finally, this leads to repeating inflation which causes a reduction in the efficiency- of

FMD as the transaction cost goes up. This scenario would hamper the efficiency in the financial markets in Sri Lanka.

RECOMMENDATION FOR FUTURE STUDIES

There can be limitations in this study related to model specification rather than linear function, ARDL application, variables concerned, and also being limited to the unidirectional impact of economic growth. For instances some authors have explained the U shape behavior of nonlinear function. They have insisted a squared relationship, with a parabola of which half is upward sloping and another half is downward sloping which is a limitation of this study. Also, it cannot be excluded that financial development reveals a bilateral causal relationship with economic growth or even a reverse causal link as reviewed in the literature. However, this is a different methodology of research and it is beyond the scope of our topic mainly. Researched period might be extended for further studies than the covered decade due to unavailability of series data and also different financial sector variables can be taken for the explainers than considered seven proxies in the study. Future related research could address these limitations and also apply the topic for various parts of the world as regions, unions or communities and finally emphasises an interesting area which needed to be researched further.

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