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DETERMINANTS OF FINANCIAL DEVELOPMENT: EVIDENCE FROM ASEAN COUNTRIES

Toan Ngoc Bui [a*]

[a] *Faculty of Finance and Banking, Industrial University of Ho Chi Minh City (IUH), VIETNAM.*

A R T I C L E I N F O

A B S T R A C T

This article examines the determinants of financial development in ASEAN countries. In particular, financial development (FD) is measured through domestic credit to the private sector (% of GDP). The study data was collected from the World Bank during 2004-2017. Using the Generalized Method of Moment (GMM), this article has found the first empirical evidence on the determinants of financial development in ASEAN countries. In particular, FD is negatively affected by economic growth (EG) and inflation (INF). Not only that, but FD is also positively affected by financial development with one-period lag (FD_{t-1}). The results of this study are important for ASEAN countries. Indeed, based on the study results, ASEAN countries will have a reliable basis for operating macroeconomics associated with financial development more effectively and sustainably.

Disciplinary: Management Sciences (Financial Management).

1. INTRODUCTION

Financial development can be understood as the development of the scale of the financial industry (Zaman et al., 2012; Bui, 2019). In particular, financial development is focused primarily on the development of the banking system (Greenwood & Jovanovic, 1990; Bencivenga & Smith, 1991; Bui, 2019; Bui, 2020). Financial development has been a topic of study interested in recent years. Because the financial development plays a very important role in providing the quality financial intermediation services (Schumpeter, 1911), which helps effectively allocate the resources (Cherif & Dreger, 2016), thereby stimulating the economic growth (Greenwood & Jovanovic, 1990; Bencivenga & Smith, 1991; Bui, 2019) and poverty reduction (Demirguc-kunt & Levine, 2009). Therefore, countries with better financial systems often have faster economic growth than countries with less developed financial systems (King & Levine, 1993). This also leads to a practical problem as most of the empirical studies on financial development focus on the impact of financial development on economic growth and poverty reduction. Although this is an interesting study issue,

in order to have a basis for proposing the policies for effective financial development, the identification of determinants of financial development is also a necessary topic of study. In fact, there are very few empirical studies considering the determinants of financial development, this is a big gap in the previous studies. Therefore, identifying the determinants of financial development is an interesting and necessary study topic and there are still many gaps to explore.

With this study, the author will focus on answering the question "What factors will affect financial development". In particular, the study data is collected in ASEAN countries, which have been relatively high in financial development in recent years, but there is a lack of empirical studies on this issue. Therefore, the author expects to create the first empirical evidence on the determinants of financial development in ASEAN countries. Based on the results of this study, ASEAN countries will have a basis for operating macroeconomics associated with financial development more effectively and sustainably.

The remainder of the article will include the following sections: the second section presents the results of the previous literature review, the third section presents the data and methodology, the 4th section presents the results of the study, the fifth section presents the conclusions of the article.

2. LITERATURE REVIEW

In this section, the author will present the results of previous studies. For the determinants of financial development, the author focuses on presenting the factors that will be considered in this study and is used in most previous studies, including economic growth, inflation, and government expenditure.

2.1. IMPACTS OF ECONOMIC GROWTH ON FINANCIAL DEVELOPMENT

The impacts of economic growth on financial development are first mentioned in Robinson's study (1952). Accordingly, the favorable economic growth will create conditions to stimulate financial development, it means that the financial system will be scaled up. In other words, economic growth has a positive impact on financial development. In the same opinion, Goldsmith (1969) has also found positive impacts of economic growth on financial development in 35 countries. In another study, Rajan and Zingales (1998) suggested that economic growth creates investment opportunities, stimulates credit demand, and thus has a positive impact on financial development. Not only that, Khan and Senhadji (2003) also found positive impacts of economic growth on financial development in developed countries. Recently, Guerra (2017) argued that economic growth has a positive impact on development in Mexico.

However, some views that economic growth may have a negative impact on financial development. Accordingly, when economic growth is too high, the economy will be potentially risky and unsustainable, which can lead to negative impacts on financial development. Because, as the economy grows and the financial system grows, the banks will increase credit supply and can control poor credit quality, leading to the risk of the financial system suffered from crisis and recession in the future. In this view, Ram's (1999), Naceur et al. (2014) are included. Indeed, Ram (1999) analyzed the data from 95 countries and suggested that a negative relationship exists between economic growth and financial development. Meanwhile, Naceur et al. (2014) argued that economic growth has a negative impact on the development of the banking system in countries in

the MENA region.

2.2. IMPACTS OF INFLATION ON FINANCIAL DEVELOPMENT

Among macroeconomic factors, inflation is an important determinant of financial development (Naceur et al., 2014). Inflation can have a negative impact on financial development. Indeed, the high inflation shows that the economy is facing many difficulties, credit demand is reduced, and the amount of savings is also reduced, leading to a decrease in the supply of credit to the economy (Moore, 1986; Azariadis & Smith, 1996; Choi et al., 1996). Not only that, but high inflation also reduces the ability to repay loans, leading to a decline in the efficiency of credit allocation (Boyd et al., 2001).

In the empirical studies, Haslag and Koo (1999), Boyd et al. (2001) found the negative impact of inflation on financial development in many countries. Not only that, Dehesa et al. (2007) analyzed the panel data from 120 countries and suggested that low inflation would increase credit supply. At the same time, Zoli (2007) argued that high inflation would have an adverse impact on financial development in emerging countries in Europe. In the same view, Andrianaivo and Yartey (2009) find the negative impact of inflation on development in major African countries. Moreover, Bittencourt (2011) argues that inflation has a negative impact on financial development in Brazil. In addition, Naceur et al. (2014) also found the negative impact of inflation on the development of the banking system in countries in the MENA region.

2.3. IMPACTS OF GOVERNMENT EXPENDITURE ON FINANCIAL DEVELOPMENT

Most empirical studies suggest that government expenditure has a positive impact on financial development. Indeed, the government plays an important role in promoting the development of the financial industry (Gerschenkron, 1962). Moreover, government expenditure is an important prerequisite for the development of the private sector, thereby stimulating the need for loans and creating incentives for financial development. The positive impact of government expenditure on financial development is also found in many empirical studies. For example, Hussain et al. (2009) suggest that government expenditure has a positive impact on private investment in Pakistan. In the same view, Rehman et al. (2009) suggest that government expenditure has a positive impact on short-term private investment in Pakistan. In another study, Bittencourt (2011) found the positive impact of government expenditure on financial development in Brazil. In addition, Cooray (2011) argues that government expenditure positively affects the scale of the financial sector, especially in low-income economies.

However, if government expenditure is used inefficiently, it can have a negative impact on financial development (Lopez-de-Silanes et al., 1997). Accordingly, government intervention can make the financial system inefficient due to increasing operating costs (Kornai, 1979). On the other hand, government intervention in the financial sector will limit private investment, leading to financial development restrictions (Cooray, 2011). The negative impact of government expenditure on financial development (from a banking perspective) is also found in the study of Naceur et al. (2014) when analyzing the data of MENA region countries.

3. DATA AND METHODOLOGY

3.1. DATA

The study data was collected from the World Bank during 2004-2017. The countries included in the study were Vietnam and ASEAN-5 countries (Indonesia, Malaysia, Thailand, Singapore, and the Philippines). These countries have many similarities, with relatively high levels of financial development.

3.2. METHODOLOGY

With the purpose of testing the determinants of financial development in ASEAN countries, the author will conduct the estimation of the research model by the methods: Pooled regression (Pooled OLS), Fixed effects model (FEM) and Random effects model (REM). Then, this study will use the Generalized Method of Moment (GMM) to estimate the research model. The GMM method has great advantages when overcoming regressive hypotheses that are violated and controlling potential endogenous phenomena (Doytch & Uctum, 2011; Bui, 2020).

Based on the previous studies, the author measures financial development (FD) using domestic credit to the private sector (% of GDP). In addition, this index reflects the development of the banking system. For the determinants of financial development, the author focuses mainly on three factors: economic growth (EG), inflation (INF) and government expenditure (GOV). Moreover, financial development is also significantly affected by financial development with one-period lag (Ibrahim & Sare, 2018). Therefore, the author adds the financial development factor with one-period lag (FD_{t-1}) to the research model as an independent variable.

Therefore, the research model is written as

$$FD_{it} = \beta_0 + \beta_1 FD_{it-1} + \beta_2 EG_{it} + \beta_3 INF_{it} + \beta_4 GOV_{it} + \varepsilon_{it} \qquad (1)$$

The symbols β_1, β_2, β_3, and β_4, are regression coefficients, while β_0 is a regression constant. The symbol ε is the model error term.
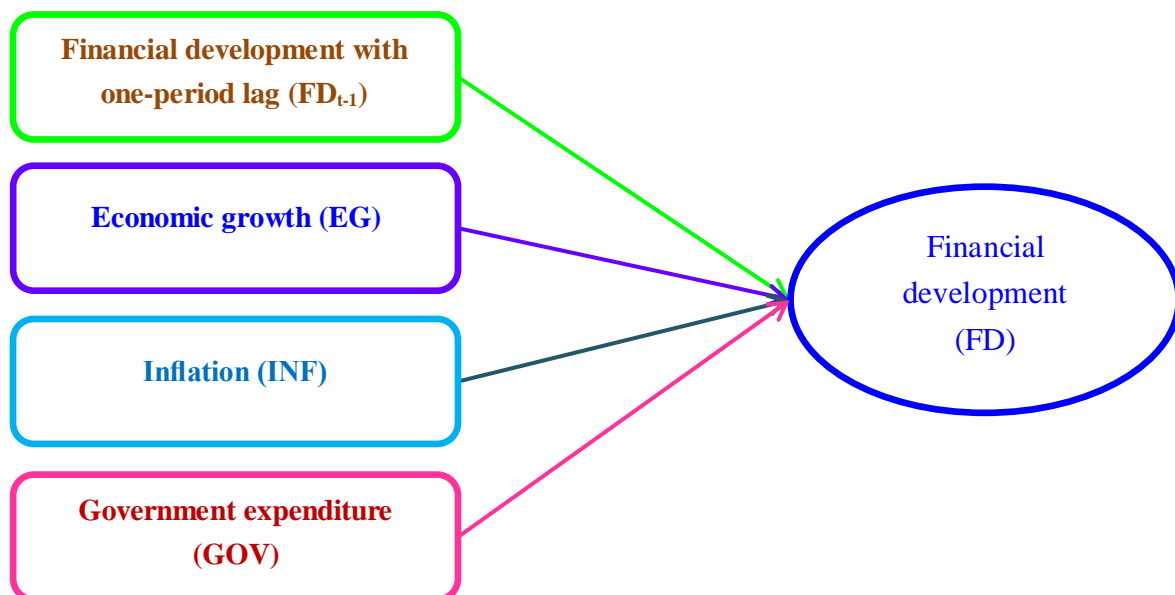

Figure 1: The proposed research model.

Table 1: Summary of variables (source: research model proposed by the author).

Variable name	Code	Source	How to measure
Dependent variable			
Financial development	FD	World Bank	Domestic credit to the private sector (% of GDP)
Independent variables			
Financial development with a one-period lag	FD_{t-1}	World Bank	One-period lag of financial development
Economic growth	EG	World Bank	GDP growth (annual %)
Inflation	INF	World Bank	Inflation, consumer prices (annual %)
Government expenditure	GOV	World Bank	General government final consumption expenditure (% of GDP)

Table 2: Descriptive statistics of all variables (source: author's computation).

Variable	Mean	Min	Max
Financial development (FD)	83.749	24.606	149.335
Economic growth (EG)	5.331	-1.514	15.240
Inflation (INF)	4.295	-0.900	23.116
Government expenditure (GOV)	10.542	5.465	17.114

Figure 2: Financial development in ASEAN countries (source: author's computation).

4. RESULT

Table 2 shows that financial development has averaged at 83.749%. In 2017, Thailand is the country with the highest level of financial development (144.968%). It is followed by Vietnam (130.722%), Singapore (128.212%), Malaysia (118.806%), Philippines (47.770%), and the lowest in Indonesia (38.740%) (Figure 2).

Table 3: Correlation coefficients between variables (source: author's computation).

Variables	FD	FD_{t-1}	EG	INF	GOV
FD	1.000				
FD_{t-1}	0.988	1.000			
EG	-0.241	-0.225	1.000		
INF	-0.341	-0.326	0.171	1.000	
GOV	0.448	0.462	-0.369	-0.565	1.000

Table 3, the results of correlation analysis between variables show that economic growth (EG) and inflation (INF) negatively correlate with financial development (FD). Meanwhile, the remaining variables are positively correlated with FD.

Table 4: Results of estimating research models using Pooled OLS, FEM, REM methods (source: author's computation).

FD	Pooled OLS	FEM	REM
Constant	10.878^{**}	-2.335	11.285^{**}
FD_{t-1}	1.008^{***}	0.812^{***}	1.001^{***}
EG	-0.456	-0.503^{*}	-0.445
INF	-0.361^{*}	-0.491^{**}	-0.411^{*}
GOV	-0.493	2.360^{**}	-0.456
R^2	97.83%	93.17%	97.82%
Significance level	$F(4, 73) = 821.95$ $Prob > F = 0.000^{***}$	$F(4, 68) = 119.49$ $Prob > F = 0.000^{***}$	Wald chi2(4) = 2523.40 $Prob > chi2 = 0.000^{***}$
F test	$F(5, 68) = 4.66$ $Prob > F = 0.001^{***}$		
Hausman test	chi2(4) = 1.95 $Prob > chi2 = 0.745$		

Note: *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 4 presents the results of estimating the research model using the Pooled Regression model (Pooled OLS), Fixed effects model (FEM) and Random effects model (REM). In particular, the Random effects model (REM) method is proved to be more suitable because the test of F (5, 68) = 4.66 is statistically significant at the 1% significance level, and the Hausman test is not statistically significant (chi2(4) = 1.95). Therefore, the author will conduct research model tests based on estimates by the Random effects model (REM) method.

Table 5: Testing of multicollinearity, heteroscedasticity, and autocorrelation (source: author's computation).

Multicollinearity test		Heteroscedasticity test	Autocorrelation test
Variable	VIF		
FD_{t-1}	1.29		
EG	1.17	chibar2(01) = 0.07 $Prob > chibar2 = 0.397$	$F(1, 5) = 21.644$ $Prob > F = 0.006^{***}$
INF	1.49		
GOV	1.84		
Mean VIF = 1.45			

Note: *** indicates significance at the 1% level.

The testing results show that the research model with multicollinearity is considered not serious. And also, the research model has no heteroscedasticity. However, the research model has autocorrelation (Table 5).

Therefore, the author will estimate the research model according to the Generalized Method of Moment (GMM) to overcome the autocorrelation. Not only that, but the GMM also helps the author control the potential endogenous phenomenon in the research model.

Table 6: Model estimation results by GMM method (source: author's computation).

FD	Coef.	P>|z|
Constant	20.240	0.000[***]
FD_{t-1}	0.897	0.000[***]
EG	-0.557	0.029[**]
INF	-0.781	0.000[***]
GOV	-0.288	0.619
Significance level	Wald chi2(3) = 1297.02 Prob > chi2 = 0.000[***]	
Arellano-Bond test for AR(2) in first differences	z = -0.89 Pr > z = 0.374	
Sargan test	chi2(2) = 0.29 Prob > chi2 = 0.867	

Note: [**] and [***] indicate significance at the 5% and 1% level, respectively.

Table 6 shows the results of estimating the research model with statistical significance at 1%. And also, the Sargan test shows that the instruments used in the research model are appropriate. Therefore, the results of estimating the research model by the GMM method are appropriate and usable. Accordingly, the financial development with one-period lag (FD_{t-1}) has a positive impact (β = 0.897) on financial development (FD) with a 1% significance level, this result is consistent with the previous judgment of Ibrahim and Sare (2018). And also, the financial development (FD) is also negatively affected by the economic growth (EG) (β = -0.557, with 5% significance level) and inflation (INF) (β = -0.781, with 1% significance level). With this dataset, the author has not found a statistically significant impact of government expenditure (GOV) on financial development (FD).

4.1 IMPACTS OF ECONOMIC GROWTH ON FINANCIAL DEVELOPMENT

The study results show that economic growth (EG) has a negative impact on financial development (FD). Accordingly, high economic growth will have many potential risks and create negative impacts on financial development. This is very consistent with reality in the recent period, especially when the global economic crisis occurred. At that time, ASEAN economies had just experienced a very high growth period, but the unsustainable growth of the economy made the financial system develop but had many risks (especially the credit quality is not strictly controlled), this has made the financial system in crisis and strong decline. The negative impact of economic growth (EG) on financial development (FD) is also consistent with Ram (1999), Naceur et al. (2014).

4.2 IMPACTS OF INFLATION ON FINANCIAL DEVELOPMENT

The study results show that inflation (INF) has a negative impact on financial development (FD). Thus, the high inflation will make business and production activities more difficult, the credit demand will be reduced, the amount of savings will also decrease, leading to a decrease in the supply of credit to the economy. Financial development will decrease. The negative impact of inflation (INF) on FD was also found in the research of Haslag and Koo (1999), Boyd et al. (2001), Zoli (2007), Andrianaivo and Yartey (2009), Bittencourt (2011), Naceur et al. (2014).

Thus, financial development (FD) is significantly affected by financial development with one-

period lag (FD$_{t-1}$), economic growth (EG) and inflation (INF). This is consistent with some observations in the previous studies. However, this article is the first empirical evidence in the Asean region in this issue. Therefore, the study results are important for ASEAN countries.

5. CONCLUSION

This article has found the first empirical evidence on the determinants of financial development in ASEAN countries. Accordingly, financial development with one-period lag (FD$_{t-1}$) has a positive impact on financial development (FD). And also, the financial development (FD) is negatively affected by economic growth (EG) and inflation (INF). Based on this, ASEAN countries will have a reliable basis to run macroeconomics associated with financial development more effectively and sustainably.

Due to data limitations, some variables can affect FD but have not been considered in this study, such as the global economic crisis and real estate market. Moreover, in order to ensure the homogeneity of the study data, the number of countries included in the study is limited.

6. DATA AND MATERIAL AVAILABILITY

Information regarding this study is available by contacting the corresponding author.

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Toan Ngoc Bui is a Lecturer at the Faculty of Finance and Banking, Industrial University of Ho Chi Minh City (IUH), Vietnam. He holds a Master of Finance and Banking from Ho Chi Minh City Open University, Vietnam. Currently, he is pursuing a PhD at the University of Finance – Marketing (UFM), Vietnam. His researches are in the fields of Financial Development, Real Estate Market and Applied Econometrics.