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Does economic freedom promote financial development? Evidence from EU countries

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Abstract

This study empirically investigates the relationship between economic freedom and financial development in EU countries. Using panel data covering the years 2000–2017 and employing fixed effects, random effects, and the generalised method of moments (GMM), the paper examines the effect of economic freedom on financial development. The research results demonstrate that greater economic freedom is conducive to financial development in the EU. These findings remain robust to the use of an alternative index of economic freedom. The results imply that policies which promote economic freedom are likely to raise the level of a country's financial development.

Key words: economic freedom, financial development, panel data, EU.

1. Introduction

The focus on financial development has increased considerably in the recent decades. Evidence suggests that financial development has a favourable effect on economic growth, poverty, and inequality (e.g. Levine, 1997; Rajan and Zingales, 1998; Kappel, 2010; Guru and Yadav, 2019). Financial development also encourages the growth of small and medium enterprises, and it is an important component of economic development (World Bank, 2016). Thus, enhancing the strength of financial markets and institutions becomes imperative for achieving higher growth and development in a country. Financial development is closely linked to the quality of economic institutions of a country. Economic freedom is an indicator of this institutional quality (Hall et al., 2019; Sharma, 2020) and it measures the extent to which

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the institutions and policies of a country are market-oriented (Stroup, 2007; Angulo-Guerrero et al., 2017). Economic freedom includes five key areas: the size of government, legal system and property rights, sound money, free trade, and regulation (Gwartney et al. 2021).

In theory, economic freedom may affect financial development due to various reasons. Well-defined property rights are an important feature of financial transactions. A robust legal system and property rights help in dealing with asymmetric information and thus lower the costs associated with financial transactions (Fernández and Tamayo, 2017). The existence of these institutions raises the availability and efficacy of external finance and affects the extent of appropriation (Fergusson, 2006; Beck and Levine, 2005). A strong legal framework and property rights mechanism also aid in the enforcement of financial contracts and increase the confidence of different stakeholders in the financial sector. Economic freedom in the form of free trade promotes competition and restricts the rent-seeking behaviour of incumbent elites and thus enhances financial development (Law, 2008). This argument is based on the 'interest group' theory advanced by Rajan and Zingales (2003). Sometimes, free trade is associated with an increased risk arising out of fluctuations in the global economy and therefore, it may lead to the development of a financial sector in the economy to combat these risks (Svaleryd and Vlachos, 2002). Trade openness also exerts a positive effect on financial depth (Huang and Temple, 2005) and thus promotes financial development. Economic freedom resulting from sound money may promote financial development as a stable and low rate of inflation raises the real return on assets and avoids the adverse selection problems (Fernández and Tamayo, 2017; Feldstein, 1980). In this paper, we examine if greater economic freedom is associated with a higher level of financial development in EU countries.

Most of the empirical studies have linked economic freedom with growth (Gwartney et al., 1999; Bergh and Bjørnskov, 2021), entrepreneurship (Nyström, 2008; Sweidan, 2021), corruption (Graeff and Mehlkop, 2003; Thach and Ngoc, 2021), education (Feldmann, 2017) and health (Stroup, 2007; Sharma, 2020), among other variables. However, the literature which analyses the relationship between economic freedom and financial development is quite scarce (e.g. Enowbi-Batuo and Kupukile, 2010; Hafer, 2013; Khan et al., 2021). Hafer (2013) investigated the effect of economic freedom on financial development for 81 countries from 1980 to 2009. He found that the initial level of economic freedom has a positive effect on subsequent financial development. Several scholars have examined this connection in the context of developing and underdeveloped countries. For example, Khan et al. (2021) studied the effect of economic freedom on financial development for 87 developing countries from 1984 to 2018. They used the panel threshold model and found that economic freedom exerts a favourable effect on financial development. Enowbi-Batuo and Kupukile (2010)

examined the interaction between economic freedom, political freedom and financial development for the African countries from 1990 to 2005. They utilized difference-in-difference and panel regression methods and showed that economic freedom enhanced financial development in these countries.

The empirical literature has also analysed the effect of economic freedom on banking crises (e.g. Baier et al., 2012; Shehzad and de Haan, 2009) and economic crises (e.g. Bjørnskov, 2016; Giannone et al., 2011). Most of these studies found a favourable effect of economic freedom on crises. For example, Baier et al. (2012) analysed the data on banking crises from 1976 to 2008 and observed that economic freedom significantly lowers the likelihood of a banking crisis. Shehzad and de Haan (2009) examined the relationship between economic freedom and crises for the developed and developing countries from 1973 to 2002 and found a similar effect. Bjørnskov (2016) studied the association between economic freedom and economic crises for 175 countries from 1993 to 2010. He found a weak relationship between economic freedom and the occurrence of an economic crisis but concluded that freer countries faced smaller crises and a quicker recovery. Studies have also established a positive effect of economic freedom on credit allocation (e.g. Crabb 2008; Hartarska and Nadolnyak 2007) and bond ratings (e.g. Belasen et al., 2015; Dove, 2017).

Very few studies have examined the relationship between economic freedom and financial development for the developed countries and to the best of our knowledge, no study has analysed this linkage in the context of EU countries. Further, most of the studies have not used alternative measures of economic freedom to assess the robustness of the results. The main objective of this study is to analyse the effect of economic freedom on financial development for the EU countries from 2000 to 2017. This paper fills several important research gaps in the financial economics literature. First, this paper uses alternative measures of economic freedom to analyse its effect on financial development. Second, this paper focuses on the developed EU countries. Third, this study addresses the endogeneity concerns by using the GMM method.

The remaining paper is organised as follows. Section 2 explains the variables and lists the data sources. Section 3 describes the methodology used in the paper. Section 4 presents the results and discusses the key policy implications. The last section presents the concluding remarks.

2. Data

This paper uses the data on economic freedom, financial development, and the relevant control variables for the 27 EU countries from 2000 to 2017. The data on economic freedom are published by two institutes viz. the Fraser Institute and the Heritage Foundation. We primarily rely on the economic freedom index released by

the Fraser Institute due to its robustness and acceptance in the literature (e.g. Easton and Walker, 1992; Angulo-Guerrero et al., 2017). This index measures the degree to which individuals are protected from expropriation and can make their economic decisions freely. This index takes the values between 0 and 10 with higher values representing greater economic freedom. It has five areas and consists of 44 variables (Fraser Institute, 2022). We also employ the Heritage Foundation index of economic freedom. This index is widely used in the literature (e.g. Crabb 2008; Bjørnskov, 2016). This index comprises 12 areas and it ranges from 0 to 100 with higher values implying greater economic freedom (Heritage Foundation, 2022).

We obtain the data on the dependent variable viz. financial development index from the International Monetary Fund (IMF, 2022). The literature views this index as detailed and multidimensional (e.g. Khan et al., 2021; Svirydzenka 2016). This index ranges from 0 to 1 with higher values denoting greater financial development. The data on per capita GDP, foreign direct investment (FDI), and consumer price index (CPI) are taken from the World Development indicators of the World Bank. The net interest margin data is obtained from the IMF and the democracy (political rights) index is collected from the Freedom House (2022). We recode the political rights index so that larger values show the presence of a greater democratic environment. The recoded index takes the values from 1 to 7. Table 1 presents the descriptive statistics for the variables used in this paper.

Table 1: Descriptive Statistics

Variable	Obs	Mean	S.D.	Min	Max
FD	476	.561	.198	.13	.91
EF (Fraser)	476	7.575	.4	5.55	8.32
EF (Heritage)	476	67.599	6.521	47.3	82.6
Per capita GDP	476	37685.12	17680.28	10201.28	115000
FDI	476	13.316	40.693	-58.323	449.083
NIM	476	2.371	1.437	.126	9.908
Democracy	476	6.866	.36	5	7
CPI	476	95.06	13.319	31.982	115.455

3. Methods

We rely on the existing literature and specify the following empirical model to determine the effect of economic freedom on financial development (e.g. Enowbi-Batuo and Kupukile, 2010; Hafer, 2013; Khan et al., 2021)

$$Y_{it} = \beta_0 + \beta_1 \text{ Economic Freedom}_{it} + \beta_2 Z_{it} + \gamma_i + \varepsilon_{it} \quad (1)$$

Where Y_{it} is the overall index of financial development and Economic $Freedom_{it}$ is the index of economic freedom in country 'i' at year 't'. Z_{it} shows the standard control variables and includes per capita GDP, FDI, net interest margin, democracy, and CPI. The definitions of these variables are provided in Appendix Table 1. γ_I represent the fixed effects and ε_{it} denotes the error term. The use of pooled OLS method produces biased and inconsistent estimates due to heterogeneity bias (Wooldridge, 2009). Thus, we use fixed effects and random effects models to deal with the unobserved heterogeneity. We select the appropriate model using the Hausman test. Additionally, we formulate the following dynamic panel data (DPD) model containing the lagged financial development index, Y_{it-1} as one of the explanatory variables.

$$Y_{it} = \beta_{0+} \rho Y_{it-1} + \beta_1 \text{ Economic Freedom}_{it} + \beta_2 Z_{it} + \gamma_i + \varepsilon_{it} \quad (2)$$

Using fixed effects and random effects methods to estimate this model is problematic due to the correlation between the lagged dependent variable and fixed effects in the error term. We resolve this endogeneity by transforming the original equation by taking the first differences (Roodman, 2009; Greene, 2003). There are no fixed effects in the transformed equation and lagged levels are taken as instruments of the first-differenced variables (Baum, 2013). This generalized method of moments approach is based on the seminal work of Arellano and Bond (1991) and takes the following form in this case:

$$\Delta Y_{it} = \rho \Delta Y_{it-1} + \beta_1 \Delta \text{Economic Freedom}_{it} + \beta_2 \Delta Z_{it} + \varepsilon_{it} \quad (3)$$

We follow the approach outlined by Roodman (2009) to implement a two-step difference GMM and prefer it over one-step GMM as the former is robust to heteroskedasticity and autocorrelation. Arellano and Bover (1995) and Blundell and Bond (1998) developed a system GMM approach that includes lagged differences as instruments in addition to the lagged levels. However, in this case, we choose difference GMM over system GMM as the latter uses a larger number of instruments. The overidentifying restrictions and the instruments may not remain valid when the number of instruments exceeds the number of groups (Bondarenko, 2012). We conduct the Hansen test of overidentifying restrictions to determine the validity of instruments. We also carry out the Arellano and Bond test to detect the presence of serial correlation of second-order in residuals.

4. Results and discussion

In this section, we present the results of the empirical model. All the regression results report the standardized coefficients. Table 2 reports the fixed effects and random effects results. The Hausman test supports the use of the FE model as the p-value is less than 0.05. The FE results in column (1) show that economic freedom has a positive

impact on the financial development in the EU countries. The coefficient on economic freedom is 0.061 and it is significant at a 5% level. This coefficient implies that one standard deviation improvement in economic freedom is associated with a 0.061 standard deviation increase in financial development. The RE results in column (2) also support this finding. Most of the control variables turn out to be significant in both models. For example, an increase in net interest margin is associated with a decline in financial development. Column (1) shows that the coefficient on net interest margin is -0.11 and it is significant at 1% level. This implies that one standard deviation increase in net interest margin is associated with a 0.11 standard deviation decline in financial development. A stronger democracy is associated with an improvement in financial development. An increase in per capita GDP also improves the financial development in the EU countries. However, this coefficient only turns out to be significant in the RE model. The remaining two control variables viz. FDI and CPI are insignificant in both models.

Table 2: Economic Freedom (Fraser) and Financial Development: Fixed and Random effects

Specification	(1) FE	(2) RE
Economic freedom (Fraser Institute)	0.061**	0.051**
	(0.025)	(0.026)
Per capita GDP	0.184	0.277**
	(0.135)	(0.112)
Foreign Direct Investment	-0.001	0.002
	(0.011)	(0.011)
Net Interest Margin	-0.110***	-0.130***
	(0.031)	(0.029)
Democracy	0.046**	0.049***
	(0.019)	(0.019)
Consumer Price Index	0.008	-0.007
	(0.031)	(0.028)
Obs.	476	476
Adjusted R^2	0.26	-

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

We examine the robustness of the results presented in Table 2 in two ways. First, we use Heritage Foundation's index of economic freedom. Second, we employ the two-step difference GMM method to tackle the endogeneity concerns. Table 3 reports both the FE and RE results with the index of economic freedom prepared by the Heritage Foundation. These results corroborate the findings obtained earlier. We find a positive

effect on financial development by using the alternative index of economic freedom. As column (1) shows one standard deviation increase in the economic freedom index is associated with a 0.106 standard deviation rise in financial development. The coefficients on control variables are broadly similar. A better democratic environment and an increase in per capita GDP leads to greater financial development, whereas a rise in net interest margin retards it. We focus on the FE results as the Hausman test advocates the use of the FE model.

Table 3: Economic Freedom (Heritage) and Financial Development: Fixed and Random effects

Specification	(1) FE	(2) RE
Economic freedom (Heritage)	0.106**	0.087*
	(0.044)	(0.045)
Per capita GDP	0.181	0.273**
	(0.135)	(0.115)
Foreign Direct Investment	0.002	0.004
	(0.007)	(0.008)
Net Interest Margin	-0.101***	-0.122***
	(0.029)	(0.027)
Democracy	0.043*	0.046**
	(0.021)	(0.021)
Consumer Price Index	0.007	-0.007
	(0.030)	(0.028)
Obs.	476	476
Adjusted R^2	0.27	-

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4 presents the estimation of the empirical model using the two-step difference GMM. These results confirm the robustness of our previous findings presented in Table 2. The number of instruments is 23 and the number of groups (countries) is 27. The Arellano-Bond test for second-order serial correlation exhibits a p-value of 0.11 and thus indicates the absence of second-order serial correlation. The Hansen test of overidentifying restrictions shows a p-value of 0.365 and indicates that the instruments are valid. The GMM results also highlight that economic freedom has a positive effect on financial development. The coefficient on the economic freedom index is 0.071 and it shows that one standard deviation increase in economic freedom is associated with 0.071 standard deviation improvement in financial development. The coefficient on lagged financial development index is positive and significant. Other control variables turn out to be insignificant in this model.

Our findings validate the results of previous studies, which have also found a positive effect of economic freedom on financial development (e.g. Hafer, 2013; Khan et al., 2021). Our results offer useful policy prescriptions as we focus on a homogenous set of developed EU countries that can better coordinate their policies as compared to other countries. The findings suggest that policies which improve the quality of economic institutions need to be emphasized for enhancing a country's financial development. These policies may take the form of crafting a strong and efficient legal framework, creating a stable macroeconomic environment, reducing unnecessary regulations, and implementing a well-functioning system of property rights. The results also suggest the role of a robust democracy and higher per capita income in improving a country's financial development.

The findings of this paper support the prevalent understanding about the EU countries. The EU countries rank very high in terms of economic freedom and thus have a sound quality of economic institutions. The EU countries are among the economically freest countries of the world and have a strong rule of law, an efficient system of property rights, a stable macroeconomic environment and less regulations. The better quality of economic institutions in the EU countries ensures lower cost of financial transactions and also increases the confidence of various stakeholders in the financial system. The trade openness of the EU countries also has a favourable effect on the financial depth. The extent of financial development in the EU countries is also considerably high and therefore, the positive influence of economic freedom on financial development gets further strengthened in this environment.

5. Conclusion

In this study, we explore the impact of economic freedom on financial development for the EU countries from 2000 to 2017. We find that greater economic freedom is associated with an improvement in the financial development in the EU countries. These results suggest significant financial development can be achieved by improving the quality of economic institutions. Therefore, the policymakers should focus on the policies to enhance the level of economic freedom. Our findings remain robust to the use of an alternative index of economic freedom and different techniques viz. fixed effects and GMM.

This paper uses an index of overall financial development as a dependent variable and does not focus on the financial markets and financial institutions sub-indices. Future research may attempt to consider the effect of economic freedom on the development of financial markets and financial institutions. Additionally, scholars may examine the relationship between financial development and the areas of economic freedom to understand their relative importance. This may help the policymakers to

focus on the specific elements of economic freedom, which are most helpful in improving the financial development of a country.

Table 4: Two-step difference GMM estimation results: Dep variable: Financial Development

Specification	(1) FD
Lagged Financial Development	0.268**
	(0.118)
Economic freedom	0.071**
	(0.029)
Per capita GDP	0.083
	(0.143)
Foreign Direct Investment	0.015
	(0.017)
Net Interest Margin	-0.016
	(0.025)
Democracy	0.022
	(0.042)
Consumer Price Index	0.061
	(0.036)
Observations	446
No. of instruments	23
No. of Groups	27
Arellano-Bond test for AR(2) in first differences: z = -1.59 Pr > z = 0.111	
Hansen test of overid. restrictions: chi2(16) = 17.32 Prob > chi2 = 0.365	

Robust standard errors are in parenthesis
*** *p<0.01,* ** *p<0.05,* * *p<0.1*

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Appendix

Table A1: List of variables and their description

Variable	Description	Source
Financial Development (FD)	Index ranging from 0 to 1 with higher values denoting greater financial development	IMF
Economic Freedom (Fraser)	Economic freedom index (ranging from 1 to 10) with higher values denoting greater EF	Fraser Institute
Economic Freedom (Heritage)	Economic freedom index (ranging from 0 to 100) with higher values denoting greater EF	Heritage Foundation
Per capita GDP	Per capita GDP PPP (Constant 2017 international $)	WDI, World Bank
Foreign Direct Investment	Foreign direct investment, net inflows (% of GDP)	WDI, World Bank
Net Interest Margin	Accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets	IMF
Democracy	Political rights index (ranging from 1 to 7)	Freedom House
Consumer Price Index	Inflation, consumer prices (annual %)	WDI, World Bank