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Financial Development Convergence: Evidence from Top and Bottom Globalised Developing Economies

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ABSTRACT

This paper investigates the pattern of the financial development convergence for the top (Europe and Central Asia) and the bottom (South Asia) globalized developing regions from 1984 to 2016. We employ the Philips-Sul club convergence approach to measure the financial development convergence's speed. The results validate the convergence of financial development in all countries, including the top and bottom of globalized developing regions. Interestingly, the speed of financial development convergence is less in the bottom globalized developing region than in the top globalized developing region. However, these results vary across developing regions in the case of financial institutions and financial markets. Therefore, solid financial market governance can provide a productive and efficient financial system, particularly in the bottom globalized economies.

KEYWORDS

Globalization; financial development; financial institutions; financial markets; convergence analysis

JEL

E44; F36; F65

1. Introduction

The argument about the role of financial development in economic growth has become a point of contention in the literature (Christopoulos and Tsionas 2004; De Gregorio and Guidotti 1995; Levine 1997; Zhang et al. 2023). Though financial development enhances economic growth (Beck, Georgiadis, and Straub 2014; Breitenlechner, Gächter, and Sindermann 2015; Ibrahim and Alagidede 2018; Shen et al. 2018), the finance-growth nexus was started from the study of Schumpeter (1911), which broadly expanded later by some studies like Beck, Levine, and Loayza (2000) and Beck and Levine (2004). Moreover, the advancement of the financial institution and market assists developing economies in promoting economic growth and development (Beck, Georgiadis, and Straub 2014; Gozgor 2015, 2018; Herwartz and Walle 2014; Jedidia, Boujelbène, and Helali 2014; Shahbaz, Shafiullah, and Mahalik 2019; Shen et al. 2018; Zhang and Naceur 2019). For instance, business firms getting financial support from the banking sector can create employment via investments. Similarly, households with financial backing from the banking sector can create demand for business activities. As a result, growing consumption and production activities promote economic growth and induce further financial system growth.

Financial development convergence is an essential issue for policymakers and researchers. By understanding the factors that can promote or hinder convergence, policymakers can develop policies

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to help accelerate the convergence process and improve economic growth, income equality, and financial stability (Beck, Levine, and Loayza 2000). It is important to note that financial institution convergence and financial market convergence are two concepts that can happen independently. Moreover, the extent to which these two concepts occur depends on several factors, including economic development, globalization, regulatory changes, and technological advances (Law, Azman-Saini, and Ibrahim 2013). Our motivation for the research question is whether developing regions can reduce differences in financial development. This is a relevant question because financial development is a crucial driver of economic growth. Countries with more developed financial systems tend to grow faster than less developed ones (Fung 2009; Marcelin and Mathur 2015).

However, existing studies recognize globalization as the driving factor of financial development (Falahaty and Law 2012; Jha and Gozgor 2019; Lau et al. 2022; Law, Azman-Saini, and Tan 2014; Shahbaz et al. 2018a). For instance, Mishkin (2009) also proposed a globalization-led financial development hypothesis for developing countries where globalization leads to financial development through better institutional quality (Azam et al. 2021; Fang, Gozgor, and Nolt 2022; Gozgor et al. 2022; Le, Kim, and Lee 2016). For example, developing countries are connected with advanced economies regarding trade and financial flows. This issue helps developing economies attract more foreign direct investment inflows, making domestic financial markets and institutions competitive. Moreover, once the financial system becomes competitive, investors and households invest in the stock market and banking sector (Mishkin 2007, 2009). In addition, recent empirical studies support the globalization-led financial development hypothesis for European countries (Nasreen et al. 2020) and emerging economies (Shahbaz, Bhattacharya, and Mahalik 2018a; Shahbaz et al. 2018b).

The hypothesis proposed by Mishkin (2009) is relevant for developing countries because their share of developing countries gross domestic product (GDP) is more than that of developed countries, according to the World GDP (Figure 1). Subsequently, the GDP growth rates of developing countries are also higher than developed countries (Figure 2). Mishkin's globalization-led financial development hypothesis is another point of observation for choosing developing regions, which finds that developing economies with growing globalization can enhance financial development by using institutional quality as an effective channel.

Moreover, according to the World Bank, the Europe and Central Asia (ECA) and the South Asia (SA) developing regions come under the top and bottom globalized categories. Therefore, the countries in the ECA region have higher economic globalization than those in the SA region (Figure 3). Feldstein and Horioka's (1980) hypothesis justifies this classification, which indicates a low cross-sectional correlation between domestic savings and investments, resulting in greater

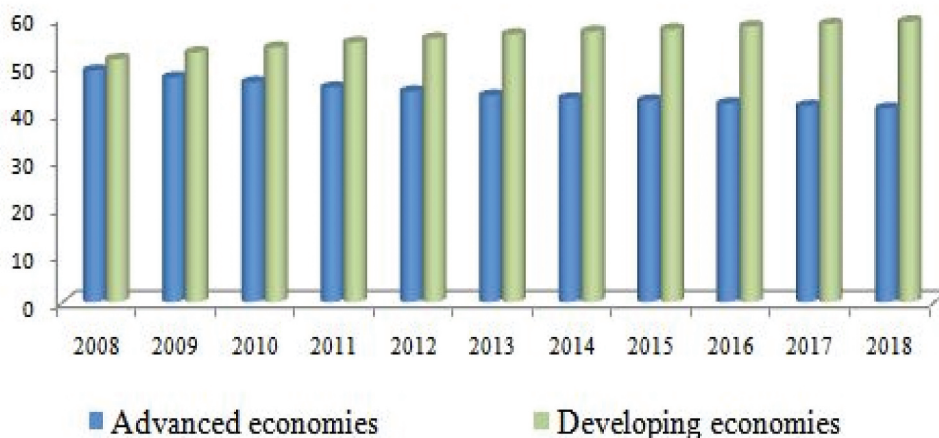


Figure 1. GDP, based on the PPP (percent of the world GDP). Data source: World Bank (2023).

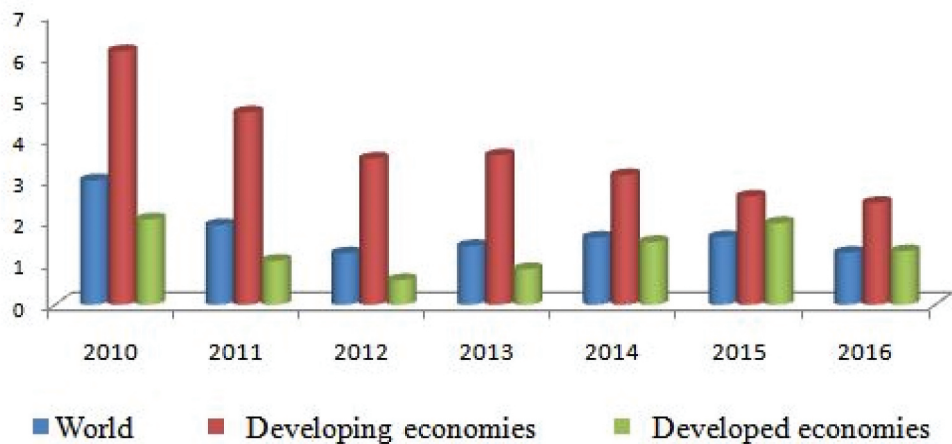


Figure 2. Annual average GDP growth rate per capita. Data source: The authors’ calculation, based on World Bank (2023).

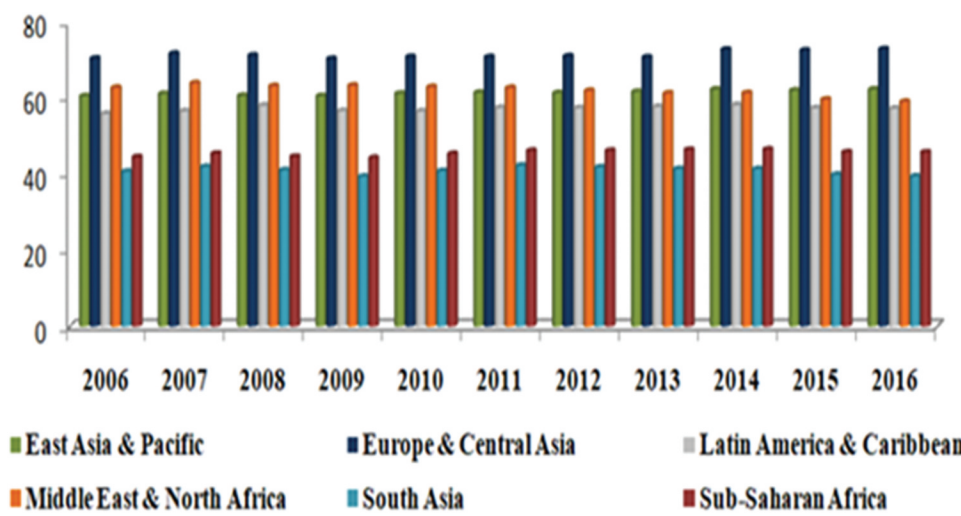


Figure 3. Economic globalization index. Data source: The authors’ calculation, based on Gygli et al. (2019).

capital mobility and vice-versa. Figure 4 denotes that the ECA region has the lowest correlation between domestic savings and investment and greater capital mobility. Oppositely, the SA region shows lesser capital mobility because of the highest correlation between domestic savings and investments.

The above background motivates us to raise a research question of whether the top (ECA) and bottom (SA) globalized developing regions can reduce their differences in financial development over time. This research gap is yet to be examined for the top and bottom globalized developing areas. This study investigates the financial development convergence in both developing regions using the panel framework from 1984 to 2016. This issue is essential for developing countries because it can provide insight into the degree of financial development convergence across the top and bottom globalized developing regions. Accordingly, policymakers can also design an effective policy for promoting financial development in developing countries.

At this point, our comparative empirical analysis for a panel of two developing regions from 1984 to 2016 examines whether globalization reduces financial development differences across the top and

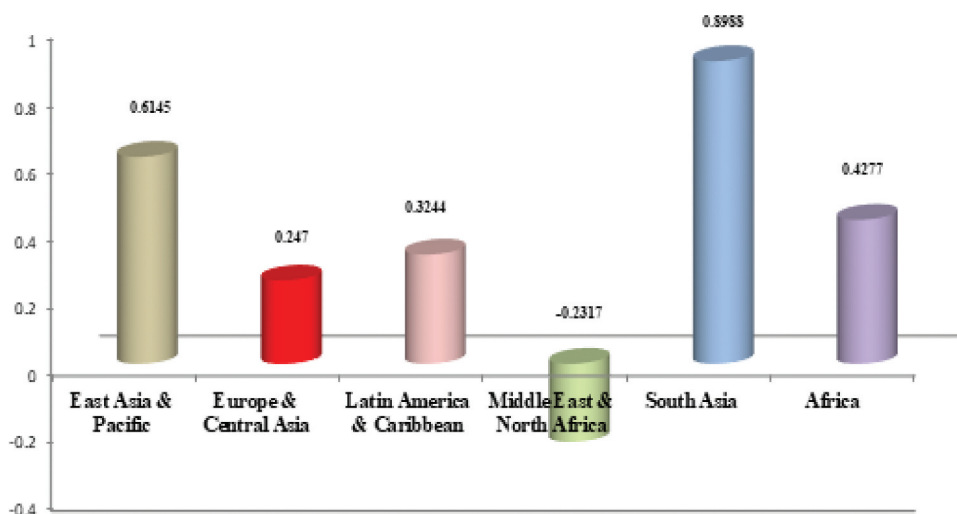


Figure 4. Correlation between domestic savings and investments. Data source: The authors' calculation, based on World Bank (2023).

bottom globalized areas. Our empirical analysis examines the financial development convergence hypothesis using sigma convergence and a series of unit root tests (LM & RALS-LM) with a stochastic trend based on this research gap. In addition, the Phillips and Sul (2007) log-t club convergence method is also used to check the overall financial development convergence and validates the degree. In doing this, this study is the first to examine this issue using the novel techniques available in the literature.

The study is organized as follows: Section 2 presents the literature review for financial development convergence. Section 3 describes the dataset and methodology. Section 5 reports the results and discussion. Finally, Section 6 concludes with policy implications.

2. Literature Review

The financial development dynamics is a summarized overview of any economy's banking sector and stock market development. However, financial development helps in investment, efficient allocation of economic resources, and economic growth (Ang 2008; Beck, Georgiadis, and Straub 2014; Hassan, Sanchez, and Yu 2011; Herwartz and Walle 2014; Hsueh, Hu, and Tu 2013; Law, Azman-Saini, and Ibrahim 2013; Law, Tan, and Azman-Saini 2015; Shen et al. 2018). If financial development hampers economic growth, developed economies can balance the loss. Still, it also transfers the same risk to developing countries (Levine 2003). It shows that financial development hampering economic growth is a worry for the policymakers of developing countries. In this context, Mishkin (2009) stated in his "globalization-led financial development" hypothesis that greater globalization with designed institutional quality can enhance financial development in developing countries (Khan et al. 2020; Le, Kim, and Lee 2016). A few recent studies worked on this issue, such as Kandil, Shahbaz, and Nasreen (2015) in 32 developed and developing economies and Shahbaz et al. (2018b) for the Indian economy. Finally, their findings indicated that globalization drives financial development. Still, fewer empirical studies are not available on whether the top globalized developing region can reduce the differences in financial development than the bottom globalized region. This research gap can bring significant policy implications for developing the financial system in developing economies. As financial development convergence has been discussed in existing studies, our study is different because we are doing a comparative study on overall financial development convergence and the financial institution and market convergence.

However, we add some recent literature on the convergence of financial development. Lin, Miao, and Wang (2020) found evidence of convergence in financial development by making technological changes. Fufa and Kim (2018) also studied the role of financial development in economic growth to capture the transitional dynamics of real per capita income and found that financial development plays a different role in each club of economic growth. Dekle and Pundit (2016) found weaker evidence of financial development convergence in Asian economies. Bahadir and Valev (2015) examined the convergence of the financial institution but did not measure the convergence of the financial market, as it is another crucial factor in the growth of financial development. According to this study, financial institutions' indicators like credit to GDP ratio converge over time. Apergis, Christou, and Miller (2012) also analyzed the degree of financial development convergence in 50 countries and found strong evidence of convergence. Bruno, De Bonis, and Silvestrini (2012) studied the convergence of the financial system in the OECD countries. They found a strong convergence in the stock market share and insurance sector. However, they also observed mixed results in the banking sector. This evidence may be due to the structural differences in banking sectors.

Similarly, Antzoulatos, Panopoulou, and Tsoumas (2011) found financial divergence in 38 developing and industrial countries from 1990 to 2005. The rate of financial development divergence is more significant in the stock market and credit-to-GDP ratio. Still, it is less in the case of banking sector deposits. Fung (2009) claimed that a transitional country has more intensity to catch up with developed economies by reducing the financial development differences. Herrmann and Winkler (2009) argued that the financial market has more efficiency in increasing the level of growth than the other sectors. As per the study of Mukherjee, Bhattacharya, and Roy Chowdhury (2022), India, the only BRICS country with a lower middle income, is catching up very rapidly with the rest of the countries regarding financial development, mainly through the expansion of financial markets and financial institutions.

Kılınç, Seven, and Yetkiner (2017) provided a possible reason for the high convergence speed in their study. They demonstrated that banking and stock market metrics converge in the European Union (EU) over time. This trend is even improved by controlling for various macroeconomic factors. On the other hand, Sever (2022) investigated convergence as a particular process in the evolution of financial structure to offer insight into this problem. It has been demonstrated that global financial systems converge over time. This tendency remains even after adjusting for institutional, macroeconomic, and banking sector features.

Moreover, it is not region-specific and seems to be equally important all around the world. However, compared to advanced economies, financial structure convergence is a little lower in emerging markets and developing economies. These findings affect macroeconomic and financial policies because of how vital financial structure is for financial development. Additionally, closing structural financial inequalities across countries may affect economic disparities.

Regarding methodology, most studies use beta convergence, sigma convergence, and panel unit root tests with a stochastic trend. However, some studies identified a few drawbacks to these methods of convergence. For example, Mankiw, Romer, and Weil (1992) criticized conditional convergence using the beta convergence model, as they have shown that each country converges to a different steady-state level. Some studies have also questioned the beta convergence estimation (Binder and Pesaran 1999). Some also stated that beta convergence is insufficient to observe dispersion reduction (Friedman 1992; Quah 1993). Finally, Pesaran (2006) suggested using beta convergence always within an economy.

On the other hand, sigma convergence is also bearing some limitations. The rejection of the null hypothesis does not mean that economies do not converge because transitional dynamics in the data can lead to rejections (Bliss 1999, 2000; Friedman 1992). For example, suppose all countries converge to a standard equilibrium with different technology and structure. In that case, the dispersion will vanish in the long run. But in the point of country-wise convergence, each club can converge to its respective equilibrium, and then the distribution never becomes zero. This idea was started by Galor (1996), who introduced this club convergence hypothesis where countries can converge if the

structural characteristics are the same. Still, they should have the same initial conditions. Durlauf and Johnson (1995) and Hansen (2000) examined this concept and found evidence of club convergence. Quah (1993, 1996) also used club convergence of real per capita income. Finally, Phillips and Sul (2007) introduced club convergence in per capita output using 48 US States, 18 Western OECD countries, and 152 countries from the Penn World Tables dataset. They found evidence of club convergence. Next, Phillips and Sul (2007) allowed the clustering procedure to determine clubs, which is consistent with the hypothesis of Galor (1996).

Stochastic trend convergence has drawbacks, like transitional dynamics and more no. of equilibrium. If these stated issues are present in the model, they cannot converge (Durlauf and Johnson 1995; Hobijn and Franses 2000). Phillips and Sul (2007) recently proposed a log-t club convergence methodology. They stated that a group of economies could converge to a typical steady state with a wide range of transitional paths. If economies face divergence, it does not form any subgroups of economies. They used the clustering procedure to make the club if possible. It has the critical advantage that this methodology can use growth theories and any financial and macroeconomic variables beyond the output.

Unlike previous papers, we conducted a comparative empirical analysis of two developing regions from 1984 to 2016 to examine whether globalization reduces financial development differences across the top and bottom globalized areas. Our empirical research used sigma convergence and a series of unit root tests (LM & RALS-LM) with a stochastic trend to test the financial development convergence hypothesis. Additionally, we used the Phillips and Sul (2007) log-t club convergence method to check the overall financial development convergence and validate the degree. This study is the first to use these novel techniques to examine this issue. Thus it is a valuable contribution to the literature on financial development convergence.

3. Data and Methodology

3.1. Data

This study divides 19 developing countries into the top (15 countries) and bottom (4 countries) globalized economies. Our study uses a balanced panel dataset of globalized developing economies of the top (ECA region) and bottom (SA region). We mainly use the financial development data covering 1984–2016 for 19 developing countries. The list of entire nations is as follows:

Top globalized developing region (15 countries): Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Hungary, Kazakhstan, Moldova, Poland, Romania, Russian Federation, Serbia, Turkey, and Ukraine.

Bottom globalized developing region (4 countries): Bangladesh, India, Pakistan, and Sri Lanka.

The sample selection is mainly based on data availability.¹ For example, financial development data are generated by Svirydenka (2016) and collected from the International Monetary Fund.²

3.2. Methodology

Different types of convergence methods are available in the literature. Firstly, we use the sigma approach of convergence by calculating the coefficient of variation of the variables over the period. Sigma convergence measures how countries converge by reducing the standard deviation of financial development over the year. According to Apergis and Christou (2016), sigma convergence is unnecessary because the presence of transitional dynamics can reject the null hypothesis of sigma convergence. On the other hand, another approach, beta convergence, also faces some limitations. It is developed through the neoclassical growth model and follows only a single steady state.³ We again use stochastic conditional convergence and panel club convergence to find evidence of convergence across the countries of these two regions.

The stochastic convergence of financial development can be empirically calculated by using the equation below:

$$y_{it} = \ln \left[\frac{FD_{it}}{Avg.FD_t} \right] \quad (1)$$

Where, y_{it} is the relative financial development for country i and time t , $Avg.FD_{it}$ represents the average financial development of 15 and 4 developing countries for the ECA and SA regions. FD_{it} indicates the financial development of i country over time t .

3.2.1. Two-Step LM and Three-Step RALS-LM Unit Root Approach

For stochastic convergence, we apply LM and RALS-LM unit root tests to achieve the goal of financial development convergence. These tests calculate the structural breaks endogenously (Lee, Strazicich, and Meng 2012; Meng, Lee, and Payne 2016; Meng et al. 2014; Mishra and Smyth 2017). According to the study of Meng et al. (2014), the RALS-LM can be written equatorially. Therefore, considering Equation (1), this study is evidenced in favor of stochastic conditional convergence if relative financial development is stationary.

$$FD_t = \varphi + \epsilon_t + X_t \text{ where } X_t = \beta X_{t-1} + e_t \quad (2)$$

However, the country shock is removed in Equation (1), affecting all the individual countries in the group. That means any shock can enhance the mean value by an equal proportion.

The null and alternate hypotheses are $\beta = 1$ and $\beta < 1$, where φ and ϵ represent the intercept and slope. Equation (2) can be re-written in a generalized way as follows:

$$FD_t = S'_t \Upsilon + X_t, X_t = \beta X_{t-1} + e_t \quad (3)$$

S'_t is the deterministic term with structural breaks. S'_t denotes as 1 (for the intercept), t (for the trend), and $D_{1t}, \dots, D_{Nt}$ (for N structural breaks). $D_{kt} = 1$ for $t \geq T_{Bk} + 1$, $k = 1, \dots, N$ and zero otherwise. D_{Nt} is the dummy variable for i^{th} level breaks, T_{Bk} is the i^{th} structural breaks. The equation of the LM stat is as follows:

$$\Delta FD_t = \Upsilon S_t + \epsilon \tilde{y}_{t-1} + \sum_{k=1}^p h_t \Delta \tilde{y}_{t-1} + e_t \quad (4)$$

Where $\tilde{FD}_t = FD_t - \tilde{\varphi} - S_t \Upsilon$, $t = 2, \dots, T$, $\tilde{\Upsilon}$ represents as a vector coefficient. The estimated restricted maximum likelihood is the $\tilde{\varphi} = FD_1 - S_1 \Upsilon$, which is the first observed model. The lagged difference of FD_t is denoted as $\Delta \tilde{FD}_{t-k}$, which helps to remove the autocorrelation error. The null hypothesis of LM statistics ($\tilde{\tau}_{LM}$) is $\epsilon = 0$. According to (Meng et al. 2014), the nonlinearity issues can be solved using non-normal errors. For that, we have to introduce $\epsilon_t = (\Delta \tilde{FD}_{t-1}, \Delta \tilde{FD}_{t-2}, \dots, \Delta \tilde{FD}_{t-p})$, $r_t = (\tilde{FD}_{t-1}, \epsilon_t)$ and $u_t = (\Delta S'_t, r'_t)$. The two conditions are as follows:

$$E[e_t \otimes u_t] = 0 \text{ and } E[h(e_t) - L \otimes u_t] = 0$$

Where, e_t is the error of the LM test of Eq. (5). $L = E(e_t)$ and $h(e_t)$ both are nonlinear functions of e_t .

However, Meng et al. (2014) extended their model by following Im and Schmidt (2008). Meng et al. (2014) define $h(\hat{e}_t^2, \hat{e}_t^3)$, $\hat{L} = \frac{1}{T} \sum_{t=1}^T h(\hat{e}_t)$, $\hat{D} = \frac{1}{T} \sum_{t=1}^T h(\hat{e}_t)$, and $a_j = T^{-1} \sum_{t=1}^T \hat{e}_t^k$ and augmented equation can be written as:

$$\hat{P}_t = \left[\hat{e}_t^2 - a_2, \hat{e}_t^3 - a_3 - 3a_2 \hat{e}_t \right]$$

Finally, the RALS-LM model is as follows:

$$\Delta FD_t = \mathbb{Y}S_t + \mathbb{E}\tilde{y}_{t-1} + \sum_{k=1}^p h_k \Delta \widetilde{y}_{t-1} + \tilde{P}'_t \gamma + \mu_t \quad (5)$$

The above least-square estimation can be used to get the result of the RALS-LM ($\tilde{\tau}_{RALS-LM}$) unit root test.⁴ It can be applied in the series case of one, two, and three breaks. The optimum lag and break dummies were calculated by using the Max-F test.

3.2.2. Club Convergence

Lastly, we framed the econometric methodology to examine the existence of club convergence on financial development among the developing countries of top and bottom globalized regions. We employed the panel club convergence method proposed by Phillips and Sul (2007, hereafter PS) to measure convergence speed and the relative transitional path. The PS method introduces a new econometric approach to the convergence hypothesis and specifies the convergence club. It is a nonlinear time-varying factor model. It can overcome the problem of beta convergence by including transitional dynamics in the long run. The methodology uses the following time-varying common factor for FD_{it} of country i :

$$FD_{it} = \delta_{it}\mu_t + u_{it} \quad (6)$$

δ_i denotes the idiosyncratic distance between the common factor and the systematic part of FD_{it} . u_{it} is the error term. For calculating individual FD_{it} with the common factor, we have taken the average of δ_i and the error term and considered the systematic idiosyncratic time-varying factor δ_{it} . These methods also use a random component to absorb the systematic idiosyncratic time-varying factor δ_{it} to common factor μ_t over the period. So, the model can be written as follows:

$$FD_{it} = \delta_{it}\mu_t \quad (7)$$

$$FD_{it} = G_{it} + B_{it} \quad (8)$$

FD_{it} consists of two kinds of components, systematic (G_{it}) and transitory components (B_{it}). Next, we must multiply and divide by μ_t and finally, we get the equation as follows:

$$FD_{it} = \left(\frac{G_{it} + B_{it}}{\mu_t} \right) \mu_t = \delta_{it}\mu_t, \forall i, t \quad (9)$$

Where μ_t denotes a club steady-state and δ_{it} is a combination of a common and idiosyncratic factor that can consider both time and country-related effects. δ_{it} also suggests the transition path. Phillips and Sul's (2007) methods do not include the parametric form of μ_t , as they remove this part from the equation and concentrate on δ_{it} . They ultimately take δ_{it} and μ_t for making a semi-parametric form of δ_{it} . Therefore, we are getting this equation after removing μ_t :

$$TP_{it} = \frac{FD}{\frac{1}{N} \sum_{i=1}^N FD_{it}} = \frac{\delta_{it}}{\frac{1}{N} \sum_{i=1}^N \delta_{it}} \quad (10)$$

TP_{it} signifies the transition path of the average of the country group, and it helps to attain convergence in the long run if $TP_{it} \rightarrow 1$ for all countries i when time $t \rightarrow \infty$. Convergence is achieved in the long run when the country variance is equal to zero, $TP_{it} \rightarrow 0$.

$$\delta_{it} = \delta_i + \sigma_{it}\epsilon_{it} \quad (11)$$

Where δ_{it} is the time-varying coefficient, ϵ_{it} is weakly dependent on time t and independent on i (0, 1).

$$\sigma_{it} = \frac{\sigma_i}{L(t)t^\alpha} \sigma_i > 0, t \geq 1 \quad (12)$$

$L(t)$ rises faster and then disperses at $L(t) \rightarrow \infty$ as $t \rightarrow \infty$. So, the null hypothesis of the convergence for all countries under the regions is $H_0: \delta_i = \delta \forall i$ with $a \geq 0$, and the alternative hypothesis will be $H_1: \delta_i \neq \delta \forall i$ with $a \geq 0$ or $a < 0$. According to this model, the null hypothesis is the convergence; this can be tested through this equation (Gozgor, Lau, and Lu 2019):

$$\text{Log}\left(\frac{H_1}{H_t}\right) - 2\log L(t) = \hat{c} + \hat{b}\log t + \hat{u}_t \quad (13)$$

Where, $t = rT, rT + 1 \dots T$, and $r > 0$. $\left(\frac{H_1}{H_t}\right)$ is the country variance ratio. $L(t) = \log(t + 1)$ is used in this Equation (7). $H_t = \frac{1}{N} \sum_{i=1}^N (h_{it} - 1)^2$ and $\hat{b} = 2\hat{\alpha}$, $\hat{\alpha}$ is the least square estimated parameter. The null hypothesis $\log\left(\frac{H_1}{H_t}\right)$ can diverge when $a \geq 0$. A one-sided t-test of the inequality was used to measure convergence when $a \leq 0$ using $\hat{b}$. This model also has taken care of heteroscedasticity and autocorrelation problems. The null convergence hypothesis will be rejected if the t-statistic value is less than the critical value (-) 1.65. We have taken the value of $r = 0.33$, which is suggested by the author and is suitable for $T \leq 50$.

From the previous discussion, we are interested in finding out the sign of the estimated coefficient, $\hat{b}$, which ultimately provides the convergence result. The panel converges if the results show that t_b is either positive or equal to zero. Oppositely, if t_b is negative, then divergence happens. The magnitude of estimated coefficient $\hat{b}$ is directly related to the convergence rate. A higher value of $\hat{b}$ causes a faster rate of convergence.

The PS method argued that panel convergence is a form of conditional sigma convergence. It has numerous advantages. Firstly, it is based on a nonlinear time-varying factor model that incorporates the possibility of transitional heterogeneity or divergence. As heterogeneity does not support convergence if series are not cointegrated, this methodology supports convergence instead of not cointegrated, a sign of asymptotic cointegration. Secondly, it can solve the issues of biased and inconsistent estimation caused by omitted variables and endogeneity in traditional convergence tests. Thirdly, it does not impose any particular assumptions regarding the non-stationarity of the variables and allows for cases where individual series may be transitionally divergent. Fourthly, suppose the sample does not converge. In that case, it can be used further to test the existence of club convergence or divergent individual groups. Most importantly, PS methodology can identify clubs of countries that converge to different equilibria and allow single countries to diverge if countries are not converging into a steady-state level.

3.2.3. Club Convergence Algorithm

Convergence tests can be done based on the economic or geographical characteristics of the countries. The club convergence algorithm⁵ is here briefly described below. It consists of four steps, i.e., Ordering, Core Group Formation, Club Membership, Recursion, and Stopping. Firstly, we must prepare the series for analysis to examine convergence. Evidence of convergence mainly depends on a recent couple of years, so we must choose each series accordingly. Otherwise, we can also choose based on the average time series values of the observations. In our case, we are sorting out panel observations concerning recent past statements in descending order.

Secondly, we must calculate the t-statistics for the first $k = 2$ region to identify the club of countries that can converge into a steady state. These two countries establish a core group G_k if $t_b(k = 2) > -1.65$. Again, we must examine the log t-test for G_k plus the following country. This new country also adds to the club if $t_b(k = 3) > t_b(k = 2)$. From the result, we must select clubs with maximum values that satisfy the rules, i.e., $t_{b,k} > -1.65$. This process needs to continue up to $t_b(k) > t_b(k-1)$ for all $N \geq k \geq 2$. On the other hand, if $t_b(N) > t_b(N-1)$, the entire panel convergence means overall convergence happens. Fourthly, t-statistics also can be done on this group (countries who are not satisfied with the conditions, i.e., $t_{b,k} > -1.65$). If it satisfies the convergence requirements, it will form another club

again; otherwise, it will display as a divergent group if it cannot include any clubs. Thirdly, we must check the whole list of countries that are converging or not by adding individual countries one by one (those that are not included in the core convergence group) into the group and check the t-statistics (t_b , $k > -1.65$). Those not included in any club will also form a complement group (diverging countries).

4. Results and Discussion

The descriptive statistics for overall financial development, financial institutions, and financial markets for the top and bottom globalized developing regions depict the variables' mean, median, standard deviation, minimum, and maximum values (Table A1 in the Appendix A). The mean and median represent that our data are asymmetric and skewed to the right. The mean value of financial development, financial institutions, and financial market for the bottom region is more than the top region. Further, the standard deviation of the bottom region is less volatile in the case of financial development, financial market, and financial institution.⁶ Thus, we can state that the data perfectly fit the model estimation process.

However, our main concern is investigating whether globalization can help financial development converge steady-state levels across both regions. Therefore, we also check the convergence of financial institutions and the financial market for the globalized developing regions. Firstly, we measure the sigma convergence using the coefficient of variation (CV) of average financial development for both regions from 1984 to 2016. The CV of the regions is shown in Figure 5.

From all the graphs of the top region, we can see that CV is decreasing across the year, indicating the catching-up hypothesis in all variables. Oppositely, financial development does not support the theory in the bottom region. This part is inconsistent with the result of the other two methods we have used, which may have happened because of the cross-sectional data issues in the bottom region. At the same time, the financial institution and financial market show weak evidence of convergence in the bottom regions.

However, for the stochastic convergence test, we employ both the LM and RALS-LM two structural break unit root tests to examine the financial development convergence (financial institutions and market) for each of the top (15) and bottom (4) developing countries. The null hypothesis of these tests suggests the presence of unit root. The LM and RALS-LM unit root test results are summarized in Tables 1 and 2 of both regions. Financial development in the top and bottom regions shows that all the countries are significant except Armenia in the top region. In addition, the result shows significance in each country except Turkey and Ukraine in the top region of financial institutions. Whereas, except for Bangladesh and India in the bottom region, all the countries from the top and bottom globalized developing regions are also significant in the case of the financial market.

These results reject the null hypothesis of a unit root. That means we find the presence of financial development convergence. It further shows that developing countries can catch up with financial development growth between two break years in the data series. Mostly, the crisis period happens between these break periods of the variables (i.e., overall financial development, financial market, and financial institution), such as the Asian Financial Crisis in 1997, the Global Financial Crisis in 2007–08, and the recession between 1979 and 1981. However, most crises impacted developing countries because of the low productivity growth, less technological advancement, and low international trade and finance. Therefore, convergence is required in developing countries to improve technical skills and improvement in trade, resulting in economic development expansion. The LM and RALS-LM tests regionally found evidence of convergence for the top and bottom developing regions. Test statistics are significant with two breaks. These findings suggest that globalization can help developing countries enhance financial development faster by using innovative technology with required foreign financial assistance. This finding is consistent with the studies of Apergis, Christou, and Miller (2012) for 50 countries.

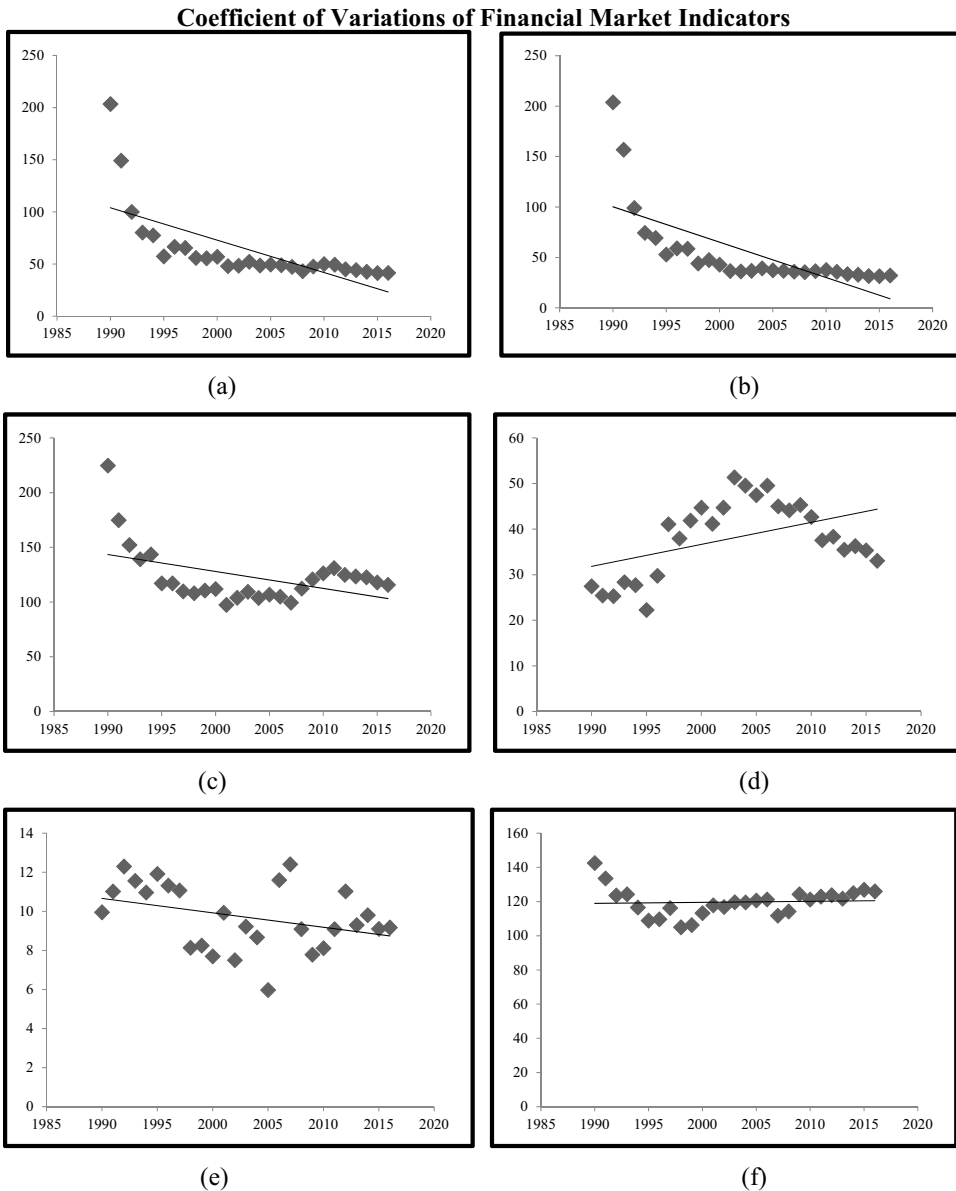


Figure 5. Coefficient of variations of financial market indicators. (a), (b), and (c) denote the coefficient of variation of financial development, financial institutions, and financial markets in Europe and Central Asia. (d), (e), (f) is in the South Asia region. Source: The authors' calculation.

However, the LM and the RALS-LM unit root tests do not reveal the relative transition path or speed of financial development convergence. For this reason, we again used Phillips and Sul's (2007) club convergence approach for robustness. It helps to find evidence of financial development convergence across the countries within the top and bottom globalized developing regions by clustering the group of countries with homogeneous characteristics. It also divides countries into sub-groups to recognize the clusters from subgroups, which is more authentic and appropriate than other convergence methods. The overall country's Phillips and Sul approach results for the top and bottom globalized developing regions are reported in Tables 3 and 4. In addition, these Tables show the cluster analysis results for both regions from 1984 to 2016.

Table 1. Zero/one/two breaks LM and RALS-LM unit root test results: Europe & Central Asia.

Countries	Financial Development				Financial Institutions				Financial Markets			
	TR-LM		TR-RALS-LM		TR-LM		TR-RALS-LM		TR-LM		TR-RALS-LM	
	$\tilde{t}_{LM}$	$\hat{T}_B$	$\tilde{t}_{RALS-LM}$	$\hat{T}_B$	$\tilde{t}_{LM}$	$\hat{T}_B$	$\tilde{t}_{RALS-LM}$	$\hat{T}_B$	$\tilde{t}_{LM}$	$\hat{T}_B$	$\tilde{t}_{RALS-LM}$	$\hat{T}_B$
Albania	-9.00*	1990	-9.38*	1993	-8.92*	1990	-9.36*	1993	-13.67*	1990	-14.06*	1994
Armenia	-1.86	2001	-1.65	2004	-5.37*	1993	-5.68*	2001	-3.12**	2001	-5.84*	2006
Azerbaijan	-11.70*	1990	-8.33*	1994	-8.40*	1995	-8.42*	2010	-5.21*	2002	-7.22*	2005
Belarus	-5.06*	1991	-6.99*	1995	-10.63*	1991	-11.80*	2011	-20.73*	2005	-30.73*	2008
Bulgaria	-4.36*	1989	-4.51*	1993	-11.67*	1989	-12.98*	1992	-2.88**	2000	-6.45*	2006
Croatia	-4.44*	1990	-15.48*	1993	-15.34*	1990	-16.91*	1996	-1.96	2006	-3.11**	2009
Hungary	-6.60*	1998	-6.28*	2002	-6.81*	2004	-13.72*	2009	-5.82*	1995	-6.64*	2006
Kazakhstan	-5.74*	1991	-7.97*	1994	-6.57*	1991	-8.94*	1995	-3.66*	2004	-4.28*	2008
Moldova	-4.04*	1989	-5.90*	1992	-6.03*	1989	-5.57*	1993	-11.76*	1989	-32.51*	1997
Poland	-5.87*	1991	-5.94*	2002	-5.23*	1987	-5.41*	1996	-5.31*	1991	-5.22*	2002
Romania	-7.42*	1990	-7.12*	1999	-7.38*	1990	-9.83*	1996	-8.32*	1995	-10.23*	1998
Russia	-4.58*	1989	-5.728*	1992	-6.41*	1989	-8.30*	1994	-2.91**	1989	-3.36**	1992
Serbia	-7.39*	1992	-12.52*	2009	-7.85*	1992	-7.04*	2007	-4.68*	1992	-3.71*	1992
Turkey	-5.69*	1998	-4.91*	2006	-1.75	1995	-1.48	2001	-6.22*	2002	-7.75*	2004
Ukraine	-2.94**	1997	-3.80*	2012	-1.09	1993	-1.22	2012	-6.39*	1997	-9.36*	2008
All Panel EECA	-9.84*	1990	-11.40*	1993	-20.98*	1990	-26.71*	1996	-11.76*	1990	-13.84*	1993

Note: *, **, *** denotes not rejecting the null at a 1%, 5%, and 10% significance level.

Table 2. Zero/one/two breaks LM and RALS-LM unit root test results: South Asia.

Countries	Financial Development				Financial Institutions				Financial Markets			
	TR-LM		TR-RALS-LM		TR-LM		TR-RALS-LM		TR-LM		TR-RALS-LM	
	$\tilde{\tau}_{LM}$	$\hat{\tau}_B$	ρ^2	$\hat{K}$	$\tilde{\tau}_{LM}$	$\hat{\tau}_B$	ρ^2	$\hat{K}$	$\tilde{\tau}_{LM}$	$\hat{\tau}_B$	ρ^2	$\hat{K}$
Bangladesh	-5.29*	2000	0.98	7	-3.45*	1994	0.31	6	-1.96	2000	0.39	8
India	-9.00*	1990	0.64	3	-8.92*	1990	0.64	3	-1.67	1990	0.84	6
Pakistan	-6.43*	1994	0.56	6	-5.25*	1993	0.57	5	-6.93*	1994	0.88	6
Sri Lanka	-9.00*	1990	0.64	3	-8.92*	1990	0.64	3	-13.67*	1990	0.84	6
All Panel SA	-4.39*	1996	0.94	8	-4.83*	2006	0.60	1	-6.14*	1996	0.59	7

Note: *, **, *** denotes not rejecting the null at a 1%, 5%, and 10% significance level.

Table 3. Club convergence results: Europe & Central Asia (top globalized developing region).

Financial Development				Financial Institutions				Financial Market			
CLUBS	$\hat{b}$	t-Stat	DECISION	CLUBS	$\hat{b}$	t-Stat	DECISION	CLUBS	$\hat{b}$	t-Stat	DECISION
OVERALL	0.30	2.19**	Convergence	OVERALL	0.31	2.10**	Convergence	OVERALL	-0.41	-4.21	Divergent
								CLUB 1 (10)	0.02	0.11**	Convergence
								(Azerbaijan, Belarus, Croatia, Hungary, Kazakhstan, Moldova, Poland, Russia, Turkey, Ukraine)			
								CLUB 2 (5)	0.78	1.70**	Convergence
								(Albania, Armenia, Bulgaria, Romania, Serbia)			
								MERGING CLUB			
								CLUB (1+2)	-0.47	-4.58	Not merging
								FINAL CLUBS			
								CLUB 1 (10)	0.02	0.11**	Convergence
								(Azerbaijan, Belarus, Croatia, Hungary, Kazakhstan, Moldova, Poland, Russia, Turkey, Ukraine)			
								CLUB 2 (5)	0.78	1.70**	Convergence
								(Albania, Armenia, Bulgaria, Romania, Serbia)			

Note: The critical value is -1.67 at a 5% significance level. ** indicates not rejecting the null of convergence at a 5% significance level.

In our case, results indicate a rejection of the null hypothesis of financial development, financial institutions, and financial market for the bottom region as estimated t-statistics are lesser than the tabulated value, which supports the study of Apergis, Christou, and Miller (2012). Hence, there is evidence of financial development and financial institutions convergence in the top region, which is consistent with the studies of Antzoulatos, Panopoulou, and Tsoumas (2011) for 38 developing and industrial countries, Apergis, Christou, and Miller (2012) for 50 countries, and Bahadir and Valev (2015) for 45 countries. The homogeneous nature of the financial sector and mainly the banking sector among the countries of the top region is the reason behind this result. But interestingly, the country's heterogeneity has been found in the financial market of the top region. Another factor responsible for the accelerating convergence rate in the top region is the widespread application of financial inclusion, particularly in the banking industry. Although the macroeconomic components of any economy are facilitated by financial inclusion (Ren, Zeng, and Gozgor 2023; Wang et al. 2023), the environment's overall quality (Wang et al. 2022) is again strongly correlated with the economy's growth.⁷ In contrast, the absence of financial development convergence shows that country-specific factors rather than global forces influence financial system structure.

Table 4. Club convergence results: South Asia (bottom globalized developing region).

Financial Development				Financial Institutions				Financial Market					
CLUBS	$\hat{b}$	t-Stat	DECISION	OVERALL	CLUBS	$\hat{b}$	t-Stat	DECISION	OVERALL	CLUBS	$\hat{b}$	t-Stat	DECISION
OVERALL	-1.25	-4.24	Divergent	CLUB 1 (2)	(India, Sri Lanka)	-0.81	-2.70	Divergent	CLUB 1 (2)	(Pakistan, Sri Lanka)	-1.19	-5.83	Divergent
CLUB 1 (2) (India, Sri Lanka)	-0.95	-1.37**	Convergence	CLUB 1 (2) (India, Sri Lanka)		2.28	0.77**	Convergence	CLUB 1 (2) (Pakistan, Sri Lanka)		1.90	2.64**	Convergence
CLUB 2 (2) (Bangladesh, Pakistan)	0.62	0.37**	Convergence	CLUB 2 (2) (Bangladesh, Pakistan)		0.72	0.40**	Convergence	GROUP 1 (2) (Bangladesh, India)		-1.40	-4.98	Not Converging
MERGING CLUB													
CLUB (1+2)	-1.29	-3.78	Not merging	CLUB (1+2)		-0.92	-2.86	Not merging	CLUB (1 + G~1)		-0.94	-17.60	Not merging
FINAL CLUBS													
CLUB 1 (2) (India, Sri Lanka)	-0.95	-1.37**	Convergence	CLUB 1 (2) (India, Sri Lanka)		2.28	0.77**	Convergence	CLUB 1 (2) (Pakistan, Sri Lanka)		1.90	2.64**	Convergence
CLUB 2 (2) (Bangladesh, Pakistan)	0.62	0.37**	Convergence	CLUB 2 (2) (Bangladesh, Pakistan)		0.72	0.40**	Convergence	GROUP 1 (2) (Bangladesh, India)		-1.40	-4.98	Not Converging

Note: The critical value is -1.67 at a 5% significance level. ** indicates not rejecting the null of convergence at a 5% significance level.

Conversely, the bottom region is getting evidence of financial development divergence for the whole sample across all the variables. Therefore, the financial system across the countries of the bottom region exhibits excellent variety and uniqueness. This uniqueness remains constant shortly also. However, the divergence of financial development of the bottom region influences us to prove the possibility of convergence in its subgroup or clubs. Phillips and Sul's approach divides these countries into clubs and finds evidence of financial development convergence. All the clubs consist of homogeneous nations. Finally, as per our results, financial development has two clubs in the bottom region. Whereas Club 1 had a higher level of financial development than other clubs, club 2 had a lower level of financial development than Club 1.

Under the financial market, two clubs exist in the top region. The bottom region has one club and one group. In the bottom region, one club and one group exist, which is not converging in the financial market, which means it faces divergence issues. In contrast, the top region has only two clubs in the financial market. We can also observe that two clubs in the bottom region construct financial institutions. According to the computed result, the top region has no non-converging groups like the bottom region.

Next, we use the clustering algorithm between the clubs to measure the evidence of merging clubs within the top and bottom regions because of the overestimation of the clubs. The results are provided in [Tables 3 and 4](#).

Therefore, the overall results of club convergence imply evidence of financial development convergence across the clubs. It means developing countries are following each other with a similar transition path. The result shows that no clubs are merging in the entire sample because the estimated value of t-statistics is lower than the tabulated value. If clubs merge, both clubs follow a common transition path to reach a steady state, but all clubs are identical. After merging clubs, the final club consists of homogeneous countries and follows the same transitional path. All the countries under club one for both the top and bottom regions have a higher growth rate of financial development than club two, higher than club three. Overall, we can see that both regions are helping developing countries to catch up with rich countries. From the result of the top region, the countries such as Azerbaijan, Belarus, Croatia, Hungary, Kazakhstan, Moldova, Poland, Russian Federation, Turkey, and Ukraine are the best in financial development, financial institution, and financial market. Most of these leading countries in the top region are from the Commonwealth of Independent States (CIS), except Croatia, Hungary, Poland, and Turkey. The countries from the CIS group have a medium average per capita, which tends to have more catch-up potentiality. These countries also have faster capital accumulation and high export concentration, resulting in a growing financial development and economic growth rate. Oppositely, Sri Lanka is the leading country with higher growth of financial development dynamics in the bottom region. Sri Lanka is a lower-middle-income country with a strong catch-up possibility.

All the country's club classification depends on the variables we are calculating and other characteristics of the countries assisting in making a club. The club consists of low and middle-income economies in the club convergence test. Moldova and Ukraine are only the lower-middle-income countries in the top region, but they are under the same club. India is the only upper-middle-income economy in the bottom region; the others are lower-middle-income countries. Still, in some cases, they belong to the same club. This issue does not mean that these countries within the club will be equally the same in every perspective, like economic structure and nature. In this context, Beck, Demirgüç-Kunt, and Maksimovic (2005) argue that different economies can reach similar degrees of financial development convergence. Therefore, poorer and financially developed countries proceed further with a continuous progression in the financial system to catch prosperous, financially developed economies. This progressive financial system is also helping to develop the domestic capital markets by expanding the banking and stock market growth. Finally, an updated version of the new financial system enhances their activities with other sectors like retail, commercial,

insurance, investment, and debt. However, we are becoming more common in countries between financial development, financial markets, and financial institutions. It implies they play the same significant role in achieving economic development and growth in both top and bottom globalized developing regions. Other countries' clubs need to adopt club and sector-specific policies to become equally efficient as others.

Oppositely, Bangladesh and Pakistan are the countries with divergence in the financial market in the bottom region. Still, the top region has no countries of financial development divergence. On this note, many factors like macroeconomic performance (agriculture, tourism industry, exports.) (Beck 2002), financial liberalization (Ang and McKibbin 2007), growth in banking and the stock market at an exponential rate, privatization (Marcelin and Mathur 2015) can transfer these diverging countries (Bangladesh and Pakistan) in the bottom region into converging countries like the others and finally make more prosperous region financially strong. On the other hand, privatization (Allegret, Courbis, and Dulbecco 2003), collaboration with foreign banks, and risk management (Zhang, Shahzad, and Bouri 2022) can also be the cause of improving the financial system. Mishkin and Eakins (2006) supported these factors to enhance financial development. On the other hand, Alagidede (2008) shows that adequate capital movements, deregulation, reduction of banking and share market restrictions, digitalization, and controls on foreign exchange transactions can enhance financial development.

However, we represent the relative transition path for all the clubs in the top and bottom globalized developing regions (Figure 6). The relative transition paths should converge to one according to the assumptions of overall convergence. Still, it will be a different constant in the case of club convergence. Therefore, each variable's various clubs have different steady states regarding the variable's trend. In our case, it is visible that all the club's countries follow the upward trend, which implies that all the countries under the clubs are flexible enough to adapt the policies related to financial development dynamics.

However, the final attraction of this analysis is the speed of financial development convergence. According to Phillips and Sul's approach, the point estimator's sign also measures the convergence patterns. The results are reported in Table 5. The speed of financial development convergence in the top region is positive, whereas it is harmful in the bottom region. The speed of financial market convergence is more significant than the financial institution in the top region. This result suggests that the top region is speedily converging in the case of the financial market. The result is supported by Pal and Kumar Mahalik's (2022) study. Whereas financial institutions are lesser than the stock market, there is a possibility of improving the financial institution by adopting clubs and improving governance in the financial system.

On the other hand, the financial institution is the leading sector in the bottom region, consistent with Pal and Kumar Mahalik (2022). As the point estimator is not that strong in the financial market, there is also scope for enhancing the quality of the financial market to make better financial development in the bottom region. Ultimately, quality enhancement of both financial institutions and the market will increase the level of growth in overall financial development. The top region strongly converges over the entire sample period, mainly in financial development. This result is unsurprising because it is the top globalized region supported by the World Development Indicators database and Feldstein and Horioka's (1980) hypothesis. In contrast, the bottom region is weak regarding the speed of financial development convergence due to less economic globalization. But the convergence in the financial institution is possible for the bottom region.

However, the speed of financial development convergence shows that the lowest signal of financial development convergence in the bottom region can lead to differences in economic conditions across the countries. Hence, a unique monetary policy may apply in these regions to remove the effects of indifferences and make them grow like the top region. Based on this concept, the bottom region needs to concentrate more on improving economic globalization and influencing financial development in the long run. This statement is supported by the recent study by Pal and Kumar Mahalik (2022). Finally, we find that globalization is one of the significant factors for

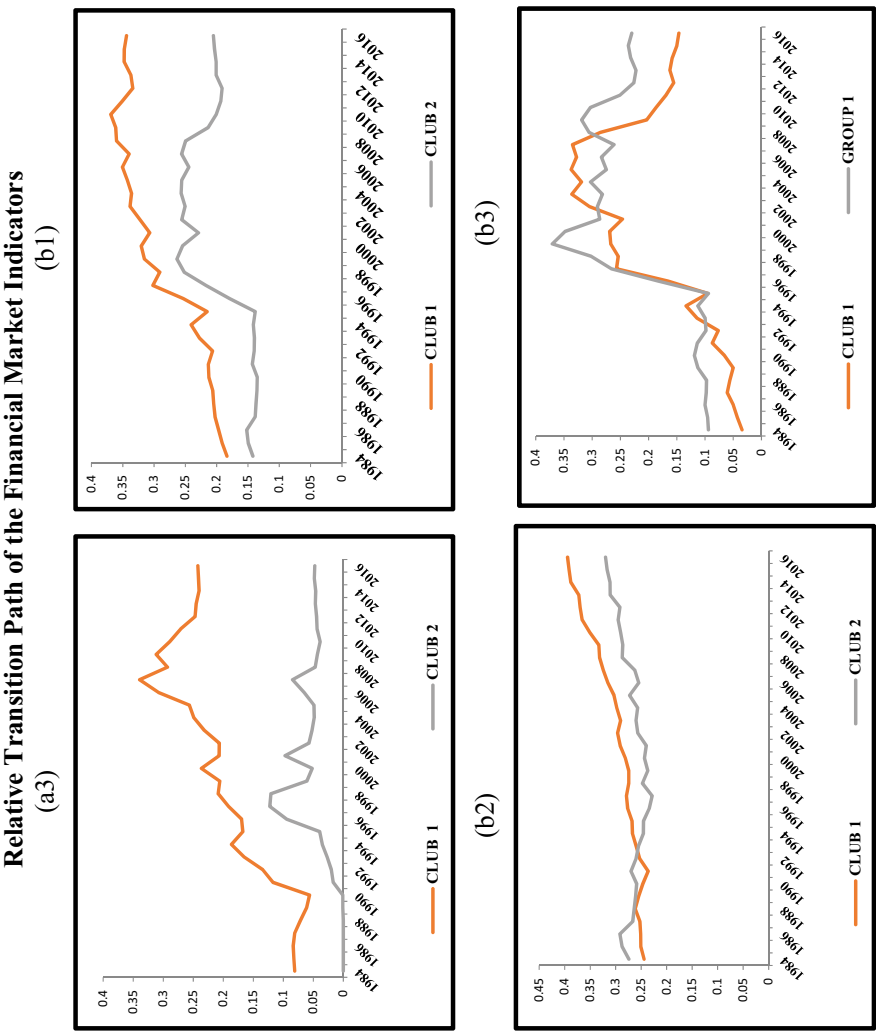


Figure 6. Relative transition path of the financial market indicators. (a3) in Europe and the Central Asian region and relative transition path of financial development (b1), financial institutions (b2), and financial markets (b3) in the South Asian region. Source: The authors' calculation.

Table 5. The speed of convergence results.

Speed of Convergence	FD	FI	FM
Europe & Central Asia	0.150	0.155	0.400
South Asia	−0.165	1.506	0.245

financial development dynamics, resulting in higher economic growth and development for both regions.

5. Conclusion and Policy Implications

With the passing of globalization, all the developing countries are interconnected. However, some countries are growing, and others remain behind in the growth of the financial system. The development of the financial system can benefit developing countries in financing consumption and production activities. This issue motivates us to explore whether globalization can help developing countries achieve quick financial development convergence. This issue is interesting to examine empirically for the top and bottom globalized developing regions because these regions are differentiated based on economic globalization. This study also analyses the convergence of financial markets and financial institutions in the top and bottom globalized developing areas. This study relies on the macro panel data for both developing regions covering the annual period from 1984 to 2016. It employs a series of panel techniques for empirical investigation. The club convergence approach is also utilized for robustness to check the degree of financial development convergence for both regions.

The LM and the RALS-LM unit root tests show the existence of overall financial development (financial markets and financial institutions) convergence across all regions. It means that these developing regions are capable enough to catch up and follow the same transitional path of financial system growth. The robust result of club convergence also demonstrates evidence of club convergence on financial development for the bottom globalized developing region but not for the top globalized developing region. Moreover, both regions have a chance of club convergence in financial markets but not in the case of financial institutions.

We further find that the speed of financial development convergence is shallow in the bottom globalized developing region rather than in the top globalized developing region. It indicates the weakest speed of financial development convergence in the bottom region. Moreover, the bottom region is the low economic globalized region which could be one of the reasons for pushing foreign investors not to invest their money. Instead, they prefer to invest in the top region hoping for an attractive return on their financial investments. Therefore, it is a matter of concern for the policymakers of the bottom developing region to focus more on expanding financial development by improving governance in the financial system. In addition, policymakers should prioritize socio-economic and political control while enhancing the financial growth in the bottom globalized developing (South Asia) region. Such policy suggestion is essential for countries in the bottom region because they can catch up with the countries of the top region when it comes to stimulating financial development.

However, this study is not free from limitations. In our study, we employed the financial development index data collected from International Monetary Fund, developed by Svirydzienka (2016). Data on the financial development index (financial institutions index and financial market index) are available for the countries in the sample but not for the other countries in Europe, the Central Asian region, and the South Asian region. As a result, we identified the limited countries for our empirical analysis of this study. Therefore, future research can concentrate on the convergence of financial development in low- middle-and. These high-income countries can help provide practical policy implications to alleviate the issues associated with expanding financial development as they are still not free from their inherent challenges of persistent poverty and unemployment.

Notes

1. Data on the financial development index (financial institutions index and financial market index) are available for the countries in the sample but not for the other economies in Europe, and Central Asian region, and the South Asian region. As a result, we identified the countries on the list above for our study.
2. Sviryzdenka (2016) considered financial institutions' and markets' depth, access, and efficiency.
Depth: Private-sector credit to GDP, Pension fund assets to GDP, Mutual fund assets to GDP, Insurance premiums, life and non-life to GDP.
Access: Bank branches per 100,000 adults and ATMs per 100,000 adults.
Efficiency: Net interest margin, Lending-deposits spread, Non-interest income to total income, Overhead costs to total assets, Return on Assets, Return on equity.
Depth: Stock market capitalization to GDP, Stocks traded to GDP, International debt securities of government to GDP, Total debt securities of financial corporations to GDP, Total debt securities of nonfinancial corporations to GDP.
Access: Percent of market capitalization outside the top 10 largest companies, Total number of issuers of debt (domestic and external, nonfinancial, and financial corporations).
Efficiency: Stock market turnover ratio (stocks traded to capitalization).
3. According to Quah (1996), it is an absurd approach to convergence because if most countries develop, the inequality between the countries will disappear in the long run.
4. The critical values (CV) of RALS-LM are given in Meng et al. (2014) study.
5. Phillips and Sul's (2007) algorithm was first executed in GAUSS software. The later versions have been produced in R and Stata by Schnurbus, Haupt, and Meier (2017) and Du (2017). In this study, we use Du's (2017) code version.
6. We cannot provide country-wise descriptive statistics due to space constraints, but they are available upon request.
7. According to World Bank (2023), account ownership jumped in Europe and Central Asia from 58% in 2014 to 65% in 2017, while the prevalence of digital payments increased from 14% to 60% in 2018. At the same time, India clinched the top rank in the South Asian region regarding the expansion of financial inclusion; other countries from this region are not progressing. Probably because of this specific purpose, India reached a high convergence rate in financial development, especially in the banking industry.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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Appendix A

Table A1. Descriptive statistics.

Region	Europe & Central Asia			South Asia		
Variable	FD	FI	FM	FD	FI	FM
Mean	0.2155	0.2824	0.1455	0.2414	0.2837	0.1956
Median	0.2025	0.2821	0.0648	0.2237	0.2843	0.1626
Max.	0.5684	0.6976	0.6563	0.4659	0.4036	0.5776
Min.	0.0000	0.0000	0.0000	0.1162	0.2093	0.0038
Std. Dev.	0.1531	0.1860	0.1701	0.0940	0.0443	0.1669
Jarque-Bera	19.84	9.521	106.9	12.84	9.977	15.16
Probability	0.0000	0.0085	0.0000	0.0016	0.0068	0.0005
Observation	495	495	495	132	132	132