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Research Article

Financial Globalization and Growth: The Impacts of Financial Development and Governance

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The conventional theory suggests that financial globalization encourages growth. The empirical literature, however, does not give convincing support for the theoretical benefits of financial globalization. This paper investigates the relationship between financial globalization and growth in a sample of 33 emerging market economies during the 1995-2019 period by considering both de facto and de jure measures of financial globalization. We first study the direct effect of financial globalization on growth. Then, we focus on whether the growth impact of financial globalization is conditional on the level of financial development and governance. Our two-step system GMM estimation results suggest that both financial globalization measures tend to lower growth, albeit this negative relationship mitigates after the global financial crisis. Our empirical findings also indicate that the negative growth impact of financial globalization diminishes with the high levels of financial development and governance. The results indicate that investing and upgrading the collateral environment cause higher growth and mitigate the negative growth impact of financial globalization.

1 Introduction

The conventional theory maintains that financial globalization (FG) encourages economic growth by providing gains like efficient capital allocation and risk sharing, development of financial markets, enhancement in the institutional environment and implementation of better macroeconomic policies (Köse et al., 2010). The empirical literature (e.g., Schmukler, 2004; Obstfeld, 2009), on the other hand, finds that FG is associated with some pains like higher susceptibility to external shocks and sudden stops, which may impede growth. A recent policy report by the International Monetary Fund (IMF) (Pasricha & Nier, 2022) emphasizes the crucial importance of pre-emptive capital flow management measures containing capital controls to mitigate the macroeconomic and financial stability risks emanating from FG. In

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this context, investigating FG-growth relations has become much more important in open economy macroeconomics.

The studies examining the FG-growth relationship focus on either the direct or conditional effect of FG on growth. The direct effect of FG is to increase growth is shown by Martin & Rey (2006), who finds that the growth effect is related to higher investment, whilst Levine (2001) suggests that it is due to the improvement in financial development and productivity. Some other studies (e.g., Edison et al., 2002; Schularick & Steger, 2010; Prasad et al., 2007) indicate that the effect of FG on growth is not robust. Rodrik & Subramanian (2009) finds that FG appreciates the real exchange rates which, in turn, diminishes investment and growth. Bortz & Kaltenbrunner (2018) reports that FG leads to the movement of resources from productive sectors like manufacturing to unproductive ones, e.g., construction, and concludes that FG may lead to premature de-industrialization. De la Torre et al. (2002) and Agénor (2003) note that developing economies may gain from FG only in good times while they expose to adverse effects in bad times.

A large number of studies maintain that a favorable collateral environment is a necessary condition to obtain the benefits of FG. In this context, Lane (2013) remarks that better macroeconomic policies and favorable institutions may prevent the painful effects of FG. Some empirical studies (e.g., De Nicolò & Juvenal, 2014; Wei, 2006; Köse et al., 2010; Chen & Quang, 2014; Yolcu Karadam & Öcal, 2022) suggest that financial development and better macroeconomic fundamentals are necessary conditions to obtain the growth effect of FG.

This study, first, aims to investigate the direct impact of FG on economic growth. Then, we consider whether the impact of FG on growth is conditional on the level of financial development and governance. To study these important issues, contrary to the literature, which often employs conventional estimation methods like panel fixed effects, we prefer to use the generalized method of moments (GMM) estimation procedure by following Arellano & Bond (1991) and Arellano & Bover (1995).

To study the direct and conditional effects of FG on growth, we take into account both *de facto* and *de jure* measures of FG. Our *de facto* measure of FG is international financial integration (IFI) introduced by Lane & Milesi-Ferretti (2018). The *de jure* measure of FG is represented with the Chinn-Ito index of Chinn & Ito (2008). The higher IFI and Chinn-Ito index values correspond to higher FG. To examine the FG-growth relationship, we incorporated human capital, governance, financial development and trade openness into the main growth regression. Also, our growth regression contains lagged income per capita to investigate the validity of income convergence. In this context, we aim to contribute to the literature by analyzing the direct and conditional effects of FG on growth in 33 emerging market economies (EME) during the 1995-2019 period.

This paper has three contributions. The first contribution is to investigate the relationship between growth and FG based on both *de facto* and *de jure* measures. The second contribution is to examine this relationship during the pre- and post-crisis periods. The last contribution is to consider the impact of the collateral environment, including financial development and governance, on the sensitivity of growth to FG.

Our GMM estimation results indicate that both *de facto* and *de jure* measures of FG lower growth. However, the negative growth effect of FG diminishes not only in economies with financial development but also with better financial governance. The empirical findings in this paper indicate that financial development and governance, e.g., favorable collateral environment, lessens the growth-decelerating effect of FG. The results in this paper imply

that upgrading an investible environment, including financial development and governance, diminishes the sensitivity of the countries to the detrimental effects of FG.

The structure of this paper is as follows. We briefly summarize the literature in Section 2. Our data is introduced in Section 3. Section 4.1 reports the empirical methodology, and Sections 4.2 and 4.3 focus on the direct and conditional effects of FG, respectively. We summarize our findings and propose some policy implications in Section 5.

2 Financial Globalization and Growth: Literature Review

The theoretical benefits of FG are briefly summarized by Prasad et al. (2007). Accordingly, the direct and indirect effects of FG are to enhance growth. The direct effect of FG is to increase growth by raising savings, mitigating capital costs, and enhancing financial markets and technology levels. The indirect effect of FG also raises growth by providing efficient risk management and improving macroeconomic policies and institutions. Prasad et al. (2007, p. 462) maintains that indirect effects of FG are more crucial than the direct ones because the former constitutes *discipline effect* in macroeconomic policies.

The investigation of Broner & Ventura (2016) via a theoretical model suggests that FG can lead to three different outcomes. The first outcome suggests that FG can lead to capital outflow, while its impact on investment and growth remains inconclusive. The second outcome implies that FG can lead to capital inflows and increase investment and growth. The third outcome points out that FG can increase the volatility of capital flows and lead to unstable financial markets. The occurrence of these diverse outcomes may vary based on the level of development, domestic savings, and institutional quality.

The results of Gaies et al. (2020) suggest that FG increases growth by promoting capital accumulation and diminishing exchange rate volatility. Growth inducing effect of FG is due to the enhancement in factor productivity than capital accumulation (Bonfiglioli, 2008). Schularick & Steger (2010) states that FG is associated with higher investment and growth before the First World War, whilst these relationships have been dispersed today. Aluko & Opoku (2022) finds that FG leads to an improvement in financial development. Rousseau & Sylla (2003) remarks that financial development has crucial importance for the evolution of capital inflows and FG. Bordo & Meissner (2015) maintains that FG encourages financial stability and growth in politically stable and institutionally developed countries. Faria et al. (2011) finds that human capital and institutional quality are among the important drivers of FG. De Nicolò & Juvenal (2014) considers that FG increases growth, diminishes growth volatility, and promotes macroeconomic stability. Law et al. (2015) indicates that FG improves institutional quality and governance in East Asian economies.

The relationship between FG and innovation is also examined in the literature. Ghosh (2017) finds that FG tends to mitigate the allocation of financial resources for innovative firms. Owen & Pereira (2018) points out that FG appears to lower innovative activities. Zheng et al. (2023), on the other hand, reports that FG leads to higher innovation, especially in non-OECD economies.

Wei (2018) notes that FG may prevent the theoretical growth gains because of the inefficiencies in international capital, domestic financial and labor markets, and domestic public governance. Joyce (2011) points out that FG driven by debt flows may lead the countries to experience adverse effects, especially under a fixed exchange rate regime and debt-financed current account deficit. Ffrench-Davis & Griffith-Jones (2019) remarks that

capital account management policies may enhance the potential benefits of FG. However, the theoretical analysis of Boucekkine et al. (2018) suggests that FG tends to enhance welfare by relaxing borrowing constraints. FG appears to increase growth almost by 1.8 percentage points per year, compared to the financial autarky (Epaulard & Pommeret, 2016).

Inekwe & Valenzuela (2020) finds that the incidence of a financial crisis is much higher in financially integrated economies, but the probability of crisis may decrease in economies with a floating exchange rate regime (Tobin, 2000). Meller (2013) investigates the relationship between FG and output volatility. Accordingly, FG mitigates output volatility in financially less risky economies whilst accelerating in financially more risky countries. Batuo et al. (2018) reports that FG is associated with financial instability and lowers growth in Africa.

Mishkin (2009) notes that better governance and financial development enable the movement of capital to the most efficient sectors. Hammudeh et al. (2020) finds a u-shaped relation between globalization and growth in middle-income countries with low financial development. Kimakova (2009) reports that risk-sharing and consumption smoothing benefits of FG appear only in more financially developed economies. However, the empirical results of Nasreen et al. (2020) suggest that FG tends to impede financial development in European economies. Saidi et al. (2017) points out that the effect of FG on growth is sensitive to the level of governance such that it enhances growth in economies with better governance.

3 Data

To investigate the impact of FG on growth, we consider conventional growth determinants. These are financial development, human capital, governance and trade openness. We also incorporated lagged income per capita into the main growth regression to check the validity of conditional income convergence. We investigate the FG-growth relationship in 33 emerging market economies (EME) during the 1995-2019 period.[1]

In this study, growth is the logarithmic difference of real GDP per capita, and the data are from World Development Indicators of the World Bank (WDI-WB). The data for human capital are from the Penn World Table database (Feenstra et al., 2015). Feenstra et al. (2015) measures human capital as the schooling years and educational returns. Our financial development measure is the financial development index reported by IMF (Svirydzenka & Brooks, 2016). We obtain the data for governance from WDI-WB, which measures institutional quality and governance based on the six elements containing voice and accountability, political stability and violence, government effectiveness, regulatory quality, rule of law and control of corruption. This paper considers the first principal component of these six elements as the measure of governance. Our trade openness data are from WDI-WB. We consider both *de facto* and *de jure* measures of FG. International financial integration (IFI), which is *de facto* FG, is proposed by Lane & Milesi-Ferretti (2018). IFI is the sum of gross stocks of financial assets and liabilities as a % of GDP. We obtain IFI data from the External Wealth of Nations database (Lane & Milesi-Ferretti, 2018). The Chinn-Ito index (KAOPEN), which is *de jure* measure of FG, is proposed by Chinn & Ito (2008). This index is constructed based on annual reports on Exchange Arrangements and Exchange

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[1] The sample includes Argentina, Brazil, Bulgaria, Chile, China, Colombia, Croatia, Czech R., Egypt, Estonia, Hungary, India, Indonesia, Israel, Kenya, Korea, Lithuania, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Poland, Romania, Russia, Slovakia, Slovenia, South Africa, Thailand, Turkey and Venezuela.

Restrictions (AREAER). The standardized Chinn-Ito index varies within the range of zero and one. An increase in both *de facto* and *de jure* measures implies higher FG.

Table 1: Levin, Lin and Chu Panel Unit Root Test Results

Variables	Levels
y_{it}	-1.888**
	[0.030]
HC_{it}	-4.526***
	[0.000]
$TRADE_{it}$	-2.787***
	[0.000]
IFI_{it}	-1.895**
	[0.029]
GOV_{it}	-2.785***
	[0.000]
FD_{it}	-1.894**
	[0.03]
$KAOPEN_{it}$	-2.628***
	[0.000]

Note: The numbers in brackets are the p-values. *, **, and *** denote the rejection of the unit root null at the 10%, 5% and 1% significance levels, respectively.

Table 1 reports the results of the panel unit root test as proposed by Levin et al. (2002), of which the null hypothesis is the variable is non-stationary. The unit root test equations include constant and trend terms. Akaike Information Criteria determine the lag lengths. The results suggest all variables are stationary in levels, i.e., I(0).

4 Empirical Methodology and Estimation Results

4.1 Empirical Methodology

To examine the direct (or unconditional) effect of FG on growth, we consider the following regression by considering the conventional growth determinants:

$$\Delta y_{it} = \alpha_i + \alpha_1 y_{i,t-1} + \alpha_2 HC_{it} + \alpha_3 FD_{it} + \alpha_4 GOV_{it} + \\ \alpha_5 TRADE_{it} + \alpha_6 FG_{it} + u_{it} \tag{1}$$

where i and t denote country and year, respectively, and Δ is the difference operator, y is the logarithm of per capita real GDP, HC is the human capital index, FD is the financial development index, GOV is the first principal component of governance variables, $TRADE$ is the trade openness and FG is the FG represented with either *de facto* IFI or *de jure* Chinn-Ito index (KAOPEN). We incorporated lagged income per capita to investigate the validity of conditional income convergence.

To study the conditional effect of FG on growth, we incorporated the interaction of FG with domestic conditions (DC), including financial development and governance, into the main growth regression. To this end, our estimated equation is:

$$\Delta y_{it} = \alpha_i + \alpha_1 y_{i,t-1} + \alpha_2 HC_{it} + \alpha_3 FD_{it} + \alpha_4 GOV_{it} + \\ \alpha_5 TRADE_{it} + \alpha_6 FG_{it} + \alpha_7 FG_{it} * DC_{it} + u2_{it} \tag{2}$$

The estimation of the growth equation, including a lagged level of income per capita[2] and fixed effects, may lead to endogeneity concerns, but the difference GMM estimation method overcomes the endogeneity and provides consistent parameter estimates (Caselli et al., 1996). Bond et al. (2001), on the other hand, maintains that the difference GMM procedure provides biased parameter estimates in the case of weak instrument sets and suggests the system GMM method of Arellano & Bover (1995). By considering the endogeneity and simultaneity, the system GMM estimation method provides consistent parameter estimates.

We estimate equations (1) and (2) by employing the two-step system GMM procedure with Windmeijer-adjusted standard errors. We maintain that conventional growth determinants, including human capital, financial development, institutional quality and governance, trade openness and FG, are potentially endogenous for growth. Our instrument set consists of the first three lags of the endogenous variables. Considering the remarks of Bond (2002), we consider the same lag structure for our dependent variable. We also use the "collapse" command suggested by Roodman (2009).

4.2 The Effect of Financial Globalization on Growth: Empirical Results

This section examines the direct effect of FG on growth. Table 2 reports the estimation results of eq. (1). We consider *de facto* IFI and *de jure* Chinn-Ito index (KAOPEN) as the FG measures in specifications (1.1) and (1.2), respectively. Considering that our sample includes the 2008-2009 global financial crisis, we estimate these specifications for the pre-crisis (1995-2007) and post-crisis (2010-2019) periods. All the estimated equations reported in Table 2 pass the residual diagnostics, including autocorrelation and instrument validity. This implies that our estimated equations satisfy the necessary condition for consistent GMM parameter estimates.

The lagged income per capita is negative and significantly associated with growth in all specifications. This suggests the validity of conditional income convergence, indicating that the income per capita of relatively poorer EMEs increases at a higher rate than that of the relatively richer ones. There is a positive and significant association between human capital (HC) and growth. The impact of financial development (FD) is to increase growth as it may provide funds for financially constrained firms, leading to higher investment and growth. The effect of governance (GOV) on growth is positive and significant in all specifications. Considering better GOV is closely associated with the improvement in legal infrastructure, property rights, transparency and accountability, and this may imply that an enhancement in GOV encourages growth by strengthening the investible environment. The impact of trade openness ($TRADE$) on growth is positively significant, suggesting that higher openness to international trade is associated with better growth episodes. According to the results of Eq. (1), *de facto* measure of FG, which is IFI tends to mitigate growth. This also appears to be the case for *de jure* KAOPEN in Eq. (2). The results suggest that the impact of FG is to lower growth. The negative growth impact of FG appears to be the case both in the pre- and post-crisis periods. However, the growth mitigation impact of FG appears to be much higher during the pre-crisis period. This may not be surprising because the global financial crisis has led to a decline in capital flows (McQuade & Schmitz, 2017) and FG. The empirical findings indicate that EMEs experience the side effects of FG both

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[2] Islam (1995) notes that prevailed differences in production functions are captured by including country-specific fixed effects.

Table 2: The Direct Effect of Financial Globalization on Growth

	(1.1)	(1.1.a)	(1.1.b)	(1.2)	(1.2.a)	(1.2.b)
	Whole Period	Pre-Crisis	Post-Crisis	Whole Period	Pre-Crisis	Post-Crisis
$y_{i,t-1}$	-0.155**	-0.199**	-0.101***	-0.182**	-0.167***	-0.180***
	(0.054)	(0.030)	(0.018)	(0.068)	(0.027)	(0.015)
HC_{it}	0.194**	0.121**	0.063**	0.148**	0.054*	0.140***
	(0.062)	(0.046)	(0.020)	(0.065)	(0.030)	(0.016)
FD_{it}	0.284**	0.576***	0.199***	0.378**	0.560***	0.260***
	(0.115)	(0.080)	(0.040)	(0.167)	(0.070)	(0.062)
GOV_{it}	0.037*	0.022**	0.021***	0.068**	0.039***	0.075***
	(0.022)	(0.010)	(0.003)	(0.031)	(0.009)	(0.010)
$TRADE_{it}$	0.183***	0.094**	0.033*	0.165***	0.062**	0.027**
	(0.052)	(0.036)	(0.016)	(0.045)	(0.022)	(0.013)
IFI_{it}	-0.085***	-0.036***	-0.012***			
	(0.013)	(0.008)	(0.003)			
$KAOPEN_{it}$				-0.130**	-0.058**	-0.033*
				(0.045)	(0.027)	(0.017)
Constant	0.716**	0.183***	0.821***	1.068**	1.086***	1.337***
	(0.347)	(0.200)	(0.130)	(0.410)	(0.174)	(0.112)
# of Obs.	755	396	293	755	396	293
χ^2_{H-S}[p-value]	0.061	0.270	0.117	0.136	0.508	0.225
$AR1$[p-value]	0.001	0.001	0.000	0.001	0.001	0.001
$AR2$[p-value]	0.159	0.337	0.084	0.261	0.295	0.128
χ^2_W[p-value]	0.00	0.00	0.00	0.00	0.00	0.00

Note: *, **, and *** denote the 1%, 5% and 10% significance levels, respectively. The numbers in parentheses are the standard errors. χ^2_{H-S} is the Hansen-Sargan test for instrument validity. AR1 and AR2 are the first and second-order autocorrelation tests.

during the pre- and post-crisis periods. This may be due to the inefficiencies in domestic financial markets (Wei, 2018) and the low level of governance (Saidi et al., 2017).

4.3 The Conditional Effect of Financial Globalization on Growth: Empirical Results

We now study whether the impact of FG on growth depends on the level of GOV and FD. Köse et al. (2011) shows that FD tends to augment the growth benefits of FG. In this context, Kimakova (2009) indicates that the theoretical benefits of FG, including risk sharing and consumption smoothing, appear to be the case in economies with high levels of FD. Mishkin (2009) notes that FD plays a key leading role in allocating resources to the most efficient sectors. The level of GOV is also an important factor affecting the allocation of resources amongst the sectors. Poor economies with weak GOV have a tendency to distribute the resources into less profitable projects like infrastructure (Rajan & Zingales, 1998). The GOV is crucial for financially open economies (Köse et al., 2011).

To consider the conditional effect of FG on growth, we include the interaction of FG with GOV and FD into the estimated equations. We also incorporate the interaction of FG with GOV and FD jointly. All specifications in 3 are the extended versions of the model presented in equation (1). These specifications are briefly reported in equation (2). All the estimated equations in Table 3 pass the autocorrelation and instrument validity tests.

According to specification (3.1), the direct effect of *de facto* FG is to diminish growth. The interaction of FG with governance is positively associated with growth, albeit smaller in magnitude. This indicates that the effect of FG on growth is negative for the economies with low levels of GOV, and this negative impact is slightly lower in economies with better insti-

tutional environments. This appears almost the same when we consider *de jure* FG measure (specification 3.2). Consequently, better GOV tends to mitigate the negative growth impact of FG. This is consistent with the conventional argument that better GOV enhances legal infrastructure, property rights, transparency, accountability and the investible environment.

Table 3: The Conditional Effect of Financial Globalization on Growth

	Eq.(3.1)	Eq.(4.1)	Eq.(5.1)	Eq.(3.2)	Eq.(4.2)	Eq.(5.2)
$y_{i,t-1}$	-0.111***	-0.100***	-0.088***	-0.218***	-0.341***	-0.301***
	(0.028)	(0.025)	(0.016)	(0.016)	(0.030)	(0.024)
HC_{it}	0.134***	0.106***	0.096***	0.181***	0.257***	0.198**
	(0.036)	(0.028)	(0.022)	(0.027)	(0.033)	(0.027)
FD_{it}	0.157***	0.136**	0.167**	0.142**	0.205**	0.178**
	(0.045)	(0.013)	(0.017)	(0.070)	(0.081)	(0.073)
GOV_{it}	0.043***	0.038**	0.009*	0.066***	0.109**	0.063**
	(0.010)	(0.013)	(0.004)	(0.007)	(0.019)	(0.020)
$TRADE_{it}$	0.030*	0.040***	0.026*	0.080***	0.063***	0.058***
	(0.017)	(0.010)	(0.015)	(0.023)	(0.017)	(0.014)
IFI_{it}	-0.038***	-0.071**	-0.073***			
	(0.008)	(0.021)	(0.011)			
$IFI_{it} * GOV_{it}$	0.008*		0.016***			
	(0.005)		(0.004)			
$IFI_{it} * FD_{it}$		0.073*	0.030**			
		(0.047)	(0.014)			
$KAOPEN_{it}$				-0.104***	-0.280***	-0.153**
				(0.013)	(0.070)	(0.058)
$KAOPEN_{it} * GOV_{it}$				0.035***		0.008***
				(0.010)		(0.002)
$KAOPEN_{it} * FD_{it}$					0.725***	0.355**
					(0.161)	(0.157)
Constant	0.617***	0.584***	0.516**	1.358***	2.227***	2.002**
	(0.166)	(0.152)	(0.094)	(0.102)	(0.210)	(0.188)
# of Obs.	755	755	755	755	755	755
χ^2_{H-S}[p-value]	0.266	0.376	0.582	0.608	0.504	0.566
$AR1$[p-value]	0.000	0.000	0.000	0.001	0.004	0.001
$AR2$[p-value]	0.121	0.212	0.124	0.290	0.562	0.410
χ^2_W[p-value]	0.00	0.00	0.00	0.00	0.00	0.00

Note: *, **, and *** denote the 1%, 5% and 10% significance levels, respectively. The numbers in parentheses are the standard errors. χ^2_{H-S} is the Hansen-Sargan test for instrument validity. AR1 and AR2 are the first and second-order autocorrelation tests.

The results of specification (4.1) suggest that FG and growth are negatively associated. When we interact FG with FD, the estimated coefficient for the interaction term is strongly positive and almost the same in magnitude as the negative coefficient on *de facto* FG indicator itself. This may imply that FG tends to lower growth in economies with low levels of FD and slightly increase growth in countries with high levels of FD. This is much higher when we consider *de jure* measure of FG (specification 4.2). This is consistent with the argument that FD provides efficient allocation of funds for resource-constrained firms and thus increases economic growth. Including an interaction term of FG with GOV and FD (specifications 5.1 and 5.2) provides similar results presented in Section 4.2.

5 Conclusion

Financial globalization (FG) provides many benefits, including efficient capital allocation, financial development, better governance and macroeconomic policies. The empirical literature often fails to provide convincing support for the theoretical benefits. This study focuses on FG and growth relationships in 33 emerging market economies during the 1995-2019 period.

Our empirical results indicate that the direct effect of FG is to lower growth. However, the negative growth effect of FG diminishes not only in economies with financial development but also with better financial governance. These empirical findings hold when we consider both *de facto* international financial integration and *de jure* Chinn-Ito index. These may imply that the detrimental growth effect of FG lowers with the high level of financial development and governance.

Our findings suggest that emerging market economies may enhance domestic conditions, including financial development and governance, to lessen the negative growth effects of FG. Our results are compatible with the remarks of Prasad et al. (2007, p. 462) maintaining the conditional effect of FG is more important than direct effects because the former provides the "discipline effect" in macroeconomic policies. Considering the remarks of Joyce (2011), FG driven by foreign direct investment (FDI) flows may also lead EMEs to reap the growth benefits of FG. In this context, capital controls may play a key leading role in altering the composition of FG from non-FDI integration to FDI integration. The employment of a selective capital control policy may also be considered an important policy toolkit to procure the theoretical gains of FG. Agénor (2003) points to the importance of macroeconomic policies to obtain the beneficial effects of FG. These policies should aim to enhance financial development and strengthen the institutional environment. All these may contribute to obtaining the beneficial effects of FG.

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