J. Basic. Appl. Sci. Res., 4(4)138-146, 2014
© 2014, TextRoad Publication
ISSN 2090-4304
Journal of Basic and Applied Scientific Research
www.textroad.com

Financial System Development as an AC Factor with Respect to FDI Spillovers: Evidence from UMCs

Mahya Nobakht[1*], Seyedashkan Madani[1]

[1]Nanjing University of Aeronautics and Astronautics
Department of International Business

Received: February 19 2014
Accepted: March 23 2014

ABSTRACT

This paper investigated the intermediary role of financial system development on the enhancing effects of Foreign Direct Investment (FDI) spillovers on the economic growth of host countries. This study provided data evidence from 33 Upper-Middle-income Countries (UMCs) over the period of 1990 – 2011 to contribute to the existing literature. The dynamic panel ''difference'' GMM estimator proposed by Arellano and Bond (1991) was employed in order to prevent the biases which are inherent to economic growth variables and models. The empirical findings of this paper indicated the positive role of UMCs financial system development on their FDI led growth nexus which implied the conditional effects of FDI inflows on the financial system, as a national Absorptive Capacity (AC) factor.

JEL Classification: F230, O160, O330
KEYWORDS: FDI spillovers; Economic growth; Financial System; Absorptive Capacity; UMCs

1. INTRODUCTION

The most important effect of Foreign Direct Investment (FDI) inflows on host countries comes from technology spillovers [1-3]. Domestic firms can learn from foreign-invested firms by observing or establishing business relations through labor turnover as domestic employees move from foreign to domestic firms [4, 5]. Blomström and Kokko [6] surveyed the literature about the transfer and diffusion of technology from Multinational Enterprises (MNEs) to host countries and found that the most significant transmission of advanced technology [across borders] is spillover from FDI rather than formal technology arrangements. [Since] MNCs[1] are among the most technologically advanced firms, accounting for a substantial part of the world's R&D investment [7]. Thus, it is expected that FDI inflows, by MNCs and/or MNEs, provide a major conduit for accessing international advanced technology by host economies, especially developing ones, at a substantially reduced cost in order to enhance their economic growth [1, 8, and 9].

This idea has led developing countries to increasingly regard FDI as a contribution to their development strategies especially after the debt crisis of the1980s [10-13]. For instance the volume of net FDI inflows into developing countries at the end of the 90's was 7.16 and 17.76 times higher than at the beginning of the 80's and early 90's[2]. This upward trend continued during the next decade, so that net FDI inflows reached US$ 654.72 billion in 2011 which was 75.86 times higher than its volume in1980 [14].

However, it is essential for the recipient countries to have efficient abilities in order to absorb and accumulate the external knowledge and technologies conveyed by the FDI inflows [15, 4, 16, 7, and 17]. This ability of absorbing and internalizing the external knowledge and technology is called national Absorptive Capacity (AC) in the literature, at the macro level [18, 19, and 17]. Indeed, the concept of AC factors has so far been associated in the endogenous growth literature, pioneered by Lucas [20] and Romer [21], with the conditional effects of international technology transfer via FDI spillovers literature. The former explains the effective role of knowledge accumulation on the perpetual economic growth rate; and the latter emphasizes the intermediary role of national AC factors on the FDI spillovers led growth nexus. These factors consist of a wide variety of variables but particular attention must be paid to financial system development [1, 22-25].

This interest toward the role of the financial system is driven by the idea that a sufficiently developed domestic financial system stimulates and facilitates efficient external knowledge absorption and accumulation [26, 23]. Thus,

[1] Multinational Corporations
[2] It is calculated by the authors based on the World Development Indicators (WDI) online data base 2013.

Corresponding Author: Mahya Nobakht, Department of International Business, Nanjing University of Aeronautics and Astronautics, Nanjing, China. Email:mahya.nobakht@gmail.com

considering FDI as the main channel of knowledge and technology dissemination from frontier to developing countries has led to the exploration of the financial system as a national AC factor with respect to FDI spillovers.

This national AC factor can be effective via several different channels. One of these channels occurs when a developed financial system supports FDI technology spillovers by reducing the cost of acquiring information about firms, encouraging investments, and conducting transaction costs [26, 23, and 27]. Therefore, the possibility of positive interaction between local and foreign firms will be increased. A better financial system also evaluates and monitors investment projects more effectively; thus ensuring the highest return on capital allocations, in turn, leads to more interconnections between foreign and local firms and more productive operations [25, 27]. Another contribution of a developed financial system to knowledge dissemination is provision and maintenance of a more efficient means of financial exchange which encourages a higher volume of productive international and domestic investments [25, 26]. This channel also makes the connection between local and foreign firms easier which can lead to positive externalities.

Therefore, based on the explained mechanisms, it is expected that an effective financial system, reduces the risk related to upgrading existing or adopting new technologies [25]; and permits a "larger pool of savings" to be channeled through their highest value usage and productive investment [28, 26]. More developed and efficient financial instruments and services also support local firms in that FDI inflows bring capital-intensive or highly advanced technological plants. This takes place via backward or forward linkages which allow existing firms as the suppliers to achieve economies of scale and encourage the creation of new local firms [23, 25]. In the other words, a developed financial system can prevent the crowd-out phenomenon.

Considering the above theoretical debate, the idea of positive and significant effects of a financial system on economic growth and FDI spillovers enjoys a theoretically rather than empirically consensus. Alfaro et al. [22] implied that physical and human capital accumulation do not seem to be the main channel of benefit from FDI, but countries with well-developed financial markets gain significantly from FDI via TFP improvements. Calderòn and Funtes [29] found that "financial openness most strongly favors" middle income countries, and their financial system development as an AC factor increases their economic growth rate as well. Hermes and Lensink's [25] empirical investigation showed that 37 among their 67 sample countries have developed their financial system and received more positive effects from FDI inflows. Most of those countries are in Latin America and Asia. Chee and Nair [1] indicated that financial system development plays an important complementary role on FDI led growth nexus of 44 Asia and Oceania countries over 1996-2005. Alfaro et al.'s [23] findings revealed that the interaction between FDI and financial systems has significantly positive effects on growth while the financial market by itself has reversed effects on economic growth for non-stock market variables. Levine et al. [30] suggested "exogenous components of financial intermediary development are positively associated with economic growth." Levine and Zervos [31] found that stock markets and banks provide can positively predict growth, and capital accumulation.

On the other hand, FitzGerald [32] found financial depth and development are not associated with higher rates of economic growth. Ghimire and Giorgioni's [33] findings showed a negative effect of private credit upon economic growth in annual data. They also emphasized the conditional impact of stock over the selection of proxies, and the method of estimation. Ndikumana [34] implied the "structure of the financial system" has no increasing impact on domestic investment and consequently on economic growth while its development can have positive effect. Durham [24] couldn't find a significant robust effect of international capital flows and stock market capitalization on growth.

Thus, based on the above literature review, the aim of this study is to investigate the intermediary role of the financial system, as a national AC Factor, on FDI technology spillovers enhancing economic growth of Upper-Middle-income Countries (UMCs) over the period of 1990-2011. The main reason behind selecting UMCs as the case study is that this group has received less attention and investigation from the related literature. Based on the knowledge of the authors, this is the first time these effects are considered for UMCs.

Furthermore, UMCs are considered among developing countries and much of the influx of FDI toward developing countries has been slanting to them. The average of net FDI inflows of UMCs over the period of 1990-2011 was 4.79 and 39.57 times higher than Lower-Middle-income Countries (LMCs) and Low-Income Countries (LICs), respectively[3]. UMCs' average share of net FDI inflows toward developing countries over the same period was 81.04 %, which is quite remarkable. Fortunately, all UMCs are not at the same level of development [4] which prevents the empirical results from bias of homogeneity of the variables in the model. This study has selected 33 UMCs based on the availability of data and their population in 2011(See Table 3 in the Appendix). Countries with a

[3] It is calculated by the authors based on the World Development Indicators (WDI) online data base 2013.
[4] "How We Classify Countries" World Bank(2013)

population under one million in 2011 have been omitted [35]. China is also dropped, since it is an outlier regarding its FDI absorption and economic growth.

The study period of 1990-2011 was chosen because of the popularity of FDI inflows among developing countries as leverage for economic development. This practice was initiated mainly during the 1990s and has continued into the present. The availability of data also was crucial in this selection.

This paper proceeds as follows: the next section expounds the empirical model and methodology used by this paper. Section three describes the data. Section four presents and analyzes the outcome of the empirical investigation. And finally, section five provides the conclusion.

2. METHODOLOGY

Using a panel data approach in this empirical investigation is encouraged by the literature which suggests that panel data included more information than pure cross-section or time-series data in order to exploit the nature of the national AC factor effects over the FDI led growth relation [1, 8, and 17]. This approach can increase the degrees of freedom, and reduce the problems of multi-collinearity and estimation bias such as omitted variables [36].

This paper has also used the lagged dependent variable in order to control the inherent dynamic feature of economic models, and eliminating the auto-correlation problem in the model. Therefore, it leads to a dynamic econometric structure [37].

In light of the above explanation, based on the canonical dynamic panel economic growth equation [38, 39], the national AC function [18, 7] and the prominent and recent literature [1, 22, 19, 25, and 40], the general model employed by this empirical investigation is as the following:

$$Ly_{it} = \beta_1 Ly_{it-1} + \beta_2 Lx_{it} + \beta_3 L(AC_{it} * FDI_{it}) + u_{it} \quad (1)$$

$$u_{it} = \mu_{it} + \eta_{it} + \vartheta_{it} \quad (2)$$

Where Ly_{it} is the dependent variable measured by the logarithm of GDP growth rate per capita for country i in period t. Ly_{it-1} is the lagged dependent variable. Lx_{it} equals a vector of observations on K logarithm of the explanatory variables included in models in order to control the other main growth determinants effects; these variables are selected based on the related literature and consist of domestic investment, FDI stock in the host economy, quantity of labor force, domestic financial system, and FDI inflows. $L(AC_{it} * FDI_{it})$ is identified as the intermediate role of the AC factor in the model. $AC_{it}$is financial system development for country i at time t and $FDI_{it}$is FDI inflows for country i at time t. Finally, $\mu_t + \eta_i + \vartheta_{it}$ are unobserved heterogeneities among individuals and idiosyncratic error term, respectively.

To estimate the above equation, the "difference" Generalized Method of Moments (difference GMM) estimator proposed by Arellano and Bond [41] is employed; since GMM estimators deal with dynamic regression specifications, control for unobserved country-specific effects, and account for endogeneity between the explanatory variables [41-44]. Another advantage of difference GMM is the usage of internal instrument variables. To define internal valid instruments, this study follows Roodman's [42] instruction. In this regard, the available lags of endogenous variables in level are included as instruments. Exogenous variables are treated as strictly exogenous; and each can be instrumented by itself. Thus, the first difference of these variables is used as standard instruments as well. Using this method requires the assumption that "the explanatory variables are only weakly exogenous, which means that they can be affected by current and past realizations of the growth rate but must be uncorrelated with future realizations of the error term [45]". This study applied two-step GMM estimators, because they are robust to hetero-skedasticity and asymptotically efficient as well.

Applying the procedure to the econometric specification produces the following equation:

$$\Delta Ly_{it} = \beta_1 \Delta Ly_{it-1} + \beta_2 \Delta Lx_{it} + \beta_3 \Delta L(AC_{it} * FDI_{it}) + \Delta u_{it} \quad (3)$$

It must be mentioned that the consistency of difference GMM estimation should be checked for the instruments validity and second-order serial correlation of error term via the Sargan test and Arellano and Bond (AB) test, respectively.

Another important issue, before performing difference GMM estimation, is the existence of unit root in the time dimension of variables [45]. Since non-stationary variables can lead to biased estimations and spurious regressions. This study employed Levin, Lin and Chu [46] (LLC); Im, Pesaran and Shin [47](IPS); Fisher-type test using Augmented Dickey-Fuller(ADF-Fisher); and Fisher-type test using Philips-Perron(PP-Fisher) [48, 49]; as the most widely used panel unit root tests, in order to test stationary of its variables.

3. Data Description

The data were obtained from UNCTAD statistic database (2013) and World Development Indicators (WDI), World Bank (2013). The dependent variable is measured by the logarithm of GDP growth rate per capita in order to control inflation terms and economies size of the countries in the sample and obtain more pure estimations.

This study is interested in estimating the effects of interactive variable between FDI inflows and financial system development on the economic growth of UMCs, which is measured by the Logarithm of multiplication between annual net FDI inflows ratio to GDP and ratio of liquid liabilities to GDP, in the following literature [1, 22-25]. Its source of data is the World Bank (2013) and its expected sign, based on the explained theories, is positive.

The other variables considered consist of domestic investment (the logarithm of percentage of annual gross capital formation to GDP); FDI stock in the host economy (the logarithm of percentage of annual growth rate of FDI stock ratio to GDP); quantity of labor force (the logarithm of percentage of population annual growth rate); FDI inflows (the logarithm of annual net FDI inflows ratio to GDP), and financial system development (the logarithm of ratio of liquid liabilities to GDP). Based on the theories, domestic investment and FDI stock in host economies are expected to have positive effects on economic growth, while the impact of FDI inflows is conditional over the national AC factor. The quantity of labor force also has a reverse relation with economic growth. The expected sign of financial system development is also negative in this study; since, the non-stock financial market variables' signs are always negative in growth regressions [19, 33]. Liquid Liabilities ratio to GDP, a non-stock variable and a typical measure of financial depth, has been employed by this paper as the proxy of financial system development [22, 24, 25, 30, and 43].The source of data for FDI inflows, FDI Stock and labor force is UNCTAD (2013). And the data for domestic investments and financial systems has been derived from the World Bank (2013). The descriptive statistics and correlation matrix of the variables are reported in Tables 5 and 6 respectively in the Appendix.

4. EMPIRICAL RESULTS

In this section, the estimation results of unit root tests and difference GMM, proposed by Arellano and Bond [41] and applied to the samples in this study, are presented and analyzed.

The results of the unit root test showed all the variables were stationary at level except labor force (LPOPr) (refer to Table 4 in the Appendix); thus the tests were repeated for all variables at first difference.

Table1. Panel unit root tests results at first difference

Variables	Intercept				Intercept and Trend			
	LLC	IPS	AD-Fisher	PP-Fisher	LLC	IPS	AD-Fisher	PP-Fisher
LGDPr	-25.64***	-24.25***	543.40***	1642.17***	-22.33***	-21.42***	432.85***	1585.08***
LFDIi	-24.98***	-22.29***	498.47***	871.82***	-21.42***	-20.52***	409.83***	930.942***
LDOMI	-21.48***	-20.63***	456.89***	683.95***	-16.17***	-16.54***	336.18***	585.277***
LFDIs	-25.10***	-26.17***	594.50***	3157.62***	-20.91***	-21.94***	475.13***	2475.97***
LPOPr	-7.41***	-15.58***	388.77***	305.61***	-12.17***	-18.88***	417.07***	366.006***
LFD	-17.59***	-16.53***	365.05***	440.03***	-14.18***	-14.29***	293.48***	411.892***
LFDe	-27.94***	-26.84***	772.30***	1717.77***	-21.65***	-23.00***	435.93***	1457.29***

***** Significant at 1%, ** significant at 5%, *significant at 10% - rejection of the null hypothesis denotes the panel series does not have a unit root.**

As seen in Table 1, all of the variables were stationary at 1% significance, which is common among economic variables. The stationary characteristic of the variables at first difference is enough to include them in the GMM estimation without further investigation on the co-integration test; since the empirical regressions of this paper are going to be run based on the difference GMM.

The estimation results of the intermediary role of UMCs' financial system development over the FDI led growth nexus are reported in Table 2 which consists of four empirical specifications. Specification (Spec.) 1 includes the logarithm of domestic investment (LDOMI), logarithm of population growth rate (LPOPr), logarithm of FDI stock growth rate (LFDIs) and Lagged of dependent variable (LGDPr (-1)). Keeping those variables in the model, the logarithm of FDI inflows (LFDIi) are introduced at Spec.2; then, at Spec.3, LFD (the logarithm of financial system) entered the Right Hand Side (RHS) of the equation. Finally, in the last specification the interested explanatory variable LFDe (the logarithm of FDIi*FD) was added. These four models present the growth regression estimations before and after the entry of LFDIi, LFD, and LFDe in the equation, assessing and comparing the effects of these variables on economic growth as well.

Table2. Intermediary impact of financial system development over FDI- economic growth nexus

Arellano and Bond (1991) difference GMM				
	Spec.1	**Spec.2**	**Spec.3**	**Spec.4**
LGDPr(-1)	0.2568***	0.2668***	0.1798***	0.2105***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
LDOMI	2.4043***	2.2918***	3.8070***	2.5873***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
LFDIs	0.0633***	0.0836*	0.0432	-0.0016
	(0.0016)	(0.0515)	(0.3978)	(0.9752)
LPOPr	-0.5904*	-2.4181***	-3.9162***	-2.1222***
	(0.0707)	(0.0000)	(0.0000)	(0.0011)
LFDIi		0.4181***	-0.0381	-0.1013
		(0.0002)	(0.772)	(0.4739)
LFD			-2.2040***	-0.4086
			(0.0000)	(0.2554)
LFDe				0.0821**
				(0.0157)
Number of countries	**33**	**33**	**33**	**33**
Number of observations	623	623	618	618
Instrument Rank [a]	33	33	33	33
Sargan chi-square [b]	29.7140	28.9348	27.0174	30.5622
AB test(p-value)[c]	0.7691	0.9077	0.2924	0.1744

Note:
There are p-values in practices.
*****P<0.01; **p<0.05; *p<0.10.**
[a] **Instrument Rank equals to the number of instruments used in the estimation.**
[b] **Under the null hypothesis the instruments used are not correlated with the residuals.**
[c] **the null hypothesis is that the errors in the first difference regression exhibit no second order serial correlation.**

The results of Spec. 1 revealed that all variables had the predicted signs and significantly affected economic growth. The growth rate of GDP per capita in the previous period (LGDPr (-1)) had a positive effect on the current growth rate per capita at 1% significance [50]. Domestic investment (LDOMI), which controlled the domestic physical capital, also showed a positive effect at 1% significance on the economic growth. It is exactly consistence with the neoclassical and new growth models which indicate a positive relationship between economic growth and capital accumulation over time. Population growth rate (LPOPr), at Spec. 1, revealed a significant and negative impact on the growth rate per capita at 1%. This result is in line with the "population as an economic burden" idea which believes a higher rate of population growth lowers the steady-state level of capital and output per worker and tends thereby to reduce the per capita growth rate for a given initial level of per capita output [39]. Growth rate of FDI stock (LFDIs) affected the growth rate per capita positively and significantly at 1%. This result indicates that foreign capital accumulation can improve the growth rate of host countries as well.

In the next model (Spec. 2), the FDI inflows (LFDIi) variable added to RHS of the growth regression. The result revealed that LFDIi had a positive effect at 1% significance on the growth rate per capita. One percentage increase in the FDI inflows improved growth rate per capita of the host country 0.41%. Inclusion of LFDIi in the growth regression did not change the stability of the model. The other explanatory variables still remained significant mostly at 1%. Moreover, LFDIi also improved the results of the model by increasing the effects of LFDIs, LGDPr (-1), and LPOPr on the economic growth rate. However, LFDIi decreased the LDOMI effect a negligible amount.

Financial variables, (LFD) and (LFDe), entered respectively at Spec. 3 and Spec. 4. The result of Spec. 3 indicated the impact of LFD on growth was significant at 1% and negative. This result is in line with the findings of Ghimire and Giorgioni [33] and Alfaro et al. [23]. The entrance of LFD in the model also affected other variables. LFDIi was not significant. This can be interpreted as a confirmation that the enhancing effect of FDI is conditional on the additional requirements [25].The entrance of LFD also improved the positive effect of domestic investment on growth noticeably. This result is approved by literature such as Ndikumana's [34] findings which suggest "financial development" is positively related to domestic investment. LFDIs, another variable, showed different behavior after inclusion of LFD in the model. It also demonstrated no effect on economic growth. The reason may originate in the non-stock proxy of the financial system which supports sources toward capital flows rather than capital stocks. The negative effect of LPOPr and positive effect of LGDPr (-1) also increased in agreement with the theories explained above.

In the Spec. 4 the interaction term (LFDe) was introduced in order to study whether the development of domestic financial system supports economic growth through facilitating the FDI technology spillovers. LFD and LFDIi were kept in the RHS of the equation, to capture the effects that do not depend on the national AC variable. The results revealed the effect of LFDe was positive and significant at 5%. This significantly positive effect reflected the effective intermediary role of UMCs' financial system development on their economic growth. The result is completely in compliance with the theories explaining conditional effects of FDI inflows over national AC factors. The entrance of LFDe into Spec. 4 did not affect other variables' impact on economic growth except LFD. This variable showed no effect at all. This result may indicate that the domestic financial system development, alone without international financial capital, has a very small or zero effect on UMCs' economic growth. LFDIi and LFDIs in the model remained ineffective on economic growth. Regarding these results, it can be implied that in Spec. 2 and 3 LFDi and LFD captured the effect of LFDe; hence, in Spec. 4, those variables turned ineffective on the economic growth of UMCs. The coefficient signs of LGDPr (-1), LDOMI, LPOPr remained significantly positive, positive, and negative, respectively, in accordance with the theories. It is also noticeable that the effect of LDOMI decreased, but was still much more than LFDe which implies the importance of domestic capital accumulation in enhancing economic growth.

5. CONCLUSION

This paper investigated empirically the role of financial system development, as a national AC factor with respect to FDI technology spillovers, on economic growth of 33 UMCs during the period of 1990-2011. Based on endogenous growth theories, four models were developed including GDP growth rate per capita, as the dependent variable; lagged of GDP growth rate per capita, domestic investment, growth rate of FDI stock, population growth rate, FDI inflows and financial system development as the control variables; and interaction of FDI inflows and financial system as the interested explanatory variables. These models were estimated utilizing the two-step difference GMM estimator proposed by Arellano and Bond [41] in order to cope with dynamic structure, country-specific features, and endogeneity between the explanatory variables. It is also examined whether unit root exists in the time dimension of panel data, to avoid spurious regressions, by means of several panel unit root tests.

The empirical results revealed that the development of UMCs' financial system improved the economic growth of those countries via its role in facilitating FDI technology spillovers. This result is completely in compliance with the theories which are behind FDI conditional impacts on economic growth of host countries. It is also found that UMCs' financial system development without the presence of international financial capital is not effective on their economic growth. The importance of domestic capital accumulation in enhancing UMCs' economic growth was also implied in the empirical results. In the main, these findings suggest UMCs should support the development of their domestic financial system and the entrance of international financial capital, especially FDI, into their financial markets with emphases on the improvement of their domestic investment. However, based on new growth theories and national AC functions, other factors such as quality of institutions, physical infrastructure, etc. can also play intermediary roles on facilitating FDI technology spillovers. Thus, a more complete analysis would seek to explain and test empirically the effects of those factors on the realization of FDI spillovers in UMCs.

Acknowledgment:

The authors declare that they have no conflicts of interest in this research.

REFRENCES

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

[2] Johnson, A. (2006). The effects of FDI inflows on host country economic growth. The Royal Institute of technology. Centre of Excellence for studies in Science and Innovation http://www. infra. kth. se/cesis/research/publications/working papers.

[3] Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth?. Journal of international Economics, 45(1), 115-135.

[4] Adams, S. (2009). Can foreign direct investment (FDI) help to promote growth in Africa. African Journal of Business Management, 3(5), 178-183.

[5] Liu, Z. (2008). Foreign direct investment and technology spillovers: Theory and evidence. Journal of Development Economics, 85(1), 176-193.
[6] Blomström, M., & Kokko, A. (1996). The impact of foreign investment on host countries: a review of the empirical evidence. Policy Research Working Paper, 1745.
[7] Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth?. Journal of international Economics, 45(1), 115-135.
[8] Lai, M., Peng, S., & Bao, Q. (2006). Technology spillovers, absorptive capacity and economic growth. China Economic Review, 17(3), 300-320.
[9] Olofsdotter, K. (1998). Foreign direct investment, country capabilities and economic growth. Review of World Economics, 134(3), 534-547.
[10] Imoudu, E. C. (2012). The Impact of Foreign Direct Investment on Nigeria's Economic Growth; 1980-2009: Evidence from the Johansen's Co-integration Approach. International Journal of Business and Social Science, 3(6), 122-134.
[11] Te Velde, D. W. (2006). Foreign Direct Investment and Development: An Historical Perspective. Background Paper for World Economic and Social Survey for.
[12] Alfaro, L. (2003). Foreign direct investment and growth: Does the sector matter. Harvard Business School, 1-31.
[13] Marr, A. (1997). Foreign direct investment flows to low-income countries: a review of the evidence. Overseas Development Institute Briefing Paper. London.
[14] World Bank Group. International Debt Statistics (2013): External Debt of Developing Countries. World Bank-free PDF, 2013.
[15] Zhang, Y., Li, H., Li, Y., & Zhou, L. A. (2010). FDI spillovers in an emerging market: the role of foreign firms' country origin diversity and domestic firms' absorptive capacity. Strategic Management Journal, 31(9), 969-989.
[16] Jones, G. (2005). Multinationals and global capitalism (p. 260). Oxford: Oxford University Press.
[17] De Mello Jr, L. R. (1997). Foreign direct investment in developing countries and growth: A selective survey. The Journal of Development Studies, 34(1), 1-34.
[18] Criscuolo, P., & Narula, R. (2008). A novel approach to national technological accumulation and absorptive capacity: aggregating Cohen and Levinthal. The European Journal of Development Research, 20(1), 56-73.
[19] Li, X., & Liu, X. (2005). Foreign direct investment and economic growth: an increasingly endogenous relationship. World development, 33(3), 393-407.
[20] Lucas Jr, R. E. (1988). On the mechanics of economic development. Journal of monetary economics, 22(1), 3-42.
[21] Romer, P. M. (1990). Endogenous technological change.
[22] Alfaro, L., Kalemli-Ozcan, S., & Sayek, S. (2009). FDI, productivity and financial development. The World Economy, 32(1), 111-135.
[23] Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. Journal of international economics, 64(1), 89-112.
[24] Durham, J. B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. European economic review, 48(2), 285-306.
[25] Hermes, N., & Lensink, R. (2003). Foreign direct investment, financial development and economic growth. The Journal of Development Studies, 40(1), 142-163.
[26] Huang, Y. (2010). Determinants of Financial Development. Palgrave Macmillan.
[27] Levine, R. (1997). Financial development and economic growth: views and agenda. Journal of economic literature, 688-726.
[28] Jahan, S., & McDonald, B. (2011). ABigger slice. Finance & Development, 17.
[29] Calderón, C., & Fuentes, R. (2006). Complementarities between institutions and openness in economic development: Evidence for a panel of countries. Cuadernos de economía, 43(127), 49-80.

[30] Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. Journal of monetary Economics, 46(1), 31-77.
[31] Levine, R., & Zervos, S. (1996). Stock markets, banks, and economic growth (No. 1690). The World Bank.
[32] FitzGerald, V. (2007). Financial development and economic growth: a critical view. Flat World, Big Gaps, ed. KS Jomo. Hyderabad: Orient Longman. Available at http://www. valpyfitzgerald. com/files/09EVKFfinance. pdf.
[33] Ghimire, B., & Giorgioni, G. (2009). Puzzles in financial development and economic growth. Working Paper, Liverpool Business School, Liverpool John Moores University.
[34] Ndikumana, L. (2000). Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from panel data. World Development, 28(2), 381-400.
[35] Schulz, H. (2009). Political Institutions and Foreign Direct Investment in Developing Countries: Does the Sector Matter?. Available at SSRN 1403983.
[36] Hsiao, C. (2003). Analysis of panel data (Vol. 34) p.311. Cambridge university press.
[37] Nerlove, M. (2000, June). An essay on the history of panel data econometrics (p.13). In Proceedings of Ninth International Conference on Panel Data, Geneva, Switzerland.
[38] Moral-Benito, E. (2012). Determinants of economic growth: a Bayesian panel data approach. Review of Economics and Statistics, 94(2), 566-579.
[39] Barro, R. J., & Sala-i-Martin, X. (2004). Economic Growth: MIT Press (pp.20, 285-316). Cambridge, Massachusettes.
[40] Carkovic, M., & Levine, R. (2002). Does foreign direct investment accelerate economic growth?. U of Minnesota Department of Finance Working Paper.
[41] Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The review of economic studies, 58(2), 277-297.
[42] Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. Stata Journal, 9(1), 86.
[43] Beck, T., Levine, R., & Loayza, N. (2000). Finance and the Sources of Growth. Journal of financial economics, 58(1), 261-300.
[44] Madani, S., & Nobakht, M. (2014). Political Regimes and FDI Inflows: Empirical Evidence from Upper Middle Income Countries. Journal of Finance and Economics, 2(3), 75-82.
[45] Baltagi, Badi. Econometric analysis of panel data (p.239).Wiley.com, 2005.
[46] Levin, A., Lin, C. F., & James Chu, C. S. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. Journal of econometrics, 108(1), 1-24.
[47] Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. Journal of econometrics, 115(1), 53-74.
[48] Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. Oxford Bulletin of Economics and statistics, 61(S1), 631-652.
[49] Choi, I. (2001). Unit root tests for panel data. Journal of international money and Finance, 20(2), 249-272.
[50] Moral-Benito, E. (2010). Panel growth regressions with general predetermined variables: likelihood-based estimation and Bayesian averaging. CEMFI WP No, 1006.

APPENDIX

Table3. Country Sample

Algeria; Latvia; Angola; Lebanon; Argentina; Lithuania; Azerbaijan; Malaysia; Belarus; Mauritius; Botswana; Mexico; Brazil; Namibia; Bulgaria; Panama; Chile; Peru; Colombia; Romania; Costa Rica; Russian Federation; Dominican Republic; South Africa; Ecuador; Thailand; Iran; Tunisia; Jordan; Turkey; Kazakhstan; Uruguay; Venezuela
Source: World Bank list of UMC economies July 2012

Table4. Panel unit root tests results at level

Variable Name	Intercept				Intercept and Trend			
	LLC	IPS	AD-Fisher	PP-Fisher	LLC	IPS	AD-Fisher	PP-Fisher
LGDPr	-11.4993***	-12.0152***	262.879***	273.479***	-9.94009***	-7.65408***	180.433***	190.334***
LFDIi	-6.59276***	-5.72668***	141.844***	133.717***	-6.38729***	-5.65345***	147.371***	125.805***
LDOMI	-8.25637***	-7.58887***	180.165***	133.566***	-4.38314***	-4.52864***	125.263***	128.071***
LFDIs	-14.0107***	-13.7529***	307.732***	331.754***	-12.0914***	-11.5859***	247.461***	296.667***
LPOPr	3.25754	1.25777	88.3831**	58.659	8.00196	0.08939	91.5587**	62.3352
LFD	-3.71263***	-1.64847**	110.482***	126.635***	-6.68795***	-2.86061***	107.443***	134.347***
LFDe	-9.25601***	-6.85682***	176.884***	205.272***	-8.36415***	-7.80855***	162.463***	199.251***

***** Significant at 1%, **significant at 5%, *significant at 10%**
Rejection of the null hypothesis denotes the panel series does not have a unit root.
The values in front of each variable are t-statistic
The maximum lag length selection based on automatic Schwarz Information criterion

Table5. Descriptive statistics of the variables used in the regressions

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
LGDPr	1.305041	1.911814	4.238729	-3.548836	1.66152	675
LDOMI	3.824613	3.83215	4.7535	2.870026	0.274575	675
LFDIs	2.671769	3.328647	8.126859	-5.099877	2.335822	675
LPOPr	0.892159	1.1314	3.109326	-1.677719	0.769198	675
LFDIi	1.609409	1.716829	4.503169	-3.359431	1.001595	675
LFD	4.449644	4.353905	6.20587	2.844858	0.621935	675

Table6. Correlation matrix of the variables included in specifications

	LGDPr	LDOMI	LFDIs	LPOPr	LFDIi	LFD
LGDPr	1.0000					
LDOMI	0.2630	1.0000				
LFDIs	0.1069	0.0679	1.0000			
LPOPr	-0.0541	0.0398	-0.2184	1.0000		
LFDIi	0.1765	0.1541	0.2881	-0.1336	1.0000	
LFD	-0.0057	0.2017	-0.0419	0.2113	0.1251	1.0000