Financial Development as a Determinant Factor of FDI Inflow to Developing Countries

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Abstract

This paper investigates the key factors affecting the foreign direct investment (FDI) inflow to developing countries during the period (1995-2010) with emphasis on the financial development. Financial development, as an important factor in FDI absorption and a prerequisite for utilizing the benefits of FDI, not only increases the FDI inflow in developing countries, but also improves the absorption capacity and ability of these countries to utilize the benefits of FDI. Since the financial system consists of several components and provides a variety of services, various indicators which represent the development of different aspects and components of financial system, have been applied in order to assess the impact of financial development on the FDI. Results indicated that development of various components of financial system (stock market and banking sector) as well as different aspects of financial development (size and activity level of financial system) all have positive and significant impact on the FDI inflow in developing countries during the studied period.

Keywords: Foreign direct investment, Financial development, Stock market, Banking system.

JEL Classification: F21, G29, O16, C33

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1. Introduction

FDI inward to the developing countries has experienced an increasing trend during the past three decades, but this is not the same for all countries. The FDI has been increased equal to 70,106 and 188 times in the world, developed and developing economies, respectively. During this period, developing countries have experienced the largest rate of increase equal to 1.7 times higher than the FDI in the whole world and 2.6 times higher than the FDI in the developed countries. Different regions of developing countries have not also been similar in terms of FDI absorption. With significant increase equal to 531 times, developing countries in Asia are put in the first place followed by developing countries in America, Africa and Oceania with increase equal to 111, 50 and 29 times (UNCTAD, 2012).

Financial Development is among the factors which have been recently considered by the economic researchers as one of the key factor of FDI and a prerequisite for its utilization. In addition to the direct impact of financial development on the economic growth, the financial development plays the important role in FDI impact on the economic growth quantitatively and qualitatively. The financial development quantitatively enhances the FDI attraction, thus it leads to higher economic growth; moreover, it improves qualitatively the impact of each level of FDI on the economic growth through increasing the absorptive capacity.

Two approaches have been proposed in terms of quantitative impact of financial development on the FDI. While in the first approach, the financial development and FDI are considered as the alternatives to

each other and the FDI is considered as a tool for overcoming the inefficiency and underdevelopment of financial system is host countries, these two are complementary in the second approach and the development of financial system increases the FDI inflow.

This study investigates the impact of financial development on the FDI inflow to developing countries through different indicators of financial development which represent the development in various components of financial system (banking sector and stock market) and different aspects of financial development (size and activity of financial system.

Other sections of this paper are as follows: Literature review, Empirical studies, providing the model and its included variables, Estimation of model and analysis of experimental results, and finally Summary,

conclusion and providing the policy recommendations.

2. Literature Review

Financial development refers to the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services (Financial Development Report, 2012). Many economist and policy makers have paid attention to the relationship between the financial development, foreign direct investment and the economic growth. Levine (1997) argues that financial systems ameliorate transaction and information cost through five basic functions of facilitating the trading ,hedging ,diversifying and pooling of risks; allocating the resources; monitoring the managers, and exerting the corporate control, mobilizing saving, and facilitating

the exchange of goods and services. Financial systems by providing these functions and through two channels (capital accumulation and technological innovation) affect economic growth. De Mello (1999) believes that the influence of FDI on the economic growth is done through the capital accumulation and technology diffusion. However, the utilization of FDI benefits by developing countries and its impact on economic growth depend on the appropriate internal conditions and the absorptive capacity of these countries. Borensztein et al (1998) and Xu, B. (2000) emphasized on the role of human capital and Hermes and Lensink (2003), Durham (2004), and Alfaro et al (2004 and 2006) insisted on the role of financial development in the host country on utilizing the benefits of FDI.

By developing a theoretical framework about the mechanisms of FDI impact on the economic growth through creating the backward linkages, Alfaro et al (2006) indicates that if financial markets gets developed enough, the host countries will benefit from the backward linkages between the foreign and domestic firms, which lead to the positive spillovers for the whole economy. Assuming the constant level of FDI, this model indicates that the countries with developed financial markets will experience higher development compared to those without this feature. Alfaro et al (2004) emphasized on the key role of developed financial markets in utilizing the benefits of FDI, particularly the knowledge and technology spillover, backward linkages and the relationship

between domestic and foreign investors.

In addition to the approach which emphasizes on the role of financial development on utilizing the benefits of FDI, there are two approaches in the field of direct relationship between the financial development and FDI. The first approach considers the FDI as an alternative to underdeveloped financial markets in developing countries and emphasizes on the negative relationship between the financial development and FDI. Hausmann and Fernández-Arias (2000) concluded that the FDI inflow is higher in the countries which are financially underdeveloped and have weak institutions. According to this viewpoint, since the FDI is done in order to overcome the problems of current investment in the capital markets, in fact this type of investment acts as an alternative to the financial development.

According to Huang's viewpoint (2008), cheap labor and large domestic market are not the main reasons for the significant volume of FDI in China, but China is more successful in FDI absorption than other countries because of underdevelopment of its financial sector. China's financial sector is not able to efficiently allocate the households' savings, thus the FDI in China is an efficient tool for domestic firms in order to overcome the inefficiency of domestic financial sector.

The second approach emphasizes on the positive impact of financial development on the FDI absorption. Providing the efficient financial and credit services by financial system have facilitated the technology transfer and enhanced the influence of technology diffusion. Therefore, reforming the financial sector helps the policy-making

achieve the benefits of FDI particularly the technology transfer (Ang and McKibbin, 2007).

Financial development can improve FDI absorption, through following channels:

- **Transaction and information costs Decrease:** as Levine (1997) argues, because of transaction and information costs, the emergence of financial markets and institutions is necessary. Financial systems ameliorate theses costs and through diversifying and pooling of risks and allocating the resources, encourage foreign investors (especially who are efficiency seeking) to invest.

- **Creating linkages between domestic and foreign investors:** the significant amount of FDI arrives through M&A[1], so FDI is not just easily accessible to foreign loan and financial sources

and well-functioning stock markets play important role in creating linkages between domestic and foreign investors by providing the various financial sources for entrepreneurs (Alfaro et al, 2004).

- **Reduction of informational asymmetry:** Kinda (2009) emphasized on the role of the financial development in promoting the private investment (domestic and foreign) through reducing the information asymmetry. considering informational asymmetry supported by the local entrepreneurs and the informational asymmetry arises from the distance between foreign investors and local markets, foreign investors don't know the local opportunities and risks as much as local investors. Financial intermediaries can reduce these informational asymmetries by

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1. merger and acquisition

providing information about local market opportunities and risks and therefore stimulate the entry of new foreign investors in the local market (Kinda, 2009).

- **Better access to local financial sources:** financial access is one of the important aspects of financial development. The presence of financial services which reflected by size and depth of financial system, does not necessarily mean that different types of users, such as foreign investors have access to them, while foreign investors often prefer to finance a part of their investment from local financial sources. So, by considering existence of developed banking system, the foreign investor is able to assess to what extent he can take out a loan for his innovative activities and can plan for his investments.

Moreover, the development of stock market increases the foreign investment in stocks, because the foreign investors, who tend to provide a part of their investment through selling their shares on the stock market, prefer to invest in the countries which have the developed stock markets.

- **Reduction in capital controls:** Desai et al (2006), argue that capital controls may negatively affect FDI absorption through two channels. First, Capital controls are commonly thought to increase the interest rate. Since, local affiliates of foreign investors often finance a considerable portion of their investment from local loan, increased interest rate means higher capital cost for them. Furthermore, capital controls accompany profit repatriation restrictions. These consequences

of capital controls (increased capital cost and profit repatriation restrictions) are expected to discourage foreign investors. Therefore, because financial development often accompanies the reduction in capital controls, well-developed financial markets have positive impact on FDI absorption.

Besides the positive impact of financial development on FDI inflow, some of studies have examined the impact of FDI on the financial development. As Soumar & Tchana(2011)argue, FDI inflow may develop local financial markets through two channels. First, an increase in FDI inflows increases the funds available in local financial markets (stock market and banking sector). Foreign Companies involved in FDI are also willing to list their shares on the local stock market. Second, from the point of view of

political economy, more FDI may decrease elites' relative power and coerce them to pursue market-friendly regulations which improve the financial development of host country.

3. Review of Empirical Studies

In addition to numerous studies on the FDI determinants, a few and growing studies have recently investigated the impact of financial development on the FDI. These studies can be classified into three categories. First category which is more taken into account, examines the role of financial development in utilizing the benefits of FDI, particularly the technology transfer, as well as the impact of FDI on the economic growth. Using the data of 67 countries, Hermes and Lensink (2003) emphasized on the key role of financial system development as a prerequisite for positive influence of

FDI on the economic growth. Using the data of OECD member and non-member countries and the various indicators of financial development, Alfaro et al (2004) indicated that countries which are more financially developed, will gain more benefit from the FDI.

The second category of studies investigates the interaction of financial development and FDI through Granger causality model. Using Granger causality test for 62 countries during 1996 -2006, Ashraf (2010) indicated that the highest causal links occur in OECD non-member countries and the countries with low and lower than middle income. Applying the panel data for African countries during the 1970-2007, Elikplimi et al (2013) indicated that there are bidirectional casual links between the various components of financial

development (banking sector and stock market) and FDI.

The third approach of studies examines the impact of financial development on the FDI inflow. Claessens et al (2001) indicated that FDI has a positive relationship with the Capitalization and the Value Traded in the stock market as well as the internationalization indices of stock market. Jeffus (2004) investigated the relationship between the stock market development and FDI in Latin American countries. Results of this study suggest that the stock market development and FDI have a high positive correlation. Ang (2008) studied the determinants of FDI in Malaysia during 1960-2005 and indicated that the financial development (the ratio of allocated private sector credit to the GDP) has a significant positive impact on the FDI inflow in Malaysia. Sofian and Sidriopoulos (2010) studied the

determinant of FDI in developing countries (12 countries of MENA and 24 countries of the most important FDI receivers in other areas) and concluded that the financial development in these countries has no significant effect on FDI. This study just investigates the impact of banking system development on the FDI through using a combined indicator, but does not consider the impact of stock market development on the FDI.

In addition to the few studies on the impact of financial development on the FDI, it should be noted that these studies have applied a small number of financial development indicators and have been often conducted for a specific country or countries in a specific region. Therefore, no comprehensive study has been conducted about the impact of financial development on the FDI inflow in the developing countries so far. Thus, using various indicators of financial development, this study seeks to fill the gap in the studies.

4. Models and Data Explication

The following model is used in order to review the key factors influencing the FDI inflow in the developing countries with emphasis on the financial development:

$$LnFDI_{it}=f(MS_{it},FD_{it},PV_{it},IV_{it},Z_{it})$$

Where, FDI is the foreign direct investment inflow, MS: Market size, FD: financial development, PV: policy variables, IV: institutional factors affecting the FDI and Z refer to a set of other control variables.

MS: Market size is represented by the Gross Domestic Product (GDP) and it is expected that it has the positive relationship with FDI.

PV: Policy variables such as Inflation variable (Inf) and economic openness (Open) are the important

effective factors of FDI which have been used in numerous studies. Inflation indicates the economic instability and it is expected that it has a negative impact on FDI inflow. Increased economic openness (Open) indicates the orientation of trade policies towards the exports and imports and removing the trade barriers and can have a positive impact on the FDI inflow.

IV: Institutional variables are among the important determinants of FDI. Inappropriate institutional variables affect the investment (domestic and foreign) through two different functions including the increased costs and uncertainty (Daude and Stein, 2007). Good governance indicator which is introduced by Kaufmann et al (1996) in the World Bank, has been used in numerous empirical studies as a proxy of institutional factors due to the comprehensiveness and existence

of different institutional factors. This index consists of six components including: voice and accountability, political stability and absence of violence, government effectiveness, and regulation quality, rule of law and control of corruption. The mean of 6 mentioned indexes is used as the governance index in this study.

Z: represents the control variables including the domestic capital formation (CF) as a percentage of GDP, Number of telephone lines per 100 people (TL), the Gross Domestic Product Growth rate (GDPG) and volatility of exchange rate (VER). Domestic capital formation (CF) is an appropriate proxy for the domestic investment and reflects the investment climate in the host country. (Bonnie et al, 2012)

Appropriate communication infrastructures (telephone lines and mobiles, internet access, etc),

transportation (roads, airports) and utilities (water, electricity) play the important roles in attracting the foreign investment through reducing the costs of economic activities and increasing the return on investment.

GDP Growth reflects the host country's market size in future and indicates its productivity and profitability. Markets with faster growing rate provide more opportunities for obtaining the profit (Chakrabarti, 2001). Like Moosa's study (2009), this study applies the GDP growth over the past 10 years in addition to the annual growth of GDP.

Volatility of exchange rate (VER) such as Inflation indicates the economic instability and it is expected that it has a negative relationship with the FDI inflow.

FD: Financial system development has an important effect on the FDI inflow and utilization of

its advantages especially new knowledge and new technologies by reducing the transaction costs through decreasing the information asymmetry and better hedge and management of risk, improving the efficiency of resource allocation, financing and covering the risks associated with new technologies, providing the credit needed for the foreign investors, financing a part of foreign investment through permitting the stock sale in the domestic stock market, linking the domestic and foreign investors, and creating the backward linkages with the domestic firms. Since the financial system consists of various components (including the bank and non-bank financial intermediaries and stock market) and the broad and diverse services are provided by them, various indicators have been used in order to assess the financial development. A total of 10

indicators have been used in this study. These indexes can be classified into three categories:

Stock Market Development Indexes

Fcap: market capitalization index which equals the value of listed shares divided by GDP and represents the stock market size of the whole economy.

Fvt: value traded index refers to the total value traded on the stock market as a percentage of GDP. This index represents the liquidity of stock market, complements the capitalization index, and indicates that whether the stock market size is consistent with the volume of its transactions or not.

Fto: turnover ratio index refers to the ratio of total value traded to the average market capitalization index in each period.

Banking System Development Indexes

FLL: liquid liabilities index refers to the ratio of liquid liabilities in the financial system to the GDP. This index is the most common indicator of "financial depth" and indicates the size of financial sector compared to the entire economy.

Fba: bank asset index refers to the assets of deposit banks (commercial banks and other depository banks) divided by GDP. This index represents the relative importance of depository banks compared to the entire economy.

Fccb: commercial-central bank index equals the ratio of commercial bank assets divided by commercial bank plus central bank assets. King and Levine (1993) argue that the commercial banks have better performances than the central banks in providing the financial services.

Fpc: private sector credit index refers to the total allocated credits to the private sector by financial intermediaries as a percentage of GDP. According to King and Levine's view (1993), financial system which easily allocates the credit to the government or state agencies does not assess the managers, select the investment projects, pool the risk, and provide the financial services to the same degree as financial system which allocates the credit to the private sector. Thus, the increase of allocated credit index to the private sector represents the efficiency of banking system.

Comprehensive Financial Indexes

Beck and Levine (2002) examined different perspectives on the financial structure (bank-based, market- based, financial services, law and finance) and designed the comprehensive financial indicators in a way that cover both financial system sectors including the bank and stock market according to the financial service perspective in which the level of financial development and financial services are important and not the financial structure (bank-based or market-based financial system). These indicators include:

Fac: finance-activity index refers to the sum of private sector credit (Fpc) and the value traded index (Fvt), and represents the total amount of financial system activity including the banking sector and stock market.

Fsz: finance-size index refers to the sum of private sector credit (Fpc) and capitalization index (Fcap).

Fa: finance-aggregate index is equal to the average finance-activity (Fac) and finance size (Fsz) indexes. This index contains two dimensions

of financial system including the amount of activity and the total size of financial system.

FDI inflow statistics are extracted from UNCTAD and the data related to the index of commercial banks and commercial-central banks' assets are extracted from the International Monetary Fund. Information and statistics of other variables and indexes of model are taken from the World Bank.

5. Econometric Methodology

Data of 33 developing countries[1] during 1995-2010 has been applied

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1. Selecting the countries is done based on the World Bank classification from the developing countries in different regions and according to the access of data related to the applied variables in the model especially the financial sector data. These countries include: MENA Countries: Iran (Islamic Rep.), Algeria, Jordan, Libya, Egypt, Kuwait, Qatar, Saudi Arabia; Sub-Saharan Africa: Angola, Gabon, South Africa; Latin America and Caribbean: Argentina, Brazil, Ecuador, Chili, Colombia, Peru, Mexico, Venezuela; Europe & Central Asia: Belarus, Bulgaria, Kazakhstan, Russian Federation, Turkey, Ukraine; East Asia & Pacific: China, Malaysia, Philippines, Indonesia, and Thailand; South Asia: Pakistan and India.

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in order to estimate the model. Limer test is first used for investigating the individual effects and the hypothesis H0 indicating the equal y-intercepts, is rejected for all models and the opposite hypothesis indicating the individual effects and necessity to use the panel data, is accepted. Then Hausman test (1978) is used in order to choose between two alternative methods (fixed and random effects). Both methods of fixed and random effects are consistent according to H0 hypothesis in Hausman test, but the method of fixed effects is inefficient. If hypothesis H0 is rejected, the method of fixed effects will be consistent and the random effects will be inconsistent and the fixed effects model should be used. In this study, the method of fixed effects is selected for all models by doing Hausman test, and the Estimated Generalized Least Squares

(EGLS) method is used in order to estimate the model.

The stationary of model variables is tested before estimating the model in order to prevent from the spurious regression. 5 common methods of unit root test in panel data, namely LLC[1], B[2], IPS[3], ADF and PP tests are used in order to perform this test. Hypothesis H0 in these tests indicate that the existence of unit root and non-stationary. Results of these variables indicate that all variables except for the GDP logarithm, telephone lines, private credit, finance- activity index, and finance- aggregate index are stationary at least based on 3 tests. The variables of GDP logarithm, telephone lines, and finance-activity index are stationary based on one test and also the private sector credit and finance- aggregate variables are stable based on two tests. However, these variables become stationary after a differentiation.

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1. Levin, Lin & Chut
2. Breitung
3. Im, Pesaran and Shin

Table 1. Results of Unit Root Test for Selected Developing Countries

Variables	LLC	B	IPS	ADF	PP
LFDI	-6.60064*	-1.37325**	-2.71925*	108.423 *	136.693 *
LGDP	-1.10079	-1.78120**	2.19250	39.4345	21.9075
D(LGDP)	-12.7390*	-4.38470*	-7.13732*	158.608 *	184.565 *
Inf	-512.344 *	-1.67574**	-172.971*	207.170 *	228.640 *
Open	-6.74006*	-1.40452**	-3.58049*	110.669 *	73.4114
GI	-13.7536*	-0.37772	-1.57757 **	119.925 *	173.690 *
CF	-5.92058*	0.11893	-1.94312 **	93.9237 **	87.0072 ***
TL	-3.91025 *	5.31256	-0.83519	81.0834	60.3924
GDPG1	-10.7190*	-3.56880*	-5.08742*	142.255 *	162.846 *
GDPG2	-1.80644**	0.55113	-1.29505***	90.7558 ***	43.6638
VER	-136.152*	-1.01254	-36.6392*	178.505 *	171.702 *
Fcap	-6.27648*	-0.85186	-3.33589*	106.001 *	88.5047 **
Fvt	-4.66598*	-1.2946***	-1.30456***	75.7011	60.1041
Fto	-16.2470*	0.94527	-3.66962**	89.0957 *	94.0728 *
Fll(M2)	-5.93919*	3.22555	-2.50832*	117.307 *	120.993 *
Fpc	-3.83678*	3.67887	0.78785	90.2161 **	64.4830
Fba	**-3.343** *	٦,٩٢٣٥	**2.9034**	66.017	58.524
Fccb	-6.50332*	0.18791	-2.08807**	108.921 *	104.217 *
Fsz	-4.25465*	1.14835	-1.58842**	93.6055 **	87.4478 ***
Fac	-2.20504**	2.30397	-0.26413	76.2408	62.3886
Fa	-3.39555*	1.67569	-1.12098	88.1322 ***	72.7783

Symbols *, **, *** indicate the significance at the levels 1%, 5%, 10%, respectively.

Then the co integration test of panel data is done through Pedroni method (2001). Results of this test confirm the co integration and long-run equilibrium relationship among the variables, and thus the absence of spurious regression.

Table 2 Results of Cointegration Tests for Developing Countries

Panel statistics (Intra-dimensional)	
Panel- V Statistics	-٢,٧٥٤٧٨
Panel- rho Statistics	٨,٨٤٦٧١٣
Panel Philips-Peron Statistics (PP)	*-٩,٥١٢٥٣٩
Panel Augmented Dickey-Fuller Statistics (ADF)	**-١,٨٦١٧٨٠
Group statistics (Inter-dimensional)	
Group rho statistics	١١,٨١٩٨٦
Group Philips-Peron Statistics (PP)	*-٢٢,٦٣٢٢٩
Group Augmented Dickey-Fuller Statistics (ADF)	*-٣,٤٤٨٩١٥

Symbol * indicates the significance at the level 1%

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6. Experimental Results

Table 3 shows the results of impact of stock market development on the FDI inflow. Levels of stock market capitalization (Fcap) are presented in the regressions (1 and 2) and the results indicate that the capitalization (as an indicator of stock market size) has a quite significant and positive impact on FDI. Regressions (3 and 4) refer to the effect of value traded on stock market (Fvt) on the FDI and indicate that the value traded

(Stock market liquidity) has also a positive and significant effect (at the level 1%) on the FDI. These results approve the findings by Gomez and Nasser (2009). Activity ratio is another index of stock market liquidity which is presented in the models (5 and 6) and its coefficients are not significant in any states. Furthermore, the adjusted R^2 value indicates that the variables, included in the model, totally explain 87% of FDI volatility.

Table 3 Effect of Stock Market Development on the FDI Inflow in Developing Countries

Variable	State 1	State 2	State 3	State 4	State 5	State 6
y-Intercept	-22. 48 * (-8. 278)	-27. 05 * (-14.13)	-21. 98 * (-8.111)	-25. 35 * (-10. 21)	-23. 45* (-8. 705)	-27. 74* (-13.43)
LGDP	1. 133 * (10. 60)	1. 300 * (17.12)	1. 109 * (10. 60)	1. 238 * (13. 05)	1. 164 * (10.89)	1. 322* (15. 90)
Inf	-0.005 * (-1.773)	-0.000 (-0. 684)	-0. 004** (-2.080)	-0. 003 *** (-1.737)	-0. 004 ** (-2. 333)	-0.005 * (-5.055)
Open	0. 015 * (6. 377)	0. 008 * (6. 273)	0. 015 * (4. 983)	0. 013 * (5. 526)	0. 018 * (5. 937)	0. 011 * (6. 548)
GI	1. 055 * (5. 046)	-	1. 098 * (5. 705)	1. 258 * (7. 757)	1. 140 * (6. 606)	-
Fcap	0. 004 * (4. 275)	0. 003 * (3. 577)	-	-	-	-
Fvt	-	-	0. 005 * (4. 443)	0. 005 * (4. 183)	-	-
Fto	-	-	-	-	0. 000 (0. 515)	0. 001 (1. 256)
CF	-	0. 018 * (2. 791)	-	0. 012 * (2. 510)	-	0. 0264 * (6. 612)
TL	-0. 009 (-0. 949)	0. 020 ** (1. 908)	-	0. 011** (1. 937)	-	0. 014 ** (1. 914)
VER		E10 -8.40 *** (-1.700)	-	-	-	E10 -9.62 *** (-1. 684)
GDPG2	0. 057 * (3. 883)	-	0. 060 * (4. 233)	-	0. 062 * (3. 756)	-
R^2	0. 88	0. 86	0. 88	0. 87	0. 88	0. 86
Adjusted R^2	0. 87	0. 85	0. 87	0. 86	0. 86	0. 84
Limer Statistics	14. 72 *	18. 41 *	15. 22 *	14. 17 *	13. 90 *	18. 07 *
Hausman	36. 39 *	20. 12 *	37. 09 *	40. 60 *	35. 88 *	21. 21 *

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statistics						

Symbols *, **, *** indicate significance at the levels 1%, 5%, 10%, respectively. Numbers in parentheses show t-statistics.

Table (4) shows the results of impact of banking system development on the FDI. Liquid liabilities Index (FLL) which indicates the overall size of financial market and depth has a quite significant and positive impact on the FDI in regressions (1 and 2). Increased financial depth and size of financial intermediaries through providing more financial services has a positive impact on the FDI. Commercial-central banks index (Fccb) is entered in the regressions 3 and 4. Given the better performance of commercial banks compared with the central banks in providing the financial services, it is expected that the increase of this index has a positive impact on the FDI and the results of regressions 3 and 4

confirm this case. Bank asset (Fba) index is included in the regression (5) and has no significant effect on the FDI. Private sector credit index (Fpc) is included in regressions (6 and 7) and has a positive and significant effect (at the level 1%). Increasing the credit allocation by the banking system to the private sector (rather than paying credits to the government and state-owned enterprises) requires the better performance of banking system to assess the managers, selection of investment projects, risk coverage and financial services. Moreover, this index means the private investors' (domestic and foreign) better access to the financial resources for funding their projects.

Table 4 Effect of Banking System Development on the FDI Inflow in Developing Countries

Variable	State 1	State 2	State 3	State 4	State 5	State 6	State 7
y-intercept	-22.73* (-9.396)	-22.64* (-11.66)	-25.74* (-14.46)	-26.19* (-13.10)	-٢٩,٩١* (- ١٦,٧٨)	-23.31* (-12.21)	-22.90* (-9.427)
LGDP	1.159* (11.76)	1.124* (15.05)	1.247* (15.60)	1.294* (15.22)	١,٣٨٨* (١٧,٧١)	1.150* (15.79)	1.175* (11.96)
Inf	-0.0005* (-13.17)	-0.0006* (-18.39)	-0.0006* (-12.83)	-0.0005* (-10.89)	-٠,٠٠٠٥* ٩,٢٤٣) (-	-0.0006* (-23.08)	-0.0005* (-13.31)
Open	-	0.014* (5.819)	0.009* (4.426)	-	٠,٠١٤٥* (٦,٧٤٥)	0.016* (6.719)	-
GI	0.809* (4.245)	1.024* (6.825)	0.614* (3.102)	0.479* (2.570)	-	0.904* (5.033)	0.736* (3.749)
Fll (M2)	0.008* (2.501)	0.005* (2.366)	-	-	-	-	-
Fccb	-	-	0.547** (2.127)	0.707* (2.872)	-	-	-
Fba	-	-	-	-	٠,٣١٩* (٣,١٢١)	-	-
Fpc	-	-	-	-	-	0.006* (2.987)	0.006* (2.435)
CF	0.022* (4.739)	0.023* (6.705)	0.030* (10.27)	0.033* (11.77)	٠,٠٠٤٢* (١,٣٠٧)	0.017* (4.797)	0.017* (3.215)
TL	0.014*** (1.619)	-	0.009 (0.768)	-	٠,٠٣٥٠*) (٢,١١٤	-	0.016*** (1.679)
GDPG1	0.011*** (1.635)	-	-	0.001 (0.178)	-	-	0.013** (2.303)
VER					-.٩,١٩ E-10 ** (-1.761)	-.١,٤ E-١٠ (-٠,٥١٠٦)	
R^2	0.89	0.89	0.89	0.90	٠,٨٧	0.89	0.89
Adjusted R^2	0.88	0.88	0.88	0.89	٠,٨٥	0.88	0.88
Limer Statistics	14.34*	14.83*	10.93*	11.45*	١٩,١٣*	15.30*	14.40*
Hausman statistics	30.43*	41.48*	38.14*	32.32*	*٣٠,٠٨	44.41*	28.99*

Symbols *, **, *** indicate the significance at levels 1%, 5%, 10%, respectively. Numbers in parentheses show t-statistics

Table (5) shows the results related to the comprehensive indexes of financial development. Finance-size index is entered in the regressions 1 and 2 and the Finance-activity index in the regressions 3 and 4. Both indexes in the relevant regressions have a quite significant and positive impact on the FDI. Finance-size and activity indexes are both entered in the

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regression (5) and the positive impact of Finance-size and activity on the FDI inflow has also remained significant at the levels 1 and 5 percent, Models (6 and 7) are related to the Finance-Aggregate index. This index is equal to the average of finance-size and activity indexes. Results indicate that the Finance-Aggregate index has a quite positive and significant impact (at the level 1%) on the FDI. In general, the results of Table (5) indicate the significant and positive impact of financial system (banking sector and stock market) development (size and activity) on the FDI inflow.

Table 5. Effect of Size and Activity of the Financial System to the FDI Inflow in Developing Countries

Variable	State 1	State 2	State 3	State 4	State 5	State 6	State 7
y-intercept	-21. 12 * (-2. 697)	-21. 66* (-9.22)	-21. 82* (-11.09)	-20.45 * (-8.84)	-20. 61* (-7. 625)	-21. 06* (-9. 550)	-20. 25 * (-8. 018)
LGDP	1. 075 * (10.10)	1. 088 * (11.96)	1. 090 * (14.54)	1. 046 * (11.69)	1. 051 * (9. 812)	1. 062 * (12.53)	1. 038 * (10.65)
Inf	-0.0004* (-13.66)	-0.0006* (-24.70)	-0.0006* (-26.10)	-0.0005* (-11.87)	-0. 0005* (-14.21)	-0.0006* (-25.97)	-0. 0005* (-11.98)
Open	0. 016 * (4. 744)	0. 013 * (4. 972)	0. 0138 * (5. 183)	0. 016 * (5. 078)	0. 016 * (4. 703)	0. 013 * (4. 806)	0. 015 * (4. 831)
GI	0. 968 * (4. 308)	0. 981 * (5. 591)	0. 920 * (5. 223)	0. 949 * (5. 553)	0. 923 * (4. 061)	0. 939 * (5. 254)	0. 956 * (5. 617)
Fsz	0. 003 * (4. 062)	0. 003 * (5. 011)	-	-	0. 001 ** (2. 074)	-	-
Fac	-	-	0. 005 * (5. 278)	0. 004 * (4. 501)	0. 003 ** (2. 069)	-	-
Fa	-	-	-	-	-	0. 002 * (6. 652)	0. 002 * (5. 963)
CF	-	0. 013 * (3. 071)	0. 014 * (2. 576)	-	-	0. 011 ** (0. 020)	-
TL	-	0. 012 (1. 515)	0. 014 ** (1. 909)	-	-	0. 014 *** (1. 820)	-
GDPG2	0. 041 ** (1. 970)	-	-	0. 041 * (3. 189)	0. 038 *** (1. 766)	-	0. 038 * (2. 922)
VER	E10 -4.06 (-3. 612)	-	-	-	E10 - 3.92 * (-3. 643)	-	-
R^2	0. 89	0. 89	0. 89	0. 89	0. 90	0. 89	0. 89
Adjusted R^2	0. 88	0. 88	0. 88	0. 88	0. 88	0. 88	0. 88
Limer Statistics	15. 57 *	15. 87 *	16. 36 *	15. 62 *	15. 99 *	16. 44 *	15. 79 *
Hausman statistics	47. 25 *	50. 54 *	52. 73 *	47. 22 *	48. 22 *	53. 77 *	49. 68 *

Symbols *, **, *** indicate the significance at levels 1%, 5%, 10%, respectively. Numbers in parentheses show t-statistics

7. **Summary and Conclusion**

Using various indexes of financial development (a total of 10 indexes) as well as different control variables and estimating 21 different states, this study emphasizes on the robustness of results based on the positive and significant impact of financial development on the FDI inflow in developing countries. About other factors, affecting the FDI, all variables also have the expected impacts. Market size (GDP),economic openness index, good governance, domestic capital formation, economic growth rate and the number of telephone lines per 100 people have positive and significant impact on the FDI inflow and the inflation rate and volatility of exchange rate has negative and significant effect on it. Results of this study can be summarized as follows:

First, development of financial system components (banking sector and stock market) and also different dimensions of financial development (total size of financial system and its activity) have significant and positive impact on the FDI inflow in developing countries.

Second, financial development and FDI inflow in studied countries are not substitutes but complementary. In other words, it is not true that the less the domestic financial markets of these countries is developed, the more their FDI inflow is increased and the FDI in these countries acts as a tool for overcoming the inefficiency and underdevelopment of domestic financial markets, but the higher development of financial system in these countries paves the way for attracting more FDI.

Third, the significant and positive impact of development of various

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financial system components (Stock market and banking sector) and also various dimensions of total financial system development (financial system's total size and its activity) on the FDI inflow in developing countries confirm the perspective based on the financial services. In other words, the increased financial services provided by financial system (rather than market or bank-based financial system) play the significant role in FDI absorption and utilizing its advantages.

Fourth, other FDI determinants which are studied in this research, all have significant and expected impacts. Therefore, those developing countries which have better governance and physical infrastructures, better environment for investment, greater stability and economic growth, orientation towards the economic openness and trade liberalization, will have more

successful performance in FDI absorption.

Over the past three decades, FDI has become one of the most important financial resources for economic development in developing countries, so, these countries follow two goals: 1) attracting more FDI; 2) utilizing the benefits of FDI. While financial development plays important role in the achievement of these goals (FDI, not only increases the FDI inflow in developing countries, but also improve the absorption capacity and ability of these countries to utilize the benefits of FDI), nevertheless, developing countries often don't have developed financial markets.

According to the mentioned findings for policy-making, it is suggested that: Developing countries which are seeking to absorb the FDI, should have appropriate planning and policy-making for their financial

system development. These policies include the cases such as quantitative and qualitative improvement of banking system performance, developing the private banking, improving the laws and regulations associated with the financial system, adopting the market-friendly policies particularly the laws related to the stock market and so on.

Financial system development in developing countries not only attracts the foreign investors, but also makes it possible for these countries to utilize the FDI advantages. This doubles the need for appropriate policy-making for financial development in developing countries which are seeking to absorb the FDI and utilize its advantages.

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توسعه مالی،عامل کلیدی مؤثر بر جریان ورودی سرمایه گذاری مستقیم خارجی به کشورهای در حال توسعه

جعفر قاسمی ورنامخواستی[1]،سید ابراهیم حسینی نسب[2]،نادر مهرگان[3]،رضا نجارزاده[4]

این مطالعه به بررسی عوامل کلیدی مؤثر بر جریان ورودی **FDI** به کشورهای در حال توسعه در دوره (۲۰۱۰-۱۹۹۵) ،با تاکید بر توسعه مالی می پردازد. توسعه مالی به عنوان عاملی مهم در جذب **FDI** و پیش شرط اساسی بهره برداری از منافع **FDI** ، نه تنها جریان ورودی **FDI** به کشورها در حال توسعه را افزایش می دهد بلکه امکان بهره برداری از منافع **FDI** را برای این کشورها بوجود می آورد. با توجه به آن که نظام مالی از اجزای مختلف تشکیل شده و خدمات متنوعی ارائه می کند از این رو برای ارزیابی تاثیر توسعه مالی بر **FDI** از شاخص های مختلف که بیانگر توسعه اجزای مختلف نظام مالی(بازار سهام و نظام بانکی) و ابعاد مختلف توسعه مالی(اندازه کل نظام مالی و میزان فعالیت آن) است،استفاده شده است.نتایج نشان می هد که توسعه بازار سهام و نظام بانکی و همچنین ابعاد مختلف توسعه مالی(افزایش اندازه نظام مالی و میزان فعالیت آن)، همگی تاثیر مثبت و معنی دار بر جریان ورودی **FDI** به کشورهای در حال توسعه در دوره مورد بررسی دارند.

واژگان کلیدی : سرمایه گذاری مستقیم خارجی،توسعه مالی،بازار سهام،نظام بانکی.

طبقه بندی**JEL** : **F21** ، **G29**، **O16** ، **C33** .

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