



## The convergence of financial sector in Asia

 Maria Pinita Angelia <sup>(a)</sup>  Rudi Purwono <sup>(b)</sup>



<sup>(a)</sup> Assistant, Faculty of Economic and Business, University Airlangga, Airlangga Street 4-6, 6028, Surabaya, Indonesia

<sup>(b)</sup> Deputy Dean, Faculty of Economics and Business, Universitas Airlangga, Airlangga Street 4-6, 6028, Surabaya, Indonesia

### ARTICLE INFO

#### Article history:

Received 12 August 2021

Received in rev. form 16 Sep. 2021

Accepted 18 Sept 2021

#### Keywords:

Convergence, Financial Sector  
Development, stock market,  
generalized method of moment

#### JEL Classification:

G32

### ABSTRACT

*This study aims to identify the convergence of financial sector development and the effect of macroeconomic variables on each financial sector development indicator in Asia. The sample used consists of 24 countries in Asia during the period 2010-2018. Identification of convergence using  $\beta$ -convergence absolute and conditional. Indicators are used to represent the development of the financial sector namely private credit, liquid liabilities, stock market capitalization, and stock market turnover. Empirical evidence was based on the Generalized Method of Moment (GMM) estimation technique. The results showed that there was convergence in Asia and that macroeconomic variables had a significant effect on the development of the financial sector.*

© 2021 by the authors. Licensee SSBFNET, Istanbul, Turkey. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## Introduction

Financial sector development had a big role in economic development and often used as a benchmark in the success of a country (Svirydzenka, 2016). However, the differences in the development of the financial sector in each country could create a gap between developing and developed countries. Financial sector development gap between developed and developing countries must be reduced, if left unchecked, the gap between developed and developing countries would continue to increase. The concept of convergence could be used to reduce the development gap of the financial sector. This convergence concept was initiated by Barro and Sala-i-Martin (Veysov and Stolbov, 2011). This concept explained how a lagging country could catch up with developed countries, so that convergence would reduce the gap and increased prosperity (Nurhamidah and Suhartini, 2014).

The gap in financial sector development between developing and developed countries could be observed in the Asian Region. This was indicated by the development of the financial sector of developing countries which had disparities in the development of the financial sector with developed countries (Hami, 2017). This condition needed to be analyzed further to find out the convergence of financial sector development in the Asian region. Based on the study of Kılınç *et al.* (2017) which states that indicators of convergence related to financial sector development could be explained by the role of *private credit*, *liquid liabilities*, *stock market capitalization*, and *stock market turnover ratio*. These indicators were used to compare the development of the financial sector in Asia with other regions with the aim of obtaining issues and phenomena to be analyzed.

According to World Bank's Financial Sector Development statistics in Asia, Europe and America (2014-2018), developments in the financial sector in Asia was still worse than Europe and America. The development movement of the Asian financial sector during 2014-2018 decreased. Developments in the financial sector in Asia was still worse than Europe and America. The Asian financial sector during 2014-2018 was decreasing. Kim and Lin (2010) argued that higher inflation could suppress financial intermediation, thus disrupting the financial structure. Rajan and Zingales (2003) argued that trade openness could encouraged the development of the financial sector by increasing direct investment and foreign portfolios. Demirguc-Kunt and Levine (1996) showed that trade

\* Corresponding author. ORCID ID:

© 2021 by the authors. Hosting by SSBFNET. Peer review under responsibility of Center for Strategic Studies in Business and Finance.

<https://doi.org/10.20525/ijrbs.v10i6.1319>

openness made capital markets more integrated with world capital markets. People who were qualified or able to work will accelerate the development of the financial sector.

The study on the convergence of financial development was conducted by Kılınc *et al.* (2017). The method used is GMM with the period 1963-2012. Absolute and conditional convergence was occurred in the countries of the European Union. Dekle and Pundit (2015) examined the convergence of financial development in ASIA countries. The estimation results showed that during the period 2004-2011, the financial systems in Asian countries could reached the economies of developed countries (Hong Kong, China; Japan; Republic of Korea; and Singapore). Bruno *et al.*, (2012) found the results of strong convergence in stocks but weak convergence in banking in OECD countries. Asongu (2012) conducted a study to assess the dynamic convergence of African financial developments in money, credit, efficiency and size. Empirical evidence is based on 11 homogeneous panels by region (Sub-Saharan and North Africa), income level (low, middle, and upper-middle), legal origins (British and French civil law), and religious dominance (Christianity and Islam). This study estimated the convergence in intermediary dynamics of depth, efficiency, activity and financial measures. The findings suggested that countries with small financial intermediary depths could catch up with countries with large financial intermediaries.

Apergis *et al.*, (2012) also examined the convergence of financial development in the convergence club, which is 50 countries. The estimation results showed that all countries do not unify financial developments. This means that the financial sector in the 50 countries was not yet integrated. Antzoulatos *et al.*, (2011) examined the convergence of financial development- using 13 financial development indices from *the World Bank Financial Development and Structure* database. These results indicate that there was no convergence for the financial system as a whole. This means that the financial system in industrialized countries that were still developing has diverged. This difference was more pronounced for the stock market and private credit market segments by banks, and less for the bond market and bank market segments. Sare (2019) examined 46 countries in Africa to see the development of the financial sector in these areas. The result of his research was that the gap in these countries was getting wider and less developed.

This study aims to identify the convergence of financial sector development and the effect of macroeconomic variables on each financial sector development indicator in Asia. The sample used consists of 24 countries in Asia during the period 2010-2018.

## Literature Review

### Convergence Theory

In general, convergence was the process of reducing the income gap between low-income areas and high-income areas. According to Barro & Sala-i-Martin (1992) who adopted the neoclassical growth model, convergence defines convergence as a tendency for underdeveloped regions to catch up (*catching up effect*) from rich regions. This assumed that developed countries would experience conditions *steady state*, namely countries whose income levels could not increase *anymore* because additional investment did not increase income. This could happen because all the production costs were already covered by existing investments, so additional savings (*saving*) in the country could not be used as additional investment because in countries with conditions *steady state* additional capital was no longer useful because it will cause the ratio of capital per worker more large so that it even reduces the *return* on capital. Meanwhile, developing countries have investment levels below the cost of production, so that additional capital in these countries would be used as additional investment and ultimately increase the country's income.

Convergence was divided into two kinds, namely  $\sigma$  convergence and  $\beta$  convergence. If the dispersion of the level of economic growth tends to continue to decline, it is said to be  $\sigma$  convergence. Furthermore, the concept of  $\beta$ -convergence is divided into two types, namely absolute  $\beta$ -convergence and conditional  $\beta$ -convergence. Another factor held constant in the model was called absolute  $\beta$ -convergence, less developed economies could grow faster than more developed economies. Another factor that was considered not constant was called conditional  $\beta$ -convergence. The concept of  $\beta$ -convergence had advantages over  $\sigma$ -convergence. The  $\beta$ -convergence is more dynamic than the  $\sigma$ -convergence. This was because the dispersion used for the convergence- measured through the standard deviation of the real GDP log, so it was a static analysis (Andreano *et al.*, 2013). In addition, the convergence, may fluctuate, therefore it was not appropriate for the use of convergence measurements. Absolute convergence explained the decline in return on capital. The existence of a declining return on capital made economic growth tend to grow more slowly than the poor economy (Ismail, 2008). Absolute convergence must be accompanied by conditional convergence. If only measuring absolute convergence did not meet the requirements because economic growth did not only affect the core variables, but also other variables. Conditional convergence was a convergence that was carried out by looking at the behavior and characteristics between countries or regions within a country (Sodik, 2006). Conditional convergence was useful to find out what were the determining factors that affect the level of regional economic growth in the long term. Convergence was said to be conditional if the growth rate was higher in countries or regions with lower income levels.

### Convergence of Financial Sector Development

The financial sector development gap could be analyzed using the convergence concept. Convergence analysis was not only covered income disparities between countries, but could also be developed to measure disparities in financial development between countries. The concept of convergence began with Solow's economic growth model in 1956 and 1957. Solow said that there would be a convergence of per capita income between one country and another if the distribution of non-competitive consumption technologies

existed across the country (Dekle and Pundit, 2015). This means that the level of prosperity experienced by developed and developing countries would one day meet and the economy will improve. The term *catching up effect* was when developing countries caught up with developed countries. The theory of the Schumpeterian model of cross-country convergence with financial constraints predicts that any country that had more than a few levels of critical financial sector development will converge to the growth rate of the world's technological frontiers. The results of the study indicated that the development of the financial sector had a positive and strong effect in encouraging convergence. Convergence of financial sector development could be measured by two approaches, namely sigma convergence and beta convergence. Sigma convergence could be measured by dispersion through the coefficient of variation. Sigma convergence explains that the smaller the coefficient of variation, the lower the gap in financial development over time, while the higher the coefficient of variation, the wider the gap in financial development over time. Beta convergence describes a faster increase in the financial development of developing countries compared to developed countries. This condition was indicated by the negative value of the beta coefficient, so it has a negative effect between increasing financial development in a certain period (period *lag*) and increasing financial development in the initial period (current period) (Antzoulatos, 2011). Beta convergence in financial development could be measured by unconditional convergence and conditional convergence. Unconditional convergence was called absolute convergence. Unconditional convergence was a convergence condition which assumes that the economies between countries have similarities in terms of economic structure, demographic conditions, savings rates, and other economic variables. In contrast, conditional convergence assumes that the structural characteristics between countries had ine quality so that the convergence was influenced by the structural characteristics of countries. This had consequences in the conditional convergence model that needs to be added with various explanatory variables.

Kılınc et al (2017) stated that was expected to have a coefficient between 0 and 1. This coefficient implies that financial development grows faster in countries with lower levels of initial financial sector development. In addition, a smaller implies a higher degree of convergence, which was to be expected in the estimation of conditional convergence. If = 1 implies that differences in financial developments between countries persist over time, and > 1 provides evidence of divergence. Bahadir and Valev (2014) show that < 0 implies convergence of financial sector development in the sense that financial sector development grow faster in countries with lower levels of initial financial sector development; = 0 implies that the difference in the development of the financial sector between countries still exist; and > 0 provided evidence for divergence, namely faster financial sector development in countries that are already more financially developed. The convergence value <1 is obtained from -1 which showed a negative relationship because there was a diminishing return that causes convergence.

#### **Relationship of Inflation, Trade Openness, Economic Growth, and Population Growth with *Private Credit***

The first indicator in measuring the development of the financial sector was *private credit*. *Private credit* was loans on credit provided by banks and other financial institutions to the private sector. High inflation increases uncertainty, thus making forecasting, economic planning, and efficient allocation of resources difficult, which in turn adversely affects economic activity and growth. This condition would reduce *private credit* by banks, because bad economic conditions would increase the risk of default. Trade opened positively affects *private credit*. The openness of trade carried out by a country means opening the economy to the flow of goods and services. This would create a high competitive environment, so that companies that were less competitive, then the company's revenue or profit will decrease (Ashraf, 2017). The economic growth of a country was an indicator of macroeconomic performance. This would have an impact on *private credit* (Vazakidis and Adamopoulos, 2009). *Private credit* refers to financial resources made available to the private sector, such as loans and advances, purchases of non-equity securities, trade credits, and other trade receivables, which establish claims for repayment (Were et al., 2012). The economic growth of a country was getting better, so banks were always willing to provide credit to the private sector, because if economic growth was getting better, the risk of default would be smaller. So the higher the economic growth, the greater the *private credit*. The higher the population growth in a country, the *private credit* would experience expansion (Mukhopadhyay and Pradhan, 2010). This would happen if the resident was able and able to repay the obligation.

#### **Relationship between Inflation, Trade Openness, Economic Growth, and Population Growth with *Liquid Liabilities***

The second indicator in measuring the development of the financial sector was *liquid liabilities*. *Liquid liabilities* were the bank's ability to channel funds from savers to borrowers. *Liquid liabilities* were calculated from the total liquidity ratio, the greater the liquidity ratio, it reflects a safe banking. Inflation was one of the macroeconomic problems that always gets attention in all countries. Unstable inflation would disrupted the financial sector. In conditions of unstable inflation, banking profits tend to be decline. This would delayed payment of obligations. Trade openness carried out by a country would remove all obstacles in trade traffic. This also has an impact on the financial sector. Openness of trade would gave birth to competition by facilitating the entry of new companies into the market, so that groups of domestic companies would felt threatened, as a result the market share would be smaller and the profits would be low, so the debt obligations that must be paid in a year would be delayed (Novitasari et al., 2018). Increased economic growth could be attributed to increased capital accumulation and increased productivity. This would had a positive impact on banking finances. The higher the economic growth, the more productivity would be produced, thus obtaining higher profits. This condition would accelerated debt repayment. The higher the population growth in a country, it indicates that the market share was increasing. The higher the population growth, the higher the demand for goods or services. This was an opportunity for banks to increase their productivity, so that banks feel they have good financial performance, so they can be used to pay debts (Khan, 2011).

### Relationship of Inflation, Trade Openness, Economic Growth, and Population Growth with Stock Market Capitalization

The third indicator in measuring the development of the financial sector was *stock market capitalization*. Investing in the capital market, investors would consider several factors, including market capitalization. Market capitalization was the market value of the shares issued (*outstanding share*) of an issuer. Market capitalization obtained by multiplying the number of shares outstanding by the closing share price. The size of a company on the stock exchange could be seen from its market capitalization. Inflation was a condition that indicates an increase in prices in general, or a condition that indicates a decrease in the value of money because the increase in the amount of money in circulation was not matched by an increase in the supply of goods. This would result in a significant decline in stock prices. Openness of trade was believed to be one of the crucial determinants of *stock market capitalization*. Demircuc-Kunt and Levine (1996) showed that trade openness made capital markets more integrated with world capital markets and find evidence that there was a positive correlation between trade openness and *stock market capitalization*. Higher growth means that the country's economic performance is good. This condition would cause many investors to enter the stock market. The more investors who enter, the more *stock market capitalization* of the stock would increase. Higher population will bring more household investing in stocks, hence the stock market capitalization will increase.

### Relationship of Inflation, Trade Openness, Economic Growth, and Population Growth with Stock Market Turnover

The fourth indicator in measuring the development of the financial sector was *stock market turnover*. Turnover Ratio was an efficiency ratio that showed how effective the stock was in the stock exchange for a period. That was, this ratio measures the number of times a company sells shares on the stock exchange during the year. This ratio would be a good indicator in determining the value of stock quality. Inflation was a variable that could affect *turnover* stock market. High inflation also causes high *stock market turnover*. Higher rate of inflation causing high prices for inputs or raw materials, declining company revenues and profits, and a slowdown in the economy of a country. This condition would encourage high *stock market turnover*. Trade Openness also affects the *stock market turnovers*. Trade openness is a relative indicator of international trade in a country's economy. A country that increasingly open to trade will increase capital flow. *Stock market turnover* is affected by economic growth. Higher growth means that the macroeconomic indicator of an economy is in increasing cycle, then the *stock market turnover* decreases. The population could essentially be likened to a double-edged sword. On the one hand, a large and qualified population would be a very useful asset for development, but on the other hand, a large but low-quality population would actually be a heavy burden for development (Geanakoplos, 2004). Population had a relationship with *stock market turnover*. Residents who had a public company could sell shares on the stock exchange to increase company funds, so that it had an impact on high *turnover*.

## Research and Methodology

### Empirical Model

This study adopted the model from Kılınç *et al.*, (2017) by forming 8 models that would be estimated using the technique *Generalized Method of Moment* (GMM). Models one to four to see the absolute convergence of *financial development* in Asia. The following was the empirical model used in this study:

$$Y1_{it} = \alpha + \beta_1 Y1_{it-1} + \varepsilon_{1it}$$

$$Y2_{it} = \alpha + \beta_1 Y2_{it-1} + \varepsilon_{2it}$$

$$Y3_{it} = \alpha + \beta_1 Y3_{it-1} + \varepsilon_{3it}$$

$$Y4_{it} = \alpha + \beta_1 Y4_{it-1} + \varepsilon_{4it}$$

Explanation :

- Y1 = *Private Credit* (%GDP)
- Y2 = *Liquid Liabilities* (%GDP)
- Y3 = *Stock Market Capitalization* (%GDP)
- Y4 = *Stock Market Turnover Ratio* (%)
- it-1 = *lag*

Same as model one to four, the fifth to eighth models were also used to see whether there was a convergence of financial sector development in Asia but with conditional convergence. The following was the empirical model used in this study:

$$Y1_{it} = \alpha + \beta_1 Y1_{it-1} + \beta_2 INF_{it} + \beta_3 TO_{it} + \beta_4 PE_{it} + \beta_5 POPG_{it} + \varepsilon_{1it}$$

$$Y2_{it} = \alpha + \beta_1 Y2_{it-1} + \beta_2 INF_{it} + \beta_3 TO_{it} + \beta_4 PE_{it} + \beta_5 POPG_{it} + \varepsilon_{2it}$$

$$Y3_{it} = \alpha + \beta_1 Y3_{it-1} + \beta_2 INF_{it} + \beta_3 TO_{it} + \beta_4 PE_{it} + \beta_5 POPG_{it} + \varepsilon_{3it}$$

$$Y4_{it} = \alpha + \beta_1 Y4_{it-1} + \beta_2 INF_{it} + \beta_3 TO_{it} + \beta_4 PE_{it} + \beta_5 POPG_{it} + \varepsilon_{4it}$$

Explanation:

- Y1 = *Private Credit* (%GDP)
- Y2 = *Liquid Liabilities* (%GDP)

Y3 = *Stock Market Capitalization (%GDP)*  
Y4 = *Stock Market Turnover Ratio (%)*  
INF = *Inflation (%)*  
TO = *Trade Openness (%)*  
PE = *Economic Growth (%)*  
POPG = *Population Growth (%)*  
it-1 = *lag*  
 $\beta_1, \beta_2, \dots, \beta_5$  = 1st, 2nd to 5th regression coefficient

### Variable Definition

#### *Private Credit (% to GDP)*

*Private credit* was a loan on credit provided by banks and other financial institutions to the private sector. This variable was used as the dependent variable. The scale used was the ratio scale. *Private credit* data in the study is proportional to GDP (percent) obtained from *Global Financial Development*.

#### *Liquid Liabilities (% to GDP)*

*Liquid liabilities* were the ability of banks to meet their obligations including in fulfilling deposit obligations. This variable was used as the dependent variable. The scale used was the ratio scale. *Liquid Liabilities* data in this study is proportional to GDP (percent) obtained from the *Global Financial Development*.

#### *Stock Market Capitalization (% to GDP)*

*Market capitalization* was the percentage of the number of shares outstanding multiplied by the price of the shares traded. This variable was used as the dependent variable. The scale used was the ratio scale. *Stock Market Capitalization* data in this study is proportional to GDP (percent) obtained from the *Global Financial Development*.

#### *Stock Market Turnover (%)*

*Stock market turnover* was the ratio of the total value of shares traded during the period divided by the average market capitalization in each country and becomes a measure of stock liquidity. This variable is used as the dependent variable. The scale used was the ratio scale. The variable unit *stock market turnover ratio* is percent obtained from *Global Financial Development*.

#### *Inflation (%)*

Inflation was a general and continuous change in prices. Inflation calculation was based on the CPI (Consumer Price Index) for the base year 2010. The unit of inflation variable was percent. This variable was used as an independent variable. The scale used was the ratio scale. Inflation data is obtained from the *World Development Indicators*.

#### *Trade Openness (% of GDP)*

*Trade openness* contained the number of exports and imports of goods and services measured as a share of GDP. This variable was used as an independent variable. The variable unit *trade openness* was percent. The scale used was the ratio scale. Data obtained from the *World Development Indicators*.

#### *Economic Growth (%)*

Economic Growth i.e. a constant increase or decrease in GDP each period. This variable was used as an independent variable. The scale used was the ratio scale. The economic growth variable unit is percent obtained from the *World Development Indicators*.

#### *Population Growth (%)*

Population growth was the change in population. Population growth was obtained in the following way:

$$\text{POPG} = (\text{Pop } t - \text{Pop } t-1 / \text{Pop } t-1) * 100.$$

The scale used was the ratio scale. The unit of population growth was the percent obtained from the *World Development Indicators*.

### Types and Sources of Data

The type of data used in this study was secondary data. The secondary data used consists of *time series* data and data *cross section*. Data *time series* was based on the period or from time to time, in this study used data that take effect in 2010-2018 *Cross section* used in 24 countries in ASIA. Data obtained from the World Bank website.

## Results and Discussion

### Research Analysis Results

**Table 1:** Absolute Convergence Estimation Results

Variable	Keterangan	Model 1	Model 2	Model 3	Model 4
<i>Private Credit</i>	Koefisien	0,742***	-	-	-
	Std. Error	0,074			
	AR(1)	0,214			
	AR(2)	0,136			
	Sargan	0,168			
	Hansen	0,287			
<i>Liquid Liabilities</i>	Koefisien	-	0,680***	-	-
	Std. Error		0,098		
	AR(1)		0,523		
	AR(2)		0,130		
	Sargan		0,322		
	Hansen		0,282		
<i>StockMarket Capitalization</i>	Koefisien	-	-	0,945***	-
	Std. Error			0,024	
	AR(1)			0,019	
	AR(2)			0,172	
	Sargan			0,802	
	Hansen			0,725	
<i>Stock Turnover</i>	Koefisien	-	-	-	-0,558***
	Std. Error				0,058
	AR(1)				0,601
	AR(2)				0,146
	Sargan				0,930
	Hansen				0,855

Source: Processed Data

### Conditional Convergence Analysis

**Table 2:** Conditional Convergence Estimation Results

Variable	Model 5	Model 6	Model 7	Model 8
<i>Private Credit</i>	.448534* (.2564319)	-	-	-
<i>Liquid Liabilities</i>	-	.98133*** (.0246781)	-	-
<i>Stock Market Capitalization</i>	-	-	.5294977*** (.1722281)	-
<i>Stock Market Turnover</i>	-	-	-	.6607224*** (.0527194)
<b>Inflation</b>	-1.099823* (.577205)	-3.455161 (.3029189)	-8.60296** (3.692142)	2.252012 (2.145101)
<b>Trade Openness</b>	-0.0550133 (.1619242)	.0264952 (.0251534)	.1203079* (.0677047)	.4047257*** (.12988)
<b>Economic Growth</b>	.7224598 (1.065079)	1.039309* (.5717157)	8.820602 (7.376212)	-10.28843* (5.710461)
<b>Population Growth</b>	-3.54233*** (1.296675)	-1.168147* (.6703767)	8.392807 (10.92833)	1.086552 (3.968374)
<b>AR(1)</b>	0.850	0.010	0.076	0.082
<b>AR(2)</b>	0.193	0.196	0.635	0.118
<b>Sargan</b>	0.542	0.321	0.209	0.290
<b>Hansen</b>	0.879	0.791	0.521	0.995

## Discussion of Research Analysis Results

Table 1 showed indicators of financial sector development consisting of *private credit (% gdp)*, *liquid liabilities (% gdp)*, *market capitalization (% gdp)*, and *stock turnover (%)*. The estimation results for the four *lag* variables in the model each showed values of 0.742, 0.680, 0.945, and -0.558 which were significant at the 10%, 5%, and 1% levels, indicating that there was absolute convergence in the development of the financial sector in Asia because the value the coefficient *lag* variable has a value of less than 1. Table 2 showed the estimation results for the four *lag* variables in each model of 0.448, 0.981, 0.529, and 0.660 and significant at the 10%, 5%, and 1% levels indicating that there was conditional convergence in the development of the financial sector in Asia because of the coefficient value. *lag* variable had a value less than 1. Kilinç *et al.*, (2017) states that the estimation results on *the lag* variable showed the level of speed in convergence. It could be seen that the estimation of absolute convergence of *private credit* and *stock market capitalization* showed a slower rate than the estimation of conditional convergence.

The fifth model showed that inflation and population growth had a negative and significant effect on *private credit*. This could be demonstrated with a probability that is less than the 10 percent level. A negative sign on the inflation coefficient means that higher inflation would worsen the performance of the financial sector. Inflation was generally thought of as a general increase in prices in macroeconomics. High inflation in Asian countries will had a negative impact on low-income individuals and corporate profits. The results of this study were supported by Hami's research (2017) that inflation had a significant influence on financial developments in Iran. Controlling inflation by controlling the money supply, which had been carried out by the Central Bank of Iran, and making policies such as reforms to the structure of Iran's taxation system could reduce the negative effect of inflation on financial development in Iran. Population growth showed negative results on *private credit*. This was in accordance with research conducted by Mukhopadhyay and Pradhan (2010) that the higher the population growth in a country, the *private credit* would expand. This would happen if the resident is able and able to repay the obligation. If not, then the higher population growth would actually made *private credit* low, because the population was unable to pay the dependents that had been realized.

The sixth model with variables shows that economic growth and population growth had a significant effect on *liquid liabilities*. Economic growth that performs well was the hope of all developed and developing countries, because positive economic growth would increase various sectors, including the financial sector. Different results were obtained by the effect of population growth on *liquid liabilities* with negative results. This shows that countries in Asia had not been able to optimize the use of banking efficiently.

The seventh model with variables showed that inflation and trade openness were significant to *stock market capitalization*. Inflation had a negative effect on *stock market capitalization* which could be indicated by a probability that was less than the 10 percent level. This result means that inflation was a condition that indicates an increase in prices in general, or a condition that indicates a decrease in the value of money because the increase in the amount of money in circulation was not matched by an increase in the supply of goods. Trade openness showed positive results, this was also in accordance with research by Demircuc-Kunt and Levine (1996) which showed that trade openness makes capital markets more integrated with world capital markets.

The eighth model showed that trade openness and economic growth had a significant effect on *stock market turnover*. This could be demonstrated with probabilities that were less than the 1 percent and 10 percent levels. However, the results were different from economic growth which had a negative relationship to *stock turnover* because if the economic growth was good, there tends to be no stock withdrawals because the stock market was not sensitive.

## Conclusion

Based on the estimation results using GMM, it could be concluded that there was absolute and conditional convergence in Asian countries, inflation and population growth variables had a significant effect on *private credit*, economic growth and population growth variables had a significant effect on *liquid liabilities*, inflation and trade openness had an effect significant effect on *stock market capitalization*, trade openness and economic growth had a significant effect on *stock market turnover*.

## References

- Andreano, M.S., Laureti, L. and Postiglione, P., 2013. Economic growth in MENA countries: Is there convergence of per-capita GDPs?. *Journal of Policy Modeling*, 35(4), 669-683.
- Antzoulatos, A.A., Panopoulou, E. and Tsoumas, C., 2011. Do financial systems converge?. *Review of International Economics*, 19(1), 122-136.
- Apergis, N., Christou, C. and Miller, S., 2012. Convergence patterns in financial development: evidence from club convergence. *Empirical Economics*, 43(3), 1011-1040.
- Ashraf, B.N., 2018. Do trade and financial openness matter for financial development? Bank-level evidence from emerging market economies. *Research in International Business and Finance*, 44, 434-458.
- Asongu, S.A., 2014. African financial development dynamics: big time convergence. *African Journal of Economic and Management Studies*, 5(3), 160-194.
- Bahadir, B. and Valev, N., 2015. Financial development convergence. *Journal of Banking & Finance*, 56, 61-71.
- Barro, R.J. and Sala-i-Martin, X., 1992. Convergence. *Journal of political Economy*, 100(2), 223-251.

- Bruno, G., De Bonis, R. and Silvestrini, A., 2012. Do financial systems converge? New evidence from financial assets in OECD countries. *Journal of Comparative Economics*, 40(1), 141-155.
- Dekle, R. and Pundit, M., 2018. The recent convergence of financial development in Asia. *SSRN Electronic Journal*, 440
- Demirgüç-Kunt, A. and Levine, R., 1996. Stock markets, corporate finance, and economic growth: an overview. *The World Bank Economic Review*, 10(2), 223-239.
- Geanakoplos, J., Magill, M. and Quinzii, M., 2004. Demography and the long-run predictability of the stock market. *Brookings Papers on Economic Activity*, 2004(1), 241-325.
- Hami, M., 2017. The Effect Of Inflation On Financial Development Indicators In Iran (2000-2015). *Studies in Business & Economics*, 12(2).
- Ismail, N.W., 2008. Growth and convergence in ASEAN: A dynamic panel approach. *International Journal of Economics and Management*, 2(1), 127-140.
- Khan, H., 2015. The impact of inflation on financial development. *International Journal of Innovation and Economic Development*, 1(4), 42-48.
- Kim, D.H. and Lin, S.C., 2010. Dynamic relationship between inflation and financial development. *Macroeconomic Dynamics*, 14(3), 343-364.
- Kılınc, D., Seven, Ü. and Yetkiner, H., 2017. Financial development convergence: New evidence for the EU. *Central Bank Review*, 17(2), 47-54.
- Mukhopadhyay, B. and Pradhan, R.P., 2010. An investigation of the finance-growth nexus: Study of Asian developing countries using multivariate VAR model. *International Research Journal of Finance and Economics*, 58(1), 134-140.
- Novitasari, W.D., Hartoyo, S. and Anggraeni, L., 2015. Dampak Keterbukaan Perdagangan dan Kinerja Manufaktur di Indonesia. *Jurnal Ekonomi dan Kebijakan Pembangunan*, 4(2), 172-186.
- Nurhamidah, R. and Suhartini, A.M.A., 2014. Determinan Konvergensi Pendapatan di Provinsi Sumatera Selatan. *Jurnal Ekonomi dan Pembangunan Indonesia*, 15(1), 71-90.
- Nzomoi, J.N., Were, M. and Rutto, N., 2012. Assessing the impact of private sector credit on economic performance: Evidence from sectoral panel data for Kenya. *International Journal of Economics and Finance*, 4(3), 10-17.
- Rajan, R.G. and Zingales, L., 2003. The great reversals: the politics of financial development in the twentieth century. *Journal of financial economics*, 69(1), 5-50.
- Sare, Y.A., Opoku, E.E.O., Ibrahim, M. and Koomson, I., 2019. Financial sector development convergence in Africa: Evidence from bank-and market-based measures. *Economics and Business Letters*, 8(4), 166-175.
- Sodik, J., 2006. Pertumbuhan Ekonomi Regional: Studi Kasus Analisis Konvergensi Antar Propinsi di Indonesia. *Jurnal Ekonomi Pembangunan*, 11(1), pp. 21-32.
- Svirydzenka, K., 2016. *Introducing a new broad-based index of financial development*. International Monetary Fund.
- Vazakidis, A. and Adamopoulos, A., 2009. Credit market development and economic growth. *American Journal of Economics and Business Administration*, 1(1), 34-40.
- Veysov, A. and Stolbov, M., 2011. Do financial systems converge? A Comprehensive panel data approach and new evidence from a dataset for 102 countries. *Journal of Financial Intermediation*, 8(2), 1-22.

**Publisher's Note:** SSBFNET stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



© 2021 by the authors. Licensee SSBFNET, Istanbul, Turkey. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

International Journal of Research in Business and Social Science (2147-4478) by SSBFNET is licensed under a Creative Commons Attribution 4.0 International License.