

Does Financial Integration Matter During Financial Crises? A Comparative Analysis of Economies of Developing Countries

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Abstract

Using developing countries in Europe for context, this study examines the complex relationship between financial crises and financial integration. We use panel data comprising 37 countries in Europe, including Iceland, Belarus, Ukraine, Turkey, and Russia from 2000–2019 and the general method of moments. Our findings show that there is a positive relationship between financial integration and development and economic growth. In addition, the results suggest that a higher degree of financial integration is not necessarily increasing financial fragility during a financial crisis. Therefore, the results show that it is a self-defeating policy for developing countries to apply a strategy of financial protectionism over a financial crisis.

Keywords: economic growth, financial crisis, financial integration, financial development

JEL Codes: F33, F36, G15, G21

1. Introduction

Many scholars have historically shown interest in the functioning of financial integration to determine the influence of financial development on GDP per capita growth. Additionally, the significance of financial integration and development as well as its impacts on GDP per capita growth have grown, particularly in light of the recent global financial crisis. The evidence adduced so far on how financial integration works during periods of financial crisis is still inconclusive and continues to be debated. The debate on financial integration and financial crisis revolves around the issue of whether financial liberalization or openness behaviour acts as an accelerator of financial crises or rather ameliorates financial crises (Kose et al., 2009).

Many studies, including Eichengreen and Leblang (2003), Badri and Sheshgelani (2016), and Ahmed (2016) have demonstrated that financial integration has a negative effect on economic growth. In contrast, research by Bekaert et al. (2005), Klein and Olivei (2008), Quinn and Toyoda (2008), De Nicolò and Juvenal (2014) and Saafi et al. (2016) has concluded that the relationship between financial integration and economic growth is positive. Alesina and Rodrik (1994), Grilli and Milesi-Ferretti (1995), Rodrik (1998) and Edison et al. (2002) discovered no effect of financial integration on economic growth, whereas Bosworth and Collins (1999), Bailliu (2000), and Arteta et al. (2001) found mixed results regarding this topic.

Although the majority of empirical research has focused on whether financial integration increases the likelihood of financial crises, we believe it would be more relevant to look at how financial integration affects macroeconomic dynamics after a crisis has occurred. Thus, the main objective of this study is not to analyse the causes of financial crises, but rather to examine the causal effects of financial crises and how these causal effects interplay with financial integration. The prior literature on this topic is rather limited. There is some support for Edwards' (2008) study, which asserted that economies with higher levels of capital mobility may experience a more severe decrease in economic growth once a crisis strikes. On the other hand, Bonfiglioli and Mendicino (2004), Masten et al. (2011), Ahmed (2011), and Oprea (2017) have concluded that economies of countries with more financial integration perform better during financial crises than economies of countries with less financial integration. A recent study by Abbassi et al. (2017) found that shocks from financial crises reduce the supply of cross-border liquidity with a stronger volume effect (a maximum of 29%) and thereby impair international financial integration. Almost the same conclusion was reached by Lane and Milesi-Ferretti (2018).

Since there is not much research on this issue, the primary contribution of this study to the existing literature is to examine the impact of financial integration on financial development during financial crises in European countries. Furthermore, for two reasons, we decided to analyse the financial integration and financial development nexus. Firstly, since financial integration and financial development are simultaneous processes, they may have a direct impact on economic growth. However, in most cases, financial integration has an indirect impact on economic growth via financial development (Kose et al., 2009). The second crucial issue is to identify whether high dependence on international financial markets amplifies the effect of the financial crises that they may experience.

Another contribution of the study is that research into this issue has used cross-country regression, which has been criticized for lack of robustness because of the endogeneity problem and ignoring the large differences among countries (Mmolainyane and Ahmed, 2015). Taking into consideration the econometric problems, this study employs the dynamic panel model

system general method of moments (GMM) estimator to accurately evaluate the effect of financial integration and financial development on GDP per capita growth, particularly during a period of financial crisis. Furthermore, we add dummy variables for the financial crisis as well as the interaction term between the financial crisis and financial integration. Their influence on national financial development is evaluated in order to assess the impact of financial integration on financial development, which in turn leads to an effect on GDP per capita growth during the financial crisis. We took the necessary data from Cerra and Saxena (2008) and Leaven and Valencia (2018).

The rest of the paper is organized as follows. The extant literature is reviewed in Section 2. The relevant data and econometric methods are discussed in Section 3, while Sections 4 and 5 discuss the results, conclusions, and policy implications of the study.

2. Literature Review

We demonstrate through the literature review that there is no unique theory that provides a clear explanation of the effect of financial integration on economic growth and on financial development. The current state of economic and financial research seems to be divided into two opposing camps for and against financial integration. The theories which favour financial integration posit that it facilitates creating higher opportunities for risk sharing and risk diversification for firms and households. They argue further that it provides better allocation of capital among investments opportunities and enhances the functioning of the domestic financial sector (Obstfeld, 1994; Acemoglu and Zilibotti, 1997). The standard neoclassical growth theory suggests that financial integration eases the flow of capital from countries with surplus capital to countries where capital is needed. The movement of capital leads to economic growth and increases investments in countries that have limited capital by helping them lower the costs of capital. Furthermore, financial integration also promotes the functioning of domestic financial markets by promoting competition (see Klein and Olivei, 2008; Levine, 2001) and by ensuring the transfer of management and technological capital to countries in transition (Agenor, 2003).

The theories against financial integration claim that there is no positive impact of financial integration on economic growth. Eichengreen (2001) argues that financial integration could adversely affect resource allocation and retard economic growth. Furthermore, it could induce capital outflow from countries where financial institutions and the legal system are weak and capital is scarce to countries where capital is abundant and the financial and the legal systems are sound (Boyd and Smith, 1992). Rodrik (1998) and Edwards (2001) posited that the costs associated with financial integration outweigh the benefits because the lack of development of financial institutions make the existing ones vulnerable to the volatility of global financial

markets. Furthermore, since countries that have more open capital accounts are highly exposed to vagaries of the global financial markets, financial integration will induce many costly disadvantages while offering only limited benefits to developing countries. Based on the literature review, one can argue that financial integration might induce positive economic growth only to economies that have strong institutions and sound legal system and policies.

To sum up, the literature shows that there is thus far no unique theory that could explain the relationship between financial integration and economic growth. Since there is no single theory that could explain the relationship between financial integration and economic growth, in this study we will rely on the results of our analysis to dictate the nature of the relationship between the two indicators. Similarly, there is no agreement amongst the experts on a causal link and relationship between financial integration, financial development, and economic growth.

The link between financial integration and economic development was examined by Edison et al. (2002) using ordinary least squares (OLS) and several financial integration measures. For a cross-sectional OLS approach, the study encompassed 57 countries from 1980 to 2000. According to the study's findings, economic growth is not sped up by global financial integration. Financial integration, financial development and economic growth were all examined by Badri and Sheshgelani (2016). Using the panel data approach, the study was carried out for 24 OIC countries in the period from 2005 to 2013. The study's findings indicate that financial integration was adversely connected with growth, whereas financial development had a beneficial influence on economic growth in a few countries. The same outcomes were discovered by Eichengreen and Leblang (2003) and Ahmed (2016).

Klein (2005) used the cross-section OLS and IV statistical techniques to look at the relationship between integration and growth. The investigation was conducted between 1984 and 1995 and involved 71 different countries. The author concluded that at medium levels of institutional development, financial integration is positively connected with economic growth. Kose et al. (2008) also underlined the significance of FDI. The authors stated that taking into account the degree of financial development in non-industrialized countries, the benefits of financial integration are most apparent when they receive capital inflows through FDI or portfolio equity investments. A macro research into the relationship between financial integration and growth in overall productivity was done by Bonfiglioli (2008). Using cross-country data, the empirical investigation covered the period from 1975 to 1999. The findings showed that financial integration has a positive direct effect on productivity. Quinn (1997), Bekaert et al. (2005), Quinn and Toyoda (2008), De Nicolò and Juvenal (2014) and Saafi et al. (2016) have all come to the same conclusions.

The study by Rodrik and Subramanian (2008) showed that even when financial crises are separated, it becomes increasingly difficult to identify the positive effects of financial integration on economic development. The authors claimed that increased growth or decreased volatility in developing economies were not the results of financial integration. Other studies that have examined the issue have also reached a similar conclusion that financial integration does not have an impact on economic growth (see Alesina and Rodrik 1994; Grilli and Milesi-Ferretti, 1995; Edison et al., 2004).

Arteta et al. (2001) examined the effects of capital account liberalization on economic growth for 61 countries over the period 1973–1992. The findings showed that there is a similar likelihood of economic development being aided or hindered by financial integration. Other research (Bosworth and Collins, 1999; Bailliu, 2000; Edwards, 2001) has discovered evidence supporting mixed effects in a similar manner.

Putting things into context, one can argue that only a handful of studies have examined the effect of financial integration on economic growth during financial crises. The study by Edwards (2008) found that countries with higher capital mobility have higher output costs once a financial crisis occurs. In addition, the study by Lane and Milesi-Ferretti (2018) used an updated dataset on foreign assets and liabilities. It encompassed over 210 economies from 1970 to 2015 to show the evolution of global financial integration since the global financial crisis. They concluded that there had been no further rise in cross-border positions relative to the global GDP. This was due to much reduced cross-border banking activity, substantially slower capital flows to and from advanced countries, and a rise in the weight of emerging economies in the global GDP, which in turn leads to an impairment of international financial integration. A similar conclusion was reached by Cerra and Saxena (2008) and Abbassi et al. (2017). Bonfiglioli and Mendicino (2004), Masten et al. (2011), Ahmed (2011), and Oprea (2017), on the other hand, have shown that a higher degree of financial openness tends to reduce the contractionary effect of financial crisis; thus, countries that are more financially integrated benefit more during financial crises than countries that are less financially integrated.

These contradicting findings led us to concentrate on the interaction between financial integration and financial crises as a means to evaluate the impact of financial integration through the finance-growth nexus after a financial crisis has occurred. Even though the primary motive for our study is similar to that of Edwards (2008), we differ from him in one significant aspect. In our approach, financial integration is simply one part of economic integration, which also includes trade integration. According to this perspective, the function of financial integration during a financial crisis has to avoid confusing the effects of the crisis on economic development that are related to the effects of economic integration, including trade openness, which may affect demand for exports.

A word on the methodology that we have adopted in the current study: the literature review shows that a cross-country modelling approach has been developed and/or adopted to examine the effect of financial integration on economic development/growth. However, this methodology has been shown to suffer from several critical flaws. Firstly, it ignores large variations among countries that occur because of instability of long time series, and secondly, it is unable to control for endogeneity (Mmolainyane and Ahmed, 2015). To solve these problems and correctly evaluate the effect of financial integration on economic growth/development, the current study employs the system GMM.

3. Data and Methodology

3.1 Data

This study is culled together from data collected by the World Bank's World Development Indicators and the International Monetary Fund (IMF), which cover annual data from 2000 to 2019 (see Appendix for descriptions and sources of data and a list of countries). They consist of a panel data on 37 European developed and developing countries, including Iceland, Belarus, Ukraine, Turkey, and Russia. Additionally, due to a lack of data, a few European developing countries are not included in the sample.

Hitherto, no study has provided definitive indicators that may be used to measure financial integration, financial development, and economic growth. Thus, we use indicators that have been used in the literature. These include real gross domestic product per capita growth (King and Levine, 1993), sum of stocks of total foreign assets, liabilities, market capitalization and private credit of the banking sector. Furthermore, we include lagged GDP per capita growth as an independent variable in order to capture persistence of GDP per capita growth.

Financial integration (henceforth FI) measures international financial integration. There are three main ways to measure financial integration, i.e., price-based, news-based and size-based measurements. It is important to apply measurements that show more time variation, which gives more objective statistical basis. Therefore, we prefer to employ sized-based measurement, which contains the sum of stocks of total foreign assets and liabilities as a ratio of GDP (Lane and Milesi-Ferretti, 2006; 2007).

We use financial development (henceforth FD) as a proxy for financial market development, which measures the depth of national financial markets. In addition, we apply a wide measurement of financial depth, i.e., financial development, which contains market capitalization (Rajan and Zingales, 1998) and private credit of the banking sector as a ratio of real GDP (Guiso et al., 2004).

Since our objective is to assess the impact of financial integration on economic growth during financial crises, we construct data on financial crises from the databases of Cerra and Saxena (2008) and Leaven and Valencia (2018), which cover all episodes during the period 2000–2017. Furthermore, based on the datasets constructed by Cerra and Saxena (2008) and Leaven and Valencia (2018), we identify 62 systematic banking and exchange crisis episodes in developed and developing countries in the period 2000–2019. In other words, we cull the data for financial crises using the datasets of Cerra and Saxena (2008) and Leaven and Valencia (2018).

In addition to these variables, we include inflation (Caporale, 2009; Ghimire and Giorgioni 2013; Gillman and Harris, 2004) as a control variable to make the results clearer. We provide the summary statistics in Table 1.

Table 1: Summary statistics

Variable	Observations	Mean	Standard dev.	Minimum	Maximum
GDP per capita	557	2.683649	8.750362	−31.17752	90.46822
FD	557	52.90819	55.16205	15.192032	521.3452
FI	557	78.9913608	82.95909	20.9675432	742.85503
INF	557	78.47786	332.2209	−1.279287	73.491512
Crisis	557	0.1480144	0.3554452	0	1

Source: author's calculations

3.2 Methodology

We examine the interplay between financial integration, financial development, and economic growth in a number of steps. First, we examine the effect of financial integration on economic growth and financial development through the so-called “direct channels”. Furthermore, we examine this effect by distinguishing between the economies of developed countries and economies of developing countries. Next, using the data, we examine how these variables operate through the “indirect channels” during periods considered financially “normal times” and during periods of financial crisis.

Following the accepted techniques in the literature (Arellano and Bond, 1991; Blundell and Bond, 1998; Blundell and Bond, 2000), we use the dynamic panel model (GMM) to examine the relationship between the variables. The GMM procedure allows us to control for endogeneity bias among the variables. By taking the first difference, the GMM procedure also solves the problem of omitted and unobserved variables.

The specification of the dynamic panel model (GMM) for testing the effect of financial integration on economic growth is as follows:

$$y_{it} = \beta y_{it-1} + \phi FI_{it_developed} + \phi FI_{it_developing} + \lambda FD_{it_developed} + \lambda FD_{it_developing} + \eta Z_{it} + \delta_i + \gamma_t + \mu_{it} \quad (1)$$

Where:

y_{it} = real GDP per capita,

i = country,

t = time period,

y_{it-1} = lagged level of per capita real GDP,

FI_{it} = financial integration (for developed and developing countries),

FD_{it} = financial development (for developed and developing countries),

Z_{it} = vector of inflation,

δ_i = country fixed effect,

γ_t = common time.

By taking the first difference in Equation (1), the country-specific effect term will be removed as follows:

$$y_{it} - y_{it-1} = \beta(y_{it-1} - y_{it-2}) + \phi(FI_{it} - FI_{it-1}) + \lambda(FD_{it} - FD_{it-1}) + \eta(Z_{it} - Z_{it-1}) + (\gamma_t - \gamma_{t-1}) + (\mu_{it} - \mu_{it-1}) \quad (2)$$

To solve the endogeneity problem and achieve a weak form of exogeneity of the explanatory variables, we use instruments for explanatory variables that are uncorrelated with any past or current error term. Assuming that the error term is serially uncorrelated and the explanatory variables are only weakly exogenous, GMM dynamic panel data use the following moment of condition:

$$E[y_{it-s} \times (\mu_{it} - \mu_{it-1})] = 0 \quad \text{for } s \geq 2; \quad t = 3, \dots, T \quad (3)$$

$$E[FI_{it-s}, FD_{it-s}, Z_{it-s} \times (\mu_{it} - \mu_{it-1})] = 0 \quad \text{for } s \geq 2; \quad t = 3, \dots, T \quad (4)$$

To overcome the loss of information associated with using the GMM estimator, a system of equations composed of lagged levels and lagged differences of the explanatory variables has been developed by Arellano and Bover (1995) and by Blundell and Bond (1998). The lagged levels and lagged differences of explanatory variables serve as instruments in the GMM estimator. In other words, the system GMM estimator is created through a combination of instruments

for the regression equation in the levels and differences estimated, such as:

$$E[y_{it-s} - y_{it-s-1}(\delta_i + \mu_{it})] = 0 \quad \text{for } s = 1 \quad (5)$$

$$E[FI_{it-s} - FI_{it-s-1}, FD_{it-s} - FD_{it-s-1}, Z_{it-s} - Z_{it-s-1} \times (\delta_{it} + \mu_{it})] = 0 \quad (6)$$

for $s = 1$

We use the moment of conditions in Equations (3) to (6), the instruments that are lagged by two periods (i.e., $t-2$) and the GMM procedure to produce stable and efficient parameter estimates. We assess the validity of the GMM estimator using the Sargan test. We argue that countries with a more liberalized financial sector are more disposed to experiencing bigger external financial shocks. However, because our objective is to assess the effect of financial integration on economic growth during a period of financial crisis, we follow Fetai (2015) and control for the effect of financial crises on financial development by using dummy variables to capture financial crises, the interaction term between financial crises and financial integration. Based on the datasets created by Cerra and Saxena (2008) and Leaven and Valencia (2018), we construct dummy variables for financial crises over the 62 episodes of systematic banking and exchange rate crisis during the period 2000–2019.

The dynamic panel model system for testing the effect of financial integration on financial development during periods of financial crisis is specified as:

$$FD_{it} = BFD_{it-1} + \phi FI_{it} + \varphi crisis_{it} + \phi FI_{it} \times \varphi crisis_{it} + \eta Z_{it} + \delta_i + \gamma_i + \mu_{it} \quad (7)$$

Where:

FD_{it} = financial development,

FI_{it} = financial integration,

Z_{it} = vector of other variables (this includes real GDP and inflation),

$\varphi crisis_{it}$ = dummy variable (takes the value 1 if the country i experiences either or both banking and exchange rate crisis in the period t and 0 otherwise).

By taking first difference in Equation (7), the country-specific effect term will be removed as follows:

$$FD_{it} - FD_{it-1} = B(FD_{it-1} - FD_{it-2}) + \phi(FI_{it} - FI_{it-1}) + \varphi(crisis_{it} - crisis_{it-1}) + \phi(FI_{it} \times crisis_{it} - FI_{it-1} \times crisis_{it-1}) + \eta(Z_{it} - Z_{it-1}) + (\gamma_t - \gamma_{t-1}) + (\mu_{it} - \mu_{it-1}) \quad (8)$$

As in the first model of the system, we solve the problem of endogeneity and country-specific effect term by employing a system of GMM estimations. Noteworthy is the fact that we apply the same GMM procedure of the moment of conditions.

4. Empirical Results

The results of our analysis using Equation (1) are reported in Table 2. They show that the dynamic model panels are well-specified and the coefficient of the lagged real GDP per capita is statistically significant. Moreover, the Sargan test for identification of restrictions in the presence of heteroscedasticity with the associated p-value, which examines the overall validity of the instrumental variables, is obtained in the second-step results. This indicates the validity of the instrument set for all the estimated equations. In addition, the results of the GMM estimator prove the hypothesis that instrumental variables are not correlated with the set of residuals. The Arellano-Bond test of AR (1) and AR (2) is rejected in the first order, but accepted in the second order and confirms the absence of autocorrelation between the error terms in the second order.

Table 2: Evaluating impact of financial integration on economic growth

	1	2	3	4	5
GDP per capita t–1	0.511** (0.146)	0.247** (0.315)	0.212** (0.007)	0.17*** (0.001)	0.242** (0.091)
F1	0.006** –0.002		0.006** (0.002)		
FI_developing economies				0.013** (0.005)	
FI_developed economies				0.0016* (0.0013)	
FD		0.01** (0.006)	0.003** (0.001)		
FD_developing economies					0.0091*** (0.0032)
FD_developed economies					0.0035** (0.0014)
Inflation	–0.06** (–0.002)	–0.07* (–0.0024)	–0.02* (–0.001)	–0.105* (–0.05)	–0.012*** (–0.003)
No. of obs.	362	362	362	362	362
Arellano-Bond test for AR (1)	0	0	0	0	0
Arellano-Bond test for AR (2)	–0.327	–0.363	–0.432	–0.363	–0.1324
Sargan test	–19.432	–21	–19.876	–24.543	–12.765
$\chi^2_{(56)} \text{ prob.}$	–0.7652	–0.5795	–0.7231	–0.8123	–0.9876

Notes: the dependent variable is GDP per capita. Two lags are utilized as instruments in the GMM method. All the GMM regressions use robust standard errors that are parenthesized. * = 10% significance level, ** = 5% significance level and *** = 1% significance level. The Sargan test reports the p-value for the null hypothesis of the validity of instruments obtained in step 2. The Arellano-Bond test for AR (1) and AR (2) reports the p-values for first and second-order auto correlation in the error terms.

Source: author's calculations

Columns 1, 2, and 3 in Table 2 show that financial development and financial integration have a positive effect on real GDP per capita. The coefficients of the two variables are statistically significant. This finding is consistent with the findings of previous studies (see Grilli and Milesi-Ferretti, 1995; Rodrik, 1998; Klein and Olivei, 2008; Vithessonthi and Tongurai, 2012; De Nicolò and Juvenal, 2014; Saafi et al., 2016) and show that an increase in finance leads to higher economic growth in both short and long term. The contribution of this paper is in columns 4 a 5, which we obtained by changing the model specification by dividing the effect of financial integration and financial development on economic growth into two groups of countries – countries that are economically developed and countries whose economies are developing. Again, we find that financial development and financial integration have a positive effect on economic growth in economies of both developed developing countries – all the coefficients are positive. A closer examination of the results, however, shows that economic growth induced by financial integration and financial development is higher in countries whose economies are developing than that of countries whose economies are developed. Furthermore, financial integration and financial development have a direct positive effect on economic growth.

Financial integration may have benefits from the increases in risk sharing, better capital allocation and financial development opportunities. These are important policy issues because countries with developing economies that have liberalized their capital accounts will experience more competitive financial markets from being financially integrated into the rest of the world. Since financial integration also affects economic growth indirectly through financial development, we examine the indirect channels through which financial integration could operate by assessing the effect of financial development on economic growth. We conduct these investigations in two stages. In the first stage, we try to determine whether the increase in financial openness contributes to financial development and thereby stimulates growth. In the second stage, we try to determine whether financial integration interacts with financial development in economies that are experiencing a financial crisis.

4.1 Effect of financial integration on financial development

A new contribution of this research is the results of Equation (7), which are reported in Table 3. All the coefficients that we estimated, including the coefficient for the lagged real GDP per capita, are statistically significant. The results also show that all the calculated dynamic panel models are well-specified. Here again, the Sargan test for identification of restrictions (obtained in the second-step results) is accepted as a healthy instrument set. It proves the hypothesis that the instrument variables are uncorrelated with the residuals. The Arellano-Bond test of AR (1) and AR (2) is rejected in the first order while it is accepted in the second order.

Estimates of the three dynamic panel equations are reported in Table 3. Column 1 examines the effect of financial integration on financial development without dummy variables for financial crisis and the interaction term. We introduced dummy variables for financial crisis in columns 2 and 3, and the *FIxDcrisis* dummy in column 3. The results reported in column 1 of Table 3 show that an increase in financial integration has a positive impact on deployment of the financial sector and on economic growth. However, in addition to the positive impacts from the “direct channel” reported in Table 2, positive effects are also realized that come from the “indirect channel”. Thus, it can be argued that economies that are financially open benefit more through financial integration by increasing the depth of the financial market.

Table 3: Effect of financial integration on financial development

	1	2	3
FDt-1	0.658*** (0.0481)	0.939*** (0.038)	0.576** (0.064)
FI	0.326** (0.041)	0.267* (0.058)	0.184** (0.078)
Crisis dummy		-1.871 (0.063)	-2.593* (0.008)
FI x Dcrisis dummy			0.593** (0.008)
Inflation	-0.048** (0.026)	-0.551** (0.076)	-0.123** (0.031)
GDP per capita	1.147 (-7.531)	-2.842 (-5.872)	0.792 (-2.934)
No. of obs.	557	557	557
Arellano-Bond test for AR (1)	(0.000)	(0.000)	(0.000)
Arellano-Bond test for AR (2)	(0.254)	(0.347)	(0.321)
Sargan test	(16.876)	17.598	(18.198)
$\chi^2_{(56)} \text{ prob.}$	(0.4321)	(0.3976)	(0.6543)

Notes: the dependent variable is financial development. Two lags are utilized as instruments in the GMM method. All the GMM regressions used robust standard errors that are parenthesized. * = 10% significance level, ** = 5% significance level and *** = 1% significance level. The Sargan test reports the p-value for the null hypothesis of the validity of instruments obtained in the second step. The Arellano-Bond test for AR (1) and AR (2) reports the p-values for first and second-order auto correlation of error terms.

Source: author's calculations

Even though the financial crisis coefficient is not significant as reported in column 2 of Table 3, we can deduce from the direction of the sign that financial crises affect financial development and economic growth negatively. The coefficient of the crisis dummy is meaningless because even if a crisis occurred, it would likely have a quick impact on GDP, whereas the financial development would be affected much more gradually. On the other hand, when a dummy variable for financial crisis (FIxDcrisis) is introduced to capture the interaction effect (see column 3), we observe that financial integration has a positive impact on financial development. On the whole, based on the results in Table 3, we can deduce that even though financial crises negatively affect economies, the impact is less severe on countries that are more financially integrated. We surmise that this is the case because countries with liberal economic policies are able to tap into the international financial markets during periods of financial crunch. Thus, greater access to international financial markets diminishes the contractionary consequences of crises. This opportunity is, however, not available to countries that are not open; hence, we can conclude on the basis of these results that financial protectionism is a self-defeating economic policy for countries whose economies are developing. The results of this study are consistent with other studies such as Bonfiglioli and Mendicino (2004), Masten et al. (2011), Ahmed (2011), and Oprea (2017), and show that protectionism could be a double-edged sword. While it insulates a country's financial institutions from international shocks, it also deprives the country of benefits such as access to international sources of finance. On the aggregate, we think the costs of protectionism outweigh its benefits.

In addition, the results show that inflation has a negative effect on financial development and the coefficient is statistically significant. As seen from column 3 of Table 3, GDP per capita has a positive effect on financial development; however, the coefficient is not statistically significant. From an econometric point of view, we cannot be sure, in general, that an insignificant variable has no effect on the response. A variable may be insignificant due to fact that the random variation is too large to find a clear significant effect, unless an effect in fact exists, since it is correlated with other variables and the data cannot identify how much of the effect of the correlated variables refers to what individual variable. Moreover, insignificance only means that the data cannot provide evidence of an effect; it does not mean that such an effect cannot exist.

5. Conclusion

The current study evaluated empirically the impact of financial integration on financial development and on economic growth using international panel data from 2000 to 2019. We measured the costs and benefits of financial integration in terms of financial development and

economic growth during “normal times” and during periods of financial crisis. The results show that the effects of financial integration on financial development are non-uniform in advanced countries and in countries whose economies are developing.

These findings have significant policy implications for financial integration. The results show that financial integration has a significant positive effect on financial development and on economic growth during periods of financial crisis. This in turn leads to a reduction of the effect of financial crisis on economic growth. Thus, countries that have a high degree of financial openness, because of their access to the international financial markets, are affected less severely by financial crises compared to countries whose economies are closed. Furthermore, countries that respond to financial crises with financial protectionism may incur higher costs than benefits during periods of financial crisis.

In summary, the results of the current study do not support the view that financially open countries suffer more from “credit crunch” during periods of financial crisis than countries that are less financially integrated or countries that use financial protectionism. Furthermore, countries with higher dependence on international capital flow do not appear to experience increased financial fragility during financial crises. Finally, a strategy of financial protectionism enacted because of a financial crisis will generate more costs than benefits, at least to developing economies, as for countries whose economies are developing, implementing such a financial strategy will essentially equate to implementing a self-defeating policy.

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Appendix

Table A1: Description and source of data

Variables		Source
Economic growth	Real GDP per capita growth	World Bank's World Development Indicators database
Market capitalization and private credit of the banking sector as a ratio of real GDP	Financial development	World Bank's World Development Indicators database
Sum of stocks of total foreign assets and liabilities as a ratio of GDP	Financial integration	World Bank's World Development Indicators database
Systematic banking and exchange crisis episodes	Financial crisis	Cerra and Saxena (2008) American Economic Review and Leaven and Valencia (2018) International Monetary Fund
Inflation	Inflation	World Bank's World Development Indicators database

Table A2: List of countries

Developed countries	Developing countries
Austria	Albania
Belgium	Belarus
Cyprus	Bosnia and Herzegovina
Denmark	Bulgaria
Finland	Croatia
France	Czechia
Germany	Estonia
Greece	Hungary
Ireland	Iceland
Italy	Latvia
Luxembourg	Lithuania
Malta	North Macedonia
Netherlands	Poland
Portugal	Romania
Spain	Russia
Sweden	Serbia
United Kingdom	Slovakia
	Slovenia
	Turkey
	Ukraine