EFFECT OF FOREIGN DIRECT INVESTMENT ON FINANCIAL DEVELOPMENT: THE CASE OF OECD

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Abstract

The effect of foreign direct investment (FDI) on financial development has received relatively little attention in the existing literature. Furthermore, the current studies examining this relationship have yet to reach a consensus. To address this gap and contribute to the literature, this study employs the fixed effects model and the system generalized method of moments (GMM) to explore the impact of FDI on financial development within OECD countries from 1990-2020. In light of the findings, the study indicates that FDI inflows are linked to an improved financial system in the host country. In addition, this study explores the impact of FDI on the two key components of the financial development index, specifically the financial institutions index and the financial markets index. The regression analysis reveals that the beneficial influence of FDI on the financial markets index is roughly twice that on the financial institutions index. To deal with potential issues of endogeneity that may arise from the possible bidirectional relationship between FDI and financial development, the study employs the system GMM model, which supports the results obtained from the fixed effect model. However, the effect of FDI on the financial institutions index and financial markets index is found to be comparable in contrast to previous research.

Keywords*: Foreign direct investment, financial development, system GMM*

JEL Classification*: B22, F21, G20*

DOĞRUDAN YABANCI YATIRIMIN FİNANSAL GELİŞME ÜZERİNDEKİ ETKİSİ: OECD ÖRNEĞİ

Özet

Doğrudan yabancı yatırımın (DYY), finansal gelişme üzerindeki etkisi, mevcut literatürde nispeten az ilgi görmüştür. Ayrıca, bu ilişkiyi inceleyen mevcut çalışmalar henüz bir fikir birliğine varamamıştır. Literatürdeki bu boşluğu gidermek ve literatüre katkıda bulunmak için bu çalışmada, 1990-2020 yılları arasında OECD ülkelerinde doğrudan yabancı yatırımın finansal gelişme üzerindeki etkisi sabit etkiler modeli ve sistem genelleştirilmiş momentler yöntemi (GMM) kullanılarak araştırılmıştır. Bulgular, DYY girişlerinin ev sahibi ülkedeki gelişmiş bir finansal sistemle ilişkili olduğunu göstermektedir. Buna ek olarak, bu çalışma, DYY'nin finansal gelişme endeksinin iki temel bileşeni olan finansal kurumlar endeksi ve finansal piyasalar endeksi üzerindeki etkisini de araştırmaktadır. Regresyon analizi, DYY'nin finansal piyasalar endeksi üzerindeki olumlu etkisinin, finansal kurumlar endeksi üzerindeki

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olumlu etkisinden yaklaşık olarak iki daha fazla olduğunu ortaya koymaktadır. Doğrudan yabancı yatırım ile finansal gelişme arasındaki olası çift yönlü ilişkiden kaynaklanabilecek potansiyel içsellik sorunun üstesinden gelmek için ise, GMM modeli kullanılmıştır ki bu model de sabit etkiler modelinden elde edilen sonuçları desteklemektedir. Ancak, DYY'nin finansal kurumlar endeksi ve finansal piyasalar endeksi üzerindeki etkisi, önceki sonucun aksine birbirine yakın bulunmuştur.

***Anahtar Kelimeler**: Doğrudan yabancı yatırımlar, finansal gelişmişlik, sistem GMM*

***JEL Sınıflandırması**: B22, F21, G20*

1. Introduction

Foreign direct investment (FDI) is often viewed as a mechanism for enhancing the growth rate of the host country through capital accumulation, employment generation, and the transfer of knowledge and technology (Aitken and Harrison, 1999). While the relationship between FDI and growth has been extensively explored by researchers and economists, the findings remain inconclusive. In contrast, the relationship between FDI and financial development (FD) has received relatively little attention from scholars, resulting in a gap in the literature on this topic. Even the existing studies on the subject have failed to reach a definitive conclusion (Majeed, 2021). This study seeks to address this gap in the literature by investigating the effect of FDI on FD in OECD countries using the fixed effect model and system generalized method of moments (GMM) approach from 1990 to 2020.

Financial development plays a crucial role in promoting economic growth and reducing poverty in the host countries as stated by Ibrahim and Alagidede (2018). It is also suggested that a well-developed financial sector will attract more foreign direct investment, leading to higher economic growth (Carkovic and Levine, 2005; Alfaro et al., 2004).

The existing studies on the relationship between FDI and FD has focused on developing countries, as there has been a significant increase in FDI to these nations. Despite a decrease in the total amount of FDI attracted by developed countries, the OECD countries still receive over 50% of global FDI flows, which makes this group a desirable subject of study. Moreover, investigating the influence of FDI on FD in developed nations has advantages in terms of their capacity to absorb the benefits of FDI, in contrast to some groupings of developing countries. Additionally, OECD countries share similar characteristics, such as market-based economies and democratic governments, making them a suitable group to study. Conversely, groups composed of developing countries may vary significantly in terms of GDP, level of democracy, and other characteristics, which could lead to potential biases in the analysis.

In addition to examining the overall effect of FDI on financial development, this study also explores the potential differential impact on the two primary components of the financial development index (FDI), namely the financial institutions index (FI) and financial markets index (FE), as these components may be influenced differently by FDI. This study is novel in that it is the first to consider the separate components of FD. Furthermore, to mitigate potential endogeneity issues, which are a common problem in research on this topic, this study employs the system generalized method of moments (GMM). Specifically, the concern is that FDI inflows may lead to a more developed financial system in the host country, but it is also possible that a better-designed financial system may attract more FDI flows, leading to inconsistent and biased results. To address this potential endogeneity issue, the system GMM model is utilized, as detailed in the methodology section.

This research contributes to the literature by examining the relationship between FDI and FD by taking into account the aforementioned points that are not taken into account by the previous studies.

The remaining parts of the paper are organized as follows: In Section 2, a review of the literature on the relationship between foreign direct investment and financial development is presented. Section 3 outlines the data definition and methodology used in this study. The findings are presented and discussed in Section 4. Finally, Section 5 summarizes the study results and highlights several significant implications.

2. Literature Review

Although there is a lack of adequate research that establishes a consistent theoretical framework for explaining the direct relationship between foreign direct investment (FDI) and financial development (Henri et al., 2019) ,the following approaches have shed some light on the causality link between the two. As argued by Mileva (2008), FDI brings capital inflows to the host country, which increases the total amount of funds in the host country. The availability of more capital in the host economy stimulates financial intermediation via the banking system and financial markets to enhance the performance of firms engaged with foreign investors (Henry, 2019). Additionally, a relatively advanced stock market augments the level of available liquidity for publicly traded companies and can ultimately reduce the expense of capital, thereby making the nation a desirable destination for foreign direct investment. Some of the existing research on the relationship between foreign direct investment financial development are summarised below.

Majeed et al. (2021) analyse the impact of FDI on Financial Development in 102 countries across Asia, Europe, Africa, and Latin America. The researchers used data

from 1990 to 2017 and employed quantitative techniques such as feasible generalized least squares and augmented mean group techniques to analyze the data. The study reveals that FDI is statistically significant factor that affect FD. FDI has a positive impact on FD in Asia, Europe, and Latin America but a negative impact on Africa. Similarly, Henri et al. (2019) assess the impact of foreign direct investment on financial development in 49 African countries over the period of 1990-2016. they conclude that while there is a positive and significant long-term relationship between FDI and financial development in Africa, the short-term effect of FDI on financial development is negative. However, overall the study supports the idea that FDI promotes financial development in African countries in the long run.

Bayar and Gavriletea (2018) examine how foreign investment and financial sector development are connected in Central and Eastern European Union countries from 1996 to 2015 using panel data analysis. The research shows that there is no long-term connection between FDI and financial sector development. However, in the short term, there is a cause-and-effect relationship between financial sector development to foreign investment. Soummare and Tchana (2015) also looks at the connection between foreign direct investment and financial market development in emerging markets using panel data. The study finds a bidirectional causality between FDI and stock market development indicators, but the relationship is unclear for banking sector development indicators.

Saidi (2018) investigates the relationship between foreign direct investment (FDI), financial development (FD), and economic growth in low-income countries from 1990-2015. The use of Johansen's cointegration technique shows that FD, FDI, and GDP growth are linked in pursuit of a long-term equilibrium relationship.

In contrast to the studies that have been summarised, some research examines the impact of financial development on FDI flows. In contrast to the studies that have been summarised, some research examines the impact of financial development on FDI flows. Aqeel et al. (2004), for example, explore the factors affecting foreign direct investment (FDI) growth in Pakistan. The findings indicate that the financial sector is a crucial factor in attracting foreign investment. Likewise, Kaur et al. (2013) analyses how the development of the financial system affects foreign direct investment in the BRIC countries (Brazil, Russia, India, and China) between 1991 and 2010. The study uses panel data of fixed and random effects to assess the impact of banking sector and stock market variables on FDI inflows. The findings indicate that FDI is positively affected by the size of the banking sector and stock market capitalization. However, an increase in domestic credit by the banking sector has a negative impact on FDI inflows during the period studied.

3. Data and Methodology

This section presents a detailed description of the data employed in the empirical investigation, including its definition and sources. As stated before, the objective of the study is to investigate the impact of foreign direct investment (FDI) on financial development in the host country. In this context, the study utilizes the financial development index as the dependent variable and FDI inflows as the principal independent variable. Additionally, this section incorporates control variables based on earlier studies that have shown potential impact on financial development.

The financial development level (FD) of countries is represented on a scale ranging from 0 to 1, where a higher score indicates a superior level of financial development. The FD composite comprises two primary elements: the financial institution index (FI) and the financial market index (FM). In order to assess whether the influence of each component has a distinct impact on financial development, we conducted separate regression analyses using each component as a dependent variable. The data utilized in this study was obtained from the International Monetary Fund (IMF).

The financial institutions index (FI) is a composite measure comprised of three distinct components: the financial institution depth index, the financial institution access index, and the financial institution efficiency index. The financial institution depth index draws on data on bank credit to the private sector as a percentage of GDP, as well as pension fund assets, mutual fund assets, and insurance premiums (both life and non-life) as a percentage of GDP. The financial institution access index employs data on the number of bank branches and ATMs per 100,000 adults. Finally, the financial institution efficiency index utilizes data on the banking sector's net interest margin, lending-deposits spread, non-interest income to total income, overhead costs to total assets, and return on assets and equity.
The financial markets index (FM) comprises three subcomponents: the financial markets depth index, the financial markets access index, and the financial markets efficiency index. The financial markets depth index incorporates data on stock market capitalization as a percentage of GDP, stocks traded as a percentage of GDP, international debt securities issued by the government as a percentage of GDP, and total debt securities issued by financial and non-financial corporations as a percentage of GDP. The financial markets access index utilizes data on the percentage of market capitalization outside the top 10 largest companies and the total number of debt issuers per 100,000 adults. Finally, the financial markets efficiency index incorporates data on the stock market turnover ratio.

Foreign direct investment (FDI) denotes the flows of equity investment that are made directly in the reporting economy. These values are transformed using their natural logarithm and are used as the primary independent variable. FDI encompasses the total

of equity capital, reinvestment of earnings, and other capital. The data used in this study were obtained from the World Development Indicator and are presented in current U.S. dollars.

This study includes several control variables obtained from the World Development Indicator. The first control variable is trade, which represents the total of exports and imports of goods and services as a percentage of gross domestic product. The second control variable is government expenditure, which encompasses all government current expenditures for goods and services, including employee compensation. Inflation, the third control variable, is defined as the annual percentage change in the cost to the average consumer of a basket of goods and services, measured by the consumer price index. Finally, population growth rate is the last control variable, calculated based on the de facto population definition, which includes all residents, regardless of citizenship or legal status.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FD	1107	0.5775	0.2119	0.0083	1
FI	1105	0.6544	0.1981	0.0999	1
FM	1107	0.4809	0.2567	0.0162	1
LnFDI	1011	22.6206	1.8935	14.5093	27.3215
trade_openness	1085	87.0086	51.4495	15.8103	377.843
government_exp.	1085	18.9676	4.0101	8.1197	30.3239
inflation	1105	8.2446	51.0007	-4.4781	1020.621
population	1115	0.5629	0.7966	-2.5743	6.0171

Table 1 presents a description of the data, which reveals that the highest value observed for FD is 1, whereas the lowest one is 0.0083. The average value for FD is calculated as 0.5775. FD consists of two components, namely FI and FM, with maximum values of 1 and 1, respectively, while their minimum values are 0.0999 and 0.0162, respectively. The explanatory variable, LnFDI, demonstrates a range of values from 14.50 as the lowest point to 27.32 as the highest.

In order to explore the correlation between FDI and FD, we initially utilize the fixed effect approach following a Hausman test to determine the most suitable method between fixed effects and random effects. One of the benefits of implementing the

fixed effects model is its capacity to incorporate country-specific heterogeneity. By disregarding unobserved variables that may be interrelated with other regressors, estimates with heteroscedasticity can generate biased and unreliable results (Gokceli et al., 2022). Consequently, our preference is to use the fixed effects model to examine the impact of FDI on FD, using the following equation:

$$FD_{i,t} = \alpha + \beta_1 FDI_{i,t} + \gamma C_{i,t} + \eta_i + u_{i,t} \quad (1)$$

where FD represents the financial development of country i at time t, α stands for the constant term. FDI refers to the logarithmic net flows of FDI in the host country. "C" is a matrix composed of control variables frequently utilized as determinants of financial development in the literature. The parameters "β" and "γ" represent the coefficients associated with FDI and the control variables, respectively. η denotes the country-specific effects. Lastly, "u" denotes the error term in the model. For the analysis of the impact of FDI on FI and FM, they are used as the dependent variables instead of FD in separate regressions. In order to evaluate the influence of FDI on FI and FM, these two parameters are used as the dependent variables, instead of FD, in separate regression analyses.

One of the limitations of the fixed-effects model is its failure to account for potential simultaneity bias that may arise due to endogenous explanatory variables between FDI and FD, as described in detail in the preceding section.

An alternative approach to the fixed-effects model is the system GMM, which was developed by Arellano and Bover (1995) and Blundell and Bond (1998). This model helps to address the simultaneity bias that may arise due to the potential endogeneity of FDI inflows, i.e., a rise in the financial development index might attract more FDI inflows in the host country. Moreover, the GMM utilizes the time-series variance in the data to take into account unobserved country-specific effects and enables the use of the lagged dependent variable as an independent variable (Azman-Saini et al., 2010). The investigation of the relationship between FDI and FD is carried out based on the subsequent equation:

$$FD_{i,t} = \alpha FD_{i,t-1} + \beta_1 FDI_{i,t} + \gamma C_{i,t} + \mathcal{E}_{i,t} \quad (2)$$

where the lagged of the dependent variable used as a regressor in the model. To eliminate the time invariant effects, Arellano and Bond (1991) recommend taking the fist-differences of equation (2) as follows:

$$FD_{i,t} - FD_{i,t-1} = \alpha(FD_{i,t-1} - FD_{i,t-2}) + \beta_2(FDI_{i,t} - FDI_{i,t-1}) + \gamma(C_{i,t} - C_{i,t-1}) + (\mathcal{E}_{i,t} - \mathcal{E}_{i,t-1}) \quad (3)$$

In order to address the endogeneity problem, the GMM model employs lagged values of explanatory variables as instruments. However, this transformation gives rise to a

new statistical problem, namely, the transformed error term Ɛi,t - Ɛi,t-1 is correlated with the lagged dependent variable yi, t-1 – yi, t-2. Arellano and Bond (1991) suggest using the lagged levels of the explanatory variables as instruments to solve this problem. This method is also called the difference GMM and is based on the following equation:

$$E[FD_{i,\,t-s} \,.\, (\mathcal{E}_{i,t} - \mathcal{E}_{i,\,t-1})] = 0 \text{ for } s \geq 2;\ t = 3,\ldots\ldots T \quad (4)$$

$$E[FDI_{i,\,t-s} \,.\, (\mathcal{E}_{i,t} - \mathcal{E}_{i,\,t-1})] = 0 \text{ for } s \geq 2;\ t = 3,\ldots\ldots T \quad (5)$$

$$E[C_{i,\,t-s} \,.\, (\mathcal{E}_{i,t} - \mathcal{E}_{i,\,t-1})] = 0 \text{ for } s \geq 2;\ t = 3,\ldots\ldots T \quad (6)$$

Blundell and Bond (1998) points that using lagged levels of the explanatory variables as instruments may lead to weak instruments when the regressors are persistent. This can result in biased parameter estimates in small samples and increased variance of coefficients. To address this weakness, an alternative method is the system GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998). This method uses lagged level observations as instruments in equation 3, as well as lagged differenced observations as instruments in equation 2. The additional conditions can be written as follows:

$$E[(FD_{i,\,t-s} - FD_{i,\,t-s-1}).(\eta_i + \mathcal{E}_{i,t})] = 0 \text{ for } s = 1 \quad (7)$$

$$E[(FDI_{i,\,t-s} - FDI_{i,\,t-s-1}).(\eta_i + \mathcal{E}_{i,t})] = 0 \text{ for } s = 1 \quad (8)$$

$$E[(C_{i,\,t-s} - C_{i,\,t-s-1}).(\eta_i + \mathcal{E}_{i,t})] = 0 \text{ for } s = 1 \quad (9)$$

Given the advantages highlighted above, we prefer the system GMM as a robustness check of the findings estimated by the fixed effects.

4. Empirical Results

Table 2 presents the results estimated by the fixed effects. The regression analysis indicates a statistically significant and positive relationship between foreign direct investment (FDI) and the financial development index. The coefficient of FDI is 0.036 in the first column, suggesting that a one percent increase in FDI inflows corresponds to a 0.037 percent rise in the financial development index. This positive association persists even after the inclusion of more control variables in columns 2 and 3, which validate to the robustness of the findings. Previous studies by Agbloyor et al. (2013), Henri (2019), and Majeed et al. (2021) have reported similar results, which highlight the beneficial impact of FDI on financial development. The capital inflows resulting from FDI increase the total amount of available funds in the host economy, stimulating financial intermediation through the banking system and financial markets and

enhancing the performance of firms with foreign investors (Mileva, 2008; Henry, 2019). The positive coefficient of trade openness also supports the favorable impact of FDI on the financial system in OECD countries. Higher levels of trade openness lead to an increase in international trade, which, in turn, boosts the host country's financial system. These results remain unchanged even after additional control variables are included. The coefficient of government expenditure is also positive and significant, indicating that an increase in government expenditure results in a better designed financial system in the host country. Henry (2019) argued that a stable government can promote the progress of the financial system, as evidenced by the positive correlation between government expenditure and financial development. Countries with robust governance tend to have individuals who comply with financial agreements, resulting in smoother and less costly lending and borrowing processes (Aiba et al., 2019). Inflation seems to have a negative and significant effect on the financial development index as expected. The inverse link between them may stem from the notion that inflation has been correlated with financial instability, whereby high levels of inflation have detrimental effects on the stability and functionality of the financial system. Its detrimental effect is also robust to the inclusion of the more control variables in the column 3. Final cntrol variables included in the model is population growth rate. It is possible to see both positive and negative impacts of population on financial development. Negative effects are usually observed when population growth outpaces economic resources, causing a more concentrated distribution of resources as found by Kaidi et al. (2018). Conversely, this scenario may improve the country's savings and contribute to an increase in financial development (Majeed et al., 2021).

Table 2. Effect of FDI on FD with Fixed Effects

Variables	**FD**	**FD**	**FD**
FDI	0.03699*** (0.000)	0.03463*** (0.000)	0.03451*** (0.000)
trade_openness	0.00013*** (0.000)	0.00126*** (0.000)	0.00121*** (0.000)
government_exp	0.00929*** (0.000)	0.00859*** (0.000)	0.00878*** (0.000)
inflation		-0.00157*** (0.000)	-0.00162*** (0.000)
population			0.00845 (0.237)
constant	-0.56698*** (0.000)	-0.46381*** (0.000)	-0.46953*** (0.000)
Hausman test	24.01*** (0.000)	31.21*** (0.000)	40.16*** (0.000)

P-values are reported in the parentheses. (*) denotes 1% level, (**) denotes 5% level, (***) denotes 10% level

Lastly, it should be noted that the results of the Hausman tests are presented at the bottom of each regression, and this test determines the suitable model between fixed and random effects. The null hypothesis of the test suggests that the random effects model is preferred, whereas the alternative hypothesis indicates that the fixed effects method is more appropriate for the analysis. As the p-value of the test is below 5% for each regression, we rejected the null hypothesis and employed the fixed effects model.

This study also examines how foreign direct investment (FDI) affects financial development by analysing the impact on the financial institutions index (FI) and financial markets index (FM). The paper uses the fixed effect model and runs three separate regressions for each index, finding that FDI has a positive and significant effect on both FI and FM. The coefficient for the effect of FDI on FI was 0.0209, meaning that a one percent increase in FDI inflows results in a 0.021 increase in FI. Meanwhile, the coefficient for the effect of FDI on FM was even higher, with a one percent increase in FDI associated with a minimum 0.051 percent increase in FM, indicating that FDI has at least twice as much impact on FM compared to FI. The study also analysed control variables and found that their impact was consistent with prior regression analyses.

Table 3. Effect of FDI on FI and FM with Fixed Effects

Variables	FI	FI	FI	FM	FM	FM
FDI	0.02094*** (0.000)	0.01663*** (0.000)	0.01633*** (0.000)	0.05154*** (0.000)	0.05139*** (0.000)	0.05145*** (0.000)
trade_openness	0.00106*** (0.000)	0.00084*** (0.000)	0.00086*** (0.000)	0.00164*** (0.000)	0.00158*** (0.000)	0.00163*** (0.000)
government_exp	0.00239* (0.097)	0.00107 (0.440)	0.00149 (0.282)	0.01585*** (0.000)	0.01581*** (0.000)	0.01575*** (0.000)
inflation		-0.00299*** (0.000)	-0.00312*** (0.000)		-0.00010 (0.865)	-0.00006 (0.908)
population			0.02144*** (0.000)			-0.00483 (0.661)
constant	0.04901 (0.336)	0.20327*** (0.000)	0.18901*** (0.000)	-1.11944*** (0.000)	-1.11427*** (0.000)	-1.11124*** (0.000)
Hausman test	10.05** (0.018)	21.00*** (0.000)	26.87*** (0.000)	34.78*** (0.000)	36.09*** (0.000)	43.03*** (0.000)

P-values are reported in the parentheses. (*) denotes 1% level, (**) denotes 5% level, (***) denotes 10% level

5. Robustness Check

To ensure that the findings estimated by fixed effects are robust, we apply the system GMM approach developed by Blundell and Bond (1998). This method is used to account for the possibility of endogeneity bias, which can arise from simultaneous

causality between FDI flows and financial development, as described in detail in the methodology section.

As pointed out by Carkovic and Levine (2002), the GMM estimator's accuracy depends on two tests: the Hansen test and the Arellano-Bond AR (2) test, which were both conducted and reported at the bottom of each table column. The results of the Hansen test consistently show a p-value greater than 0.05, indicating that the identifying restrictions were valid and supporting the choice of instruments. Similarly, failing to reject the null hypothesis of the Arellano-Bond AR (2) test and indicating that there is no second-order serial correlation.
Table 4 presents the results obtained using the system GMM approach. In this table, the lagged value of the dependent variable is used as an independent variable, which indicates the dynamic structure of the model. The results indicate a positive and significant relationship, suggesting that a well-designed financial system in the previous period is associated with a more developed financial system in the current period. Additionally, FDI has a positive and significant effect in all columns, indicating that greater FDI inflows are associated with a more advanced financial system in the host country. This finding is consistent with the results obtained using the fixed effects method. As for the control variables, their impact remains in the expected direction, and the findings are similar to those reported in Table 2.

Table 4. Effect of FDI on FD with system GMM

Variables	**FD**	**FD**	**FD**
L.FD	0.79653*** (0.000)	0.76891*** (0.000)	0.79853*** (0.000)
FDI	0.01454*** (0.000)	0.01489*** (0.001)	0.01162*** (0.000)
trade_openness	0.00018* (0.086)	0.00022* (0.060)	0.00019** (0.021)
government_exp	0.00049 (0.769)	-0.00007 (0.966)	0.00033 (0.843)
inflation		-0.00127* (0.058)	-0.00127** (0.030)
population			0.01205* (0.071)
constant	-0.19973** (0.019)	-0.17203* (0.052)	-0.13146** (0.046)
Arellano-Bond AR (2) p-value	-1.19 (0.234)	-1.07 (0.283)	-1.23 (0.217)
Hansen test of overid.	32.41 (0.302)	31.31 (0.351)	31.46 (0.344)

P-values are reported in the parentheses. (*) denotes 1% level, (**) denotes 5% level, (***) denotes 10% level

To ascertain the validity of the results that indicate whether FDI has a varying impact on the main components of the Financial Development Index, we implemented the

system GMM approach as in the preceding investigation. The findings are presented in Table 5. The results demonstrate that FDI has a positive and substantial effect on both the Financial Institutions Index (FI) and the Financial Markets Index (FM). We conclude that the effect on FM is relatively greater than that on FI, based on the magnitude of the positive impact. However, the difference is not as significant as the one observed in the findings derived from fixed effects estimation.

Table 5. Effect of FDI on FI and FM with System GMM

Variables	FI	FI	FI	FM	FM	FM
L.FD	0.74625*** (0.000)	0.70134*** (0.000)	0.71201*** (0.000)	0.85474*** (0.000)	0.85262*** (0.000)	0.86651*** (0.000)
FDI	0.01237** (0.016)	0.01132*** (0.004)	0.00881*** (0.021)	0.01361*** (0.000)	0.01348*** (0.000)	0.01159*** (0.000)
trade_openness	0.00008 (0.524)	0.00014 (0.332)	0.00012 (0.244)	0.00023** (0.018)	0.00024** (0.016)	0.00022*** (0.007)
government_exp	0.00152 (0.518)	0.00046 (0.829)	0.00113 (0.605)	-0.00022 (0.868)	-0.00034 (0.801)	-0.00011 (0.935)
inflation		-0.00262*** (0.003)	-0.00277*** (0.004)		-0.00024 (0.642)	-0.00028 (0.546)
population			0.01921** (0.034)			0.00616 (0.310)
constant	-0.12392 (0.182)	-0.04316 (0.577)	-0.01715 (0.805)	-0.20594*** (0.008)	-0.19829** (0.013)	-0.17126** (0.013)
Arellano-Bond AR (2) p-value	-0.80 (0.423)	-0.26 (0.795)	-0.38 (0.706)	-1.85 (0.065)	-1.85 (0.065)	-1.88 (0.060)
Hansen test of overid.	31.42 (0.346)	30.77 (0.376)	33.34 (0.264)	30.92 (0.369)	30.74 (0.378)	30.53 (0.388)

P-values are reported in the parentheses. (*) denotes 1% level, (**) denotes 5% level, (***) denotes 10% level

Conclusion

While a significant amount of research has investigated the link between Foreign Direct Investment (FDI) and financial development on economic growth, there is a noticeable lack of research on the relationship between FDI and financial development itself. In an effort to contribute to the existing literature on this topic, this paper examines the impact of FDI on financial development using the fixed effects method as static panel data and the system GMM as dynamic panel data over the period of 1990-2020, focusing on OECD countries. Additionally, this study investigates the influence of FDI on the two primary components of the Financial Development Index, namely the Financial Institutions Index and the Financial Markets Index. To check the sensitivity of the findings, three commonly used control variables for determining FD are included in the models.

The present study contributes to the literature by examining the relationship between FDI and financial development in OECD countries. Initially, a fixed effect model is

employed to investigate the effect of FDI on overall financial development, and it is found that FDI inflows have a positive impact on financial development. This result remains unchanged after controlling for three commonly used determinants of financial development. The study also investigates the effect of FDI on the two main components of the financial development index, namely the financial institutions index and the financial markets index. The regression results reveal that the positive effect of FDI on the financial markets index is roughly two times greater than that on the financial institutions index. To address potential issues of endogeneity resulting from the possible bidirectional causality between FDI and financial development, the system GMM model is applied. The findings confirm the results obtained using the fixed effect model. However, the promoting effect of FDI on financial institutions index and financial markets index is found to be similar in contrast to the earlier findings.

The findings of this research have implications for policy and suggestions for future studies. It is important to note that FDI has a positive relationship with financial development in addition to enhancing the growth rate through technology transfer, new managerial practices, and job creation. Therefore, it is recommended that OECD countries recognize the potential for FDI to promote financial development and consider it as another pathway for achieving higher economic growth. As previously discussed, there is a lack of research and agreement on the relationship between FDI and financial development. To address this gap in the literature, it is recommended that future studies investigate the effects of FDI flows in various sectors and the impacts of different types of FDI on financial development.

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