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## **Economic Growth and Financial Intermediation in Southeast Asia**

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***Abstract:***

*This study aims to determine the effect of financial intermediation on economic growth in five Southeast Asian countries namely Indonesia, Malaysia, Philippines, Singapore and Thailand, using panel data for the period 1992 to 2015.*

*In the proposed model, the author has used the growth of the real Gross Domestic Product as the dependent variable and the independent variables were domestic credit for the private sector, international trade, inflation, economic growth of previous year and a dummy variable to differentiate the period before and after the crisis of 1997-1998.*

*The results of this study are concluded as follows: (1) financial intermediation is negatively correlated with economic growth; (2) inflation is negatively correlated or tends to slow down the economy; (3) international trade can spur economic growth, and the previous year's growth is not statistically significant to spur economic growth; (4) state factors can make a difference in the effect of financial intermediation on economic growth.*

***Keywords:*** Financial intermediation, economic growth, panel data.

***JEL code:*** G21, F 43, C2.

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## **1. Introduction**

No one of developed or developing countries in the world, has financial system that becomes the financial intermediary of the lender to the party in need of the loan. This financial intermediation will prevent asymmetric information and facilitate transactions, thereby reducing transaction costs. The forms of financial intermediation are grouped into three categories: depository institutions such as commercial banks, contractual saving institutions such as insurance companies, and investment intermediaries such as mutual funds (Mishkin, 2013).

Since two decades ago, the relationship between financial intermediation and economic growth has attracted the attention of many academics, policymakers and economists. The relationship of financial intermediation with economic growth focuses more on the principal function of financial intermediation in terms of growth-investment savings (Aziakpono and Meshach, 2004).

Financial intermediation plays an important role in lowering costs to get potential investors controlling companies, managing risks and mobilizing funds. These services will affect the savings and allocation of funds, which will ultimately affect long-term economic growth. A good financial system is expected to have a positive impact on economic growth through more efficient capital accumulation.

On the other hand, the recent economic crisis has had a significant impact on economic performance in some countries and changed the direction of banking and monetary policy in Asian countries. Such a situation is accompanied by structural problems in the macro-economic field leading to uncertain business conditions which in turn leads to disintermediation problems in the banking industry. Almost all Asian countries experience problems of banking disintermediation on different scale. The weakening of the domestic currency, increased capital outflows, followed by high interest rates and closure of bank offices have impacted on the declining performance of the banking industry. This situation resulted in many company losses and even some that went bankrupt. On the other hand, banks reduce the amount of credit they give because it is seen as a big risk. Consequently monetary policy also becomes ineffective.

Facing the problem of banking disintermediation, the monetary authorities in Asian countries handle it using different approaches according to their needs. For countries experiencing 'multi-crisis', as Indonesia is, the monetary authority is required to work harder to overcome the problems of banking disintermediation so as to trigger the movement of the real sector which, in turn, has a positive effect on economic growth.

If the financial intermediation function is running correctly, then there will be the accumulation of capital and innovation in technology that will spur economic

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growth. This is in accordance with the opinion of Hamilton (1781) who states "*The Bank is the best motor found that can spur economic growth*".

Based on the above explanation, this study aims to find out how much influence does financial intermediation have on economic growth, and to also find out the influence of other variables besides financial intermediation which is examined in the proposed model for economic growth and to know how the factor of state is influencing the economic growth. This study examines 5 countries in Southeast Asia that have complete macro data.

## 2. Literatur Review

The relationship between economic growth and the development of financial intermediation has been widely studied (Loayza and Ranchiere, 2000; Levine *et al.*, 2000; Ndikumana, 2000; Thalassinou *et al.*, 2015). In the Pagano model (1993), the endogenous theory of the AK model becomes a postulation to explain the impact of financial sector development on economic growth. The basic theory is that the definition of capital (K) in Endogenous Growth theory is not limited to physical capital but also knowledge derived from human resources as an engine of growth. On the basis of that theory, Pagano (1993) attributes the efficiency in the production sector to the accumulation of human capital (human capital accumulation) which can result from the process of financial liberalization. The important implications of the Pagano model are that financial sector development can promote economic growth through three channels: increasing savings and ultimately increasing investment, increasing the proportion of savings allocated to investments through financial deepening and increasing the efficiency of investment projects by creating power Project competitiveness.

Loayza and Rachiere (2004) attest to a conflicting relationship between the influence of financial intermediation and economic activity. On the one hand, the empirical growth literature finds a positive influence on the financial depth as measured by the domestic proxies of loans disbursed to the private sector and liquid liabilities (Levine *et al.*, 2000). Alternatively, banking and currency crisis literature found that the aggregate monetary sector, such as domestic credit, is by far the best predictor variable associated with economic downturn. Panel data methodology has been used to study 82 countries during the period between 1960 and 2000 (Kaminski and Reinhart, 1999), the Eurozone area for the period between 2002 and 2015 (Thalassinou *et al.*, 2015). The results show that, in the long run, financial development supports economic growth.

The financial development process requires markets and services that link savings with productive investments and then followed by risk diversification. This also causes a negative relationship in the short run, which was the case with the sample country average. It was also concluded that financially fragile countries, undergoing banking crises or overcrowded financial volatility, tend to have a negative, short-

term effect between financial intermediation and economic growth. For a country that tends to be stable, this effect is on average nonexistent.

Levine *et al.* (2000) uses a generalized-method-of-moments (GMM) method for dynamic panel data models. This study was conducted with a sample of 74 countries during the period 1961 – 1995, with 7 observations for each country. With regression analysis, the results show a strong relationship between exogenous components of financial intermediation development and long-term economic growth.

Ndikumana (2000) examined the effect of financial intermediation on domestic investment with a sample of 30 Sub-Saharan African countries during the period between 1970 and 1995. The model used was based on a dynamic correlation series including all indicators of financial development, controlling specific effects like investments and other non-financial investments. The results of the research indicated a positive relationship between domestic investment (total investment and private investment) and other indicators of financial development. Higher financial developments tend to lead to higher levels of future investment, indicating the long-term potential impact of financial development on economic growth. These findings suggest that financial development can stimulate economic growth through the accumulation of capital.

### **3. Data and Mehtodology**

The macro-economic data used in this study was from 1992 to 2015. The overall data was obtained from World development Indicators and International Financial Statistics. The data used in this study was the real GDP, the ratio of domestic credit channeled to the private sector to GDP, which is an indicator of the development of financial intermediation, the inflation rate, the trade in goods and the GDP growth lagged one year.

Quantitative data processing is used by the panel data regression model. This panel data method has space and time dimensions, so the estimation of variables and calculation results will provide a wider empirical analysis. The Generalized Least Square (GLS) method was used, which is expected to overcome the problem of serial heteroskedastisity and correlation that may arise.

From the data obtained and the collected panels that occur in this study we have a balanced panel where each unit of cross section has the same amount of time series observation. The study focused on Fixed Effects model or Least-Square Dummy Variables (LSDV) because the use of countries in Southeast Asia as cross section variables already represent the population. It is not a sample of each country and it is based on the provision to determine the choice between fixed effect (FEM) and Random effect (REM) created by Judge *et al.* (1985). The model is a modification of

that used by Levine *et al.* (2004) in their research with the following model specifications:

$$y_{i,t} = \beta_1 Cre_{i,t} + \beta_2 y_{i,t-1} + \beta_3 Inf_{i,t} + \beta_4 Trade_{i,t} + D_{krisis} + \eta_i + \varepsilon_{i,t} \quad (1)$$

Where:

- y = Growth GDP real;  
 Cre = Ratio of private domestic credit to GDP as an indicator of financial intermediation;  
 Inf = inflation (%);  
 Trade = trade in good;  
 $D_{krisis}$  = before crisis= 0, after crisis = 1;  
 $\eta$  = Fixed effect for each country;  
 $\varepsilon$  = error term;  
 i = country code;  
 t = time code;  
 $\beta_1, \beta_2, \beta_3, \beta_4$  = coefficient of regression.

#### 4. Results

The estimation was made using panel data Fixed Effect model. The selection of Fixed effects and Random effects models follows the rule of thumb made by Judge *et al.* (1985). The stipulation of this study is the smaller number of N (5 Southeast Asian countries) than the number of T (23 periods between 1992-2015), so this case corresponds to the first requirement where the FEM or fixed effect period is more appropriate for this study.

**Table 1.** Estimation Result

Variable	Coefficient
CRE	-0.10124***
Y(-1)	-0.03956
INF	-0.33122***
TRADE	0.098693***
D	-7.2379***
R-square	<b>0.850106</b>
Adjusted R-square	<b>0.820127</b>
F-Stat	<b>63.80299***</b>

Prob (F-stat)	<b>0</b>
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*Source:* Result of data processing.

*Notes:* \*Significance level 10 % \*\*, level 5 % \*\*\*, level 1 %.

Based on Table 1, the credit variables for the domestic private sector, inflation and trade significantly effect economic growth. The previous year's GDP variables did not significantly effect economic growth. The model estimation results show that R-sq is 85%, meaning that the growth variable of economic growth can be explained by credit growth variable, GDP of the previous year, inflation and trade. The remaining 15% is influenced by other variables outside the model used.

**Table 2.** Intercept Value For Each Country

Fixed Effect	
Indonesia	11.2804
Malaysia	7.926435
Philipine	6.66168
Singapore	-5.64966
Thailand	13.42616

*Source:* Result of data processing.

In the fixed effect model, the intercept of each cross-section unit varies. The data is presented in Table 2. The growth model in this study shows different intercepts for each country meaning, without being influenced by the independent variables in the growth model. The real GDP growth rate in each country is equal to each country's intercept. The intercept indicates a difference cause attributed to the state factor in the effect of financial intermediation and other control variables in this model of economic growth.

Economic activity will be observed in relation to all the other variables accordingly. This analysis is needed to see whether the trend of the model empirically meets the rules of economic theory. From the results of the above regression we can explain the relationship between each independent variable with the dependent variable.

#### **4.1 Financial Intermediation Indicators: Domestic Credit for Private Sector**

Based on the model used in accordance with Table 1, for the variable Cre = -0.10124 which means that if the domestic credit variable for the private sector (as a ratio of GDP) rises by 1%, this will be correlated with a decrease in real GDP of -0.10124%, ceteris paribus. This indicates that the domestic level of private sector credit (as a ratio of GDP) has a negative relationship or is negatively correlated with GDP growth in Southeast Asia during the period 1992 - 2003.

Using these financial intermediation indicators, it can be concluded that the financial intermediation sector in Southeast Asia during the study period is not a factor

driving Southeast Asian economic growth. However, there is a tendency for the financial intermediation sector in Southeast Asia to hamper its economic growth. Significant influence and coefficient directions that are not in accordance with these predictions are due to the inefficiency of the financial intermediation sector. During the economic crisis, there was an overlapping by financial intermediation by both banks and non-banks. Overlending was not accompanied by good control resulting in asymmetric information and moral hazard.

This results defines a disequilibrium or an overheated condition between the real and the money sector. Evidently, during the economic crisis, the real sector is paralyzed in terms of reduced goods and services produced or reduced income received, but the monetary sector still exists because of the sale and purchase of money (foreign exchange) in the capital market. The assumption that credit disbursed to the private sector is used for productive investment financing, and be able to spur economic growth is unfulfilled. Due to the accumulation of capital that is usually used in researches and also support the theory the monetary transmission mechanisms are the following:

Bank Lending Channel

$$M \uparrow \Rightarrow \text{bankdeposits} \uparrow \Rightarrow \text{bankloans} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Balance Sheet Channel

$$M \uparrow \Rightarrow P_e \uparrow \Rightarrow \text{adverseselection} \downarrow, \text{moralhazard} \downarrow \Rightarrow \text{lending} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Cash flow Channel

$$M \uparrow \Rightarrow i \downarrow \Rightarrow \text{cashflow} \uparrow \Rightarrow \text{advselection} \downarrow, \text{moralhzrd} \downarrow \Rightarrow \text{lending} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Unanticipated Price Level Channel

$$M \uparrow \Rightarrow \text{unanticipated} P \uparrow \Rightarrow \text{advselection} \downarrow, \text{moralhzrd} \downarrow \Rightarrow \text{lending} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

This assumption is not fulfilled because of the real sector conditions in Southeast Asia that have a high risk. In capital lending to the private sector, banks or other financial institutions prefer to use it in consumption or to speculate (considering that the development of the function of money has changed and is not only seen as a tool for transactions but also as a store of wealth or assets) rather than having to channel it to investments. Banks will prefer to keep their money in the central bank that will generate profits from higher interest earned with less risk than to channel into the real sector.

In addition, this currency depreciation followed by an increase in interest rates as a consequence of efforts to stabilize prices and exchange rates have worsened the performance of debtors so that problem loans accumulate. Banks were forced to bear negative net interest margins as a result of a fast increase in the interest rate compared with the increase in lending rates. This situation has increased bank losses, which in turn eroded the bank's capital so that almost all banks were under-capitalized. Then there is a deterioration of the bank's balance sheet. It can be argued

that as a consequence of high interest rates, banks face difficulties in channeling funds to customers, therefore the intermediary function of banks is disrupted. Banks tend to invest in the interbank money market (PUAB) or have it in the Central Bank rather than in the real sector, which is considered to contain higher credit risk.

This is supported by research by Loayza and Ranciere (2004) who argue that the volatility and crisis aspect of relevant financial intermediation is a determinant of growth, along with the usual size of the debt. Nevertheless, financial debt leads to high economic growth, financial fragility - which can be proxied with financial volatility and banking crisis - and as a consequence have a negative effect on economic growth. The total effect of financial liberalization and intermediation on economic growth depends on the combination of these effects, the relative influence of financial debt and financial fragility depending on the country, the extent of its financial development. During this study (period 1992-2003) towards the middle (1997-1998) one saw a recession or economic crisis that hit most of the countries in Southeast Asia, which caused the banking crisis.

Another supporting study was conducted by Rati Ram (2010), analyzing the relationship of debt to GDP per capita by using multiple regression with a sample of eight countries. The results of this study corroborates empirical evidence from simple regression results. From a sample of eight countries only Jamaica has a positive correlation between debt and real per capita GDP. The other seven countries are negatively correlated. Simple regression results conducted in 95 countries found a positive correlation in 39 countries and nine of them at the level of 5% significance. Fifty-six countries are negatively correlated and 16 countries are significant at the 5% level. The average correlation coefficient in 95 countries is -0.06.

#### **4.2 Real GDP Growth on the Previous Year**

For  $Y(-1)$  the coefficient is -0.03956 and not significant meaning that the variable of real GDP growth one year before did not affect the GDP growth in the following year. Although the sign of the coefficient has a negative sign. The economies of Southeast Asia tend to be overheated or easily affected by both external factors and internal factors. For example, before 1996, almost all countries in this study had an economic growth that increased from year to year, however, when the crisis occurred, the growth of each country turned down. After the crisis the country started to recover and the economy improved, but in 2001 there was the WTC bombing event and this slowed back the economy. Thus, this year's growth is not affected by the previous year growth.

The definition of Gross Domestic Product is all goods and services produced in a country, including the production by foreign citizens staying in that country in a given year. Based on this understanding, production or income during one year may



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not be the same or affected by the production or income of the previous year. So it does not affect its growth.

### 4.3 Inflation Rate

The result for the inflation rate is -0.33122 which means that if inflation rises by 1%, this will cause a decrease in GDP change or economic slowdown of -0.33122%, *ceteris paribus*. This indicates that the inflation rate had a negative relationship with GDP growth in Southeast Asia during the period 1992 - 2015.

Inflation can hamper economic growth due to the increasing uncertainty of macroeconomic conditions. According to Irving Fisher there are two channels where uncertainty affects economic growth. First, the classical view of high uncertainty is related to poor macroeconomic policies that reduce the efficiency of the price mechanism. This disorder leads to low productivity growth. Second, macroeconomic uncertainty is associated with reduced investment and encouraging capital flight. Investors waiting for the improvement in macroeconomics are fully recovered and ready to invest.

The existence of high inflation causes the cost of production to be higher. And this is what causes the producers to reduce production, and eventually will effect the economic growth of a country because the production of goods and services in that year will not match the previous year's production.

### 4.4 International Trade

From the model used the value of the coefficient for trade obtained is 0.098693 which means if the trade increases by 1%, this will cause a GDP growth or economic growth by 0.098693%, *ceteris paribus*. This indicates that trade had a positive relationship with GDP growth in Southeast Asia during the period 1992 - 20015. A positive correlation between trade and economic growth can be explained as follows:

1. Countries can specialize in the production of goods that have a comparative advantage.
2. Foreign trade provides a way for a commodity surplus that causes the depletion of unemployed resources.
3. Foreign trade may expand production possibilities through their effects on factors such as competition, access, technology and new ideas.

Research relevant to these conclusions include Levine *et al.* (2000) by using the GMM method and proving a positive correlation between trade and economic growth, Thalassinos *et al.* (2015) by using panel date methodology argued for a positive correlation between several macroeconomic variables and sovereign debt.

Similar studies investigate the effect of macroeconomic and market variables on stock exchanges and financial indices (Thalassinos *et al.*, 2013; 2012).

#### **4.5 Dummy Variable**

From the model used, the dummy value is -7.77 which means that if the variable of economic crisis or recession in the economy increase by 1%, this will cause an economic slowdown or a decrease in GDP by -7.77%, *ceteris paribus*. This indicates that the economic crisis had a negative relationship with GDP changes in Southeast Asia during the period 1992 - 2003.

#### **4.6 Intercept Analysis**

The intercept means, without being influenced by its independent variables in the growth model, that the rate of GDP growth in each country is equal to each country's intercept. It indicates the differences caused by state factors by the influence of financial intermediation and other control variables in the model of economic growth.

According to catch up effect theory, the more prosperous or established a country is, then the growth will be slowed down from the previous year. During the study period, from 1992 to 2015, for high-income countries the growth was not as large as that of developing countries. Grouping of countries conducted by the World Bank, based on per capita income earned, divides into:

- Low income: Indonesia
- Lower middle income: Philippines and Thailand
- Upper middle income: Malaysia
- High income: Singapore

This intercept difference is also influenced by the characteristics of each country. Singapore, which has the smallest state factor of -5.649, is a country that relies on trade in goods and services. There is a lot of money in circulation and it is very demanding for the financial system intermediation in the country to run well. From the model used in this study, it is sufficient to cover the main sectors that support Singapore's economy, such as trade and financial intermediation, and other factors that support Singapore's economy, such as agriculture.

The country with the biggest country factor is Thailand because the trade sector is not a major sector in the economy. Thailand's economic growth is further supported by other factors not examined in the models of this study, such as agriculture and industry.

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