Financial Deepening Impacts on Regional Economic Growth

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Abstract

The impacts of financial deepening on economic growth have been a debate for decades. This research analyzes the impacts of financial deepening on provincial-level economic growth in Indonesia from 2001 to 2016. The use of provincial level data is rarely found in the literature, as well as to reduce unobserved heterogeneity in cross-sectional data between countries. The financial deepening approach in this study is limited to the banking side considering that the banking sector is still very dominant compared to other financial sectors in Indonesia. Through the panel data approach, it found there is a significant positive correlation between financial deepening and regional economic growth supporting previous studies. In this regard, the Government must take serious steps to deepen the domestic financial market, primarily through the banking sector.

Keywords: Financial deepening; regional economic growth; panel data

Abstrak

Dampak financial deepening terhadap pertumbuhan ekonomi telah menjadi debat selama beberapa dekade. Penelitian ini menganalisa dampak financial deepening terhadap pertumbuhan ekonomi tingkat provinsi di Indonesia periode tahun 2001 sampai dengan 2016. Penggunaan data level provinsi selain jarang ditemukan dalam literatur juga untuk mengurangi heterogenitas yang tidak teramati pada data cross section antar negara. Pendekatan financial deepening dalam penelitian ini dibatasi pada sisi perbankan; mengingat dalam sistem keuangan Indonesia peran sektor perbankan masih sangat dominan dibandingkan sektor keuangan lainnya. Melalui pendekatan data panel, diperoleh hasil bahwa terdapat korelasi positif yang signifikan antara financial deepening dengan pertumbuhan ekonomi regional yang mendukung penelitian-penelitian sebelumnya. Dalam kaitan ini diperlukan langkah serius pemerintah untuk terus melakukan pendalaman pasar keuangan domestik khususnya melalui sektor perbankan.

Kata Kunci: Financial deepening; pertumbuhan ekonomi regional; data panel

Introduction

Economic development of a country cannot be separated from the development of financial sectors in the country. The role of financial sectors as an intermediary function becomes a bridge between people who have excess funds and those who have a lack of funds. In its development, the financial system is required not only to perform its intermediary function well but also to have high resistance to the possibility of economic turmoil. The crisis experience shows that without good resilience of a financial system, the long-running economic development process can destroy in a moment. Indonesia's financial system suffered an economic crisis in 1997. Its low tenacity made Indonesia's dominant banking system unable to bear the negative impacts of the crisis hitting Indonesia. The collapse of the banking sector resulted in the hampered financing flow so that economic activities declined sharply; including the negative impacts in the forms of rising unemployment and the number of poor people.

Financial sectors have a strategic role in improving the economic growth of a country. A well-developed financial sector will stimulate economic activities; Conversely, bad financial sector developments will cause the economy to face liquidity constraints to achieve high economic growth (Brandl, 2002). A similar view is expressed by Dornbusch & Reynoso (1989) who stated that a country would succeed in achieving its economic development goals if its financial sector can thrive. The development of financial sectors can see from their ability to provide sufficient savings for development investment purposes as well as in addressing issues such as financing, inflation and the effects of budget deficits on economic growth.

As a developing country, Indonesia faced with the limitations of accumulated domestic capital to finance the development. The dependence on foreign investment, both in the forms of the investment portfolio and foreign borrowing, makes Indonesia very vulnerable to external shocks that could disrupt the economy. The cause of limited domestic capital accumulation primarily in the regions is the low accessibility of Indonesian society to the financial sectors (both banks and other financial institutions). Limitations of infrastructure and natural conditions of the islands become a constraint for banks in providing services to communities, especially those located in remote and rural areas. This limited banking services cannot separate from the economic scale calculation of bank operations in an area and the bank's consideration of the population distribution in an area to be reached by the service of bank branch offices. As a result, there is a disparity in banking services to reach all administrative regions at the provincial, district and sub-district levels.

The Bank Indonesia Financial Literacy Survey 2012 concluded that the majority of the population in Indonesia has a low ability to access bank financial services. The survey results recorded only 35.31% of Indonesian adult population who have been served by the banks. Meanwhile, Bank Indonesia Household Survey in 2011 showed that only 48% of Indonesian households have been saving in banks, non-bank financial institutions, and non-financial institutions.

This condition is in line with World Bank identification results in 2011 stating that the Indonesian population has relatively limited access to financial services institutions. Based on

the World Bank study, only 20% of Indonesian adults have accounts in financial institutions. The percentage is below other ASEAN countries such as Malaysia, Philippines, Thailand, and Vietnam.

Figure 1. Adult Access to Financial System
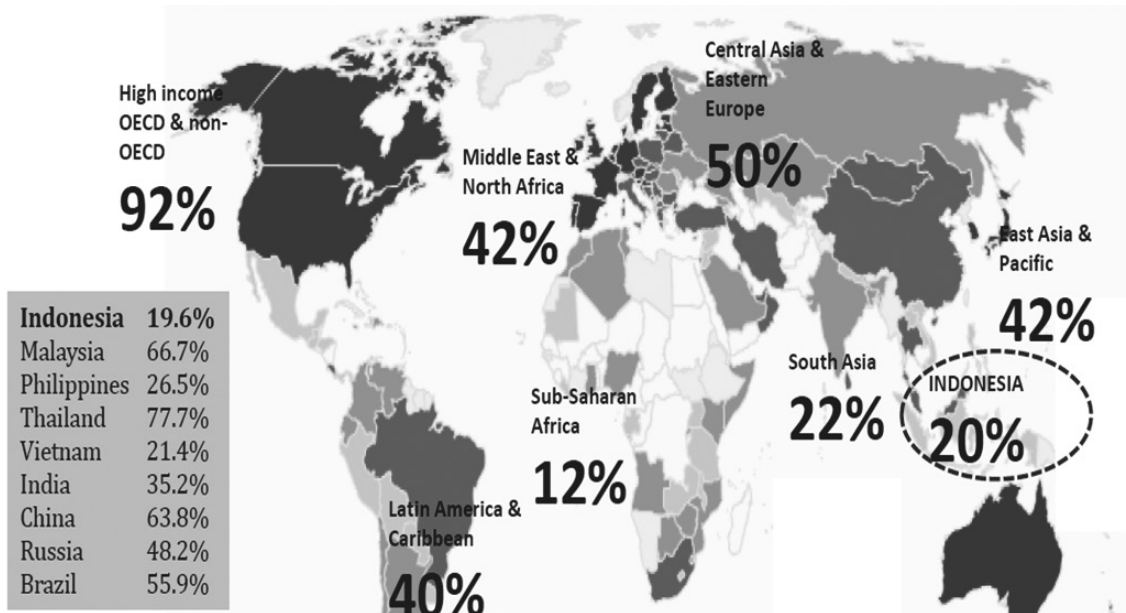
Source: World Bank (2011)

In order to improve people's accessibility to the financial system, the government together with Bank Indonesia and the Financial Services Authority (OJK) strive to continue deepening financial markets. One of them is through the financial inclusion program and the formation of the Regional Financial Access Acceleration Team (TPAKD). The program is expected to encourage the accumulation of domestic capital to support the development financing independently and sustainably. The question is whether the financial market deepening can encourage the economic growth in the regions.

Based on economic theories, an efficient banking system, financial system, and capital markets are the most productive and useful means of promoting economic growth. An efficient financial system is essential to sustain growth in developing countries like Asia as investment efficiency will overshadow investment as a growth driver in the region (Estrada et al., 2010). Although the theories show a relationship between financial deepening with economic growth, over the years the related debate is still going on. Since Schumpeter (1911) proposed an argument pointing to the effects of increased productivity and growth from the services improvement provided by the financial sectors, some theoretical and empirical literature have appeared.

Cameron et al. (1967) argued that the financial system can both encourage and driven by economic growth; although he stressed the importance of service quality and efficiency of the financial system. Essential features of the financial system in encouraging growth by Cameron et al. (1967) include: *First,* financial intermediation provided by the

bank serves as a vehicle to channel funds from savers that avoid risk to people who avoid risk through business development. *Second,* financial intermediation provides incentives to investors through reduced borrowing costs in order to encourage entrepreneurs to make more significant investments. *Third*, financial institutions create possible efficient allocations that are often unproductive in the early stages of industrialization. *Fourth*, financial institutions, especially banks can promote the development of technology. Cameron et al. (1967) argued that most technical innovations introduced by established companies having access to bank financing. Cameron's view does not lie in its theoretical considerations. He provided detailed case studies on the successful interaction between financial systems and growth in the industrialization process undertaken in England, Scotland, France, Belgium, Germany, Russia, and Japan in the early 19th century.

In the 70s, discussions on the relations between the financial system and economic growth concentrated on the phenomenon of financial repression, a policy issued by the government to encourage growth through low-interest rate policies and monetary policy emphasizing the inflation decline. McKinnon (1973) and Shaw (1973) opposed this policy and advised to increase the role of financial sectors in increasing the savings volume through the provision of adequate incentives. To increase savings and investment, they recommended the government to abolish the interest rate ceiling. Many governments in developing countries follow this policy advice and can achieve significant acceleration in their growth rates even though sometimes-real interest rates are too high and tend to fluctuate.

In the early 1980s, the Neostructuralists criticized McKinnon-Shaw's views and predicted that financial liberalization would slow the economic growth. Stiglitz (1989) criticized financial liberalization as the theoretical basis for market failure in financial markets. Different views seeing a positive relationship between the financial sectors and growth emerged in the early 90s as one of the endogenous growth model literature. King & Levine (1993) followed Schumpeter's thinking by emphasizing the role of innovation. They viewed the financial system as capable of increasing the probability of innovation success and the speed of technological development through the savings channels accumulated in the financial system. The most important result of the endogenous growth literature is that the growth rate increase will maintain. This positive relationship is known as supply leading (finance-led growth). This view sees that a well-developed financial system will be able to allocate efficient resources from unit surpluses to unit deficits to accelerate growth. Functions owned by the financial system will affect savings and investment decisions; to encourage economic growth.

Several researches supporting the supply leading relationship are Levine et al. (2000), Beck et al. (2000) and Rousseau & Wachtel (2011). Levine et al. (2000) identified the impacts of exogenous components of the financial institutions' development on economic growth in 74 countries and divided the average 7-year data period into five intervals. They found a positive correlation between exogenous variables from the financial institutions' development on economic growth. Levine (1997), among others, used variable ratio of liquid liabilities of banks and non-bank financial institutions to GDP, and private credit to GDP ratio as indicators' measure of exogenous variables from the financial institutions'

development. In his research, Levine (1997) also utilized simple conditioning information such as primary income variables to capture the effects of convergence variables, and educational levels to measure human capital. Besides, other control variables used include the level of economic openness, the role of government spending, and macroeconomic stability conditions emerging in the inflation variable.

Beck et al. (2000) analyzed the impacts of financial institution development on the economic growth, total factor productivity growth, physical capital accumulation and private savings in 63 countries throughout 1960-1995 through cross country data and panel data approach. Through the Liquid liabilities / GDP and private credit / GDP approaches as indicators of the financial sector development, it found a significant positive correlation between financial sector development indicators (Liquid liabilities / GDP and private credit / GDP) and the economic growth. In this study Beck et al. (2000) used variables of initial income per capita, average school age (to measure investment in human resources), economic openness, and macro economic stability variables such as inflation and the government spending contribution as a control variable in the model.

Rousseau & Wachtel (2011) analyzed the impacts of financial deepening on economic growth in 84 countries during 1960-2004 through a panel time series data. Rousseau & Wachtel (2011) found that financial deepening had a significant positive effect in the pre-crisis period (under normal conditions). Also, several other studies support the empirical results that financial deepening affects the economic growth – including Caporale et al. (2009), Cojocaru et al. (2015), Kularatne (2002), and Seetanah et al. (2009). Previous studies found many forms of relationship between financial deepening and economic growth (King & Levine, 1993; Levine & Zervos, 1998; Levine et al., 2000; Wachtel, 2003; Seetanah, 2007). The debate on the relationship between financial deepening and economic growth is continuing along with the use of cross-country datasets that are often used by previous researchers thought to have weaknesses. The use of cross-country data will result in biased data because it eliminates aspects of legal structure, economic differences and social and cultural differences between countries. Besides, most studies discussed developed countries and only a few studies analyzed developing countries (Seetanah, 2007), including Indonesia.

Therefore, this study attempt to identify the relationship between financial deepening and economic growth in regional scope in Indonesia by using fixed effect regression. This study is the first attempt at identifying financial deepening and economic growth specifically in Indonesia. Also, the similarity of economic, social, cultural and financial regional characteristics in Indonesia that are still dominated by the banking sector is expected to generate more accurate conclusions and reduce the bias data from previous studies. Next, section 2 describes the reference review, section 3 exposes the methodology used in the study, section 4 depicts the estimation and analysis results, and section 5 presents the conclusions, recommendations, and suggestions.

Methods

The financial markets deepening will encourage regional economic growth. Deeper financial market (financial deepening) will accelerate economic growth; on the contrary, the shallow financial market will hamper the acceleration of regional economic growth. This fact is related to the financial sectors' contribution to financing development.

The thinking plot between financial deepening and economic growth in this study refers to the conceptual framework developed by Levine (1997). According to Levine, the transmission between financial development and economic growth can explain through five main functions, namely: *First*, Mobilize savings into a broader range that leads to higher investment rates and faster capital accumulation; so that economic growth becomes faster. *Second*, gather information early on possible investments and resources allocation. *Third*, monitor and supervise the companies' management after providing financing. *Fourth*, risk management function. *Fifth*, facilitate transactions by minimizing the transaction costs in exchange and economic activities.

The financial system affects economic growth through 2 (two) channels: capital accumulation and technological innovation. These two channels are the two primary sources of long-term economic growth that develop in the economic growth literature. The financial system influences both growth sources by affecting the savings rate (supply side) and by reallocating savings into various forms of investment (demand side), either physical capital investments, human resource investments, or technological investments. The better the financial system in performing the essential functions, the higher the contribution of the financial system in encouraging economic growth.

In addition to the above view, Fung (2009) argued that there are two main lines of the financial system in accelerating growth: through productivity factors and capital accumulation factors. On the line of productivity, financial and technological innovations can reduce information asymmetry that may encourage better monitoring and investment projects selection. Financial liberalization can increase risk sharing to reduce capital cost and increase investments resulting in increased economic growth. On the line of capital accumulation, an organized financial system can improve efficiency by utilizing unproductive resources for the better.

This study aims to analyze the impacts of financial deepening on regional economic growth using a model referring to the study of Seetanah et al. (2009) and utilizing various basic principles from previous studies, such as Levine et al. (2000), Beck et al. (2000), Rousseau & Wachtel (2011), Alrabadi & Kharabsheh (2016), and Ardic & Damar (2006). Thus, this study uses two general models as follows:

$$Y = f \,(\text{CRE, INVGDP, EMP, OPEN, GOV, HUMCAP}) \qquad (1)$$

$$Y = f \,(\text{DEP, INVGDP, EMP, OPEN, GOV, HUMCAP}) \qquad (2)$$

Y is the GRDP per capita as the independent variable. To measure the impacts of financial deepening at the regional level, this model uses two variable approaches. First, CRE (model 1) which shows the comparison between the outstanding amount of credit disbursed throughout the banking in a region with the GRDP of the region at a certain period. Second,

DEP (model 2) which shows the comparison between Deposit Funds collected by banks in an area with the GRDP of the region at a certain period. These two variables widely used by previous researchers such as King & Levine (1993), Levine & Zervos (1998), Beck et al. (2000), Wachtel, (2003), Christopoulos & Tsionas (2004), Seetanah et al. (2009), and Ardic & Damar (2006).

This model used five variables as control variables used. First, INVGDP variable is the ratio of PMTB to nominal GRDP. Second, the OPEN variable represents the level of economic openness calculated from total exports and imports compared to GRDP in each region. GOV or government size is the third control that is proxied by the ratio between consumption/government expenditure to Provincial GDP. Fourth, EMP is the labor force participation rate. The last, HUMCAP, portrays a human capital that is proxied with two indicators: population aged 25-64 years with upper secondary education (SER) and school period (YEARSEDU).

Using double log model specification, this study develops the above general equations into the following two empirical models:

$$y_{it} = \alpha_0 + \alpha_1 \text{cre}_{it} + \alpha_2 \text{invgdp}_{it} + \alpha_3 \text{open}_{it} + \alpha_4 \text{gov}_{it} + \alpha_5 \text{emp}_{it} + \alpha_6 \text{humcap}^j_{it} + \varepsilon_{it} \quad (3)$$

$$y_{it} = \alpha_0 + \alpha_1 \text{dep}_{it} + \alpha_2 \text{invgdp}_{it} + \alpha_3 \text{open}_{it} + \alpha_4 \text{gov}_{it} + \alpha_5 \text{emp}_{it} + \alpha_6 \text{humcap}^j_{it} + \varepsilon_{it} \quad (4)$$

The symbol j indicates the type of HUMCAP variable indicator on a separate model. As for the symbol ε denotes the term error; i represents the dimension of the region / area and t indicates the time dimension. Small letters denote the shape of the model in natural logarithms.

The data used in this study are secondary data that published regularly. Variable of GRDP, years of education, export, and import sourced from Central Bureau of Statistics (BPS) while outstanding of Deposit funds (DEP) and outstanding of credit-sourced from Bank of Indonesia (BI). The study will cover 25 provinces (excluding new provinces resulting from expansion) with annual databases from 2001 to 2016. The selection of observation periods based on the condition of the Indonesian financial sector that was relatively more stable after the economic crisis that hit the global economy, including Indonesian, in 1997-1998.

Result and Discussion

The application of estimation methods using panel data is very familiar in both theory and its application in economics - in line with the increasing availability of data sources for research. This study uses a fixed effect approach with Driscoll-Kraay regression since the data contain Heteroscedasticity and Autocorrelation. The study data come from the Central Bureau of Statistics and Bank of Indonesia. The following is an estimate of the model described earlier.

The estimation results in Table 1 show that financial deepening in both models has a significant positive influence on GRDP per capita; proving the initial hypothesis of the study. Of the four models, a 10% increase in financial deepening can increase the GRDP per capita by around 1.7% -3.1% assuming other variables are constant. Interestingly, the

contribution of financial deepening to economic growth is relatively significant compared to other control variables; in contrast to previous studies such as Seetanah et al. (2009). The empirical study results of Fung (2009) explained that the relationship between financial development and economic growth is stronger in the early stages of economic development or developing countries; next, this relationship weakens with the growth of the economy. Therefore, Indonesia's financial sector which still has room for growth potentially could affect the economic growth which is also relatively fast; in contrast to developed countries that tend to have relatively stagnant growth rates and established financial sectors.

Table 1. Model Estimation Result

	Dependent Variable : GRDP per capita			
	Model 1		Model 2	
	financial deep : cre		financial deep : dep	
	(A)	(B)	(A)	(B)
Constant	15.22***	14.01***	15.03***	13.31***
	(0.158)	(0.325)	(0.210)	(0.390)
financial deep	0.209***	0.171***	0.309***	0.226***
	(0.0116)	(0.00774)	(0.0149)	(0.0138)
Control Variable				
invgdp	0.00516	0.00431	0.0459*	0.0334*
	(0.0171)	(0.0166)	(0.0228)	(0.0183)
open	0.0337***	0.0428***	0.0413***	0.0497***
	(0.0109)	(0.00957)	(0.0128)	(0.0109)
gov	-0.103***	-0.0970***	-0.0762***	-0.0758***
	(0.0230)	(0.0229)	(0.0239)	(0.0223)
emp	0.714***	0.786***	0.911***	0.972***
	(0.138)	(0.162)	(0.150)	(0.168)
ser	0.197***		0.266***	
	(0.0415)		(0.0641)	
yearsedu		0.881***		1.227***
		(0.152)		(0.180)
R-Squared	0.8696	0.8780	0.8409	0.8629
Observations	400	400	400	400
Number of groups	25	25	25	25

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The positive relationship between financial deepening and GRDP is consistent with several theories and empirical studies. The view of supply leading (finance-led growth) which states that financial deepening can affect economic growth is in line with the positive relationship shown in the study results. Also, the positive relationship is also in line with the Solow-Swan Model's view assuming that in the economy all public savings are channeled to investment activities and to the addition of capital stocks that will promote the economic growth of a country. In other words, this study contrast with argument said that financial liberalization might slow the economic growth in developing countries such as Indonesia, in fact, it has a positive impact similar to most studies in developed countries. The empirical studies of Levine et al. (2000), Beck et al. (2000), Seetanah (2007) and Rousseau & Wachtel (2011) are examples of studies suggesting a positive influence of financial deepening on GRDP.

All determinants of control variable have an estimation result corresponding to the initial hypothesis. The variable of investment ratio to GRDP (invgdp) shows a positive influence on both models and is significant in model 2. Directing expenditure on investment activities creates a new input in the production process externally; this will encourage business activities at the companies level and economic growth at the aggregate level (Barro, 1990). The positive relationship on government development expenditure empirically is found in Saudi Arabia (Alshahrani & Alsadiq, 2014) and some Asian countries (Attari & Javed, 2013), and Europe (Alexiou, 2009).

Estimation of the level of economic openness has a significant positive influence; the openness of a province to another will accelerate growth in the province. This relationship is in line with the literature on trade and growth which indicates that trade openness has a favorable effect on growth through technology deployment of products exported/imported by a province (Keho & Wang, 2017). Commodities imported by a country will bring new knowledge and ideas that further encourage the growth of creativity and initiative embodied in innovative and productive activities. The new commodity plays a role in creating externalities in the form of new learning in a sustainable manner. The studies of Marelli & Signorelli (2011), Nowbutsing (2014), and (Zarra-Nezhad et al. (2014) confirmed the positive impact of trade on economic growth.

Another control variable, government expenditure (gov), empirically has a significant negative impact on the GDP per capita at the provincial level. In the view of endogenous theory, the adverse effect of government spending on economic growth occurs as a result of consumptive government spending which does not lead to productive sectors in the economy causing inefficiencies that impede long-term growth. This view is in line with Mankiw (2003) view explaining that an increase in government (fiscal expansion) will hamper investments, which in turn decreases employment and economic growth. Empirically, several studies such as (Butkiewicz & Yanikkaya, 2011) who analyzed more than 100 developed and developing countries, and Guseh (1997) who examined 59 middle-income countries, concluded there are negative impacts of growth in government size on economic growth.

From the overall estimation of the study, the most significant determinant influencing regional economic growth in Indonesia is the level of labor (emp). Ten percent increase in labor force participation rate can affect the economic improvement of 7.1% -9.7%. Labor becomes the initial capital of production in a region, especially in developing countries that rely on labor rather than capital. Khan (2007) found that labor elasticity to GRDP growth in developing countries reached 0.7. Other empirical studies such as Kapsos (2005) also found a positive relationship between labor rates and economic growth.

Regarding human capital variable, there is a significant positive correlation through both the indicator of elementary level enrollment (ser) and the school period (yearsedu) towards the GDP per capita at the provincial level. This fact means that any increase in the ratio of primary school enrollment rates will affect the growth of per capita income. This result is in line with the view of endogenous economic growth theory stating that the quality of human resources has an important role both in utilizing externalities through learning and creating externalities through a competitive R & D sector (Romer, 1989). Many kinds of literature even say that human capital is one of the most critical factors in economic growth (Pelinescu, 2015; Mankiw et al., 1992) that are supported by several empirical studies such as de La Fuente & Domenéch (2006), and Blundell, et al. (1999).

Conclusion

This research provides the result of empirical estimation in analyzing the impacts of financial deepening especially from the banking side to regional economic growth in Indonesia from 2001 to 2016. The equations of model 1 and model 2 identify a significant positive correlation between financial deepening through the comparison between credit and GRDP (model 1) and comparison between third party fund and GRDP (model 2) on economic growth. This result means that the higher level of financial deepening of an area will accelerate the GDP growth per capita at the provincial level. This result is in line with the view of supply leading (finance-led growth) stating that the financial markets deepening will affect the economic growth. The control variables in model 1 and model 2 overall correspond to the hypotheses in this study and are in line with previous studies. The ratio of investment to GRDP, the level of economic openness of a province, the level of labor and education level positively affect the growth of GRDP per capita. While the proportion of government expenditure to GRDP (government size) gives a significant adverse effect on the growth of GRDP per capita.

This study suggests that financial market deepening is vital to be considered by policymakers, because besides it is empirically proven to support the improvement of regional economic growth, it will also encourage the independence of regional financing and reduce the dependence of external finance that is particularly vulnerable to global issues. Efforts to deepen financial markets through financial inclusion programs and the formation of the Regional Financial Access Acceleration Team (TPKAD) must be continuously improved. Besides, it is necessary to improve the infrastructure, networks and the elimination of other barriers that limit the public's accessibility to the financial system so that communities

inclusively connected to the financial system. Thus, the mobilization of domestic funds becomes larger.

Differences in regional characteristics such as economic, social and cultural conditions should be taken into account in implementing the financial deepening policies; so that the financial market deepening strategies can work effectively. Since the factors of labor (EMP), human capital (HUMCAP), trade openness (OPEN) and Government Size (GOV) significantly influence the economic growth, thus, human resource capacity improvement, international trade restriction reduction, and productive government expenditure allocations should continue in order to support sustainable economic growth.

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