

Financial Development and Economic Growth in the ASEAN: Evidence from Panel Data Technique

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ABSTRACT

The objective of this paper is to examine the influence of financial development consisting of financial depth, investment share and inflation on economic growth of 5 ASEAN during 2002 through 2011. Using the Generalized Least Square (GLS) panel data technique, the study shows that share investment and inflation play an important role in explaining real output. However, it is quite surprising to see that financial depth does not have any significant contribution to real output. The findings are very important to policy maker for 5 ASEAN. They should aim at improving the capital market environment and at the same time reducing the inflation rate to a level that can sustain future economic growth.

KEYWORDS: Economic Growth, Financial Depth, Investment Share, Inflation, The Association of Southeast Asian Nations (ASEAN).

INTRODUCTION

The issue of the relationship between financial development and economic growth has in recent year, occupied the minds of financial economists and academician. Many studies have tried to shed some light on the determinant of economic growth, [17, 9, 1]. For example, in [1] has argued that financial development has a large positive impact on total factor productivity (TFP) which feeds through to overall GDP growth. Likewise, there are quite a number of literatures focusing extensively on the role of financial variables on economic growth as well as economic variables on financial development. In the same line of study, in [19] emphasize that the initial level of financial development is a leading indicator rather than a causal factor, for financial markets to anticipate faster economic growth. Moreover, in [3, 5] report strong long-run linkages between financial development and economic growth. They show that financial sector induces economic growth through channels such as reallocation of resources from traditional to growth-inducing sectors and the promotion of entrepreneurship in a growth-inducing sectors. However, studies by [13, 15] do not find significant role of the financial system in countries' economic activities. They argue that problems can easily occur and lead to economic difficulties in time of financial instability.

The financial development is usually concerned with the process of improving quantity, quality and efficiency of financial intermediary services. The present study is done in realizing that financial development is considered by many economists to be of paramount importance for output growth of a country. With the present economic system, the interaction of many activities and many institutions are associated with economic growth. Furthermore, the study may be benefitted in anticipation of future economic growth.

As mentioned by [4], although many studies have examined the relation between financial depth and economic growth, the results are still inconclusive and ambiguous. They argue that the previous studies of positive relationship between financial development and output growth can exist for different reasons. As output increases the demand for financial service increases too, this in turn has a positive effect on financial development. This may be due to potential bias related to the small sample, simultaneity, omitted variables and unobserved country-specific effect. Therefore, the present study objective is to examine the empirical relationship between financial development and economic growth. It taking into account all of the above shortcoming by utilizing the data set in the most effective and efficient manners, and make use of panel based analysis so that good statistical inferences will be realized.

The present paper briefs related literature in section 2. Section 3 discusses data and methods. The results are reported in Section 4. The paper concludes with a summary and conclusion.

LITERATURE REVIEW

As mentioned earlier, the general findings on the influence of financial development on economic growth is still inconclusive. Many studies including [9, 6] show that financial development have a relationship with the

economic growth and play important role in term of economic activities. Furthermore, in [1] study shows that financial development act as a macroeconomic variable and is highly correlated with growth. While the empirical works by [10, 8, 12] show that the financial development is a significant variable in influencing economic growth. In [11] have concluded that stock market liquidity and banking development show positive correlation with economic growth in 47 countries. In [7] has used a panel data set for 27 Asian countries from year 1960 until 2009 and finds a significant positive relationship between financial development and economic growth. He suggests that the financial development promotes the economic growth. Similar results of positive relationship between financial depth and growth in Malaysia and Thailand, but negative relationship is reported by [16]. On the other hand, in [13] argued that financial development and economic growth are independent and not causally related.

In [4] also find positive effects of financial depth on growth for 10 developing countries namely Colombia, Paraguay, Peru, Mexico, Ecuador, Honduras, Kenya, Thailand, Dominican Republic and Jamaica. In [6] using panel regressions with cross-sectional countries and time-series proxy measures also find a positive relationship between financial development and economic growth in low, middle and high income countries by. While, the result from multivariate analysis came up with mix result which there are two-way causality correlation between finance and growth for most regions, and for the two poorest regions result shows that there is one-way causality from growth to finance.

DATA AND METHODOLOGY

The annual data consisting of financial depth, investment share, inflation and economic growth retrieved from World Bank indicator covering a 20 year period (1992-2011) for 5 ASEAN including Malaysia, Thailand, Vietnam, Indonesia and Singapore are used.

Dependent variable consists of real output of a country, proxies of gross domestic product (gdp). The first independent variable is the financial depth (fd), calculated using the ratio of total bank demand deposit to nominal GDP. The second independent variable is an investment share (is) obtained by dividing gross fixed capital with nominal GDP. The third independent variable is inflation, which measured by the consumer price index.

Descriptive Statistic

Table 1 presents the descriptive statistics related to the (gdp) investment share (is), inflation (inf) and financial depth (fd). This statistic includes maximum, minimum, mean, variance and coefficient of variance (cv).

Table 1: Descriptive statistic

stats	gdp	is	inf	fd
max	14.78079	.4358616	58.38709	3022.618
min	-13.12672	.1942916	-1.710337	.320037
mean	5.665438	.2839424	5.200771	429.2849
cv	.730564	.2240011	1.333169	1.586525
variance	17.13103	.0040454	48.07352	463857.9

Correlation of Coefficient

Table 2: Correlation of coefficient

	gdp	is	inf	fd
gdp	1.0000			
is	0.2887	1.0000		
inf	-0.4455	-0.0527	1.0000	
fd	0.1064	0.1794	0.2170	1.0000

Table 2 shows the correlation coefficient test related to the (gdp) with its determinants which are investment share (is), inflation (inf) and financial depth (fd). The higher the correlation of coefficient, the stronger is the relationship between variables and vice versa.

Panel Data Model

The present study applies the GLS panel data technique, which are known to be powerful research tools. The panel data model specifies in this study is of the following structure:

$$y_{it} = x'_{it}\beta + z'_{it}a + \varepsilon_{it}$$

or

$$y_{it} = \sum_{j=1}^N \alpha_j d_{ij} + x_{it}\beta + \varepsilon_{it}$$

where

$$d_{ij} = \begin{cases} 1 & \text{if } i = j \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

which are used to capture the individual effects (either fixed or random). y_{it} is the dependent variable (gdp), X_{it} represents 1 independent variables-(fd), two ancillary variables namely investment share (is) and inflation (inf) where i, is the number of countries =1, 2,.....5, t, is the number of years = 1,2,.....20. The ε is the error term.

EMPIRICAL RESULTS

Fixed Effect Regression

The results for GLS fixed effect is reported in Table 3. The results show that (fd) does not cause gross domestic product (gdp). However, the ancillary variables show significant results on economic growth. For example, the investment share (is) show positive and significant influence on (gdp). This indicates that investment in shares will have an important contribution toward economic growth. The more investors invest in share in a country, it will enhance the stock market leading to increase in economic growth of a country. Our finding is similar to [11] who have concluded that stock market liquidity and banking development show positive impact on economic growth in 47 countries. However, inflation (inf) reports significant and but negative effect on (gdp), supporting the findings to those of [4, 18]. This result is expected since the high inflation rate will have a bad effect on the overall economic growth on the sample countries. A rise in inflation has a negative effect on the business and investment activities, since during this period the cost of capital will increase and restricting people from borrowing leading to decrease in real output.

With regards to years dummy effect, the results point to the fact that year plays an important role in the equation. Based on the result above, only year1=1995, year 2=1996 and year 3=1997 significantly explain (gdp) for 5 ASEAN. During this period, most of the ASEAN faces currency crisis which gives a bad impact to the economic growth.

Table 3: Fixed effect result

```

. xtreg gdp is inf fd year, fe
Fixed-effects (within) regression      Number of obs   =      86
Group variable: code                 Number of groups =       5

R-sq:  within = 0.3239                Obs per group:  min =      15
      between = 0.1337                  avg   =     17.2
      overall  = 0.2410                  max   =      20

corr(u_i, Xb) = -0.5215                F(4, 77)        =      9.22
                                          Prob > F         =     0.0000
    
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gdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
is	25.00425	8.804944	2.84	0.006	7.471361 42.53713	
inf	-.3396918	.0646879	-5.25	0.000	-.4685018 -.2108818	
fd	-.0007518	.0015182	-0.50	0.622	-.0037748 .0022713	
year	.0870197	.1202428	0.72	0.471	-.1524144 .3264537	
_cons	-173.4455	241.9356	-0.72	0.476	-655.2008 308.3098	
sigma_u	1.9687771					
sigma_e	3.5134434					
rho	.23896396	(fraction of variance due to u_i)				

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F test that all u_i=0:      F(4, 77) =      2.08                Prob > F = 0.0920
    
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Fixed Effect Result-Year Effect

Table 4: Fixed effect result-year effect

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. quietly tabulate year, generate (yr)
. xtreg gdp is inf fd yr*, fe
Fixed-effects (within) regression
Group variable: code
R-sq:  within = 0.7840
      between = 0.0892
      overall = 0.5751
Number of obs   =      86
Number of groups =       5
Obs per group: min =      15
              avg  =     17.2
              max  =      20
F(22, 59)      =      9.74
Prob > F       =     0.0000
corr(u_i, xb)  = -0.3568

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gdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
is	11.74632	7.805726	1.50	0.138	-3.872899	27.36555
inf	-.1478665	.0505905	-2.92	0.005	-.2490979	-.046635
fd	-.0019076	.0012046	-1.58	0.119	-.004318	.0005029
yr1	5.211911	2.390215	2.18	0.033	.4291028	9.99472
yr2	6.572955	2.407874	2.73	0.008	1.754809	11.3911
yr3	6.424501	2.430725	2.64	0.011	1.560632	11.28837
yr4	5.879162	2.481255	2.37	0.021	.9141814	10.84414
yr5	4.500276	2.482979	1.81	0.075	-.4681541	9.468705
yr6	1.962786	2.395846	0.82	0.416	-2.831291	6.756862
yr7	-6.333966	2.293498	-2.76	0.008	-10.92324	-1.744687
yr8	2.580869	2.091933	1.23	0.222	-1.605078	6.766817
yr9	4.42703	2.051974	2.16	0.035	.3210402	8.533021
yr10	.2839811	2.037046	0.14	0.890	-3.792139	4.360101
yr11	3.351778	2.031742	1.65	0.104	-.7137271	7.417284
yr12	3.914163	2.014962	1.94	0.057	-.1177669	7.946092
yr13	5.2629	2.002275	2.63	0.011	1.256358	9.269443
yr14	4.690628	2.005559	2.34	0.023	.6775146	8.703741
yr15	5.140272	2.000789	2.57	0.013	1.136703	9.143841
yr16	5.531569	1.954818	2.83	0.006	1.619987	9.443315
yr17	3.207255	2.052069	1.56	0.123	-.8989245	7.313435
yr18	(dropped)					
yr19	8.90064	2.272259	3.92	0.000	4.353861	13.44742
yr20	4.000545	2.855457	1.40	0.166	-1.713212	9.714302
_cons	.3427476	2.368402	0.14	0.885	-4.396414	5.081909
sigma_u	2.4716664					
sigma_e	2.2683762					
rho	.54280909	(fraction of variance due to u_i)				

F test that all u_i=0: F(4, 59) = 3.51 Prob > F = 0.0123

SUMMARY AND CONCLUSION

This study investigates the relationship between financial depth, economic growth and ancillary variables using panel data method. Annual data for 5 selected ASEAN consisting of Indonesia, Malaysia, Singapore, Thailand and Vietnam from year 1992 through 2011 are used. The ancillary independent variables show a significant effect towards GDP. Specifically, the investment share shows a significant positive relationship with economic growth. Whereas, inflation is a significant negative relationship with economic growth. Surprisingly, our result do not show any relationship between financial depth and real output indication that they are independent and not related. The findings also show that the years dummy effect plays an important role in the equation. Based on the result, the currency crisis period between 1995 to 1997 significantly explain the (gdp) for 5 ASEAN. The relationship between financial development and economic growth has its implications for development policy. Effort should be geared towards activating the capital market, so as to increase investment in share leading to economic growth. At the same time, inflation has to be reduced to a reasonable rate so that growth can be sustained for these countries for the year to come.

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