

Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2021.vol8.no11.0191

The Impact of Financial Development on Economic Growth: Empirical Evidence from Transitional Economies

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Received: July 30, 2021 Revised: October 09, 2021 Accepted: October 16, 2021

Abstract

This article examines the role of financial development in economic growth in a number of transitional economies where the financial systems were newly established or reformed only in the early 1990s to facilitate their transition from centrally planned economies to market-based ones. Based on a dataset collected from 29 transitional economies and 5 Asian developing economies covering the period 1990–2020, an empirical endogenous growth model is specified and estimated using the generalized method of moments (GMM). Three measures of financial development are used to investigate the relative role of the banking system and stock exchange market in the process of transition and growth. The results show that the three measures of financial development are crucial determinants of economic growth in transitional economies but the link seems to be in an inverted U-shape. This suggests the existence of thresholds for different channels of the financial sector to expand to positively influence growth. When becoming too large relative to the size of the economy, the financial system would have become a factor not conducive to growth. The growth convergence hypothesis is also confirmed and the impacts of other growth determinants are overall consistent with the extant literature.

Keywords: Financial Development, Economic Growth, Transition Economies, Growth Convergence

JEL Classification Code: C23, O16, O40

1. Introduction

The role of financial development in economic growth has been a long-debated topic. It was noticeably focused in international publications in the 1990s although it had previously been introduced by many pioneering economic researchers (Goldsmith, 1969; Lucas, 1988; MacKinnon, 1973; Robinson, 1952; Shaw, 1973). Initially, there was an argument that economic growth led to the expansion of the financial system. However, contemporary economic researchers have become increasingly interested in the

effect of financial development on growth and its affecting channels. The literature documents two main perspectives on the relationship between financial development and economic growth. The supply-leading view argues financial development affects economic growth (Goldsmith, 1969) while the demand-following view implies financial development results from the needs of the real economy (Robinson, 1952).

The above views of the interaction between financial development and economic growth have formed the theoretical framework for many empirical studies. While most of the studies provide evidence to support the supply-leading view, there are also studies demonstrating somewhat different results. For example, investigating the relationship between financial development and economic growth at different stages for many countries, Rioja and Valev (2004) reported two main findings: (i) in countries with low-developed financial systems, various indicators of financial development are found to have a negative correlation with economic growth and; (ii) the impact of financial development on economic growth appears positive, but insignificant. Francisco and Abigail (2014) found no

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clear evidence for the impact of financial development on economic growth in some Latin American countries. Meanwhile, Patrick (1966) and Mehmood et al. (2015) provided evidence of a two-way effect between financial development and economic growth.

The existent literature suggests that the question of whether economic growth is driven by financial development or vice versa has not been well answered. The answer seems to depend on the level of economic development, macroeconomic environment, and other country-specific factors. Thus, the link between financial development and economic growth remains an ongoing debated issue, which is virtual of specific interest for transitional economies given their historical circumstances. The transitional economies like those in Central and Eastern Europe and several countries in Asia are former centrally planned economies. Their financial systems played a relatively low-key role under the centrally planning systems. Since the early 1990 or so, when these economies embarked on their transitional path to the ones adopting market mechanisms, their financial systems have been newly established or radically transformed to respond to the capital need of the economies in new conditions. Essentially, capital is an important determinant of economic growth from both theoretical and empirical perspectives. However, more important is how saving is connected with investment through the financial system and how demands for financial services are satisfied. This is to a large extent dependent on the level of financial development. Hence it is essential to understand how the then transformed or newly established financial systems play their role in transitional economies. Given the relative dearth of related systematic studies in transitional economies on the one hand and the diversity of levels of financial and economic development across this group of economies, on the other hand, empirical evidence on this topic would be of significant implication for the policy-makers to formulate and implement policies for promoting financial development to promote economic growth.

The objective of this article is to empirically investigate the role of financial development in economic growth in transitional economies. Specifically, the paper sheds light on the relative role of different dimensions of financial development on economic growth and examines whether there exists a non-linear correlation between each dimension of financial development and economic growth. Other growth determinants are also explored to test the economic fit of the growth model with a new special data set. Such a data set is collected from 29 transitional economies with a time span covering the period from 1990 to 2020¹. To increase the number of observations for estimation and increase the diversity of the sample, we add data of five developing Asian countries including India, Indonesia, Malaysia, Philippines, and Thailand. The levels of financial

development, as well as economic development of these five added Asian countries, are comparable to those of the transitional economies. The empirical investigation is based on the endogenous growth model and carried out using the generalized method of moments (GMM) pioneered by Arellano and Bond (1991) and further developed by Blundell and Bond (1998), which is based on the instrumental variable approach.

The rest of this article is structured as follows. Section 2 presents selective literature of the main theoretical approaches and empirical findings regarding the relationship between financial development and economic growth. Section 3 discusses the method and data. Section 4 reports and discusses the empirical results. Section 5 summarizes the main conclusions.

2. Literature Review

Perspectives on the impact of financial development on economic growth can be found in many seminal works. Levine (1997) argued that financial development helps mobilize and allocate capital effectively, assist enterprises in managing risks, promote transactions of goods and services, and encourage the growth of capital and technology, thereby promoting economic growth. Giovannini et al. (2013) have a similar view when arguing that financial development helps economic entities increase risk management, promote innovation, and reduce information costs, thus enhancing the efficiency of capital allocation and increasing the volume of investment, which in turn boost economic growth. Upon a different view, Aghion et al. (1999) considered that economies with low-developed financial markets grow slowly and unsteadily because of lacking effective channels connecting savers and investors. However, the development of the financial system does not follow a steady trend at all times. There are periods of instability featured with the outbreak of financial crises during the development process. In such circumstances, the financial system may also have a detrimental impact on economic growth (Loayza & Ranciere, 2006).

In the framework of the supply-leading view, numerous empirical studies have been conducted to elucidate the role of financial development in economic growth. Nevertheless, the research results are varying and remain controversial among researchers. Conducting this topic, King and Levine (1993) analyzed a data set of 80 countries covering the period 1960–1989 and found that financial development has a positive impact on economic growth and that the level of financial development of a country can be used to predict economic growth, the level of capital accumulation and capital allocation efficiency. Accordingly, King and Levine (1993) supported the role of financial development in boosting economic growth and recommend that

governments should have appropriate policies to promote the development of the financial system. Levine et al. (2000) constructed an econometric model similar to that of King and Levine (1993) and adopted different regression techniques to investigate the nexus between financial development and growth using a data set collected from 74 countries for the period 1960–1996. Their findings indicated that the development of financial intermediaries has a positive impact on growth, hence pointing out that reforms in the legal framework and accounting practice for enhancing the financial sector would boost economic growth.

Odedokun (1996) examined the impact of financial development on economic growth for 71 less developed countries (LDCs) with time series data covering three decades from 1960 to 1980. Several interesting results are derived: (i) the development of financial intermediation affects economic growth positively in most countries (in 60 out of 71 countries); (ii) the effect on the economic growth of financial intermediation is stronger than that of exports in 31 countries; (iii) the impact of financial intermediation is stronger than that of investment in 36 countries; (iv) the impact of financial intermediation is stronger than that of labor growth in 43 countries; (v) the impact of financial intermediation on growth in low-income LDCs is more predominant than that in high-income LDCs.

Baier et al. (2004) examined the relationship between economic growth and the development of financial institutions. Using data from 32 countries between 1871 and 1990, this study demonstrated a link between stock markets and economic growth. The research results showed that those countries that have launched stock markets experience higher growth rates relative to other countries.

Ghimire and Giorgioni (2013) used panel data of 120 countries to analyze the role of financial development in economic growth for the period 1970–2006. Their results indicated that credit to the private sector has a negative impact on growth in the short run while the development of the stock market has a statistically significant positive impact.

Several empirical studies provided evidence of a positive impact of financial development on growth for individual countries based on time series or panel data. For example, the research results of Rinosha and Mustafa (2021) showed a positive correlation between financial development and economic growth in Sri Lanka. Yang and Yi (2008) reported findings supporting the hypothesis that financial development promotes growth and rejected the hypothesis that growth leads to financial development for the case of Korea in the period 1971–2002. Chen (2006) investigated the link between financial development and growth for China in the period 1985–1998, reporting that the development of financial intermediaries is a driving factor of economic growth.

Apart from numerous studies reporting a positive impact of financial development on growth, a number of studies investigated the causal relationship between financial development and economic growth. Employing cointegration techniques with time series data collected from 16 countries for the period 1960–1990, Demetriades and Hussein (1996) found considerable evidence of a two-way relationship between financial development and growth. Adopting techniques of panel data regression and variance decomposition to analyze a data set of 168 low and middle-income countries, Hassan et al. (2010) provided evidence of a positive relationship between financial development and economic growth. However, their short-run causality analysis shows that there is bidirectional causality between financial development and growth found for countries in most regions and unidirectional causality from growth to financial development found for the two poorest regions. Thus, a well-functioning financial system is a necessary but not sufficient condition for developing countries to grow sustainably. Applying a panel autoregressive distributed lag (ARDL) model to a data sample collected from 12 Asian countries for the period 1970–2012, Mehmood et al. (2015) found evidence of a long-run and bidirectional relationship between financial development and economic growth. Ho et al. (2021) also reported evidence of a bidirectional relationship between financial development and economic growth with data collected from 6 ASEAN countries for the period 1995–2015, but it was found only with the presence of trade openness employed in the empirical model.

Recently, various studies have explored the stabilizing role of the financial system and its nonlinear influence on economic growth. For example, adopting a panel GMM to a data set formed from European Union countries for the period 1998–2011, Creel et al. (2015) found that financial instability is harmful to macroeconomic performance. Meanwhile, a high degree of financial depth may induce risks of financial instability. The empirical studies conducted by Deidda and Fattouh (2002), Arcand et al. (2012), and Cecchetti and Kharroubi (2015) indicated that the link between financial development and growth is rather in an inverted U-shaped form. These studies do not find a positive correlation between the size of the financial sector and economic growth in countries with large financial systems. A positive correlation, but only to a certain extent, is found in countries with small and medium financial systems.

Similarly, Marques et al. (2015) examined a panel data set of 25 European countries for the period 1996–2011, reporting that financial depth measured by bank credit and domestic credit has an inverse U-shaped nonlinear relationship with economic growth. Their results suggested that governments should determine the optimal level for financial depth to avoid overdevelopment. Prochniak and

Wasiak (2017) analyzed the impact of financial development and financial stability on economic growth by using data from 28 European Union countries and 34 OECD countries in the period 1993–2013. Their results supported three hypotheses: (i) there exists a nonlinear relationship between financial development and economic growth; (ii) an excessive size of the financial system does not boost economic growth, even having a negative impact on growth; (iii) the inclusion of a crisis period in the empirical model provides new insight into the relationship between the financial system and economic growth. Interestingly, Tarig et al. (2020) also reported a non-linear impact of financial development on growth for the case of Pakistan using time series data covering the period 1980–2017, but it is in a U-shape. Accordingly, financial development boosts growth only when its level surpasses a certain threshold.

By and large, previous studies have not yet consented to a clear-cut conclusion about the direction and channel of influence between financial development and economic growth. While numerous studies support the view that financial development plays a crucial role in the economic growth, various other studies provide evidence on an insignificant impact of the former on the latter. Some recent studies also point out the nonlinear impact of financial development on economic growth as well as the important role of financial stability. There are many reasons for these mixed results. First, studies use different data sets with different periods. Second, the variables used to measure financial development are diverse, reflecting the multidimensionality of financial development. Third, the interaction between financial development and economic growth may depend on the level of economic and financial development, the macroeconomic environment, and the level of economic integration. Hence, the interaction between financial development and economic growth continues to be a topic of interest to researchers and policymakers. The financial systems of transitional economies were newly established or reformed only in the early 1990s when these economies began their transition from centrally planned systems to market-based ones. It is worthwhile to investigate how financial development has fulfilled its role in economic growth in this group of countries over the past 30 years or so of transition. The findings would be significant for these economies to formulate appropriate policies to gear financial development to economic growth.

3. Data and Empirical Model

3.1. Empirical Model

To investigate the role of financial development in growth for transitional economies, we construct an empirical dynamic panel data model. The model is based on the

endogenous growth theory and the approach adopted by Barro and Sala-i-Martin (2003) and Prochniak and Wasiak (2017), having the following form:

$$GDP_{it} = \alpha_0 + \alpha_1 GDP_initial_{it-1} + \alpha_2 FIN_{it} + \alpha_3 (FIN)^2 + \beta_0 crisis + \beta_1 x_{1it} + \dots + \beta_n x_{nit} + \theta_i + \varepsilon_{it} \quad (1)$$

In equation (1), the dependent variable, GDP, is measured by the natural logarithm of the real income per capita based on PPP. GDP_initial is the natural logarithm of the real income per capita in the previous period (initial income), which represents the impact of initial economic conditions on the income in the subsequent period. This variable is employed in the growth model to test the conditional β convergence hypothesis which has been largely confirmed in many studies (Prochniak & Wasiak, 2017). The conditional β convergence is derived by subtracting 1 from the estimated coefficient α_1 on GDP_initial. If the obtained β convergence is negative, the initial GDP per capita has a negative impact on subsequent economic growth, implying less developed economies achieve higher growth rates than more developed economies.

FIN is the focused independent variable, standing for the level of financial development. We consider three different dimensions of the financial sector to measure financial development. First, BM calculated as the ratio of broad money to GDP measures the depth and size of financial intermediaries. This measure reflects the extent to which payment and savings activities are facilitated by the banking sector. Second, *BCredit* is calculated as the ratio of bank credit to the private sector to GDP. This measure of financial depth reflects the role of the banking system in channeling funds from savings to investment. An increase in this ratio means that the banking sector allocates more savings to private investment projects, which can contribute to economic growth. Third, *MarketCap* is calculated as the ratio of the market capitalization of listed companies to GDP, measuring the size of the stock market and the extent to which businesses can raise funds from the public. These three dimensions of financial development are employed in equation (1) one by one to examine the impact of financial development through different channels of the financial system on economic growth.

(FIN)² represents the level of financial development in the squared form, which is included to test whether there exist non-linear effects of financial development on economic growth in the case of transitional economies.

The variables $x_1 \dots x_n$ are other economic growth determinants, regarded as control variables, including *Capital* represents the physical capital element, measured as a ratio of gross fixed capital formation to GDP; FDI stands for foreign direct investment, calculated as the ratio

of net foreign direct investment to GDP; GOV refers to the ratio of general government expenditure to GDP; *Labor* represents the workforce, computed as a proportion of the population aged 15–65 to the total population; INF denotes GDP deflator; θ_i is specified as country-specific effects while ε_{it} reflects the random factor. *Crisis* is the dummy variable taking the value of 1 during the crisis period 2008–2009, which is included in the model to control structural breaks.

3.2. Estimation Method

The endogenous growth theory put forward the endogenous phenomenon present in the growth models (Barro, 1990; Lucas, 1988; Romer, 1986). In view of this theory, the current income would affect both current and subsequent savings and investment, thus affecting the income in the next period. Thus, the economic growth model embeds in itself the endogenous phenomenon. In addition, according to Barro (2013), inflation if employed as an explainer for growth is also a potential endogenous variable in the growth model.

Equation (1) is based on the endogenous growth models and specified to employ also the lagged value of the dependent variable as an explanatory variable. With this lagged variable, the issue of endogeneity is definitely present in the model. Thus, equation (1) is dynamic in nature and referred to as a dynamic panel data model. For a dynamic panel data model, the classical estimation based on a fixed effect model (FEM) or a random effect model is biased and unstable (Anderson & Hsiao, 1981; Nickell, 1981). In addition, such classical estimators often involve the problem of heteroskedastic variance and residual autocorrelation. To overcome these weaknesses of the classical estimators, we adopt Blundell and Bond's generalized method of moments (GMM) system estimator to estimate equation (1). This estimator is based on the instrumental variable approach (Blundell & Bond, 1998).

Estimation by the GMM method is appropriate when the following two conditions are satisfied. First, the selected instrumental variables are strictly exogenous, that is, the instrumental variables are not correlated with the residuals of the model. Second, there is no second-order residual autocorrelation - AR(2). The Sargan or Hansen test is used to determine the suitability of the instrumental variables with respect to the first condition. Meanwhile, the Arellano-Bond test is employed to test the existence of residual autocorrelation at the second-order-AR(2).

3.3. Data

Our panel data set is collected mostly from transitional economies for the period between 1990 and 2020. In the late 1980s and early 1990s, many economies previously

operating under centrally planned regimes gradually transitioned to market economies. We could collect data for 29 transitional economies. However, the data for many of them are incomplete and inconsistent during the first half of the 1990s. To increase the number of observations for estimation and increase the diversity of the sample, we add data from five comparable developing countries from Asia, including India, Indonesia, Malaysia, the Philippines, and Thailand. All data is collected from the World Bank's open data bank, supplemented when necessary by other sources (International Financial Statistics, CEIC Data, Fred Economic Data, and Knoema Data).

4. Results and Discussion

The descriptive statistics of the variables are presented in Table 1. The data reflects different levels of economic and financial development across the sampled countries. The average GDP per capita (PPP at 2017 prices) of all countries is about USD13,661, with the minimum and maximum values of USD1,111 and USD40,696 respectively (equivalent to 7.01 and 10.61 in natural logarithm form). The ratio of broad money to GDP ranges from 4.83% to 211.38 % with a sample mean of 52.35%. The ratio of bank credit to GDP ranges from 1% to 182.43% with a sample mean of 42.96%. The ratio of market capitalization to GDP ranges from 0% to 320.99% with a sample mean of 24.41%. Such descriptive statistics of the measures of financial development suggest that the financial systems of most transitional economies have been so far developed as bank-based ones. The descriptive statistics of other control variables also display the diversity across the sample.

Table 2 summarizes the estimation results of equation (1) using three different measures of financial development one by one. The regression results are relatively consistent for the measures of financial development, the lagged growth variable, and the control variables. The results of the Hansen test and Arellano-Bond test are presented at the bottom of Table 2. The results of the Hansen test indicate that the null hypothesis that the instrumental variables are exogenous variables and not correlated with the residuals cannot be rejected for all three models. The results of the Arellano-Bond test show that there is no residual series correlation at the second difference order for all three cases as well. Thus, the estimated models are well structured and behaved.

As reported in Table 2, the coefficient on financial development is positive while the coefficient on the squared term of financial development is negative simultaneously in all three specified models. All the coefficients are statistically significant. Thus, it is confirmed by this study that the relationship between financial development and economic growth is non-linear for the sample of transitional economies.

Table 1: Statistical Description of Variables

Variables	Observations	Mean	Median	Standard Deviation	Min	Max
GDP_Initial	1,005	9.26	9.39	0.78	7.01	10.61
BM	952	52.35	46.38	34.36	4.83	211.38
BCredit	948	42.96	35.89	32.21	1	182.43
MarketCap	897	24.41	11.68	35.73	0	320.99
Capital	986	25.78	25.11	7.35	-0.69	57.99
FDI	917	4.55	3.23	6.02	-40.32	56.37
GOV	982	16.13	16.87	4.84	5.47	43.25
Labor	1,054	66.41	66.96	3.85	51.74	74.20
INF	982	75.44	5.77	584.76	-18.90	15444.38

Table 2: Estimation Results

	Broad Money	Bank Credit to Private Sector	Market Capitalization
	(1)	(2)	(3)
GDP_initial	0.9186888***	0.9331455***	0.9610379***
FIN	0.0042721***	0.0039726***	0.0008181***
(FIN) ²	-0.0000209***	-0.0000222**	-0.00000438**
Capital	0.0029279***	0.0019557***	0.002066***
FDI	0.0011011**	0.0010765**	0.0006811***
GOV	0.0073545**	0.0090435***	-0.0002022
Labor	-0.0232153***	-0.0268127***	-0.0106875***
INF	-0.000348***	-0.0003479***	0.0000474
Dcrisis	-0.0201427***	-0.0313408***	-0.0114016***
Cons	2.002235***	2.142196***	1.046211***
Number of observations	878	872	811
Number of countries	34	34	34
Number of instruments	28	28	30
AR(1) (ρ value)	0.143	0.096	0.009
AR(2) (ρ value)	0.274	0.261	0.282
Hansen test (ρ value)	0.796	0.725	0.565

Note: ***, ** and * indicates significant at 1%, 5% and 10% level of significance based on t -statistics.

Accordingly, expansions of the financial sector in terms of broad money, bank credit supply, and market capitalization are all conducive to economic growth. However, such a growth-promoting effect is confirmed only when the levels of expansion are under certain thresholds. Beyond those thresholds, a further expansion of the financial sector would

turn out to be an obstacle to economic growth. The estimated coefficients on financial development with this data set suggest the mentioned thresholds are to be about 102%, 90%, and 93% with regards to the ratio of broad money to GDP, the ratio of bank credit to GDP, and the ratio of market capitalization to GDP respectively. These results are generally

in line with the economic theory and consistent with a number of previous studies when investigating the non-linear impact of financial development on economic growth.

The positive impact of the level of broad money indicates that the process of monetization is specifically crucial for the formerly centrally planned economic systems to transform to market-based ones. The level of money supply basically demonstrates the level of development in the banking sector, reflecting how the banking sector fulfills its three functions, namely credit intermediary, payment intermediary, and money creation. By fulfilling these functions, the banking sector would stimulate economic growth by improving the process of resource allocation, enhancing liquidity, and speeding up the circulation of goods, services, and funds. Under the centrally planning mechanism, such a role of the banking sector was virtually disregarded. Therefore, when transforming to market systems, the positive impact of the process of monetization could be observed and well evidenced in this study. However, due to the non-linear relationship, any excessive monetary expansion should be carried out with caution. The threshold of the ratio of broad money to GDP suggested in this study is about 102%. Examining closely this indicator in recent years, we document that only a few countries in Asia (China, Vietnam, and several added Asian countries) appear to have a high level of broad money. Thus, there is still room for most transitional economies to regulate the money supply to achieve the desired output goals.

The impact on the growth of the level of bank credit shares a similar pattern to that of broad money as the two measures are closely connected. The theory of economics suggests that investment promotes growth both in the short run and in the long run. In the short run, investment stimulates demand while in the long run, it contributes to the formation of physical capital stock (Prochiniak & Wasiak, 2017). The outweighing of bank credit as a financing channel points to the fact that the financial systems in most transitional economies have the characteristics of bank-based ones (the mean of the ratio of bank credit to GDP and that of the ratio of market capitalization to GDP are 43% and 24% respectively). It is also noted that the magnitude of the coefficient on market capitalization is essentially lesser than that of the coefficient on bank credit. Thus, credit expansion is logically the main source of financing for investment activities, playing the role of an important growth determinant.

However, as suggested by the regression results, if credit expansion is not closely monitored, it may become excessive, giving rise to non-performing loans, which is regarded as the root of macroeconomic instability. This finding is consistent with that of some previous studies. Marques et al. (2015) found a non-linear impact of bank credit on economic growth using data collected from 25 European countries.

Similarly, Prochiniak and Wasiak (2017) reported a negative impact of the level of domestic credit on GDP growth in OECD countries, stemming from the fact many countries in the studied sample experienced excessive domestic credit, which has become a factor hindering growth in the long run. The data on bank credit of this study revealed that only several economies in Asia experienced levels of bank credit expansion that are higher than the suggested threshold. In many other transitional economies, the levels of bank credit remain far under the threshold. The mean and median of the ratio of bank credit to GDP in the year 2020 is only 56% and 51% respectively while the threshold is 90%. Thus, credit expansion would continue to be a driving factor that can be regulated to stimulate economic growth in most transitional economies. However, in a few countries with high levels of bank credit like China and Vietnam, bank credit expansion should be carried out with caution as too excessive credit is not conducive to growth.

Likewise, the nonlinear impact of market capitalization on economic growth suggests that the transitional countries with very high levels of market capitalization may not achieve further growth by increasing market capitalization due to the law of diminishing returns of the inputs. This finding is consistent with that of Prochiniak and Wasiak (2017), who indicated that the countries with well-developed capital markets would not achieve output acceleration by furthering the development of the stock market. However, given the fact that only a few Asian countries in the sample have well-developed stock markets with the levels of market capitalization exceeding the threshold and the exceeding occurred mostly in a few years before the global financial crisis 2008–2009, the further development of the stock market remains a factor conducive to growth for most transitional economies. At the earlier stage of the examined period, the operation of most transitional stock markets exhibited the characteristics of primitive markets such as inefficiency, a few listed stocks, dramatic fluctuation due to herd mentality, lacking initial public offerings, and absence of derivative markets. In recent years, the stock markets in a number of transitional countries have experienced some significant developments. Even though, as compared to the size of the economy, many stock markets of this group of countries remain relatively underdeveloped with low levels of market capitalization (Bekaert & Harvey, 2003; Yartey, 2008) – the mean and median of market capitalization to GDP in 2020 is just about of 31% and 18% respectively. Thus, for most transitional economies, there remains considerable room for stimulating sustainable growth by boosting market capitalization.

The regression results also indicate that the signs of the estimated coefficients for the other determinants of economic growth are generally consistent with the economic theory. First, the coefficient on $GDP_initial$ takes

the value of less than one in all three specified models, implying that β convergence would be negative. Thus, in the examined sample of transitional economies, less developed economies tend to achieve higher growth rates than more advanced ones. This result is consistent with the theory of economic growth convergence and in alignment with findings in many empirical studies on growth models. This result also reflects the actual economic growth of the countries in the sample. The examined transitional countries are at different stages of economic development with countries such as the Czech Republic having the highest GDP per capita and Vietnam having the lowest at the beginning of the examined period. However, throughout the examined period, the average economic growth of the Czech Republic is 2.02% per year while that of Vietnam is 6.78% per year. Since the implementation of the economic reform and opening-up policy, Vietnam's economy has usually achieved a relatively high growth rate except for a few years during the Asian financial crisis and the global financial crisis.

Second, the coefficients of the impact of capital (*Capital*), government spending (GOV), and foreign direct investment (FDI) are basically positive and statistically significant as expected by the endogenous growth model. This finding suggests that transitional countries would continue to pursue policies to mobilize all the sources of capital for promoting economic growth. Generally, the important role of FDI in the process of industrialization and modernization in developing economies has been confirmed by many empirical studies. FDI supports the process of economic restructuring, thus contributing to the improvement of growth in the host countries. In this study, FDI is confirmed to be an important external source of capital for investment and growth in transitional economies as well. Essentially, most transitional countries have considered FDI as a growth-driving factor, thus applying incentive policies to attract FDI.

Interestingly, in our study, the labor factor measured as the proportion of population aged 15–65 to the total population is not found to have a positive impact on growth. This finding is not atypical as the expected impact of this variable is not confirmed in similar studies (Prochiniak & Wasiak, 2017). This measure is intuitively not a perfect measure for the labor factor due to several reasons. First, this measure just represents the quantity, but not the quality aspect of labor. The abundant labor force in transitional countries may not be immediately transformed into a productive force in full. It took a quite number of years during the process of economic transition for the labor force trained under the central planning systems to be transformed and readily participate in forming new workplaces under the market systems. Actually, it was observed that transitional

economies experienced quite high unemployment rates at the initial stage of economic transition. The unemployment rates have been gradually reduced, but remain relatively high towards the end of the examined period in a number of transitional countries, especially in those facing political instability. Second, under the worldwide influence of the industrial revolution 4.0, any gain from the abundant labor force may be diminished due to job loss as a side effect of the industrial revolution 4.0.

Our regression results suggest a negative impact of inflation on economic growth. This is consistent with the reality of inflation and economic growth in most transitional countries. Inflation at a reasonable level may have a positive impact on economic growth through savings and investment channels (Sidrauski, 1967; Tobin, 1972). Inflation may affect economic growth negatively as well due to change in the relative price correlation among commodities, which leads to inefficient allocation of resources (Fischer, 1993). High inflation or high volatility of inflation reduces long-term investment and productivity growth (Fischer, 1993) or creates imbalances in capital and credit markets (Choi et al., 1996). Examining the threshold effects of inflation on growth, Khan and Senhadji (2001) estimated the threshold level of inflation for developing economies to be at 11–12 percent. As inflation in transitional economies has been considerably high, especially during the initial stage of economic transition and in the periods of crisis (the mean inflation rate of the sample is 74%), the negative impact of inflation on growth is accordingly confirmed. Thus, our finding reveals that inflation was a factor impeding the objective of growth acceleration during the process of economic transition in the examined countries.

Finally, the estimation results also denote a negative impact of the global financial crisis on growth. The coefficient on the dummy variable *Crisis* is negative and statistically significant in all three model specifications. These results suggest that economic growth was generally lower in the years of crisis, revealing that the transitional economies were generally not shielded from external shocks.

5. Conclusion and Implications

Economic growth is the foundation for the prosperity of any country nation. Undoubtedly, to promote economic growth, transitional economies have been endeavoring in conducting reforms in all aspects of the economy, including the financial system. This article investigates empirically the role of financial development in transitional economies by analyzing a data set collected from 29 transitional economies and 5 Asian countries from 1990 to 2020. The GMM system estimator of dynamic panel data is adopted to

estimate an endogenous growth-based model. To capture the association between financial development and economic growth with respect to different financing channels of the financial system, we employ three different measures of financial development: the ratio of broad money to GDP, the ratio of domestic credit to GDP, and the ratio of stock market capitalization to GDP. To examine the possibility of the non-linear impact of financial development on economic growth, the squared form of the measures of financial development is included in the regression models.

Several findings are derived from this empirical examination. First, all the measures of financial development are found to have positive effects on economic growth. Second, the effect of measures of financial development on economic growth is non-linear, in an inverted U-shape. This indicates that there are thresholds for different channels to positively influence economic growth. When the financial sector is expanded more than what the economy needs or it becomes too big relative to the size of the economy, the financial system would have become a factor hampering economic growth. This is to a large extent consistent with the nascent financial market conditions of transitional economies and consistent with the recent findings on the non-linear relationship between financial development and economic growth. However, as the current size of the financial sector in many transitional countries remains far lower than the suggested thresholds, there are still considerable rooms for them to further expand the financial sector to promote sustainable growth. Third, apart from the impacts of other determinants of growth, which are generally confirmed and consistent with the growth theory, the evidence of economic growth convergence in transitional economies is also found, indicating the consistency of this study with the theory of economic growth convergence and comparable with the results of many other growth-based empirical studies.

The findings of this article support the supply-push or supply-leading pattern in the casual relationship between financial development and economic growth in transitional economies. So, on the one hand, it is crucial for these countries to further reinforce all the aspects of the financial sector so that they perform well all their designated functions such as mobilizing savings, diversifying risk, and allocating savings. When developing and expanding, the financial sector should be directed to influence saving and investment decisions in an efficient manner, thus encouraging innovation and promote future growth by determining and funding productive investments. On the other hand, the measures of financial development in terms of total payment means (broad money), credit to the economy, and market capitalization should be controlled so that their levels are compatible with the size of the

economy. Though capital is an important determinant of economic growth, it should not be increased at any price only to support growth in quantity.

References

- Aghion, P., Nanerjee, A., & Piketty, T. (1999). Dualism and macroeconomic volatility. *Quarterly Journal of Economics*, 114(1), 1359–1397. <https://doi.org/10.1162/003355399556296>
- Anderson, T. W., & Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of the American Statistical Association*, 76(375), 598–606. <https://doi.org/10.2307/2287517>
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277–297. <https://doi.org/10.2307/2297968>
- Arcand, J. L., Berkes, E., & Panizza, U. (2012). *Too much finance?* (IMF Working Paper 12/161). Washington DC: International Monetary Fund. <https://www.imf.org/external/pubs/ft/wp/2012/wp12161.pdf>
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), 103–126. <http://doi.org/10.1086/261726>
- Barro, R. J. (2013). Inflation and economic growth. *Annals of Economics and Finance*, 14(1), 85–109. <http://aeconf.com/articles/may2013/aef140105.pdf>
- Barro, R. J., & Sala-i-Martin, X. (2003). *Economic growth* (2nd ed.). Cambridge, MA: The MIT Press.
- Baier, S. L., Dwyer G. P., & Tamura R. (2004). Does opening a stock exchange increase economic growth? *Journal of International Money and Finance*, 23(3), 311–331. <http://doi.org/10.1016/j.jimonfin.2004.01.001>
- Bekaert, G., & Harvey, C. (2003). Emerging markets finance. *Journal of Empirical Finance*, 10(1–2), 3–55. [https://doi.org/10.1016/S0927-5398\(02\)00054-3](https://doi.org/10.1016/S0927-5398(02)00054-3)
- Blundell, R., & Bond S. (1998). Initial condition and moment restriction in dynamic panel data models. *Journal of Econometrics*, 87, 115–143. [https://doi.org/10.1016/S0304-4076\(98\)00009-8](https://doi.org/10.1016/S0304-4076(98)00009-8)
- Cecchetti, S. G., & Kharroubi, E. (2015). *Why does financial sector growth crowd out real economic growth?* (BIS Working Paper 490). Basel, Switzerland: Bank for International Settlements. <https://www.bis.org/publ/work490.pdf>
- Chen, H. (2006). Development of financial intermediation and economic growth: The Chinese experience. *China Economic Review*, 17, 347–362. <https://doi.org/10.1016/j.chieco.2006.01.001>
- Choi, S., Smith, B. D., & Boyd, J. (1996). Inflation, financial markets, and capital formation. *Federal Reserve Bank of St. Louis Review*, 78, 9–35. <https://doi.org/10.20955/r.78.9-35>

- Creel, J., Hubert, P., & Labondance, F. (2015). Financial stability and economic performance. *Economic Modelling*, 48(C), 25–40. <https://doi.org/10.1016/j.econmod.2014.10.025>
- Deidda, L., & Fattouh, B. (2002). Non-linearity between finance and growth. *Economics Letters*, 74(3), 339–345. [https://doi.org/10.1016/S0165-1765\(01\)00571-7](https://doi.org/10.1016/S0165-1765(01)00571-7)
- Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of Development Economics*, 51(2), 387–411. [https://doi.org/10.1016/S0304-3878\(96\)00421-X](https://doi.org/10.1016/S0304-3878(96)00421-X)
- Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, 32(3), 485–512. [http://doi.org/10.1016/0304-3932\(93\)90027-d](http://doi.org/10.1016/0304-3932(93)90027-d)
- Francisco, V. M., & Abigail, R. N. (2014). Is there a relationship between financial development and economic growth in Latin American countries with higher capita GDP? *The IEB International Journal of Finance*, 9, 8–21. <http://doi.org/10.5605/IEB.9.1>
- Ghimire, B., & Giorgioni, G. (2013). Puzzles in the relationship between financial development and economic growth. *Journal of Applied Finance and Banking*, 3(5), 199–222. <http://doi.org/10.5539/ijef.v10n4p123>
- Giovannini, A., Iacopetta, M., & Minetti, R. (2013). Financial markets, banks, and growth: Disentangling the links. *Revue de l' OFCE*, 131(5), 105–147. <http://doi.org/10.3917/reof.131.0105>
- Goldsmith, R. (1969). *Financial structure and development*. New Haven, CT: Yale University Press.
- Hassan, M. K., Sanchez, B., & Yu, J. S. (2010). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of Economics and Finance*, 51, 88–104. <https://doi.org/10.1016/j.qref.2010.09.001>
- Ho, C. H. P., Pham, N. N. T., & Nguyen, K. T. (2021). Economic growth, financial development, and trade openness of leading countries in ASEAN. *The Journal of Asian Finance, Economics, and Business*, 8(3), 191–199. <https://doi.org/10.13106/jafeb.2021.vol8.no3.0191>
- Khan, M., & Senhadji, A. S. (2001). *Threshold effects in the relationship between inflation and growth*. (IMF Staff Papers WP/00/110). Washington DC: IMF. <https://www.imf.org/external/pubs/ft/wp/2000/wp00110.pdf>
- King, R., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108, 717–737. <https://doi.org/10.1016/j.qref.2010.09.001>
- Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35, 688–726.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, 46(2000), 31–77. [https://doi.org/10.1016/S0304-3932\(00\)00017-9](https://doi.org/10.1016/S0304-3932(00)00017-9)
- Loayza, N., & Ranciere, R. (2006). Financial development, financial fragility, and growth. *Journal of Money, Credit & Banking*, 38(4), 1051–1076. <http://10.1353/mcb.2006.0060>
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3–42. [https://doi.org/10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
- MacKinnon, R. I. (1973). *Money and capital in economic development*. Washington, D.C.: Brookings Institution.
- Marques, A. C., Fuinhas, J. A., & Carreira, R. (2015). A different look over the financial depth nonlinearity: Evidence from Europe. *The Journal of Social Studies*, 17(34), 121–135. <http://doi.org/10.19093/res.v17i35.2543>
- Mehmood, B. Azim, P., & Raza, S. H. (2015). Reconsidering the finance-growth nexus in Asian countries: A Panel ARDL Approach. *International Journal of Economics and Empirical Research*, 3(1), 1–5.
- Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49(6), 1417–1426. <https://doi.org/10.2307/1911408>
- Odedokun, M. O. (1996). Alternative econometric approaches for analyzing the role of the financial sector in economic growth: Time-series evidence from LDCs. *Journal of Development Economics*, 50(1), 119–146. [https://doi.org/10.1016/0304-3878\(96\)00006-5](https://doi.org/10.1016/0304-3878(96)00006-5)
- Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, 14, 174–189. <http://doi.org/10.1086/450153>
- Prochiniak, M., & Wasiak, K. (2017). The impact of the financial system on economic growth in the context of the global crisis: Empirical evidence from the EU and OECD countries. *Empirica*, 44, 295–337. <http://10.1007/s10663-016-9323-9>
- Rinosh, F. K., & Mustafa, M. A. M. (2021). Nexus between financial development and economic growth: Evidence from Sri Lanka. *The Journal of Asian Finance, Economics, and Business*, 8(3), 165–170. <https://doi.org/10.13106/jafeb.2021.vol8.no3.0165>
- Rioja, F., & Valev, N. (2004). Finance and the sources of growth of various stages of economic development. *Economic Inquiry*, 42(1), 127–140. <https://doi.org/10.1093/ei/cbh049>
- Robinson, J. (1952). *The generalization of the general theory*. London, UK: MacMillan.
- Romer, P. (1986). Increasing returns and long-run growth. *Journal of Political Economy*, 94(5), 1002–1037. <https://doi.org/10.1086/261420>
- Shaw, E. (1973). *Financial deepening in economic development*. Oxford, New York: Oxford University Press.
- Sidrauski, M. (1967). Inflation and economic growth. *Journal of Political Economy*, 75(6), 796–810. <http://doi.org/10.1086/259360>
- Tarig, R., Khan, M. A., & Rahman A. (2020). How does financial development impact economic growth in Pakistan? New evidence from the threshold model. *The Journal of Asian*

Finance, Economics, and Business, 7(8), 161–173. <https://doi.org/10.13106/jafeb.2020.vol7.no8.161>

Tobin, J. (1972). Inflation and unemployment. *American Economic Review*, 62(1), 1–18. <https://www.jstor.org/stable/i331573>

Yang, Y. Y., & Yi, M. H. (2008). Does financial development cause economic growth? Implication for policy in Korea. *Journal of Policy Modeling*, 30, 827–840. <https://doi.org/10.1016/j.jpolmod.2007.09.006>

Yartey, C. A. (2008). *The determinants of stock market development in emerging economies: Is South Africa different* (IMF Working Paper, WP/08/32). Washington DC: International Monetary Fund. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-Determinants-of-Stock-Market->

Development-in-Emerging-Economies-Is-South-Africa-Different-21646

Endnote

¹The 29 transitional economies include: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, China, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Russia, Slovak Republic, Slovenia, Serbia, Tajikistan, Ukraine, Uzbekistan, Vietnam.