Impact of FDI on Productivity and Financial Development: A study on Asian countries

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Abstract

In this global era, main focus of countries is to attract FDI at any cost by giving many incentives to the investor country, due to which countries are being affected in many dimension. This study examines the impact of FDI by using panel regression model, mainly on two factors –Labor productivity and GDP growth rate through financial development. Findings of this paper are confined to Asian countries. In this view panel data of 50 Asian countries was collected from year 2001-2008. We found that FDI is increasing in those Asian countries where financial markets are in strong position otherwise GDP growth is negatively affected by FDI.

Key Words: Foreign Direct investment (FDI),Financial Development and Labor productivity.

1. Introduction

This world is called as global village, it is because there are only physical borders among the countries but they are liberalized. Due to liberalization many economic and cultural zones are formed among different countries, like European Union (Economic Zone) and SAARC (Cultural zone). Due to globalization and liberalization many countries do business and trade with one another. Many countries invest in other countries to gain more. Many developing and developed countries focus to attract foreign direct Investment (FDI). Each country has different financial situations. And international financial situation of a country is shown in its Balance of Payments (BoP) and its level of monetary reserves depends not only on its current account but also on capital account (its net inflow or outflow of private and public financial resources). International flow of financial resources is of main two types: (1) private foreign direct and portfolio

investment, which consist of (a) foreign direct investment by large corporations and (b) foreign portfolio investment (e.g. stocks, bonds and notes). And (2) public and private development assistance (foreign aid), from individual national governments and multinational donor agencies, and (b) private non-governmental organizations (NGOs). The growth of FDI in developing world is increasing between 1962 to 1980 FDI rose from annual rate of $2.4 billion to $11 billion and in 1990 it rose to $35 billion and again reached at $185 billion, almost 60 % of this total goes to Asia. Until the mid-1980's the share of FDI outflows of developing economies was negligible but it dramatically went up to 15% of the world outflows in 2005. UNCTAD (2006) reported that share of outward FDI from developing economies went up from US$70 billion in 1980 to US$ 150 billion in 1990 and in 2005 it skyrocketed to US$1 trillion.FDI do much in a country than to form a factory or transfer capital. When multinational corporations invest in the host countries they carry many things with them, like technologies of production, new efficient business processes, new ways of marketing and advertising exposure, diverse business practices and managerial skills (Smith, 2010).

FDI is one of the growth enhancing factors of many economies. FDI put great impact on output and income of the host country by escalating the stock of capital, increasing the employment opportunities and by enhancing the human capital through knowledge transfer by providing extensive labor training, management styles and organizational arrangements (Hoang, 2010). FDI often leads to technology transfer to affiliates of multinational firms in the host countries. Spillover can occurs through the interaction of multinational firms with domestic suppliers, customers and worker mobility. An ongoing integration of the world economy which increased its momentum since 1990's has brought a significant change in the attitude of the host country toward FDI. Due to liberalized economy foreign investors are getting chance to invest in other countries. When foreign investors invest in the host country they break all the monopolies and also increase competition in various industries and give tough time to domestic investors. Factors that attract foreigners to invest in the host country consist of tax shields, relaxation in the prevailing regulations, loans are provided them at lower interest rate and other specific incentives are also given to them. The presence of foreign investors is likely to improve corporate governance and investor protection which reduces the cost of internal and external finance leading to growth and productivity. Better corporate governance and investor protection promotes financial development which ultimately leads toward economic efficiency (Chaudhuri,

2010). According to great economist Adam smith international trade is engine of growth. And one of the important factors of international trade is FDI.FDI has different impact on different economies. Many researchers have consensus on positive relationship between FDI and economic growth, and some researchers found negative relationship. Lipsey (2002) suggested that there is no consistence relationship between FDI stock or flow and GDP or growth. Hanson (2001) argues that there is weak evidence that FDI generates positive spillover on the host country. Greenwood (2004) concluded that effects are mostly negative. UNCTAD (2006) assert that FDI has positive effect on employment generation, technology and long term economic growth. But Alfaro (2009) suggested that overall impact of FDI on productivity and growth is mixed.

Recent economic growth literature emphasizes the role of productivity growth as the main driver of long-term per capita growth (Jones, 1999). There is difference in productivity growth among countries because of macroeconomic and strong institutional factors, trade openness, and human capital. The determinants of productivity growth are Macroeconomic factors (**Inflation**, **Government size**), Trade openness and knowledge spillovers (**Trade openness and FDI**), Labor quality, Institutional factors,Sectoral composition of output, and Female labor participation.To some extent, the level of FDI also reflects the macroeconomic environment of a country. Countries with low inflation, appropriate macroeconomic fiscal and exchange rate policies are expected to attract more FDI. Such an environment is expected to be also favorable of higher productivity growth. We use the ratio of FDI to GDP in this paper. The coefficient of the interaction between FDI and the level of education is positive and significant: the higher the level of human capital, the better a country can benefit from positive spillovers from FDI to accelerate its TFP growth (Diouf, 2009).FDI is positively related to TFP growth and this relation strongly depends upon the level of education of domestic workforce. During 1970–2005 Asia enjoyed both faster physical capital accumulation and faster TFP growth than other developing economies; in contrast, Asia's catch-up with advanced economies largely reflected capital accumulation (Spatafora, 2007).

Well-functioning institutions are very much important for the economic growth. A country with foreign investment has to improve her financial system for the positive impact of FDI on economic growth. Financial system of any country comprises financial institutions (e.g. commercial banks) and financial markets (e.g., stock and bond markets). According to some

researchers well-functioning financial markets, by reducing the cost of conducting transactions, make sure capital is owed to the project that yields highest return and as a result enhances the economic growth rate. The role of financial sector development on economic growth was first studied by (Schumpeter, 1911).A more formal econometric analysis on a panel data of 125 countries confirms that financial development has a significant positive effect on growth. Fortunately, developing Asia has made a great deal of progress in building up a more robust and efficient financial system since the Asian crisis as a result of extensive post crisis reform and restructuring. The primary role of the financial system in developing Asia's economic growth in the post global crisis period will thus be to improve the efficiency of investment, thereby contributing to productivity growth (ADB).The financial system may contribute to economic growth through two main channels (next to providing and maintaining a generally accepted means of exchange).First, Financial system mobilizes savings; this increases the volume of resources available to finance investment, and it screens and monitors investment projects (*i.e.* lowering information acquisition costs); this contributes to increasing the efficiency of the projects carried out. Economic growth of country is directly related with the developed domestic financial system. More developed domestic financial system will lead toward better savings, and screen and monitor investment projects, which will eventually add to higher economic growth . Second, investment for upgrading the existing or adopting the new technology is more risky than other investment project.. The financial system in general, and specific financial institutions in particular, may help to reduce these risks, thereby stimulating domestic entrepreneurs to actually undertake the upgrading of existing technology or to adopt new technologies introduced by foreign firms. Thus, financial institutions positively affect the speed of technological innovation, thereby enhancing economic growth (Xu, 1999).

According to Levine (2008), the overall function of a financial system is to reduce information and transactions costs impeding economic activity, and its five core functions are to (i) produce ex ante information about possible investments and allocate capital; (ii) monitor investments and provide corporate governance after providing finance; (iii) facilitate the trading, diversification and management of risk; (iv) mobilize and pool savings; and (v) ease the exchange of goods and services. The efficiency of a financial system refers to how well a financial system performs the five core functions and financial development refers to an improvement in the efficiency of a financial system.

Data regarding Foreign Direct Investment is reported in stocks and flows, and FDI stock means the value of capital and reserves plus net indebtedness, and FDI flow means capital provided by or received from a foreign direct investor to an FDI enterprise (UNCTAD, 2006).FDI which is inward or called as "inward investment" is one in which investment is made by the foreign investors occurs in local resources. This paper investigates the impact of inward FDI *flow* on productivity, growth and financial development of Asian countries.

The rest of the paper is organized as follows: an overview of the literature is provided in section 2; data are defined in section 3; empirical results are discussed in section 4; and section 5 concludes the paper with recommendations and in addition to this Appendix and references are also the integral part of this study.

2. Literature Review

Many researches have been conducted to look at the impact of FDI on economic growth of the recipient countries. Due to FDI host countries can be benefited in many ways, because of FDI host countries not only enjoy economic growth but also FDI brings knowledge spillover, managerial skills, technological advancement and productivity in many sector of the economy. Foreign capital injected to the host country could contribute to the physical formation of the economy and the training given to the employee can contribute to improvement of skill in the country (Alfaro, 2008). In term of productivity spillover from FDI in developing countries , Diebel (2010) found that empirical evidence , taken as a whole provide weak support of the gains to the domestic firm from the presence of FDI in the same sector.

Researcher Ng (2006) used Granger causality test and Toda-Yamamoto version of Granger test to see the relationship between FDI and productivity in any economy at the aggregate level. He took eight Asian economies which received substantial FDI, evidence of one way Granger causality from the change in FDI was found only in two countries (Singapore and Taiwan province) ,and there is also little evidence that changes FDI/GDP contribute to technical or efficiency change in the economies. Bhavan (2011) argued that FDI is found to have average impact on growth. While in theory, the nexus between FDI and growth (in terms of output and productivity) is in general positive, the empirical literature is far less conclusive. Some studies suggest positive effects from outward FDI on the investing country, but shows a potential negative impact from inward FDI on the host country (Lichtenberg & Nachum, 2001;2000).

According to Toshihisa hirano there are three main features for the capital flow to Asian emerging countries: 1) Commercial bank lending to before and after Asian crises Asia has shown large swing, 2) Still securities investment is crucial source of capital to Asia, while in 1990s share of that to ASEAN countries has dropped dramatically. 3) In Asia direct investment remained consistent but China is on top in the Asia. According to Alfaro (2006), If the local financial markets are developed enough they can allow credit constrained entrepreneurs to start their own firms. Final goods sector is positively affected by the incremental number of varieties of intermediate goods. There are backward connections between the domestic and foreign firms, and consequently from these linkages the recipient country is benefited. Countries will be benefited if domestic financial markets allow these connections to turn into FDI spillover. For the same level of FDI, countries with more developed financial markets tend to have significantly higher growth rates and for sizeable increases in the productivity of FDI, the increase in the aggregate growth rate is higher for economies with more developed financial markets. Financial position of a country plays very important role in the growth of an economy. For example same amount of FDI is prevailing in two economies, apart from the reason of increase , financially well-developed economy will generate three times additional growth as compare to financially weak economy. Empirical studies on FDI and growth's theoretical framework derives from either neoclassical models of growth or endogenous models of growth**.** FDI, according to the neoclassical growth models, is an addition in the stock of capital of the recipient country. FDI has no consistent effect on growth rate of the recipient country; Effect of FDI can be seen only on income under its contribution to capital accumulation in the host country without having influence on the long term growth rate. In new endogenous growth models, FDI can permanently effect on long term economic growth through many ways. The main channel through which FDI can permanently increase the economic growth rate is by transferring the technology, productivity spillovers and externalities (Mello, 1997).

According to Sun (2002) FDI not only adds to external financial resources for host country development, it is also more stable than other forms of financing. As his research indicates that he took 136 countries for which data are available, only 27 countries experienced more volatility in their FDI inflows than other forms of external private financing during the 1980s, and this number was reduced to 22 in the more turbulent 1990s. Further it is explored by *Dabla-Norris (2005)* the past decade has witnessed an unprecedented increase in

foreign direct investment (FDI) flows to low-income countries. World Bank (2010) reports that the sharp increase in global FDI flows before the financial crisis largely reflected a surge in inexpensive debt financing. Some of the benefit of the FDI includes creation of employment, new avenues for more technology and opportunity for more research and development (Chaudhuri, 2010). But in contrast she also stated some disadvantages of FDI in the Host countries. But in contrast she stated that when a stream of FDI is negatively affected, the economical backward section of the host country is always disadvantaged. Bakardzhieva (2010) took 6 regions namely Africa, Central and Eastern European Countries (CEEC), South and East Asia, Latin America, Middle East and North Africa (MENA), and the Gulf Cooperation Council (GCC), and *finds* the interesting results for FDI, clearly point toward no positive impact on REER appreciation in any region, except in Africa. These results could be very useful for policy makers in their aim to reconcile the dilemma of attracting capital and foreign exchange flows to finance current account deficits and enhance investments, while maintaining competitiveness to The World Investment Report of 2009 states that economic and political stability are key factors that can work as a magnet for attracting the foreign investor to invest in the country. For economic stability of any country government can play important role by implementing the fiscal and monetary policy. The FDI level increase in a country when the stability of political conditions is in aperfect tandem with the economic policies of the country.The indirect benefits of FDI on growth relate to the productivity gains in recipient countries through transfers of technology (adoption of new production methods), skill acquisition (education or training of workers), competition (efficient use of existing resources by domestic firms), and exports (expansion of export potential of domestic firms(Dabla-Norris, 2005). It creates new spillovers across the board as well as increase competition in the host country giving the domestic firm a real hard time for sustainability in the market and breaking all monopolies in the sector. It creates positive productivity shocks to motivate indigenous firms to raise their performance and improve quality (Chaudhuri, 2010). Recently in Asia manufacturing FDI is increasing mainly from Japan manufacturing companies, e.g., Hitachi, Panasonic, and Toshiba. Major share of these industries came in Asia in 1990's (Takechi, 2011). He found that there exists positive state dependence of manufacturing direct investment, positive effects of distribution direct investment, and positive investment externalities. In perspective of productivity heterogeneity, the positive perseverance factors created the FDI wave.

Belderbos(2006) also suggested that Japanese FDI to Asia trend went high in 1990. To prove this relation he took the detailed data of Japanese firms.

According to Sun(2002) if FDI enters the economy in activities in which competing domestic firms already exist; FDI may well reduce domestic investments that would have been undertaken by domestic producers. Even in new activities beyond the current reach of domestic investors, FDI may preempt investments by domestic firms which, with proper nurturing, could enter the market successfully.

Best practices are conveyed by FDI in two ways: First, in recipient country internally it transfers skills and technology to the foreign associate. Second way is dispersion of technology to the local institutions and companies. There are three basic mechanisms for FDI to generate employment in the recipient countries. First, foreign associates employ worker in their local operations. Second through applying different strategies, employment is created in many enterprises –e.g., supplier, subcontractors or service provider to them. Third as FDI in countries expand and the local economies grow, due to this reason employment is also created in many other sectors, which are not even indirectly affiliated with original FDI. Outward and inward FDI in developed countries went high in 2007 but it sharply decreased in 2008.The inflows amounted to $962 billion, down by 29% from the previous year, and these declines occurred in all major host countries (World Investment Report, 2009).

3. Data

In this section data for most significant variables is described: Foreign Direct Investment, Financial market, GDP growth rate, Domestic investment and labor productivity. The data source is The World Bank (April 14, 2011): “World Development Indicators” and “Global Development Finance”. World Development Indicators (WDI) is the primary World Bank database for development data from officially-recognized international sources. Global Development Finance (GDF) provides external debt and financial flows statistics for countries that report public and publicly-guaranteed debt under the World Bank's Debtor Reporting System (DRS). And other sources are UNCTAD and IMF. And an updated list of Asian countries (Updated on April 2011) is referred from United Nations. Here in this paper net FDI inflow is reported. Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an

economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP. This paper reports the inflows to the Asian countries.

We have also focused on financial market including liquidity liability in the overall economic level activity which shows asset structure of the banking sector, and private sector credit in GDP. We have introduced three variables of financial system. *First* Liquid Liabilities (LLY),Liquid liabilities are also known as M3. They are the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents . *Second* Commercial-Central Bank Assets (BTOT) is the ratio of deposit money bank claims on domestic nonfinancial real sector (as defined above) to the sum of deposit money bank and Central Bank claims on domestic nonfinancial real sector . *Third* Bank Credit (BankCR) is Private credit by deposit money banks and other financial institutions to GDP, calculated using the following deflation method: {(0.5)*[Ft/P_et + Ft-1/P_et-1]}/[GDPt/P_at] where F is credit to the private sector, P_e is end-of period CPI, and P_a is average annual CPI. The number of countries for which we have these financial market variables and FDI shares is 50.

In Table1 two samples are taken. One sample with GDP growth rate and other with Labor productivity as dependent variables is taken. Sample1 in table represents descriptive statistics for growth, financial development, investment, real exchange rate and inflation. Sample2 represents descriptive statistics labor productivity as proxy of TFP and above mentioned variables.Growth rate varies across countries, ranging from -12.42884 percent for Timor-Leste in year 2001 to 34.45131 percent for Azerbaijan in 2006. And also there is variation of labor productivity, ranges from 2821 for Cambodia in 2001 to 45786 for Singapore in 2008. And the important variable of research FDI share in GDP also shows variation it also ranges from negative values to positive value and the minimum value in this range is -14.36905 for Azerbaijan in 2007 and maximum value is 26.25422 for Hong Kong SAR, China in 2007. The financial development variables also range in different values like minimum value of liquidity liability as share of GDP is 0.102076 for Georgia in 2001 and maximum value is 1.775377 for

Macao SAR, China in same period. And range of Bank credit as share of GDP is from 0.037425 in Kyrgyz Republic (2001) to 1.634721 in Cyprus 2006 and private credit as share of GDP's range is also same. And commercial-central bank assets ratio ranges from 0.222683 for Iraq in 2004 to 1.005146 for Vietnam 2008. And in the same way minimum and maximum values of Investment, real exchange rate and inflation. If you look at the data you will find that there was deflation of 21.63204 percent inIraq in 2001. The only country in findings that has negative inflation for entire time period of eight years sample is Japan.

TABLE 1

Summary of Descriptive Statistics

Variables	Mean	Standard Deviation	Maximum	Minimum
GR	6.425753	4.565862	34.45131	-12.42884
LPD	15874.73	11026.12	45786	2821
FDI/GDP	4.3278	5.041826	26.25422	-14.36905
LLY/GDP	0.551166	0.348701	1.775377	0.102076
BTOT	0.870172	0.170882	1.005146	0.222683
Bankcr	0.499894	0.417539	1.634721	0.037425
Privcr	0.474636	0.401413	1.634721	0.037425
INV	24.57729	7.549269	53.16952	9.382923
REER	103.5178	10.36459	134.6075	79.9155
INF	7.708188	7.179517	30.20817	-21.63204

Source: Authors' calculation

And Table 2 shows the correlation among different variables. Most of the variables have positive relationship and the strongest positive relationship is between bank credit and private credit that is 99.6119 percent and weakest positive relationship is between trade and FDI to GDP ratio that is 0.63 percent. And in the same way strongest negative correlation is between human capital i.e. labor force and population that is 56.8956 percent and weakest negative correlation is between human capital i.e. labor force and institutes that is 1.342 percent. Labor productivity has positive correlation with all other variables is positive except real interest rate.

TABLE 2

Correlations

CORRELETION													
	LPD	GR	INV	FDI	PRIVCR	BANKCR	INST	REER	RR	TRD	HC	POP	INF
LPD	1												
GR	0.254249	1											
INV	0.262581	0.262219	1										
FDI	0.156155	0.354585	0.41082	1									
PRIVCR	0.41056	-0.444524	-0.335517	-0.235457	1								
BANKCR	0.39324	-0.45356	-0.304488	-0.254849	0.996119	1							
INST	0.503968	-0.309218	-0.420797	-0.276623	0.944508	0.938753	1						
REER	0.488598	-0.050784	0.423786	0.355388	0.190542	0.189149	0.191091	1					
RR	-0.007194	0.363747	0.32285	0.412841	-0.33152	-0.360772	-0.458794	-0.02164	1				
TRD	0.489642	-0.210753	-0.230968	0.0063	0.890042	0.883419	0.812777	0.08293	-0.049974	1			
HC	0.512763	0.366188	0.125903	0.479452	0.020426	-0.024043	-0.013419	0.17677	0.538093	0.35228	1		
POP	0.060748	-0.32108	-0.299437	-0.485566	0.611287	0.638053	0.695328	0.01594	-0.483616	0.378465	-0.568956	1	
INF	-0.335899	-0.264459	0.02184	-0.209812	-0.321785	-0.283022	-0.270269	-0.12137	-0.669385	-0.488597	-0.480054	-0.12055	1

4. Empirical Analysis

FDI through financial markets in Asian countries is beneficial for growth of the economy operates through factor accumulation or TFP, is the motive of our empirical analysis. But as discussed above in the section of data unfortunately we could not find the statistics for total factor productivity, so we use the labor productivity as the proxy for this research. We will establish the relation among growth and FDI through financial development by taking the panel data by taking OLS estimator. First step is to find out the impact of financial markets and institutional quality on the relationship of the FDI and GDP growth rate. Then we further investigate that whether FDI through labor production affects the economic growth of the Asian countries. As discussed in the literature in the Japan and China and as well as in many otherdeveloping countries of Asia, that the well-functioning financial institutions in increasing technological innovation, capital accumulation and economic development has been accepted. Well-functioning financial markets ensure, capital is allocated to the projects that yield the highest returns and therefore enhance growth rates, by lowering the costs of conducting transaction. According to the Alfaro et al (2009), there are several reasons to expect that financial markets might set off the spillover effects of FDI. First, the successful acquisition of new technologies introduced by foreign firms in domestic countries will generally involve a process of reorganization and reinvestment by their domestic competitors. To the some extent that process is externally financed from domestic sources, efficient financial markets will enhance the competitive behavior of the local industries. Well-developed financial markets also form some ways for other domestic firms and entrepreneurs to take of linkages with new multinationals.

Different authors found that FDI has no significant impact on growth rates of economy, but they found consistent significant results with interaction terms and with the presence of other terms, these variables has significant impact on the growth rates of economy. But no any author writes about these effects in Asian countries, we specifically take the Asian countries for this research to see whether these are also similar in Asian countries or not.

In table 3, we examined the relation between the GDP growth rate and FDI with the financial markets and use this as regressor. We also run the regression with interaction terms and use them as regresors . To ensure that the interaction term does not Proxy for FDI or the level of

development of financial markets, both of the latter variables were also independently included in the regression. So we can run the following regression equation,

$$= + + + * + ' + $$

Where **X** stands for the control variables, which include the human capital, government consumption, institutional quality, domestic investment, real effective exchange rate, real interest rate, trade, population growth rate, interaction term of FDI with human capital and interaction term of FDI with Institutional quality for first three columns and in column 4 and 5 interaction term of FDI with Institutional quality is excluded. Most basic results are described in the column (1) of table 3. Financial markets indicators are included in column (2) and column (3), in column (2) we use private credit as deposit money banks credit to the private sector as percent of GDP. And in column (3) we use bank credit as credit by deposit money banks and other financial intermediaries as percent of GDP. In column 2 and 3 the results are without interaction terms with financial market indicators. It is seen that in column 1 where institutional quality of financial institutions is taken, the FDI/GDP is significant at 1%. But when we use the private credit in column 2, it is significant at 10%. And in column 3 where we use bank credit as the financial market indicator, the FDI/GDP is significant at 5%. These results are summarized the findings in literature: FDI does not exert robust positive impact on growth. It is also in the Asian countries these results clearly saying that FDI does not exert the robust positive impact on the growth rate of GDP. It is found in our research that financial markets indicators that we are using in this table Private credit and bank credit in column 2 and 3 have also positive robust impact on the growth rate of GDP. Private credit is significant to 5%, and the bank credit is significant at 10%.

In column 4 and 5, we use the interaction terms of FDI/GDP with financial market indicators. Results in column 4 and 5 show significance and it converts FDI's negative impact to the robust positive impact on the growth rate of GDP of Asian economies and showing significance at 5% and 10%. It means that through well-functioning financial intermediaries, FDI can increase the GDP growth rates, so the economy of the Asian countries. By minimizing the cost of transactions of financial institutions can increase the capital accumulation of any country and it can increase the inflow of the host country.

TABLE 3

Dependent variable =GDP Growth Rate(GR)																			
	1				PRIVCR				BANKCR				PRIVCR				BANKCR			
		I	II	III		I	II	III		I	II	III		I	II	III		I	II	III
FDI/GDP	-11.33993	-7.69222	-10.44592	-2.361208	-6.269446	-5.277243	-6.346451	-1.365473	-7.862347	-5.753123	-7.434571	-1.75724	-6.677713	-5.502939	-6.573407	-2.446464	-8.368611	-6.106003	-7.915053	-2.971981
	[-3.919257]***	[-1.789968]*	[-4.543824]***	[-0.607639]	[-1.816666]*	[-1.207152]	[-2.149853]**	[-0.339781]	[-2.254595]**	[-1.314262]	[-2.557639]**	[-0.436986]	[-1.844553]*	[-1.300552]	[-2.093083]**	[-0.634035]	[-2.333443]**	[-1.434875]	[-2.607679]***	[-0.770211]
HC	-0.188153	-0.732944	-0.133039	-0.242381	-0.358777	-0.362139	-0.272254	-0.099459	-0.321084	-0.435923	-0.246461	-0.158365	-0.368831	-0.37033	-0.2831	-0.143491	-0.340619	-0.447233	-0.262403	-0.204118
	[-1.296728]	[-1.562689]	[-1.148499]	[-0.607772]	[-2.32351]**	[-0.726086]	[-2.105296]**	[-0.234127]	[-1.983724]**	[-0.879641]	[-1.856083]*	[-0.376381]	[-2.376309]**	[-0.748909]	[-2.148981]**	[-0.343324]	[-2.093799]**	[-0.91124]	[-1.953272]**	[-0.495002]
POP	-1.077095	-5.883438	-1.311338	-1.217068	-1.783892	-5.161045	-1.906749	-1.969096	-1.286674	-5.448645	-1.514481	-1.714824	-1.835545	-5.182639	-1.977936	-2.081303	-1.366913	-5.501229	-1.583351	-1.881163
	[-2.112294]**	[-2.128962]**	[-3.131]***	[-0.425833]	[-3.160781]***	[-1.907982]*	[-3.875337]***	[-0.665035]	[-2.506197]**	[-2.005786]**	[-3.542492]***	[-0.576329]	[-3.277935]***	[-1.921621]*	[-3.995484]***	[-0.721457]	[-2.67113]***	[-2.031627]**	[-3.68415]***	[-0.648985]
INST	6.404543	[9.406172]	[6.243179]	[5.094298]	14.30161	28.28868	12.13163	17.14394	10.8484	26.16944	9.736104	13.0699	17.28256	28.87635	15.69387	16.95719	14.55682	26.93337	13.54569	13.20951
	[2.625205]***	[1.201507]	[3.177321]***	[0.743706]	[3.57049]***	[2.182308]**	[3.56787]***	[1.219469]	[3.070565]***	[2.002719]**	[3.385654]***	[0.972228]	[5.260964]***	[2.266822]**	[5.440778]***	[1.219379]	[4.982205]***	[2.099435]**	[5.547317]***	[0.996129]
FMK	..	..	..	..	-13.39269	-22.47413	-10.1407	-13.29607	-10.27445	-19.34756	-8.35714	-8.581406	-16.41684	-22.93508	-13.61693	-12.6569	-14.13067	-19.89186	-12.11806	-8.202341
	..	..	..	..	[-2.412158]**	[-1.795378]*	[-2.076263]**	[-0.981705]	[-1.704779]*	[-1.583043]	[-1.630654]	[-0.691989]	[-3.243633]***	[-1.872984]*	[-2.964151]***	[-0.944027]	[-2.513944]**	[-1.664946]*	[-2.474257]**	[-0.671224]
FDI/GDP*INST	0.861747	0.420998	0.810642	0.160676	0.53956	0.242087	0.611847	0.123992	0.6706	0.272221	0.686296	0.1344	...	...	...	...	...	...	...	...
	[2.874751]***	[1.081277]	[3.360621]***	[0.469268]	[1.721377]*	[0.621029]	[2.453476]**	[0.359742]	[2.137383]**	[0.694109]	[2.772058]***	[0.386251]	...	...	...	...	...	...	...	...
HC*(FDI/GDP)	0.172263	0.120057	0.156456	0.035479	0.095075	0.082679	0.093966	0.019975	0.118124	0.08992	0.109515	0.026014	0.107625	0.088818	0.104875	0.037735	0.133382	0.098264	0.124834	0.045862
	[3.962543]***	[1.852314]*	[4.505152]***	[0.599705]	[1.824615]*	[1.250822]	[2.098572]**	[0.326002]	[2.226608]**	[1.358693]	[2.461998]**	[0.424324]	[1.893371]*	[1.326609]	[2.128581]**	[0.614937]	[2.359047]**	[1.461023]	[2.608849]***	[0.74767]
FMK*(FDI/GDP)	..	..	..	..	..	..	..	..	..	..	..	..	0.867502	0.414567	0.919235	0.386365	1.094397	0.484925	1.074893	0.429658
	..	..	..	..	..	..	..	..	..	..	..	..	[1.714709]*	[0.741956]	[2.248396]**	[0.80256]	[2.203999]**	[0.855776]	[2.721952]***	[0.879319]
Constant	31.39628	48.65024	23.72005	25.36054	25.59446	10.79815	18.80109	6.589397	27.65654	17.40776	20.12585	13.80058	23.77734	10.78967	16.60348	9.843132	25.62756	17.46058	18.1592	16.91916
	[3.094433]***	[1.860671]*	[2.90573]***	[1.146351]	[2.586729]***	[0.327821]	[2.308361]**	[0.225259]	[2.722688]***	[0.538936]	[2.433546]**	[0.494615]	[2.52755]**	[0.334002]	[2.090181]**	[0.341603]	[2.658849]***	[0.552173]	[2.268454]**	[0.619962]
Observations	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no
Country fixed effects	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no
Both fixed effects	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes
R-squared	0.68875	0.786357	0.846258	0.890813	0.728276	0.805908	0.864021	0.894866	0.709833	0.801873	0.857722	0.892865	0.728131	0.806891	0.860576	0.896976	0.711703	0.80339	0.856753	0.895459

Notes: Dependent variable is average growth rate of GDP. Robust t-statistics are in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%. Financial market depth is measured by private credit extended by deposit banks as a share of GDP in columns 2 and 4, while in columns 3 and 5; it is measured as the share of private credit by the whole financial system as a share of GDP. Controls include a subset of population growth rate, exchange rate, real interest rate, human capital, trade, and government consumption in each column.

In each column of table 3, there are sub columns (i), (ii), (iii), in which we have analyzed the fixed effects for each set of data. In sub column i) we use the country fixed effects which are constant over time and changes across the countries, in this column the countries are taken as dummy variables, which are used to analyze the omitted variables in the original equation, it show the little difference among the countries regarding impact of FDI and financial institutions and financial markets on the GDP growth rate of the Asian countries. In sub column ii) we use the time fixed effects which are constant across countries but varies over time, in column ii) the time period is taken as the dummy variable, which shows the more robust results as compare to the cross countries fixed effects, it means that there is more significant impact on the growth rate of GDP of Asian countries of the well-functioning financial institutions. In sub column iii) we use both the country as well as time fixed effects, in this column both countries as well as years are taken as dummy variables, both these variables shows more robust results on the dependant variable GDP growth rate of the independent variables of FDI and financial institutions.

In Table4 dependent variable is labour productivity which is proxy of total factor productivity. In table3 total five models are formed, two models are formed with private credit and other three models are formed with bank credit. Institutional quality, financial markets and population are taken as control variables. Institutional quality is positively related with dependent variable and population is negatively related to dependent variable and these both are significant. Log of income is significant and is positively associated with labour productivity in all five models. In column 4 with log(Y) interaction term FDI/GDP*INST is not taken and due to it one percentage change in income is associated with a change in labour productivity of 90.11, which is highest value. In Asia FDI results in higher growth rate via backward linkages but this all depends upon the development of financial sector in Asia. Financial markets are channel for backward linkages. Due to growth rate through FDI more foreign corporations and entrepreneurs of domestic countries invest in this part of world. And equation for it is;

$$= + + (/) + (*) + ' +$$

Table 4

endent Variable: Labor productivity (LPD)

	PRIVCR								BANKCR											
	1				2				3				4				5			
		I	II	III		I	II	III		I	II	III		I	II	III		I	II	III
Y)	8769.177	8545.365	8262.104	12942.28	8936.625	8295.429	8655.189	13608.59	8732.429	8139.176	8486.726	13254.44	9011.587	8177.192	8717.528	13895.66	7570.954	7691.93	6850.072	14902.09
	[9.002715]***	[7.761756]***	[6.062943]***	[3.654471]***	[8.92748]***	[6.07931]***	[7.562097]***	[3.814636]***	[8.853083]***	[5.966604]***	[7.624585]***	[3.774094]***	[8.846592]***	[5.978892]***	[7.456354]***	[3.92703]***	[6.888636]***	[6.019779]***	[5.482773]***	[4.661281]***
GDP	486.9271	478.1891	166.679	148.4211	659.5053	39.72189	568.8735	-9.069213	491.4746	163.873	488.0383	156.7682	729.0008	39.96144	646.9038	-3.730098	-1965.43	-1592.009	-2551.186	-1854.991
	[2.789501]***	[1.895233]*	[1.25344]	[0.867214]	[2.354898]**	[0.212141]	[1.696181]*	[-0.041598]	[2.789125]***	[1.221593]	[1.925559]*	[0.919594]	[2.574474]**	[0.210216]	[1.889084]*	[-0.01692]	[-1.860643]*	[-2.448638]**	[-2.196978]**	[-2.636476]***
	22321.73	23195.58	-15437.11	-17223.31	22624.23	-15260.09	23270.57	-16409.51	22700.87	-13780.01	23522.51	-15062.61	23027.68	-13633.39	23612.11	-14438.3	8869.428	-17823	7299.484	-16737.34
	[5.387793]***	[5.084979]***	[-1.729301]*	[-1.701335]*	[5.41405]***	[-1.707387]*	[5.03871]***	[-1.626617]	[6.01003]***	[-1.518348]	[5.671543]***	[-1.492653]	[6.086965]***	[-1.49874]	[5.649554]***	[-1.436239]	[1.378348]	[-2.082085]**	[1.064201]	[-1.847076]*
	2388.429	2763.104	6294.967	4322.282	3521.888	5747.997	3438.845	2850.355	2405.111	4359.626	3166.417	1701.837	3750.559	3903.632	4123.972	525.3941	18190.93	7272.654	20586.52	170.2763
	[0.519076]	[0.557356]	[0.80089]	[0.452667]	[0.727815]	[0.728672]	[0.652424]	[0.297622]	[0.509459]	[0.5547]	[0.622762]	[0.185023]	[0.768927]	[0.494641]	[0.777692]	[0.057061]	[2.550409]**	[0.981726]	[2.739067]***	[0.020602]
	-1797.861	-2094.889	5587.381	4070.995	-1681.642	6142.764	-2002.608	4324.44	-1874.442	5681.635	-2202.736	3846.886	-1677.679	6206.355	-2017.617	4111.511	-1357.875	5818.98	-1753.711	1903.475
	[-2.461127]**	[-2.558068]**	[3.395142]***	[1.56533]	[-2.247257]**	[3.519849]***	[-2.33523]**	[1.666693]*	[-2.489133]**	[3.45332]***	[-2.613693]***	[1.485466]	[-2.167764]**	[3.558135]***	[-2.268111]**	[1.589626]	[-1.848807]*	[3.594033]***	[-2.150193]**	[0.774675]
GDP * FMK	..	..	..	..	-511.6322	290.8289	-308.0571	378.7097	..	..	..	..	-690.4479	280.7974	-511.0247	375.921	-4833.627	-2692.412	-5208.427	-3164.343
	..	..	..	..	[-0.790238]	[0.964093]	[-0.416851]	[1.155184]	..	..	..	..	[-1.070448]	[0.921942]	[-0.696031]	[1.139274]	[-2.869916]***	[-2.292088]**	[-2.936227]***	[-2.388667]**
GDP * INST	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3276.944	2158.231	3765.839	2588.719
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	[2.635066]***	[2.607113]***	[2.859171]***	[2.74183]***
tant	-52648.03	-54579.55	-30077.09	-56616.61	-53443.43	-30865.66	-54575.71	-61598.42	-52614.61	-30697.37	-54206.76	-60242.48	-53949.34	-31470.49	-54476.02	-64904.14	-35698.25	-24531.15	-33436.35	-70330.54
	[-7.565328]***	[-6.469449]***	[-3.33661]***	[-2.41117]**	[-7.567952]***	[-3.406672]***	[-6.394325]***	[-2.595035]***	[-7.471203]***	[-3.384181]***	[-6.371856]***	[-2.624133]***	[-7.555799]***	[-3.447331]***	[-6.351021]***	[-2.797639]***	[-3.709044]***	[-2.772583]***	[-3.11515]***	[-3.362521]***
rols	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
rvation	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
fixed effects	no	yes	no	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no
try fixed effects	no	no	yes	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no
fixed effects	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes
ared	0.897695	0.906259	0.986065	0.988257	0.899193	0.986436	0.906722	0.98881	0.897671	0.985933	0.906458	0.988186	0.900389	0.986277	0.907735	0.988728	0.914815	0.98862	0.925619	0.991256

SOURCE: Authors' calculation

In table 4, we have also used fixed effects used like table 3 to estimate the effects of time and cross country dummy variables on dependant variable labor productivity. These fixed effects are shown in sub columns (i), (ii), (iii) of every column of the table four. The fixed shows the little variance from the original equation. It means that there is more significant results we have found when we used the time dummy variable in sub column (i), and also with cross section dummy variable in sub column (ii) and we have found the most significant results when we use both time as well cross countries dummy variables in sub column (iii). There is more significant impact on labor productivity of the FDI/GDP and GDP growth rate and other control variables.

Now in table 5, we take the FDI/GDP as the dependent variable, and independent variable is labor productivity and financial markets with the collaboration of control variables as GDP growth rate, population growth rate, real interest rate, government consumption, real effective exchange rate, trade and institutional quality in first set of control variables. In second set of control variables we exclude the GDP growth rate from first set. In first column we do not take the financial market indicator and labor productivity as independent variable. We have just taken the control variables and see their impact on FDI/GDP ratio. The results with first set of control variables are shown in column (1). Results show that GDP growth rate of Asian countries has positive and significant impact on FDI of Asian counties in absence of financial markets. It shows significance at 1%, government consumption, and trade also shows the positive and significant impact on FDI/GDP.

Table 5

Dependent variable: FDI/GDP																
	1				2				3				4			
		I	II	III		I	II	III		I	II	III		I	II	III
GR	0.45975	0.384497	0.267987	0.166629	0.392679	0.313683	0.274388	0.156879	0.511931	0.448569	0.20805	0.060303	...	...	...	...
	[5.993859]***	[4.730276]***	[3.573226]***	[2.041989]**	[4.751756]***	[3.59549]***	[3.561259]***	[1.87556]*	[4.991962]***	[4.209442]***	[2.166695]**	[0.521756]	...	...	...	...
INST	0.267485	0.239715	5.001255	5.001255	2.658014	2.581107	3.362285	1.951031	3.101743	2.812093	2.509527	2.974939	6.761186	5.983392	3.459567	3.086038
	[0.334231]	[0.239715]	[2.691013]***	[2.691013]	[1.747983]*	[1.742497]*	[1.148568]	[0.65535]	[1.728847]*	[1.622666]	[0.733378]	[0.850979]	[3.775386]***	[3.582252]***	[1.001613]	[0.887772]
GC	0.194756	0.200289	0.164972	0.124125	0.219895	0.226904	0.171062	0.11352	0.359096	0.368589	0.061359	0.02203	0.293954	0.311978	0.003083	0.004339
	[4.607909]***	[4.875176]***	[1.713494]*	[1.312146]	[4.828525]***	[5.122643]***	[1.736082]*	[1.1742]	[6.136912]***	[6.651337]***	[0.56213]	[0.198929]	[4.712152]***	[5.422453]***	[0.028632]	[0.041314]
POP	-0.780112	-0.62219	0.149699	1.402154	-1.013545	-0.878705	0.273101	1.568254	-0.864306	-0.663237	-0.301016	0.518319	-1.485025	-1.194452	-0.099556	0.644682
	[-3.093323]***	[-2.511925]**	[0.157778]	[1.423171]	[-3.342882]***	[-2.945264]***	[0.282688]	[1.567531]	[-2.572854]**	[-2.024983]**	[-0.258573]	[0.40425]	[-4.351114]***	[-3.692676]***	[-0.084294]	[0.513972]
RR	0.013731	0.056544	-0.134798	-0.112986	0.028045	0.071533	-0.145206	-0.112666	0.043879	0.114252	-0.099067	-0.121002	0.0381	0.122133	-0.123685	-0.129326
	[0.402801]	[1.595539]	[-3.144909]***	[-2.38029]**	[0.812493]	[1.992597]**	[-3.245998]***	[-2.318761]**	[1.110952]	[2.778516]***	[-1.670435]*	[-1.811999]*	[0.882415]	[2.778154]***	[-2.087793]**	[-2.001995]**
TRD	0.028888	0.027892	0.040448	0.036782	0.029207	0.027138	0.045194	0.044077	0.025667	0.023208	0.044081	0.03547	0.030311	0.026302	0.048258	0.03602
	[4.342758]***	[4.32877]***	[2.098387]**	[1.906552]*	[3.994292]***	[3.81529]***	[2.185978]**	[2.131575]**	[3.32614]***	[3.178529]***	[1.867257]*	[1.443997]	[3.617883]***	[3.383135]***	[2.015212]**	[1.473349]
LPD	...	...	...	...	...	...	...	...	-0.0006	-0.0007	0.000284	0.000177	-0.0000115	-0.0000355	0.000296	0.000167
	...	...	...	...	...	...	...	...	[-1.603552]	[-2.059667]**	[2.835346]***	[1.345923]	[-0.280557]	[-0.9375]	[2.913715]***	[1.290982]
FMK	...	...	...	...	-1.736595	-1.611811	1.309177	2.023777	-1.512517	-1.155945	3.118099	2.837839	-4.181715	-3.356992	2.521423	2.764793
	...	...	...	...	[-1.957688]*	[-1.867555]*	[0.612619]	[0.953633]	[-1.31756]	[-1.048451]	[1.283669]	[1.16456]	[-3.764027]***	[-3.231565]***	[1.026516]	[1.140794]
Constant	-4.102085	-4.024886	-11.00136	-10.10636	-5.920329		-10.2818	-9.162354	-8.22696	-8.021064	-12.46144	-9.964818	-7.688653	-7.548004	-11.96915	-9.476279
	[-3.327844]***	[-3.32986]***	[-3.825672]***	[-3.564843]***	[-3.879762]***	[-3.878657]	[-3.16593]***	[-2.860007]***	[-4.557807]***	[-4.706155]***	[-3.048329]***	[-2.270396]**	[-3.90181]***	[-4.147024]***	[-2.881218]***	[-2.218388]**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Time fixed effects	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no
Country fixed effects	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes	no
Both fixed effects	no	no	no	yes	no	no	no	yes	no	no	no	yes	no	no	no	yes
R-squared	0.409936	0.475572	0.758455	0.78827	0.423713	0.487809	0.756849	0.790256	0.486959	0.573189	0.775525	0.797352	0.3813	0.506848	0.765193	0.796772

Notes: Dependent variable is FDI/GDP. Robust t-statistics are in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%. Financial market depth is measured by private credit + bank credit. Controls variables divided in 2 sets, first set includes a subset of population growth rate, exchange rate, real interest rate, trade, and government consumption, GDP growth rate and institutional quality. And in second set GDP growth rate is excluded.

In column 2 of table 5, we take the first independent variable, financial markets and take this with first set of control variables. Financial market indicators show significance at 10% but do not show the robust positive impact on the FDI/GDP. By adding financial market indicators, it also significant the institutional quality of finance institutes. That means if quality of financial institutions improved it could have significant impact on FDI. In column 3 we add labor productivity and financial markets as independent variables, with the first set of control variables. Result in column 3 shows that both labor productivity and financial markets do not have the robust positive impact on FDI/GDP ratio. And they also do not show the significance. But there is the significant impact of the control variables.

In column 4 of table 5, we take the second set of control variables in which GDP growth rate is excluded. In column 4 both labor productivity and financial markets are taken as independent variables. Results show that in absence of GDP growth rate control variables financial markets show significance at 1% but it still do not show the robust positive impact on FDI/GDP. And labor productivity does not show the robust positive impact as well as do not show significance.

In table 5, we have also shown the fixed effects in sub columns (i),(ii),(iii), as in column (i) period fixed effects are shown , in column (ii) countries fixed effects are shown and in column (iii) both time period and countries cross section fixed effects are shown. The time fixed effects shows only a little effect on the dependant variable FDI/GDP of the independent variables and control variables, but cross section fixed effects and combined time and cross section fixed effects shows more robustness and more significant results.

5. Conclusion and Recommendations

FDI in such Asian countries is increasing where financial markets are developed like China, Japan and Singapore and growth rate of economies is higher when economies are open for international trade. In this paper, the effect of FDI on growth through financial markets by using different economic and financial variables is also investigated. We have found that domestic financial system of Asian countries plays very important role in FDI because it mobilizes all financial resources. Fortunately, developing Asia has made a great deal of progress in building up a more robust and efficient financial system since the Asian crisis as a result of extensive post crisis reform and restructuring. The main channel through which FDI can permanently increase the economic growth rate is by transferring the technology, productivity spillovers and externalities (De Mello, 1997). Policy makers of Asian countries should focus on foreign capital inflow. It is found in our study that the trend of European and American Corporations toward investment in Asia is raising. The strong financial system and friendly investment policies and other incentives for foreign corporations bring them in Asia for business and for that government of Asian countries has to play very positive and sincere role.

Appendix

a. List of Asian countries used in research**.**

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, China, China, Hong Kong Special Administrative Region, China, Macao Special Administrative Region, Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea, Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Maldives, Nepal, Pakistan, SriLanka, Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam, Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordon, Kuwait, Lebanon, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen.

Source of list: UN

b. list of variables

Data Sources and Descriptions

***Foreign direct investment(FDI)*:** The net FDI inflows measure the net inflows of investment to acquire a lasting management interest (10 per cent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital as shown in the balance of payments. Source: IMF International Financial Statistics.

Output levels and Growth(GR): Output level and growth data is the growth of real per capita GDP, constant dollars. Source: World Development Indicators (WDI), World Bank (2000).

***Labor Productivity growth rate(LPD)*:** we use labor productivity growth rate as proxy of total factor productivity. Source: World Development Indicators (WDI), World Bank (2000).

***Liquidity (LLY)*:** Liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of the financial intermediaries and nonbank financial intermediaries) divided by GDP. Source: World Bank Financial Structure Database.

***Private credit (PRIVCR)*:** The value of credits by financial intermediaries to the private sector divided by GDP. It excludes credit issued by central and development banks. Furthermore, it excludes credit to the public sector and cross-claims of one group of intermediaries on another. Source: World Bank Financial Structure Database.

***Bank credit (BANKCR)*:** Credit by deposit money banks to the private sector as a share of GDP. Source: World Bank Financial Structure Database.

***Commercial–central bank (BTOT)*:** Ratio of commercial bank domestic assets divided by central bank plus commercial bank domestic assets. Source: World Bank Financial Structure Database.

***Domestic investment (INV)*:** 'Gross domestic investment' measuring the outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Source: World Bank (2000).

***Inflation(I)*:** Percentage changes in the GDP deflator. Source: World Bank (2000).

***Government consumption(GC)*:** Total expenditure of the central government as a share of GDP. It includes both current and capital (development) expenditures and excludes lending minus repayments. Source: World Bank (2000).

***Trade volume(TRD)*:** Exports plus imports as a share of GDP. Source: World Bank (2000).

***Population growth rate(PoP)*:** population growth rate of every Asian countries is used. Source: World Bank (2000).

Real Exchange Rate(REER): Calculated as the ratio of local price index to the multiplication of the US price index and the official exchange rate. Source:World Bank

Real interest rate(RR): Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.

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