#### PROSIDING PERKEM VII, JILID 1 (2012) 457 – 465 ISSN: 2231 – 962X

# The Role of Banking Development Quality in the FDI-Growth Nexus: Panel Evidence

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#### **ABSTRACT**

This study employs balanced panel data to investigate the role of banking development quality in enabling foreign direct investment (FDI) to promote economic growth for a sample of 29 countries over the period 1998 to 2009. Past literature has identified financial development as one form of absorptive capacity that would enhance the positive impacts of FDI on economic growth. Anecdotal evidences of the US meltdown and European debt crises suggest that more developed financial markets do not necessarily imply financial markets of higher quality. We argue that the lack of banking development quality of a county can potentially limit a country's ability to benefit from the positive effects of FDI. That said, this study expands existing literature by examining the role of banking development quality in the FDI-growth nexus. We measure the quality of banking development using three intermediation efficiency indicators: bank overhead costs to total assets; net interest margin; and interest rate spread. Four methods of panel estimation are applied in this study: pooled OLS regression, one-way fixed effects, one-way random effects with Hausman test, and GLS with one-way fixed effects regressions. Empirical evidence suggests that banking development quality significantly contributes to the growth effects of FDI.

Keywords: Foreign direct investment, banking development quality, economic growth.

#### INTRODUCTION

Over the last two decades there has been a significant effort made by countries to promote their economies as sites for foreign direct investment (FDI). Inflows of FDI are sharply increasing in developed and emerging economies that observe FDI as a major source of economic development. FDI has been a choice of capital formation and is identified as one of the most important factors in contributing to the economic growth through its benefits and externalities. It generally generates positive effects towards the development of the host countries in terms of physical, human capital and productivity. Alfaro et al. (2004, 2009) highlight knowledge spillovers of technology transfers, introduction of new processes to the domestic market, learning-by-observing, training of labour force and managerial skills as other benefits of FDI that can foster economic growth.

Burgeoning past literature that investigates the FDI-growth nexus has resulted in mixed findings. Although several studies find that FDI and economic growth are positively related (see for examples, de Mello 1999; Yao & Wei 2007; Vu & Noy 2009), there are other studies that find FDI as negatively related to growth (Li & Liu 2005; Elia et al. 2009), and some other studies find that there is

<sup>&</sup>lt;sup>1</sup> Statistics of FDI as reported by United Nations Conference on Trade and Development (UNCTAD 2010) show an increasing amount of FDI in developed and developing countries from the year of 1970-2007. However, the data fluctuate between 2008 and 2009 due to financial crisis.

no significant relationship between FDI and growth (Carkovic & Levine 2002; Beugelsdijk et al. 2008). However, recent studies have discovered an absorptive capacity to be the key explanation of the ambiguity, which is described as a precondition to the host countries to incorporate successfully the benefits and the positive impacts of FDI spillovers to the economic growth (Alfaro et al. 2009; Hermes & Lensink 2003).

Hence, in order to serve the absorptive capacity, studies on FDI-growth nexus are extended by introducing financial development in the linkage. These studies collectively show finance matters for the growth effects of FDI (see for examples, Hermes & Lensik 2003; Alfaro et al. 2004; Ang 2009a,b; Lee & Chang 2009; Azman-Saini et al. 2010). Financial development has been recognized as a potential channel to serve an absorptive capacity as the well-functioning financial system that comprises banking and financial markets which perform various functions that allow FDI spillovers to be realized. According to Levine (2005), financial systems have five major functions that include producing information and allocating capital, monitoring firms and exerting corporate governance, risk amelioration, pooling of savings, and easing exchange that would directly and indirectly contribute to the development of the economy.

However, these existing studies that investigate the role of financial development as a channel of the FDI-growth nexus only focus on the conventional quantitative-based measures to proxy the financial development, which therefore only provide partial understanding on the FDI-growth nexus as the measures do not capture directly the efficiency of the country' financial system. In addition, anecdotal evidence of U.S. meltdown and European debt crises that are based on the experiences of the U.S. financial markets as well as banks and countries in the Central and Eastern Europe respectively, suggest that more developed financial markets do not necessarily imply financial market of higher quality. Thus, this research advances the idea that the lack of banking development quality can potentially limit a country's ability to benefit from the positive impacts of FDI. Therefore, by considering past studies' findings and measurements, this study extends the previous literature by examining the role of banking development quality as a new form of absorptive capacity in enabling the growth effects of FDI.

#### PAST LITERATURE

It is extensively known that the major contribution of foreign investment to the host country is likely from its various external effects or spillovers. Blomstrom (1986) that studies foreign investment and productive efficiency finds that foreign investment's various positive effects have shown to be important determinant in industry's structural efficiency. Foreign investment that includes FDI has been recognized to have a positive relationship with economic growth over decades ago where De Mello (1995) empirically finds that FDI inflows positively affect an output growth in all panels by using time series and panel data with dynamic panel model for a sample of 15 OECD and 17 non-OECD countries in the period 1970 to 1990. Recent study by Yao and Wei (2007) empirically discovered FDI as a powerful driver of economic growth for a newly industrializing economy by testing dual role of FDI with regressions for panel data of 29 provinces and municipalities of China over the period 1979 to 2003. Of late, Vu and Noy (2009) that analyze developed countries by sectoral data for a group of six OECD countries with regression find that FDI significantly and positively affects economic growth both directly or through its interaction with labour.

However, there are other studies that also find FDI negatively related to growth. Li and Liu (2005) that investigate the effects of FDI on economic growth on a panel data of 84 countries over the period of 1970 to 1999 find that FDI with technology gap has a significant negative impact by employing both single equation and simultaneous equation system technique. Moreover, Elia et al. (2009) that examine the effects of outward FDI on Italian firms over the period of 1996 to 2006 by using seemingly unrelated regression (SUR) find the foreign activities have a negative impact upon the demand for low skilled workers in the parent company's industrial region, and also on the demand for high skilled workers when FDI are addressed to high income countries.

On the other hand, study by Beugelsdijk et al. (2008) find no significant effect in developing countries either from horizontal (market seeking) or vertical (efficiency seeking) FDI even there are empirically positive and significant growth effects found in developed countries in both types of FDI. Beugelsdijk et al. (2008) employ growth regressions and generalized methods-of-moments (GMM) dynamic panel estimation which includes absorptive capacity effect with samples of 44 recipient countries and one home country i.e. U.S. for the period of 1983-2003. Carkovic and Levine (2002) that empirically re-examine the relationship of FDI and economic growth by using ordinary least squares (OLS) and GMM panel estimator based on panel dataset from for the period of 1960 to 1995 find that

the exogenous component of FDI does not exert any positive impact on economic growth. Carkovic and Levine (2002) particularly conclude that there is no reliable cross-country empirical evidence that support FDI to contribute independently to economic growth.

Nevertheless, recent studies have identified absorptive capacity as the key factor to the mixed findings of previous FDI-growth literature that significantly influences the link. According to Crespo and Fontoura (2007), absorptive capacities of domestic firms and regions are preconditions for incorporating the benefits of FDI externalities. Samples of the countries from the previous studies include different levels of development and local conditions which therefore results in different impacts of FDI. It is expected that the degree of benefits of FDI spillovers that can be generated by the recipient countries is achieved through the level of absorptive capacity. Apparently an absorptive capacity appears to be a precondition channel of the FDI benefits spillovers to promote country's economic growth. According to Alfaro et al. (2009), to some extent the success of domestic firms is determined by local characteristics where its weaknesses may reduce the capacity of absorbing new technologies of foreign firms and make it unable to be transformed into innovation that can accelerate the development of economy.

Hence, studies on the FDI-growth nexus are extended by introducing financial development as a channel as one form of absorptive capacity, where they find it matters for the linkage. Hermes and Lensink (2003) empirically analyze a cross section of the data set of 67 less-developed countries (LDCs) for the period of 1970 to 1995 by using regressions of growth equation find that FDI of LDCs positively contributes to growth only when their domestic financial systems are improved. Hermes and Lensik (2003) use the average value of gross FDI inflows as percentage of GDP to measure FDI, per capita growth rate for growth, log of the private sector bank loans to GDP ratio to measure financial development and other control variables which are the log of the initial level of the secondary enrolment rate which measures human development, the log of initial level of GDP per capita and the log of the investment share in GDP. In addition, Alfaro et al. (2004) show consistent evidence as Hermes and Lensik (2003) where they find that the level of local financial markets is important in realizing the positive effects of FDI-growth link. The study empirically examines the FDI-growth nexus with financial markets as a channel using cross-country data for the period of 1975 to 1995. For the measurements, they apply net inflows of FDI, the growth of real per capita GDP in constant dollars to measure the growth rate of output, four variables of liquid liabilities, bank assets, private sector credit and bank credit which as King and Levine (1993a) and two variables of value traded and capitalization as introduced by Levine and Zervos (1998) to proxy for financial development.

Consistent with Alfaro et al. (2004), Alfaro et al. (2010) further provide new evidence that positive impact of FDI on growth is materialized only after the financial market development exceeds a threshold level. Until then, the benefit of FDI is found to be non-existent. Alfaro et al. (2010) use a different approach to examine the role of local financial markets in mediating FDI effects on output growth that is with a regression model based on the concept of threshold effects with cross country observations for 91 countries for the period of 1975-2005. However, Alfaro et al. (2010) only focus on banking sector to proxy financial development. They utilize four measures of banking sector development as Alfaro et al. (2004).

Furthermore, Ang (2009a) uses a composite index of four financial development indicator of the ratio of the number of commercial bank offices per 1000 people, the ratio of M3-M1 to nominal GDP, the ratio of commercial bank assets to the sum of the central bank assets and commercial bank assets, and the ratio of bank claims on private sector to nominal GDP to proxy financial development. Logarithmic per capita real GDP is used to measure the growth and logarithmic ratio of FDI to nominal GDP measures for FDI. Ang (2009a) applies Augmented Dicky-Fuller (ADF) and Phillips-Perron for unit roots tests, Johansen approach for the VARs in level for cointegration test and vector error correction model (VECM) for causality test in analyzing time-series data for 1965 to 2004. The results of this study are consistent with the previous study indicating positive role of financial development towards the FDI-growth link where a more developed financial system eases the transfer of new technology of FDI spillover in the host country.

Moreover, Ang (2009b) finds another consistent result that shows the important role of financial development in the FDI-growth nexus. Ang (2009b) that examines one country i.e. Thailand as a sample of the case study with annual time series data of 1970 to 2004 and unrestricted ECM

<sup>&</sup>lt;sup>2</sup> Other control variables used in Alfaro et al. (2004) are creditor rights, domestic investment, inflation, government consumption, trade volume, schooling (measures human capital), bureaucratic quality, risk of expropriation (that is measured by International Country Risk Guide (ICRG), black market premium and real effective exchange rate. In addition, the model used by Alfaro et al. (2010) in the study allows the relationship between growth and FDI to be piecewise linear with the financial indicator acts as regime-switching trigger.

estimator finds that although FDI is a negative impact to the output in the long run, the impact of FDI on Thai economy is strengthened by the level of financial development. Ang (2009b) measures growth with per capita real GDP (gross fixed capital formation as a percentage of GDP), FDI with FDI inflows as a percentage of GDP and financial development with two indicators of the ratio of M2 to GDP and domestic credit to private sector as a percentage of GDP.

Other empirical studies by Lee and Chang (2009) and Azman-Saini et al. (2010a) also consistently find the same finding of the positive link of FDI-growth with the pre-condition that the financial development has reached a certain level. Both studies use FDI inflows over GDP to measure FDI and Azman-Saini et al. (2010a) follow Alfaro et al. (2004) for four variables in measuring banking sector development. A study by Azman-Saini et al. (2010a) which includes cross-country observation for 91 countries for the period of 1975 to 2005 uses private sector credit as a threshold variable in the regressions where they found that the impact of FDI on growth becomes positive only after the financial development exceeds the threshold level. On the other hand, Lee and Chang (2009) use a set of 37 countries using annual data of 1970 to 2002 and apply a panel-based ADF unit root tests as well as Pedroni's panel cointegration tests. In addition, Lee and Chang (2009) measure growth with real gross domestic product of constant 1995 US dollars and financial development is measured by two variables of liquid liabilities as percentage of GDP and domestic credit provided by the banking sector to the private sector in percentage of GDP.

Consequently, the overall measurements that are applied in the empirical past studies of FDI-growth nexus with financial development as a channel therefore motivate this study. The first motivation of this study is due to the existing past studies that provide only partial understanding of the role of financial development in FDI-growth nexus since they only focus on conventional quantitative-based measures to proxy financial development. For example, the application of private sector credit which is mostly used by past studies in measuring financial development only refers to quantitative dimension to represent the whole performance of the country's financial systems. Basically the higher ratio of private sector credit indicates the higher level of financial development. Therefore it is insufficient to justify the actual level of financial development by only relying on the quantitative dimension as it also comprises of different level of loan quality that would give diverse effects. In addition, Beck et al. (2010) emphasize on the appropriate measurements to be used in analyzing financial development as the size indicators for instance that focusing on quantitative dimension do not capture directly the efficiency of the financial systems.

The second motivation is based on anecdotal evidence of US meltdown and European debt crises which suggests that well-developed financial markets do not necessarily imply financial markets of higher quality. As highlighted by Beck et al. (2010), a bigger market is not always a better market. It is thus conjectured that the lack of quality in the country's financial systems can potentially limit its ability to benefit from the positive impacts of FDI. Besides, study by Ju and Wei (2011) theoretically discovers that the conventional measure of financial development that is the size of the financial market relative to GDP does not adequately capture the underlying quality of financial institutions. Ju and Wei (2011) apply two schools of thought of dominant theories of trade and finance literatures in a general equilibrium framework that models the role of financial systems in determining patterns of production and trade. Therefore, based on the two motivations of the study, it advances the idea that the quality dimensions are important in enhancing the understanding in the FDI-financial development-growth nexus.

Nevertheless, past studies find quality of financial development positively affect economic growth. Jayaratne and Strahan (1996) empirically find quality as a major channel of the relationship between financial development and growth where the economic growth is found to increase due to improvements in the bank lending quality, but not due to an increase volume of bank lending. In the study, the bank lending quality is measured by the bank lending activities through the total loans and commercial loans. Moreover, by improving the quality of investment, the costs of intermediation will be lower and the existing stock of capital will increase which will lead to a better banking system that indirectly influence growth. Meanwhile Hasan et al. (2009) find that bank efficiency with quality effect significantly benefits economic growth to increase. In the study, the quality of financial institutions is measured as the relative ability of banks to intermediate funds that includes the inputs of banks demand labour, fixed assets, and borrowed funds at given factor prices to produce customer loans and other earning assets with the use of aggregate point estimates of profit and cost efficiency.

Apparently, quality leads to efficiency in financial system that indirectly improves the capital allocation and reduces asymmetry information as well as transaction costs which consequently contributes to economic growth. Abu-Bader and Abu-Qarn (2008) find that financial development causes economic growth through both increasing resources for investment and enhancing efficiency. However, Abu-

Bader and Abu-Qarn (2008) employ common measures of financial development in indicating the improvement of financial services in terms of quality, quantity and efficiency aspects towards stimulating long term economic growth which are the ratio of money stock, M2, to nominal GDP; the ratio of M2 minus currency to GDP; the ratio of bank credit to the private sector to nominal GDP and finally the ratio of credit issued to non-financial private firms to total domestic credit (excluding credit to banks). In the study, Abu-Bader and Abu-Qarn (2008) consider credit to the private sector as the most responsible to the quantity and quality of investment.

Conclusively, the higher quality of banking development indicates a country's well-functioning financial system that indirectly contributes to countries' higher level of absorptive capacity. A higher level of absorptive capacity is important to be reached since it indicates how well benefits from FDI can be generated by the country towards accelerating a long-run development of economic growth. Therefore, quality of banking development is apparently recognized as a potential channel to effectively link FDI spillovers to economic growth. Banking development quality that captures costs intermediation efficiency would reflects the capital allocation efficiency in the financial system, which thus would contribute to the higher capability of the country in absorbing FDI benefits at the optimum level and ultimately accelerate economic growth. Consequently, this study investigates the role of banking development quality in enabling the growth effects of FDI.

#### DATA AND METHODOLOGY

This study employs balanced panel data to examine the role of banking development quality in the FDI-growth nexus for a sample of 29 developed and emerging countries over the period of 1998 to 2009 (refer to Table 5 for the list of the countries). The quality of banking development is captured by three intermediation efficiency indicators that are bank overhead costs to total assets, net interest margin and interest rate spread (lending rate minus deposit rate in percentage), which is constructed into an index by using simple average. In this study, the panel estimation is performed by using OLS pooled regression, one-way fixed effects, one-way random effects with Hausman Test, and generalized least squares (GLS) with one-way fixed effects regression. The panel estimation model is specified as follows:

$$y_{it} = \alpha_i + \gamma_t + \beta_1 FDI_{it} + \beta_2 QBD_{it} + \beta_3 X_{it} + \beta_4 (FDIxQBD_i) + \varepsilon_{it}$$

where; y is the logarithm of real GDP per capita (constant 2000 US dollar), FDI is the lagged of foreign direct investment net inflows in the percentage of GDP, QBD is an index of banking development quality that constitutes three intermediation efficiency indicators. FDIXQBD is the interaction term of FDI and the quality of banking development. X is a vector of other conditional variables that affect economic growth which comprises financial openness i.e. the Chinn-Ito Index or KAOPEN, and inflation i.e. inflation, GDP deflator in annual percentage,  $\varepsilon_{it}$  is an error term, i is country index and t is time index. The sources of data for FDI, growth, and control variable i.e. inflation are from World Development Indicators (WDI), World Bank; the intermediation efficiency indicators are from Beck et al. (2009); and financial openness data (KAOPEN) are from the Chinn-Ito website.

#### EMPIRICAL ANALYSIS AND RESULTS

Four methods of estimation were executed in investigating the effects of banking development quality in the FDI-growth nexus. The first analysis of OLS pooled regression which is represented in Table 1 shows that the coefficient of banking development quality is significant at 1% level. However, the interaction term of FDI and banking development quality (FDIxQBD) is not significant and the R-squared and adjusted R-squared show very low values indicating the model's goodness-of-fit is low. Autocorrelation problem shown by Durbin-Watson is found under this estimation. Therefore this result is further improved by using the one-way fixed effects regression model as shown in Table 2. This model is discovered to be better than pooled as banking development quality remains to be significant at 1% level and the interaction term of FDIxQBD has shown some improvement where it is significant at 10% level. The R-squared and adjusted R-squared are improved and show very high level of goodness-of-fit where the model fits the data. Moreover, there is also an improvement in autocorrelation. Thus one-way fixed effects model is considered to be more efficient than pooled regression model. However, in both methods, FDI alone is not significant.

The estimation is further executed by testing one-way random effects with Hausman test that is represented in Table 3. In the Hausman test, the estimated coefficient of the random effects tested is

found to be significant, where the p-value is less than chi-square that is larger than 0.05. It thus suggests that the estimation of fixed effects model is more appropriate than random effects model. Therefore, in order to confirm the results, the estimation is further extended by employing GLS with fixed effects model that is shown by Table 4. Under GLS with one-way fixed effects model, all of the coefficients are significant except for inflation. Both coefficients of index of banking development quality and interaction term (FDIxQBD) are significant at 1% level. Financial openness as a control variable and FDI are also found to be significant at 1% level. The model is considered a good fit for the data as shown by high value of R-squared and adjusted R-squared. Moreover, autocorrelation that is shown by Durbin-Watson is also improved of which the results appear to be more efficient than OLS panel regression. The banking development quality is shown to have a negative coefficient since the intermediation efficiency indicators capture the quality dimension in terms of cost efficiency. The lower costs comprise bank overhead costs to total assets; net interest margin; and interest rate spread lead to higher intermediation efficiency as well as banking development quality. Thus, the negative coefficient of banking development quality index represents costs efficiency confirms its direction in the FDI-growth nexus. The main finding of the study show that banking development quality which is captured by costs efficiency of bank intermediation significantly influences the growth effects of FDI based on the results of the best fit model tested i.e. GLS with one-way fixed effects.

#### CONCLUSION AND FURTHER RESEARCH

The empirical results suggest that banking development quality plays a significant role in enabling the growth effects of FDI. This indicates that the lack of banking development quality of a county can potentially limit a country's ability to benefit from the positive effects of FDI. Therefore, the result of this study may provide insights on a country's local banking development condition that would enhance its absorptive capacity and thus maximize its benefits of FDI. For the future research, this study can be extended by applying other method of estimation that is generalized methods-of-moment (GMM) for more robust results.

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TABLE 1: FDI-Growth Nexus: the Role of Banking Development Quality.

Dependent Variable – The logarithm of real GDP per capita

(constant 2000 US dollar), Method of Estimation – Pooled Regression

Variable	Coefficient Std. Error		t-Statistic	Prob.
Lagged FDI	-0.005267	0.010544	-0.499490	0.6178
Index of QBD	-0.223539	0.045905	-4.869656	0.0000
Interaction term (FDIxQBD)	-0.001596	0.008897	-0.179361	0.8578
Financial openness	0.436846	0.037586	11.62270	0.0000
Inflation	-0.020763	0.007124	-2.914468	0.0038
C	8.716509	0.101948	85.49949	0.0000
R-squared	0.416096	Mean dependent var		8.608299
Adjusted R-squared	0.407559	S.D. dependent var		1.218279
S.E. of regression	0.937711	Akaike info criterion		2.726342
Sum squared resid	300.7215	Schwarz criterion		2.792759
Log likelihood	-468.3835	Hannan-Quinn criter.		2.752784
F-statistic	48.74251	Durbin-Watson stat		0.089231
Prob(F-statistic)	0.000000			

TABLE 2: FDI-Growth Nexus: the Role of Banking Development Quality. Dependent Variable – The logarithm of real GDP per capita (constant 2000 US dollar), Method of Estimation – One-Way Fixed Effects Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.			
Lagged FDI	0.002563	0.001557	1.646316	0.1007			
Index of QBD	-0.042358	0.011048	-3.833915	0.0002			
Interaction term (FDIxQBD)	0.002604	0.001345	1.936798	0.0537			
Financial openness	0.060510	0.012608	4.799266	0.0000			
Inflation	-0.000996	0.001173	-0.849491	0.3963			
C	8.601903	0.025804	333.3582	0.0000			
Effects Specification							
Cross-section fixed (dummy va	riables)						
R-squared	0.990871	Mean dependent var		8.608299			
Adjusted R-squared	0.989912	S.D. dependent var		1.218279			
S.E. of regression	0.122364			-1.271048			
Sum squared resid	4.701470	Schwarz criterion		-0.894683			
Log likelihood	255.1623	Hannan-Quinn criter.		-1.121210			
F-statistic	1032.814	Durbin-Watson stat		0.188982			
Prob(F-statistic)	0.000000						

TABLE 3: FDI-Growth Nexus: the Role of Banking Development Quality. Dependent Variable – The logarithm of real GDP per capita (constant 2000 US dollar), Method of Estimation – One-Way Random Effects with Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.864400	5	0.0009

### Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Lagged FDI	0.002563	0.002537	0.000000	0.4977
Index of QBD	-0.042358	-0.043166	0.000001	0.2946
Interaction term (FDIxQBD)	0.002604	0.002614	0.000000	0.7915
Financial Openness	0.060510	0.064318	0.000001	0.0014
Inflation	-0.000996	-0.001011	0.000000	0.6809

Cross-section random effects test equation:

Dependent Variable: LNGDP Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.601903	0.025804	333.3582	0.0000
Lagged FDI	0.002563	0.001557	1.646316	0.1007
Index of QBD	-0.042358	0.011048	-3.833915	0.0002
Interaction term (FDIxQBD)	0.002604	0.001345	1.936798	0.0537
Financial Openness	0.060510	0.012608	4.799266	0.0000
Inflation	-0.000996	0.001173	-0.849491	0.3963

## **Effects Specification**

Cross-section fixed (dumm	y variables)		
R-squared	0.990871	Mean dependent var	8.608299
Adjusted R-squared	0.989912	S.D. dependent var	1.218279
S.E. of regression	0.122364	Akaike info criterion	-1.271048
Sum squared resid	4.701470	Schwarz criterion	-0.894683
Log likelihood	255.1623	Hannan-Quinn criter.	-1.121210
F-statistic	1032.814	Durbin-Watson stat	0.188982
Prob(F-statistic)	0.000000		

TABLE 4: FDI-Growth Nexus: the Role of Banking Development Quality. Dependent Variable – GDP, Method of Estimation – Generalized Least Squares (GLS) with One-Way Fixed Effects

Coefficient	Std. Error	t-Statistic	Prob.
0.002314	0.000773	2.992422	0.0030
-0.047910	0.007595	-6.308389	0.0000
0.002746	0.000888	3.092381	0.0022
0.062054	0.006732	9.217837	0.0000
-0.001194	0.000945	-1.263735	0.2073
8.611054	0.015031	572.9002	0.0000
	0.002314 -0.047910 0.002746 0.062054 -0.001194	0.002314       0.000773         -0.047910       0.007595         0.002746       0.000888         0.062054       0.006732         -0.001194       0.000945	0.002314       0.000773       2.992422         -0.047910       0.007595       -6.308389         0.002746       0.000888       3.092381         0.062054       0.006732       9.217837         -0.001194       0.000945       -1.263735

# **Effects Specification**

### Cross-section fixed (dummy variables)

Weighted Statistics						
R-squared Adjusted R-squared S.E. of regression F-statistic Prob(F-statistic)	0.996282 0.995891 0.122184 2549.570 0.000000	Mean dependent var S.D. dependent var Sum squared resid Durbin-Watson stat	14.50977 10.31997 4.687677 0.421021			
Unweighted Statistics						
R-squared Sum squared resid	0.990859 4.707582	Mean dependent var Durbin-Watson stat	8.608299 0.200380			

TABLE 5: List of the Countries Constitute in the Sample of the Study

No.	Countries Name				
1	Argentina	11	Indonesia	21	Peru
2	Australia	12	Ireland	22	Philippines
3	Canada	13	Israel	23	Poland
4	Chile	14	Italy	24	Russian Federation
5	China	15	Japan	25	Singapore
6	Columbia	16	Jordan	26	South Africa
7	Czech-Republic	17	Korea-Republic	27	Spain
8	Egypt	18	Malaysia	28	Thailand
9	Hungary	19	Mexico	29	United States
10	India	20	Morocco		