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

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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 *ASEAN* during 2002 through 2011. Using the fixed effect panel data OLS regression estimations, the study shows that share investment and inflation plays an important role in explaining real output. However, it is quite surprise to see that financial depth does not have any significant contribution toward real output. The findings is very important to policymaker for the *ASEAN*. They should aim at improving capital market environment and at the same time try reducing inflation rate to a level that can be sustainable for their future economic growth.

Keywords: Economic growth, Financial depth, Investment share, Inflation, *Association of Southeast Asian Nations (ASEAN)*.

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I. INTRODUCTION

The issue of 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, [see, McKinnon (1973), Levine (1997) and Beck et al. (2000)]. Beck et al. (2000), for example, have 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. For more extensive literature survey, [see among others, Obstfeld (1994), Luintel and Khan (1999), and Panicos Demetriades (1996). In the same line of study, Raghuram and Zingales (1998), 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, Cho (1988), and Galindo et al. (2007) 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 growth-inducing sectors. However, studies by Lucas (1998), Loayza and Ranciere (2006) do not find significant role of 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 concern 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. In the present economic system, 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 mention by Christopoulos and Tsionas (2004), 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 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 of *ASEAN* by taking into account all of the above shortcoming and 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 realised.

The present paper briefs related literature in Section 2. Section 3 discusses data and methods. The results are reported in Section 4. The paper conclude with a summary and policy implications.

II. LITERATURE REVIEW

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

As mentioned earlier, the general findings on the influence of financial development on economic growth is still inconclusive. Many studies including Levine (1997) and Hasan et al. (2011) show that financial development have a relationship with the economic growth and play important role in term of economic activities. Furthermore, Beck et al. (2000), in his study shows that financial development act as a macroeconomic variable and is highly correlated with growth. While the empirical works by Levine (1991), King and Levine (1993), and Levine et al. (2000) show that the financial development is a significant variables in influencing economic growth. Levine and Zervos (1998) have concluded that stock market liquidity and banking development show positive correlation with economic growth in 47 countries. Jun (2012), has used a panel data set for 27 Asian

countries from year 1960 until 2009 and finds 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 for Malaysia and Thailand but negative relationship are reported by Majid and Mahrizal (2007). On the other hand, Lucas (1988), argued that financial development and economic growth are independent and not causally related.

Christopoulos and Tsionas (2004) also find positive effects of financial depth on growth for ten developing countries, namely, Colombia, Paraguay, Peru, Mexico, Ecuador, Honduras, Kenya, Thailand, Dominican Republic, and Jamaica. Hassan, Sanchez, and Yu (2011) use panel regressions with cross-sectional countries and time-series proxy also find positive relationship between financial development and economic growth in low and middle income countries classified by geographic region. While, their results using multivariate analysis show a bidirectional causality correlation between finance and growth for most regions and a unidirectional causality from growth to finance for the two poorest regions.

III. DATA & METHODOLOGY

DATA

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 five (5) *ASEAN* including Malaysia, Thailand, Vietnam, Indonesia and Singapore are used.

Dependent variable consists of real output of a country (*ro*), proxies for economic growth. The independent variable are financial depth (*fd*), calculated using ratio of total bank demand deposit to nominal GDP; investment share (*is*) obtained by dividing gross fixed capital with nominal GDP; and inflation, measured by consumer price index.

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

Table 1: Descriptive statistics

stats	ro	is	inf	fd
Max	14.78	0.435	58.38	3022
Min	-13.127	0.1942	-1.710	0.320
Mean	5.665	0.283	5.200	429.28
CV	0.730	0.224	1.333	1.586
variance	17.13	0.004	48.07	463857

Table 2: Correlation of coefficient

corr	ro	is	inf	fd
ro	1.000			
is	0.2887	1.000		
inf	-0.4455	-0.0527	1.000	
fd	0.1064	0.1794	0.2170	1.000

Table 2 show the correlation coefficient test related to the real output (ro), 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.

RESEARCH METHOD

Panel Data OLS Regression Estimations

The present study applies the panel data fixed effect estimations which, are known to be powerful research tools. The model specify 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 (ro) and X_{it} represents 1 independent variables - (fd), and two ancillary variables, 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.

IV. FINDINGS

Fixed Effect OLS Regression

The OLS regression estimation for fixed effect is reported in Table 3. The result shows that (fd) does not cause real output (ro). However, the ancillary variables show significant results on economic growth. For example, the investment share (is) show positive and significant influence on (ro). This indicates that investment in shares will have 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 that of Levine and Zervos (1998) 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 negative effect on (ro). This result is expected since high inflation rate will have 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, overall, year does not play any significant role in the equation even though a few countries in *ASEAN* faces currency crisis during the period of study.

Table 3: Fixed effect OLS estimates

ro (dep)	coef	Std. err	t	p-value
Independent variables				
is	25.00	8.804	2.84*	0.006
inf	-0.339	0.0646	-5.25*	0.000
fd	-0.0007	0.0015	-0.50	0.000
yr	0.087	0.120	0.72	0.471
cons	-173.4	241.9	-0.72	0.476
R-Sq – 0.24		F (4, 77): 2.08		Prob >F: 0.092

*Significant at 5%

V. SUMMARY & CONCLUSION

This study investigates the relationship between financial depth, economic growth and ancillary variables using panel data OLS fixed effect regression estimations. 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 shows significant effect towards real output (ro). Specifically, the investment share shows significant positive relationship with economic growth, whereas, inflation are significantly negative relationship with economic growth. Surprisingly, our results do not show any relationship between financial depth and real output indicating that they are independent and not causally related.

The relationship between financial development and economic growth has its implications for development policy. Effort should be gear towards activating capital market so as to increase investment 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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