International Conference on Applied Economics, ICOAE 2015, 2-4 July 2015, Kazan, Russia

Financial Development and FDI in Greece and Neighbouring Countries: A Panel Data Analysis

Serkan Sahin[a]*, Ilhan Ege[b]

[a]*Assistant Professor, Department of Business Administration,Kahramanmaras Sutcu Imam University, Kahramanmaras, Turkey*
[b]*Associate Professor, Department of Business Administration,Mersin Univeristy, Mersin, 33342, Turkey*

Abstract

This paper aims to examine the association between financial development and foreign direct investment (FDI) in Greece and neighbouring countries (Bulgaria, Macedonia and Turkey) for the period 1996-2012. Bootstrap causality analyses are used to examine this causal linkage for these countries which are either European Union (EU) members or candidates for EU accession. The empirical results indicate that FDI has a predictive power to forecast financial development in all of the countries except for Macedonia. In addition, findings indicate that there is bidirectional causality in Turkey.

Keywords: Financial Development; FDI; Bootstrap Panel Causality Approach; European Union.

1. Introduction

The common view for the relation between financial development and FDI is that inward FDI contribute to the financial development in host countries. The rationale behind this view is that FDI cause an increase in funds available to the financial system. Hence, these funds contribute to the development in financial markets (Levine, 1997). In addition, it is also argued that a well-functioning financial system is an incentive especially for multinational firms to invest in host countries (King and Levine, 1993; Alfaro et al., 2008). However, there are also some studies arguing that FDI has no effect on financial development or even give harm to the financial system in

---

* Corresponding author. Tel.: +90-533-543-18-22; fax: +90-344-280-13-28.
  E-mail address: serkansans@hotmail.com

host countries (Desbordes and Wei, 2014). This point of view depends on the idea that FDI is an alternative way financing through capital markets. This alternative financing method may weaken the capital formation in capital markets since funds are delivered via direct investment rather than capital markets (Hausmann and Fernandez-Arias, 2001). There are also some studies help to develop arguments against the static relation between FDI and financial development (Dutta and Roy, 2011). According to this view, the relation between FDI and financial development is dynamic rather than static.

The above arguments imply that the relation between FDI and financial development is rather ambiguous. The amount of inward FDI as percentage of GDP may give ideas about the current condition of countries and help to understand the relation between FDI and financial development in the countries analyzed in this study.
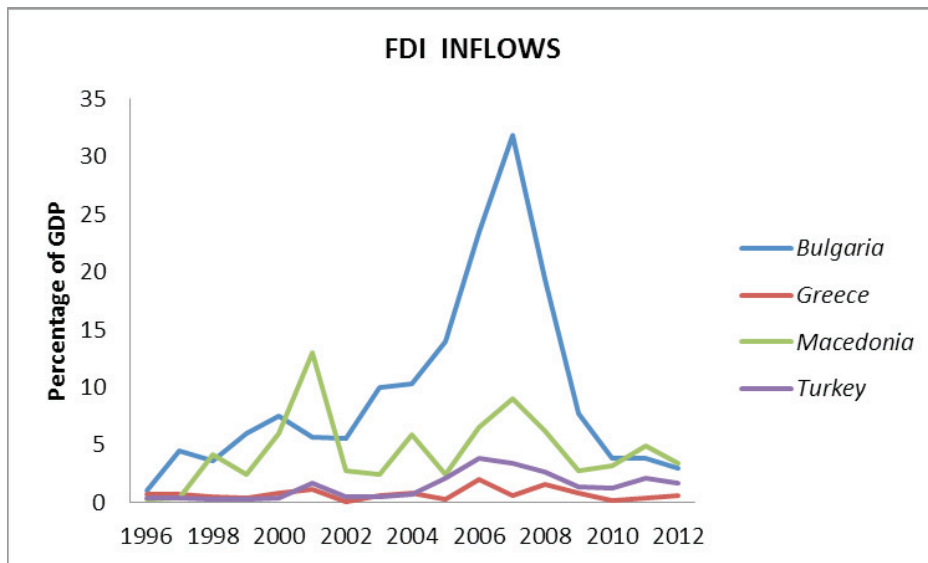

Fig. 1. FDI Flows to Bulgaria, Greece, Macedonia and Turkey.

It is seen that FDI as percentage of GDP is quite low in Greece and Turkey for all of the years starting from 1996 to 2012. FDI inflow in Bulgaria seems to increase starting from the year 1996. The percentage of FDI reached to %30 with a peak in 2007 when Bulgaria joined EU. After 2007, inward FDI decreased sharply in this country to the level %5. Though the percentage of FDI in Macedonia fluctuated for this time period, its average is again about %5. This figure also shows that though there are cycles of the inward FDI flows for the period 1996-2012, the current FDI as percentage of GDP is almost same for all of the countries in essence. The question here is that how these changes in inward FDI flows affect Greece, and its neighboring EU member and candidate countries. This paper addresses this issue by investigating this association using a relatively new method of panel causality approach. The rest of the paper is organized as follows. Section 2 briefly reviews the literature about the relation between financial development and FDI. Section 3 gives information about data and methodology. Section 4 presents the empirical results. Finally, Section 5 concludes the study.

2. A Brief Literature Review

Though there is strong intuition that FDI contribute to the development of financial system, empirical results are mixed. The following table is helpful to understand these mixed results in one shot.

Table 1. Literature Review for Financial Development and FDI.

Study (Year)	Number of Cases (Countries)	Methodology	Conclusion
Nasser and Gomez (2009)	15 Latin American countries	Penal Data Analysis	Relation between FDI and financial development is positive.
Sghaier and Abida (2013)	4 countries (Tunisia, Morocco, Algeria and Egypt)	Penal Data Analysis	FDI granger cause financial development.
Desbordes and Wei (2014)	67 developed and developing countries	Penal Data Analysis	There is conditional relation between financial development and inward FDI. In particular FDI promotes financial development only in financially vulnerable sectors.
Dutta and Roy (2011)	97 developed and developing countries	Penal Data Analysis	Dynamic relation between financial development and FDI. FDI stimulates financial development up to a specific level of FDI flows; however after this level FDI hinders financial development in host countries.
Hermes and Lensink (2003)	67 developed and developing countries	Cross-Sectional analysis	FDI enhances economic growth if only financial sector in host country is well-developed.
Alfaro et al. (2004)	20 OECD countries and 51 non-OECD countries	Cross-Sectional analysis	A well-functioning financial increases the effect of FDI in promoting the economic growth.
Chee and Nair (2010)	44 Asia and Oceania countries	Penal Data Analysis	Financial development improves positive effects of FDI on economic growth.
Omran and Bolbol (2003)	17 Arab countries	Penal Data Analysis	There is conditional relation between FDI and economic growth. In particular, this relationship varies according to the development of financial sector.
Choong and Lam (2011)	70 developed and developing countries	Penal Data Analysis	Financial development is a significant prerequisite for FDI to have a positive effect on economic growth

Though there are conflicting results, majority of the above studies mainly indicate that FDI contribute to the development of financial system. Moreover, it is also seen that in a well- functioning financial system, the effect of FDI in fostering the economic growth is much higher.

3. Data, Methodology and Preliminary Results

We gather the data from the database of World Development Indicators (WDI). Due to the availability of the data, we set the time period starting from 1996 to 2012. We use three different measures of financial development which are domestic credit to private sector as a percentage of GDP (DCY), market capitalization to GDP (MCY), and stock market turnover ratio (STR). Inward FDI flows are also retrieved from WDI database. Natural logarithms of all variables are used in analyses.

A relatively new panel data approach of Kónya (2006) is used examine the causal relation between financial development and FDI. The estimated model for the panel approach of Kónya (2006) is given as follow;

$$y_{i,1,t} = \alpha_{1,1} + \sum_{j=1}^{py_1} \beta_{1,1,j} y_{i,1,t-j} + \sum_{j=1}^{px_1} \mu_{1,1,j} x_{1,t-j} + \varepsilon_{1,1,t} \tag{1}$$

$$y_{i,N,t} = \alpha_{1,N} + \sum_{j=1}^{py_1} \beta_{1,N,j} y_{i,N,t-j} + \sum_{j=1}^{px_1} \mu_{1,N,j} x_{N,t-j} + \varepsilon_{1,N,t} \tag{2}$$

$$x_{1,t} = \alpha_{2,1} + \sum_{j=1}^{py_2} \beta_{2,1,j} y_{i,1,t-j} + \sum_{j=1}^{p2} \gamma_{2,1,j} x_{1,t-j} + \varepsilon_{2,1,t} \tag{3}$$

$$x_{N,t} = \alpha_{2,N} + \sum_{p=1}^{py_2} \beta_{2,N,j} y_{i,N,t-j} + \sum_{p=1}^{px_2} \gamma_{2,N,j} x_{N,t-j} + \varepsilon_{2,N,t} \tag{4}$$

where Y represent financial development with the subscript i indicating different financial development measures (DCY, MCY, STR). t and p donates the time period and lag length respectively. Finally, N represent for the number of panel members.

The advantage of this approach is that it accounts for the cross sectional dependency in series. Various cross sectional dependency tests are developed in econometric literature. The CD_{LM} test which mainly depends Lagrange Multiplier (LM) statistics is the very first cross sectional dependency test developed by Breusch and Pagan (1980). Pesaran (2004) developed a similar version of Lagrange Multiplier (LM) statistics known as (CD_{LM}). In addition, Pesaran (2004) also developed a general version of the test called as CD. After then, Pesaran et al. (2008) suggested a bias adjusted test, (LM_{ADJ}). We apply all of these tests to our data and results are given in Table 2 below. These results indicate that these countries are interrelated. In other words, one shock in one country affects other countries analysed.

Table 2. Cross Sectional Dependency Tests

	CD_{BP}	CD_{LM}	CD	LM_{ADJ}
DCY	13.62**	2.20**	-2.66**	5.63***
MCY	17.61***	3.35***	0.68	3.29***
STR	10.68*	1.35*	-2.60***	2.55***

4. Empirical Results

We run the bootstrap causality analysis for each of the financial development indicator with 10,000 bootstrap replications. Results in Table 3 indicate that when market capitalization to GDP ratio is used, FDI Granger cause financial development in Bulgaria and Greece. This implies that FDI increases the forecasts of financial development in these countries.

Table 3. Causality between and FDI and Financial Development (Indicator: MCY)

	H_0: FDI do not Granger cause MCY				H_0: MCY do not Granger cause FDI			
Countries	Wald Stat.	Bootstrap Crit. Values			Wald Stat.	Bootstrap Crit. Values		
		1%	5%	10%		1%	5%	10%
Bulgaria	7.35*	21.13	9.89	6.58	0.31	17.57	9.56	6.72
Macedonia	0.62	15.66	7.53	4.97	0.57	15.43	8.12	5.44
Greece	18.45**	19.33	9.40	6.29	1.25	19.46	10.09	6.82
Turkey	1.85	14.90	7.47	4.96	1.15	14.35	7.31	4.84

Note: ***, **, * represent significance at 1, 5, and 10% respectively.

Results in Table 4 show that there is one-way causality from FDI to financial development in Bulgaria and Greece when the financial development indicator is domestic credit to private sector (% of GDP).

Table : 4. Causality between and FDI and Financial Development (Indicator: DCY)

	H_0: FDI do not Granger cause DCY				H_0: DCY do not Granger cause FDI			
Countries	Wald Stat.	Bootstrap Crit. Values			Wald Stat.	Bootstrap Crit. Values		
		1%	5%	10%		1%	5%	10%
Bulgaria	19.61***	18.88	9.93	6.74	1.24	20.30	10.61	7.31
Macedonia	0.94	19.46	8.28	5.34	0.28	15.21	8.16	5.46
Greece	8.79**	16.06	8.01	5.31	0.90	18.17	9.51	6.30
Turkey	1.67	17.51	9.31	6.50	0.22	23.28	12.53	8.60

Note: ***, **, * represent significance at 1, 5, and 10% respectively.

When stock market turnover ratio is the indicator of financial development, it is seen that FDI increases the forecasting power of financial development in Greece. Moreover, there is unidirectional causality running from financial development to FDI in Turkey. This result is in line with King and Levine (1993) and Alfaro et al. (2008) who argue that financial development is a prerequisite to attract FDI.

Table 5. Causality between and FDI and Financial Development (Indicator: STR)

Countries	H_0: FDI do not Granger cause STR				H_0: STR do not Granger cause FDI			
	Wald Stat.	Bootstrap Crit. Values			Wald Stat.	Bootstrap Crit. Values		
		1%	5%	10%		1%	5%	10%
Bulgaria	1.04	18.20	9.68	6.70	1.41	18.12	10.16	6.99
Macedonia	0.12	15.69	7.84	5.06	0.41	15.90	8.28	5.53
Greece	8.27[*]	19.89	9.60	6.14	0.20	17.87	9.50	6.59
Turkey	2.16	15.46	8.00	5.32	12.84[**]	16.84	8.41	5.63

Note: ***, **, * represent significance at 1, 5, and 10% respectively.

Overall, it seems that when different indicators of financial development are used, FDI has a predictive power to forecast financial development in all of these countries except for Macedonia. In addition, it is seen that there is bidirectional causality between financial development and FDI in Turkey.

5. Conclusion

FDI is accepted as one of the major way of external financing. The advantage of direct investment is that it enables the transfer of skills from more developed countries to the less. When inward FDI flows are investigated for the countries in essence, it is seen that FDI flows to these countries show the same patterns over the years and have been decreased to the level of %5 in 2012. Though there many studies examining association between FDI and economic growth, studies investigating the effects of FDI on financial development are quite limited. The aim of this study is to investigate the relation between foreign direct investment and financial development in Bulgaria, Greece, Macedonia and Turkey. We set the time period starting from 1996 to 2012, due to the availability of the data. Three different measures of financial development are used to investigate the causal association in essence.

Preliminary results indicate that countries are cross sectionally dependent. In other words, a shift in one country affects other countries. We adopt the panel causality approach of Kónya (2006) since it accounts for the cross sectional dependency. First of all, we couldn't find support for causality in any direction in Macedonia. However, findings indicate that FDI Granger cause financial development in Bulgaria, Greece and Turkey. This implies that FDI increases the forecasts of financial development in these countries. In addition, there is also causality running from financial development to foreign direct investment in Turkey. This implies that there is bidirectional causality in Turkey. This result means that well-functioning market is also an attractive factor for foreign firms to invest in Turkey. We think that this conclusion is quite important for the policy makers in Turkey. We recommend for future studies to test this casual relation on the members of other EU countries.

References

Alfaro, L., Chanda, A, Kalemli-Ozcan, S., Sayek, S., 2004. FDI and Economic Growth: The Role of Local Financial Markets. Journal of International Economics 64, 89-112.

Alfaro, L, Kalemli Ozcan, S., Volosovych, V., 2008. Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation. The Review of Economics and Statistics 90(2), 347-368.

Chee, Y.L., Nair, M., 2010. The Impact of FDI and Financial Sector Development on Economic Growth: Empirical Evidence from Asia and Oceania. International Journal of Economics and Finance 2(2), 107-119.

Choong, C.K., Lam, S.Y., 2011. Foreign Direct Investment, Financial Development and Economic Growth: Panel Data Analysis.The IUP Journal of Applied Economics 10(2), 57-73.

Desbordes, R., Wei, S.J., 2014. The Effects of Financial Development on Foreign Direct Investment. World Bank Policy Research Working Paper No. 7065.

Dutta, N., Roy, S., 2011. Foreign Direct Investment, Financial Development and Political Risks", The Journal of Developing Areas 44(2), 303-327.

Hausmann, R., Fernández-Arias, E., 2001. Is FDI a Safer Form of Financing?. Emerging Markets Review 2(1), 34–49. King, R.G. and Levine R., 1993. Finance, Entrepreneurship, and Growth: Theory and Evidence. Journal of Monetary Economics 32(3), 513–542.

Hermes, N., Lensink, R., 2003. Foreign Direct Investment, Financial Development and Economic Growth. Journal of Development Studies 40,142-163.

Levine, R., 1997. Financial Development and Growth: Views and Agenda. Journal of Economic Literature 35(2), 688–726.

Nasser, O.M., Gomez, X.G., 2009. Do Well-Functioning Financial Systems Affect the FDI Flows to Latin America?. International Research Journal of Finance and Economics 29, 60-75.

Omran, M., Bolbol, A., 2003. Foreign Direct Investment, Financial Development and Economic Growth: Evidence from the Arab Countries.Review of Middle East Economics and Finance 1, 231-249.

Sghaier, I.M., Abida, Z., 2013. Foreign Direct Investment, Financial Development and Economic Growth: Empirical Evidence from North African Countries. Journal of International and Global Economic Studies 6(1), 1-13.