The impact of foreign direct investment on financial development in Asian countries

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Abstract

This paper empirically studies the impact of foreign direct investment (FDI) on financial development from 37 Asian nations covering the period 2001-2020 from a panel data set. The findings show that FDI has a positive impact on financial development, implying the spill-over effect of FDI in Asian financial markets. Furthermore, this study discovers that trade openness and population growth have a positive impact on financial development, while inflation affects financial development negatively. However, it is found that there is no relationship between government consumption and financial development in the Asian context.

Key words: Asian countries; Financial development; FDI; Panel data

JEL Classification: B22; F21; G20; O16; O53

1. Introduction

Foreign direct investment (FDI) has been a crucial factor for the economic development of a country, as it raises capital accumulation, technological innovation and productivity, which promote the growth of a country in many aspects such as financial, commercial and overall economic (Pham, Gan, & Hu, 2022). FDI inflows also help the host countries to improve institutional quality (Huynh, 2022) and air pollution (Huynh & Hoang, 2019), reduce shadow economy (Huynh et al., 2020), and diminish income inequality (Huynh, 2021). Because of these expected roles, the governments of Asian developing countries have passed several policies related to tax incentives, infrastructure, free trade agreements,… to attract FDI inflows (Pham, Gan, & Hu, 2022). According to UNCTAD’s World Investment Report 2022, Despite the Covid 19 pandemic, FDI flows to developing countries in Asia witnessed an increase of 4% to reach and was the only region recording FDI growth, while the pandemic leads to a 35% decrease in global FDI in 2020. In 2021, with the growth of 19% in FDI, developing Asia hit a record of highest amount of FDI inflow all-time
(UNCTAD, 2022). Figure 1 depicts the FDI inflows to developing countries in Asia and sub regions in 2020 and 2021.

Meanwhile, financial development (FD) has attracted much attention from researchers and policy-makers in Asia (Huynh and Tran, 2022). There is a large amount of evidence showing that FD can promote economic growth by affecting the accumulation of capital, saving rate, behavior of saving, investment information, amount of FDI inflows and the optimization of capital allocation (Sobiech, 2019; Majeed et al., 2021). An economy is believed to grow faster in the long run when it has a developed financial system. Therefore, FD plays an important role in developing countries (Sobiech, 2019) which also are the destination of FDI inflows. It has always been crucial to research about the relationship between FDI and FD and their impacts on economic growth (Otchere, Soumare & Yourougou, 2016). Although there has been many studies focusing on the impact of FDI on various dimensions of the economy such as economic growth, institutional quality, shadow economy, air pollution, and income inequality…as mentioned above, only a limited number of studies have been devoted to the impact of FDI on FD (Aibai et al., 2019; Sobiech, 2019; Majeed et al., 2021), especially in the context of Asia. Moreover, the results of these studies are different and inconsistent due to the difference in social, financial and economic backgrounds of countries that have been studied. FDI inflows in Asia are having a positive sign, and it should be used in a proper way that brings the most benefits to the region. Therefore, studying the effect of FDI on FD to utilize the benefits of FDI and FD for economic growth is important in the post-pandemic period. Realizing the necessary and the concerns that have not been filled in previous studies, the main objective of this research is to analyse the impact of FDI on FD in Asian countries from 2001 to 2020. Results are expected to give researchers and
policy-makers empirical findings and useful implications.

![Figure 1: FDI flows to developing countries in Asia and sub regions, 2020-2021](billions of dollars) (UNCTAD World Investment Report, 2022)

2. Literature review

Theoretically, Agbloyor et al. (2012) asserted that when MNCs operate in a country, they tend to open a bank account in the domestic commercial banks, which increases the lending potential of the domestic financial market. Moreover, as MNCs are listed on the stock exchange of a country, the liquidity and market capitalization increase, which also can attract more participants in the stock market. Pradhan, Arvin, Bahmani, & Hall (2018) stated that in order to utilize the advantages of FDI on FD efficiently, the domestic financial market has to propose appropriate policies and financial infrastructures.Specifically, according to the political economy argument, FDI inflows motivate the appearance of market-friendly regulations to protect investors and
achieve better governance, which in turn leads to a more developed financial market and pushes domestic economic growth (Soumaré & Tchana, 2015).

Baltagi, Demetriades, and Law (2008) investigated both developing and industrialized countries in 2008 and concluded that FDI and trade openness significantly determine FD (banking sector specifically). Hajilee and Nasser (2015) used the sample of 14 Latin American countries in the period of 1980-2010 and found that FDI facilitated stock market progress due to spillover effects that can generate investment opportunities. Sahina & Egeb (2015) used Bootstrap causality analysis to study the relationship between foreign direct investment and financial growth in Bulgaria, Greece, Macedonia, and Turkey. They concluded that FDI boosts the projections of financial development in Bulgaria, Greece, and Turkey. Meanwhile, Majeed, Ahmad, Asif Khan & Olah (2021) studied the impact of FDI on FD in the sample of 102 Belt and Road Initiative countries, and found that FDI enhances FD in Asia, Europe, and Latin America, while it has a negative effect in Africa due to weak financial structure. Henri, Luc, & Larissa (2019) used the sample of 49 African countries in the 1990-2016 period and Pooled Mean Group approach found that in the long term, FDI has a positive and significant influence on FD, but in the short run the effect of FDI on FD is negative.

In contrast, in some empirical studies, the effect of FDI on FD shows differently. Hajilee & Nasser (2015) discovered no effects of FDI on banking sector development in 14 Latin American countries over the period 1980-2010. In 2016, using the sample of sub-Saharan African region from 1990 to 2013 Gebrehiwot, Esfahani & Sayim found an ambiguous effect of FDI on FD, as FDI statistical significance is different between banking sector development indicators (Credit and Private Sector Liquid Liability), and there is only one stock market development indicator (Stock Market
capitalization) is positively correlated with FDI. Bayar & Gavriletea (2018) in their research using panel data analysis Central and Eastern European Union countries between 1996 and 2015 found that there is no long-run relationship between FD, FDI and foreign portfolio investment inflows, no causality from FDI inflows to FD, and foreign portfolio inflows have no significant impact on FD and, therefore, FDI does not significantly affect FD in both short-term and long-term.

3. Model

Based on previous related studies, this research employs regression model of panel data to assess the impact of FDI on FD as follows:

$$\text{FD}_{i,t} = \beta_0 + \beta_1 \times \text{FDI}_{i,t} + \beta_2 \times \text{TO}_{i,t} + \beta_3 \times \text{GC}_{i,t} + \beta_4 \times \text{INF}_{i,t} + \beta_5 \times \text{PG}_{i,t} + \epsilon_{i,t} \quad (1)$$

Where i is the country; t is the year; $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$, and $\beta_5$ are the respective coefficients; and $\epsilon$ is the error term.

The dependable variable is financial development (FD), measured by the FD index (ranking from 0 to 1) from the International Monetary Fund (2022) which is an aggregate of financial institution index and financial market index, measuring countries’ depth, access, and efficiency of financial institutions and financial markets. The main independent variable is foreign direct investment (FDI), measured by FDI net inflows as a percentage of GDP.

The control variables in our model are: i) Trade openness (TO), measured by ratio of total imports and exports over the country’s GDP; ii) Government consumption (GC), measured by the general government final consumption expenditure divided by GDP; iii) Inflation (INF), measured by GDP deflator; and iv) Population growth (PG), measured by population annual growth rate. The selection of these control variables are based on the previous studies on determinants of financial development as follows.
Trade openness (TO): Rajan and Zingales (2003) theoretically argued that when a country is open to trade, it brings competition to domestic markets, lowers profit of domestic established firms, makes them need to make more investment and rely on external financial sources. However, the need for external finance does not compulsorily lead to the improvement of the financial system. Instead, industrial incumbents can manage to use their available finance or ask for government loan subsidies, which may reduce the transparency of the financial system because of selective government intervention. As a result, Rajan and Zingales concluded that trade openness alone may not be enough for industrial incumbents to support financial development (Rajan & Zingales, 2003). Better scenery would come when trade openness is combined with financial openness, as the competition brought by trade openness that leads to financial requirements does not put as much pressure on industrial firms as when financial openness is absent and industrial incumbents may not oppose financial development (Rajan & Zingales, 2003). Do and Levchenko (2007), after developing a model in which financial development is determined by demand for external finance in production, creating a measure of a country's external finance need of exports and relating it to financial development in a large sample of countries, discovered that countries that export goods that require financial dependence experience more financial development due to higher demand for external finance, compared to countries whose exported goods do not rely on external finance. In 2009, Kim, Lin, & Suen studied 88 countries over 1960–2005, using the Pooled Mean Group (PMG) approach of Pesaran et al., generally found that there is a positive relationship between trade openness and financial development in the long-run but a negative relationship exists in the short-run. However, these relationships can be changed due to countries’ characteristics such as income level and inflation rate (Kim,
Government consumption (GC): Ayadi, Arbak, Naceur, and Groen (2015) discovered that decreased government spending may enhance bank performance and promote the growth of stock markets in SEMC nations. Using panel data from 1990 to 2012 on 27 developed and 30 developing countries, Zara, Shahzadi, and Akram (2014) found that credit to the private sector (used as a proxy for financial development) in all countries is dependent on government consumption as a percentage of GDP.

Inflation (INF): Azariadis & Smith (1996) theoretically stated that higher inflation rate reduces the willingness of lenders to provide additional funds to borrowers at prevailing market interest rate due to higher tax on financial assets such as bank deposits. As a result, high inflation causes reduced estimated earnings and less motivation for investing activities. Similarly, Huybens & Smith (1999) have shown that inflation and normal activities of a company (real activity) have a negative relationship, and as real activity and the volume of financial market activity are positively related, inflation and financial market activity are believed to have a negative relationship. Rousseau & Wachtel (2001) pointed out that inflation can suppress financial intermediation by diminishing the usefulness of money assets and causing policy decisions that distort the financial structure. Rousseau & Yilmazkuday (2009) reinforced that inflation makes investment information less reliable and accessible. Lenders will thus place greater emphasis on short-term profit than long-term investment, which will lead to credit being channelled toward loans that are more likely to be utilized to cover operational costs than to finance long-term capital projects. Kim & Lin (2010) discovered a negative long-run relationship between inflation and financial development coexists with a positive short-run relationship.

Population growth (PG): Population size is also strongly tied to indices of
financial development because small nations typically have greater ratios of liquid liabilities and private credit, which have the capacity to significantly alter the overall outcomes (Huang, 2010). Using panel data from 1990 to 2012 on 27 developed and 30 developing nations, Zara, Shahzadi, and Akram (2014) found that population growth positively affects credit to the private sector (used as a proxy for financial development) in all nations.

4. Data and methodology

4.1. Data

This study investigates the effect of FDI on FD in 37 Asian countries, including China, India, Indonesia, Pakistan, Bangladesh, Japan, Philippines, Turkey, Iran, Thailand, South Korea, Saudi Arabia, Uzbekistan, Malaysia, Nepal, Sri Lanka, Kazakhstan, Cambodia, Jordan, Azerbaijan, United Arab Emirates, Tajikistan, Israel, Lebanon, Kyrgyzstan, Singapore, Oman, Kuwait, Georgia, Mongolia, Armenia, Qatar, Bahrain, Timor-Leste, Cyprus, Bhutan, and Brunei. We study for the period 2001-2020. Data for the financial development index were extracted from the International Monetary Fund (IMF). Besides, we collected data for FDI and all control variables (TO, GC, INF, PG) from World Development Indicators (WDI), World Bank (2021).

Table 1 provides definitions, measurements and data sources of all variables. The descriptive statistics are presented in Table 2. The mean of FD index is 0.365, based on the statistics found for the sample of the 37 nations under investigation. The average FDI net inflows as a percentage of GDP from 2001 to 2020 are 6.27%. Cyprus had the most FDI net inflows as a proportion of GDP in 2012 (280%), while Mongolia had the least in 2016 (-37% of GDP). Additionally, the average trade openness is 92.43% of GDP, the average government consumption as a percentage of GDP is 16.07%, the average inflation rate is 6.15%, and the average population growth rate is
1.89%.

Table 1. Variables and measurements.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measurements</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Dependent variable</strong></td>
<td></td>
</tr>
<tr>
<td>FD</td>
<td>Financial development index, estimated numbers</td>
<td>IMF</td>
</tr>
<tr>
<td></td>
<td><strong>Independent and control variables</strong></td>
<td></td>
</tr>
<tr>
<td>FDI</td>
<td>FDI net inflows as a percentage of GDP (%)</td>
<td>WDI</td>
</tr>
<tr>
<td>TO</td>
<td>Total imports and exports over GDP (%)</td>
<td>WDI</td>
</tr>
<tr>
<td>GC</td>
<td>General government final consumption expenditure divided by GDP (%)</td>
<td>WDI</td>
</tr>
<tr>
<td>INF</td>
<td>Annual inflation rate (by GDP deflator, %)</td>
<td>WDI</td>
</tr>
<tr>
<td>PG</td>
<td>Annual population growth rate</td>
<td>WDI</td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistics.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs</th>
<th>Mean</th>
<th>St.deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD</td>
<td>740</td>
<td>0.3649643</td>
<td>0.202621</td>
<td>0</td>
<td>0.9245158</td>
</tr>
<tr>
<td>FDI</td>
<td>736</td>
<td>6.272195</td>
<td>20.37297</td>
<td>-37.17265</td>
<td>280.1318</td>
</tr>
<tr>
<td>TO</td>
<td>737</td>
<td>92.42568</td>
<td>58.90681</td>
<td>19.5596</td>
<td>437.3267</td>
</tr>
<tr>
<td>GC</td>
<td>739</td>
<td>16.06502</td>
<td>13.12843</td>
<td>3.460336</td>
<td>147.7189</td>
</tr>
<tr>
<td>INF</td>
<td>740</td>
<td>6.152204</td>
<td>9.101146</td>
<td>-25.95842</td>
<td>61.05951</td>
</tr>
<tr>
<td>PG</td>
<td>740</td>
<td>1.894</td>
<td>2.159128</td>
<td>-1.551238</td>
<td>17.51221</td>
</tr>
</tbody>
</table>

4.2. Methodology

To estimate Eq. (1), we used three methods: Ordinary least square for panel data (OLS), fixed effects (FE), and random effects (RE) with the procedure as follows.

*Firstly*, pool OLS and RE regression are performed.

*Secondly*, the Breusch and Pagan Lagrangian multiplier tests are employed to between Pooled OLS and REM. H0: The variance of the random effect is zero (No
random effects). H1: The variance of the random effect is non-zero (Random effects). If H0 is rejected, we choose RE. Otherwise, we choose OLS.

Thirdly, if rejecting H0 in the Breusch and Pagan Lagrangian multiplier test we run FE.

Fourthly, we conduct the Hausman test to make decision whether to choose FE or RE models. H0: Difference in coefficients is not systematic (choose RE). H1: Difference in coefficients is systematic (choose FE). If rejecting H0, we choose FE. Otherwise, we choose RE.

Finally, if autocorrelation or heteroscedasticity or both of them happen, the Feasible Generalized Least Squares (FGLS) estimator is applied for the regression.

5. Empirical results and discussions

Following the procedure of estimation methods for panel data as mentioned above, we begin our regression with OLS and RE for panel data. Results of the B-P Lagrangian multiplier tests reject the null hypothesis of no variances across countries, showing that RE is appropriate. Therefore, we continue running FE. Then, results from Hausman tests reject the null hypothesis of non-systematic difference in coefficients, indicating that FE is an appropriate estimator. Finally, we perform FGLS to deal with the issues of autocorrelation or heteroscedasticity. Estimations results and relevant tests are reported in Table 3.

Table 3. Regression results
Results in Table 3 show interesting findings as below.

First, FDI inflows positively affect financial development countries in all models at 1% -5% significance levels. This outcome is consistent with the findings by Baltagi, Demetriades, & Law (2008); Hajilee & Nasser (2015); Sahina & Egeb (2015); Majeed, Ahmad, Asif Khan & Olah (2017); and Henri, Luc, & Larissa (2019). This result shows that Asian countries are absorbing the benefits of foreign direct investment and taking advantage of it to enhance their financial performance. The FDI inflows from MNCs help Asian countries to increase the number of market participants and financial transactions, which expands the financial market. Moreover, the positive relationship between FDI and financial development partially shows that to adapt and utilize the amount of FDI inflows, the governments have proposed appropriate and effective regulations, so that FDI can perform effectively to help enhance financial performance in these countries.

Second, trade openness and population growth also have positive impacts on
financial development. Based on Rajan & Zingales (2003), it may be concluded that Asian countries are doing well in combining trade openness, population growth, and financial openness, which in turn facilitates financial development.

Third, inflation and financial development has an inverse relationship in Asian countries, this means a country that suffers from increased inflation rate will also suffer from a decrease in the progress of financial sectors. The finding that inflation affects financial development negatively in Asian countries is consistent with results by Azariadis & Smith (1996), Rousseau and Wachtel (2001), Rousseau & Yilmazkuday (2009), Bittencourt (2010), and Kim & Lin (2010). This is because inflation affects the value of assets, lending and investing decisions, number of transactions and activities of enterprises, which affects the operation of the financial market in a negative way. Generally, it can be seen that the negative impact of inflation on financial development is the same for most countries and regions.

Last, as the percentage of final government expenditure over GDP does not show any relationship with the FD index, government consumption is found to have no effects on the financial development in Asian countries.

6. Conclusion and policy implication

This study aims to investigate the effects of foreign direct investment (FDI) on financial development (FD) in 37 Asian countries, with consideration of other control variables including trade openness (TO), government consumption (GC), inflation (INF), and population growth (PG). Results from estimators of FE and FGLS show that, foreign direct investment inflows enhance financial development in the context of Asian countries. Additionally, the positive impacts trade openness and population growth on FD are also discovered, while the impact of inflation on the progress of the financial sector is negative. However, this study figures out that government
consumption does not have any impact on financial development in Asian countries.

Based on the findings of this study, we can suggest that FDI can be considered as a useful tool in order to enhance financial development of Asian countries. Asian countries are witnessing a very positive sign of FDI inflows, so this finding may encourage governments to continue creating a friendly market by the regulations and have strategies to attract more FDI, so that countries can take advantages of it and enhance their performance in financial aspects, especially in the post-pandemic of Covid-19 situation when businesses are starting to make investments. The governments should also strengthen the financial market such as banking systems and stock markets, so that more MNCs may come and put their investments in their countries. Besides, Asian governments can also increase countries’ financial development by making the economy more open for import and export activities, so that trade openness can increase which in turn leads to more financial development. In addition, controlling inflation rate is another way to improve financial progress. The Asian governments should control the inflation growth rate in order to minimize its negative impact on countries’ financial development. Last but not least, governments in Asia should pay attention to the disadvantages of their consumption in financial markets because government consumption still has no impact on financial development in Asian countries.

**Compliance with ethical standards: Disclosure of potential conflicts of interest**

**Conflict of interest:** The authors declare that they have no conflict of interest.
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