Dynamics of Banking Performance and Economic Growth: Long-Run Financial Development in Sri Lanka

WANIGASURIYA, T.J.

Faculty of Arts, University of Peradeniya
Tharangizzzz@gmail.com

Abstract

The financial sector plays a remarkable role in the economic growth of a country. The financial system in Sri Lanka consists of major financial institutions, such as the Central Bank of Sri Lanka, licensed commercial banks, licensed specialized banks, licensed finance companies, specialized leasing companies, and primary dealers. From those institutions banking sector plays a crucial role in economic development. This study aims to analyze the dynamics of banking performance and economic growth in Sri Lanka. Accordingly, this study has used panel data analysis with the data collected from five banks, namely Peoples Bank, Sampath Bank, Hatton National Bank, Bank of Ceylon and Amana Bank over the period 2010-2019. This study employed panel unit root test, Pedroni test of co-integration, panel Fully Modified Ordinary Least Squares (FMOLS), and Ordinary Least Squares (DOLS) and panel Vector Error Correction Model (VECM) to explain the relation between the explanatory variables, namely Operating Profits, Return on Equity (ROE), Total Assets (Bank Size) and the Gross Domestic Product Growth Rate (Economic Growth). The co-integration test results show that the variables are significant to explain long-run co-integration. The FMOLS and DOLS show that operating profits and ROE are significantly affecting the economic growth in Sri Lanka.

Keywords: *economic growth, FMOLS, panel co-integration, ROE*

1. Introduction

The banking sector is contributing remarkably to economic growth. In any country, financial services play a significant role. It affects growth of investments and employment. When considering the Sri Lankan context, by the end of 2020, the banking sector comprised 30 banks, i.e., 24 Licensed Commercial Banks (LCBs) including 11 branches of foreign banks and 6 Licensed Specialized Banks (LSBs). The banking sector asset base increased by LKR 2.1 trillion during the year, surpassing LKR 14.6 trillion by the end of December 2020 (Central Bank Annual Report, 2020).

Banking sector performance can be measured using operating profit, return on equity, return on assets, return on capital, interest earnings, deposits and

ISSN 2792-1220

advances. However, there is no consensus on the banking performance indicators which are affecting economic growth. Several studies have been conducted on this problem, but all of these studies indicated different outcomes that have raised several questions to understand the impact of the banking sector on economic development. For instance, many studies indicated a positive (Ragonmal 2015) and weak relation, whereas some shows a negative (Cecchetti and Kharroubi 2014) relation. Further, many studies analyzed whether there is any short-run or long-run relation between banking performance and economic growth. According to Saeed, Ramzan and Hamid (2018), the long-run dynamics positively impact economic growth, and the short-run relation between banking performance and economic growth revealed the consistency of economic policies in the economy.

Therefore, the objective of this study is to analyze the dynamics of banking performance and economic growth in Sri Lanka over the period from 2010 – 2019 using panel data. This may be helpful for the enhancement of the country's GDP. Further, only a few studies have employed panel data for exploring the long-run and short-run relation toward economic growth in Sri Lanka.

2. Methodology

This study is conducted using panel data from 2010 to 2019 of the five banks, namely Peoples Bank, Sampath Bank, Hatton National Bank, Bank of Ceylon and Amana Bank, to examine the dynamics of banking performance on economic growth in Sri Lanka. The data were obtained from selected banks' annual reports. The panel analysis is carried out by using Eviews-10 software. The general equation 1 is constructed to depict the relation between banking performance and economic growth.

$$GDP_{i.t} = \beta_0 + \beta_1 OP_{i,t} + \beta_2 ROE_{i,t} + \beta_3 TA_{i,t} + u_{i,t} \text{ ------ (1)}$$

In equation (1), OP denotes Operational Profit, ROE denotes Return on Equity, TA denotes Total Assets, and GDP denotes Gross Domestic Product Growth Rate as a proxy for economic growth.

Panel unit root test is used to test the stationary properties of the variables used for the study. This study has used several types of panel unit root tests. The null hypothesis for LLC and Breitung state that panel data have unit root (assuming a common unit root process). The null hypothesis for Im-Pesaran-Shin and Fisher type test using ADF and PP test state that panel data has unit root (assuming an individual unit root process). The null hypothesis for the Hadri test states that panel data have no unit root (assuming a common unit root process).

Panel co-integration test is used to determine whether the variables have a stable, long-run relation. In this study, Pedroni Residual Cointegration Test was used. This test consists of two co-integration tests, namely group tests and panel tests. The panel test includes panel parametric ADF statistic, panel non-parametric *PP* statistic, panel rho, and panel v statistic. The group test includes group ADF Statistics, group *PP* statistics and group rho statistics. Pedroni's test is based on estimated residuals, as indicated in equation (2).

$$GDP_{i.t} = \alpha_i + \sum_{q=1}^{w} \beta_{qi} X_{qit} + e_{i,t} \text{ ---------- (2)}$$

Where i = 1 ...*N* for each bank in the panel and t =1 ...*T* for time. The parameter α_i is for bank-specific fixed effects. The term e_{it} is for estimated residuals. The hypothesis of no co-integration (R_i = 1) is assessed by residuals as indicated in equation (3).

$$e_{i,t} = R_{i\varepsilon i}(t-1) + M_{i,t} \text{ ---------- (3)}$$

If co-integration exists among the variables, FMOLS and DOLS estimations can be used. FMOLS is used to correct the serial correlation problem as well. Fixed-effect panel regression illustrated in equation (4) can be used to estimate DOLS and FMOLS.

$$GDP_{i.t} = \alpha_i + \theta_{it}\beta + u_{i,t} \text{ ---------- (4)}$$

In equation (4), β is a vector of slope coefficients, GDP_{it} is the Gross Domestic Product Growth Rate. Further, μ_{it} is the stationary disturbance term and denotes the individual fixed-effect. The panel Vector Error Correction Model (VECM) was used to investigate the causal relation between the variables.

3. Findings

Table 1 shows the results of the panel unit root test. The tests are LLC, IPS, ADF, PP, Hadri, Heteroscedasticity and Breitung. Each of these tests was performed at the level and first difference. At level, many tests rejected the null hypothesis, but at the first difference, many tests failed to reject the null hypothesis. Therefore, we can say that at the first difference, all variables are stationary.

Table 1: Unit Root Test

At level	LLC	IPS	ADF-	PP-	Hadri	Hetero	Breitung
GDP	-2.129	0.702	4.155	2.714	3.799	3.799	-2.952
	0.017	0.759	0.940	0.987	0.000*	0.000*	0.002
TA	1.286	2.852	1.185	0.899	4.222	4.228	0.531
	0.901	0.998	0.999	0.999	0.000*	0.000*	0.702
ROE	-0.694	-0.259	10.356	13.837	2.561	2.413	-1.062
	0.244	0.398	0.410	0.180	0.005*	0.008*	0.144
OP	-2.344	0.566	7.049	6.322	3.058	3.657	1.884
	0.009	0.714	0.721	0.787	0.001*	0.000*	0.970
First difference							
GDP	-7.725	-2.949	30.363	78.540	5.000	5.000	5.000
	0.000	0.002	0.001	0.000	0.000*	0.000*	0.001
TA	-2.245	-0.808	13.706	17.723	4.987	1.841	0.500
	0.012	0.209	0.187	0.060	0.000*	0.033**	0.691
ROE	-2.457	-1.616	20.298	43.813	4.987	1.841	0.500
	0.007	0.053	0.027	0.000	0.000*	0.033**	0.691
OP	-3.978	-0.573	17.809	20.063	1.313	1.689	1.270
	0.000	0.283	0.058	0.029	0.095**	0.046**	0.898

Note: *Significant at 1% level, **Significant at 5% level, ***Significant at 10% level

Table 2: Co-integration Test

Test Statistics	Statistics	Prob.	Weighted	Prob.
Panel v-Statistic	-1.324	.907	-1.523	.936
Panel rho-Statistic	0.922	.822	0.988	.838
Panel PP-Statistic	-7.184	.000	-6.326	.000
Panel ADF-Statistic	-2.142	.016	-2.573	.005
Group rho-Statistic	1.857	.968		
Group PP-Statistic	-9.083	.000		
Group ADF-Statistic	-2.213	.013		

Note: *Significant at 1% level, **Significant at 5% level, ***Significant at 10% level

To investigate whether there is co-integration, Pedroni Residual Co-integration test was used. Table 2 shows, between dimensions and within dimensions outcomes of panel Co-integration test. This test concludes that there is co-integration among the variables because Panel PP-Statistic, Panel ADF-Statistic,

Group PP-Statistic and Group ADF-Statistic are significant at 1 percent level of significance. Table 3 presents the results for FMOLS and DOLS tests. The results reveal that the operating profit and ROE are correlated with the country's economic growth. According to FMOLS and DOLS, operating profits show a significant and negative impact on economic growth at 5 percent level of significance. ROE shows a significant and positive impact on economic growth at 5 percent level of significance. Total assets do not show any significant impact on economic growth.

Table 3: FMOLS and DOLS

Dep. Variable Eco. Growth	FMOLS Results		DOLS Results	
	Coefficients	Prob.	Coefficients	Prob.
Operating Profit	-1.31E-07	.002*	-1.29E-07	.063***
Return on Equity	1.238	.000*	1.195	.012**
Total Assets	-9.38E-10	.375	-2.77E-10	.870

Note: *Significant at 1% level, **Significant at 5% level, ***Significant at 10% level

According to the results of the panel co-integration, this study used panel VECM to find the direction of causality. It shows long-run and short-run Granger causality. According to equation (1), operating profits have a significant negative impact on economic growth in the short run. The error correction term of equation (1) is statistically significant and negative at 1 percent significant level that shows there is a speed of adjustment towards the long-run equilibrium. According to equation (2), variables do not significantly impact economic growth in the short run. The error correction term of equation (2) is negative but not significant. According to equation (3), operating profits have a negative and significant impact on economic growth in the short run. The error correction term of equation (3) is negative and significant at 5 percent level of significance. According to equation (4), operating profits have a negative and significant impact on economic growth in the short run. The error correction term of equation (4) is positive and significant at 5 percent level of significance. Therefore, the results show causality between economic growth and performance of the banking sector in both the long-run and short-run.

Table 4: Panel Causality Test

Dependent Variable	Short Run Causality Cause/Independent Variables (Lag length)								Long Run Error Correction	
	Δ Eco. Grow		Δ Oper. Profit		Δ ROE		Δ TA		Coeff.	Prob
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
Δ Eco. Grow			-6.03E-09	-4.09E-09	0.0046	-0.0149	1.28E-10	-1.56E-10	-	0.0000*
Prob			0.0000*	0.0006*	0.9068	0.6010	0.1764	0.0774***		
Δ Op. Profit	2.05E+08	1.12E+08			3006707	2999385	-0.1491	-0.0166		
Prob	0.7939	0.8654			0.9073	0.8727	0.8090	0.9770		
Δ ROE	0.0944	0.4883	-7.63E-09	-4.41E-09			3.82E-12	1.80E-10		
Prob	0.8758	0.3398	0.0642***	0.4493			0.9936	0.6851		
Δ TA	-3.22E+08	-1.98E+08	3.432732	-10.7809	3346497	1888168				
Prob	0.1418	0.2840	0.0217**	0.0000*	0.6418	0.7172				

Note: *1% Significance level, **5% Significance level, ***10% Significance level

4. Conclusion

This study examined the dynamics of banking performance and economic growth in Sri Lanka. Accordingly, five banks, namely, Bank of Ceylon, Peoples Bank, Hatton National Bank, Sampath Bank and Amana Bank, have been used for this study. Data were taken from the selected banks' annual reports. This study used panel data for the analysis. This study used panel unit root test, Panel co-integration test, FMOLS, DOLS and panel VECM test for diagnostic testing and to analyze the data. Panel unit root test revealed that at the first difference, all variables are stationary. Panel co-integration revealed that there is long-run and short-run co-integration among the variables.

A stable banking sector is crucial for economic growth. FMOLS and DOLS revealed that operating profits negatively and significantly affect the economic growth while ROE positively and significantly affects the economic growth in Sri Lanka. The findings are consistent with Islam et al. (2019).

References

Adekola, O. A. (2016). The effect of banks profitability on economic growth in Nigeria. *Journal of Business and Management*, *18*(3), 1-9.

Alam, M., Rabbani, M. R., Tausif, M. R., & Abey, J. (2021). Banks' Performance and Economic Growth in India: A Panel Cointegration Analysis. *Economies*, *9*(1), 38.

Aurangzeb, K. A. (2012). Contributions of banking sector in economic growth: A case of Pakistan. *Economics and Finance Review*, *2*(6), 45-54.

Ayadi, R., Arbak, E., Naceur, S. B., & De Groen, W. P. (2015). Financial development, bank efficiency, and economic growth across the Mediterranean. In *Economic and social development of the Southern and Eastern Mediterranean countries* (219-233). Springer, Cham.

Caporale, G. M., Rault, C., Sova, A. D., & Sova, R. (2015). Financial development and economic growth: Evidence from 10 new European Union members. *International Journal of Finance & Economics*, *20*(1), 48-60.