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Financial Sector Development, FDI and Economic Growth in China

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Abstract

The economics-literature, drawing on endogenous growth theory, suggests that the level of financial sector development may influence foreign direct investment and its impact on the diffusion of technology in the host country, thereby increasing the rate of economic growth. Little attention, however, has been devoted to confirm or reject this link for China. This paper fills this gap by including measures of financial sector development in the growth regression. The Generalized Method of Moments system estimation is applied to data for 28 Chinese provinces over the period 1986-2003. We show that the interaction between foreign direct investment and indicators measuring the degree of market-oriented financing enhance economic growth.

Keywords: Financial development; Foreign direct investment; Economic growth; China

JEL Classification: F21, F36, G20, O11

I. Introduction

The past decades has witnessed a dramatic increase in foreign capital flows to China, of which foreign direct investment (FDI) has played a crucial role. The stock of FDI increased from a mere USD 25 billion in 1990 to USD 610 billion in 2005, and in 2003 China took the place of the United States as the greatest FDI recipient country. Several factors contributed to this rapid growth, including the move towards economic liberalization, low cost of labour, and advances made in technologies. The economics-literature explains well the short-term consideration, such as the determinants and consequences of such inflow to China. Less understood, on the other hand, is how the response of economic growth to FDI varies with the level of development of the financial sector; an intrinsically important question as financial integration becomes a reality for China.

The claim that domestic financial intermediation may influence economic growth is well documented and based on an extensive literature that has developed over the last decade, drawing on developments in endogenous growth theory. This body of work, reviewed by Levine (1997, 2005), emphasizes how improved domestic financial intermediation can promote economic growth through its effect on capital accumulation[1]. Remarkably but true, this literature not only suggests that economic growth rarely occurs without a functioning financial system but that the level of domestic financial sector development may influence FDI and its impact on the diffusion of technology in the host country thereby increasing the rate of economic growth. Thus, the level of development of China's financial system, reflected in its ability to exercise functions such as mobilizing savings, helping to allocate capital, and facilitating risk management, is likely to influence the extent to which economic growth respond to FDI and the inflow of foreign capital in general.

While little attention has been devoted to confirm or reject that claim for China, Bailliu (2000), and Hermes and Lensink (2003) provide evidence that for international capital inflows to have both positive spill over effects and a significant impact on economic growth, the domestic financial sector must have a certain minimum level of development. These results are confirmed by Alfaro *et al.,* (2004) and Durham (2004) who provides evidence that only countries with well-developed financial markets gain significantly from FDI in terms of their growth rate. On the other hand, Aghion *et al.*,

[1] See McKinnon, 1973; Shaw, 1973; Levine *et al.*, 2000; Beck *et al.*, 2000.

(2006) claim that only in those countries with relatively less developed technology could local financial development play a positive role in the link between FDI and economic growth.

The lack of empirical evidence on the consequences of financial sector development to the response of economic growth to FDI in China is partly due to the fact that the literature on FDI in recent years has focused on shorter-term considerations, such as the determinants of FDI and the consequences of such inflow. This research agenda has likely been influenced by the rapid inflow of foreign capital to the Chinese economy along side the more than decade-long high growth[2]. There is no doubt that existing work in this field has improved our understanding of what determines FDI and its overall impact in China. However, to achieve a more complete understanding of the potential ramifications of FDI in China, research should also address the longer-term consequences of financial sector development. To the authors' knowledge, no existing study has examined whether there is evidence that the level of domestic financial sector development is a factor in the link between FDI and economic growth in China in the context of an econometric framework that controls for the determinants of economic growth.

This paper helps to fill this gap in the literature. This is done in the econometric analysis by including various measures of the development of China's financial sector (such as financial depth, the level of state intervention, and the degree of market-oriented financing) in the growth regression. A dynamic panel-data methodology is used that controls for province-specific effects and accounts for autocorrelation and the potential endogeneity of the explanatory variables.

We find evidence that the interaction between FDI and traditionally used indicators of financial sector development, as well as indicators measuring the level of state interventionism in finance are generally negatively associated with economic growth, while the interaction between FDI and indicators measuring the degree of market-oriented financing in the economy promote economic growth.

The paper is structured as follows: The next section presents an overview of China's financial system, FDI, and the finance-growth nexus. The data and descriptive statistics are presented in section 3, empirical results are discussed in section 4, and finally a

[2] See Zhang and Ouyang (2003); Cheung and Lin (2004); Prasad and Wei (2006). For a discussion on absorptive capacity: Makki and Somwaru, (2004). For a discussion on FDI, economic growth and the threshold effect: Borensztein *et al.,* (1998). For spillover channels: Blomström and Kokko (1998); Lipsey (2002).

summary is provided in section 5.

II. Financial System, Foreign Direct Investment and Economic Growth in China

Development of China's financial system

The abandonment of the single-banking system in 1979 marked the beginning of China's financial reforms[3]. The Agriculture Bank of China, the People's Construction Bank of China and the Bank of China were split from the People's Bank of China (PBoC), which formally became the country's central bank. Each of the three specialized banks was to provide services to a designated sector of the economy respectively dealing with banking in rural areas, investment in manufacturing, and foreign currency transactions. A fourth specialized bank, the Industrial and Commercial Bank of China, which took over all commercial transactions, was created in 1984. In the following year the restrictions limiting each bank to its own designated sector were lifted and the four banks were allowed to compete with each other in providing loans and deposit services. Competition, however, remained limited until the mid-1990s as the banks continued to serve as policy lending conduits for the government, and lacking the requisite autonomy to compete (Wong and Wong 2001).

The Central Bank Law and the Commercial Bank Law in 1995 further deepened China's financial reforms. It allowed the rest of the state-owned banks (SOBs) to concentrate on commercially-oriented lending and emphasized the need for financial institutions to incorporate commercial criteria into their lending practices. As such, both laws lay the basis for building a modern banking system in China. A number of non-state owned banks entered the financial system, including urban and rural credit cooperatives, trust and investment companies, financial companies, and other institutions. Limited licenses were granted to foreign banks which further reduced government intervention in credit allocation, interest rate control were loosened, and standard accounting and prudential norms was recommended (Shirai, 2002).

The Chinese government also set up three state banks with special functions: the State Development Bank, the Agricultural Development Bank of China, and the Export and Import Bank of China, with the mission for implementing government steering policy and providing funds for reconstruction projects. The separation between policy banks and commercial banks was, however, far from complete. The policy banks lacked

[3] For a comprehensive description on the evolution of China's financial system the readers are directed to Wong and Wong (2001); Shirai (2002); Naughton (2006) for well-regarded studies.

sufficient branch networks or capital to engage in the level of policy lending previously provided by the specialized banks and, hence the commercial banks continued to engage in policy lending in one form or another (Wong and Wong, 2001)[4]. Although policy lending limited competition among state commercial banks, the entry of new banks created a new source of competition in the industry. A further impulse for changes in the banking sector in China came about with China's entry into the World Trade Organization (WTO) in 2001. Progress includes fewer restrictions on ownership, increased operational freedom and declining rates of non-performing loans. With China's accession into the WTO, further penetration of the foreign banks and increasing competition are also predicted.

With increasing competition we would also expect a decrease in overall concentration of SOBs. Table 1 shows that in terms of its share in deposits and loans, SOB overall concentration have decreased significantly with both measures declining from above 90 percent to about 50 percent over the 1990-2003 period. This, however, is not strong enough evidence to say that the dominance of the SOBs has disappeared and as such, the transition to a modern and competitive- oriented banking sector is still to be achieved[5]. Boyreau-Debray and Wei (2004) further suggest that the level of capital mobility within China is low, and that China's financial markets remain fragmented across regions as a result from direct and indirect government control over interest rate and resource allocation (World Bank 2003)[6].

[Table 1 about here]

During the last decade, China's private sector has been an increasingly dynamic component in the Chinese economy and a powerful engine for economic growth (Hua *et al.,* 2006). Development of financial intermediation in general, and through its credit expansion to the private sector in particular, is likely to increase support to the growth of this rapidly growing sector. Table 2 presents five financial indicators that describe China's financial system and the development of financial intermediation; (i) the ratio of money and quasi-money to GDP – (*M2/GDP*), (ii) the ratio of total financial assets to GDP – (*FIR*), that is., the financial intermediation ratio (iii) The gap between the ratio of total

[4] The PBoC do not constitute an independent entity and remain subject to government control.
[5] Until 1998, the four state-owned commercial banks were instructed to lend to SOEs. The system was liberalized at the end of 1990s and theoretically it is not in place any more.
[6] See also Guillaumont and Hua (2002).

financial assets to GDP and the ratio of total loans to deposits of SOBs, that is., the financial marketization ratio – (*FMR*), (iv) the ratio of non-bank credits to GDP – (*NBC/GDP*), and (v) the ratio of household saving deposits in financial intermediaries relative to GDP – (*HHSFI/GDP*).

[Table 2 about here]

The indicators show that financial deepening (M2/GDP) has increased significantly from 82 percent in 1990 to 189 percent in 2003. This is much higher than most economies and higher than East-Asian economies such as Japan. The substantial increase in this ratio, and including HHSFI/GDP and FIR, means that financial resources are available for investment in China. The other indicators confirm a rapid financial development is taking place in China.

The financial reform program also continuously rehabilitates the balance sheets of the four largest SOBs as large scales of non-performing loans (NPL) in China's banking sector continue impede the further development of financial intermediaries[7]. These problems are partly dealt with by the four asset management corporations established in 1999 with the objective of taking over a large fraction of NPL and bad debts from the SOBs. Although still high by the standards of industrialized countries, this high level of NPLs may not have appropriately reflected the efficiency of financial institutions since the capital of SOBs does not reflect their ultimate liabilities when their owner (China's government) is willing to back them.

China's emerging capital markets have also experienced significant development. Since the opening of the Shanghai and Shenzhen Stock Exchanges in the early 1990s, China's stock market has rapidly expanded. The enactment and implementation of the Securities Law in 1999 provided detailed rules and legal basis to regulate the investors and the listed companies. Since then, China's stock market has played an increasingly important role in the Chinese economy, by facilitating capital raising, promoting domestic investment, and improving efficiency of financial resource allocation. Furthermore, rapid developments have also occurred in China's bonds market, money market, foreign exchange market, and other aspects of the financial sector.

Although China's financial system is not yet developed according to the standards of

[7] Heavy burden of 'policy lending', poor banking operation and management, soft budget constraint because of insider control and government intervention, and the lack of sufficient regulation and monitoring have long been recognized as the main causes to the accumulation of NPL in China.

industrialized countries, there have been a steadily development of the country's financial system. Not only has asset quality, capital adequacy and management been improved, but the financial system has also demonstrated robustness to financial fragility as compared to those countries badly hit during the Asian financial crisis.

The development of foreign direct investment in China

China's high rate of economic growth since the adoption of more liberal policies in the late 1970s is an astonishing accomplishment in several respects and by almost all accounts, FDI has been one of the major success stories of the past 15 years or more. From 1949 until 1979, China had been closed entirely to FDI but as part of a series of reform a partial opening was implemented in 1979. In its early stages, FDI was restricted to China's four Special Economic Zones and limited to equity joint ventures. In 1984, a new foreign investment law was adopted to accelerate FDI growth and a number of preferential policies were used by both central and local governments to attract FDI. This radically improved both the institutional framework and the general investment climate. A sharp increase in foreign investor's confidence to invest in China occurred after 1992 when China reaffirmed policies of openness and market-oriented reforms introduced earlier. This proved very successful.

In 1985, annual FDI inflow were less than USD 2 billion, while in 2005, they were USD 63 billion. Although the late 1990s saw a small decrease in FDI inflows, the annual growth rate of FDI inflows to China increased to over 10 percent after China joined the WTO in 2001. The stock of FDI increased from a mere U$D 25 billion in 1990 to U$D 610 billion in 2005. In 2003 China took the place of the United States as the greatest FDI recipient country, and in 2005 China became the world's fourth largest FDI-stock country, only after the US, United Kingdom and Germany. If we take into consideration the gap between China and developed economies in total capital formation, the role of FDI in the capital formation process and thus for economic growth, becomes even more important. According to Huang (2003), the ratio of FDI inflow to capital formation in China's non-state sectors reached about 26 percent in average in the 1990s, which is next only to Singapore (30.3%) in main Asian countries. And as noted by Whally and Xin (2006), China's foreign invested enterprises may have contributed more than 40 percent of China's economic growth in 2003 and 2004. Although there are significant disparities across regions, every province has achieved high growth rates. It is also commonly known that FDI has significantly benefited the coastal regions and to a lesser extent

interior regions. Finally, China's FDI inflows falls into two categories. One is horizontal FDI involving the transfer of production from abroad to China to service the Chinese internal market. The other is vertical FDI which seeks to take advantage of low cost production for export of products abroad.

Financial sector development, FDI and economic growth in China: Empirical evidence

Over time, a number of studies have looked separately at the links between indicators of financial sector development and growth on the one hand, and the link between FDI and economic growth on the other hand. Rather than providing the reader with affirmative conclusions, these studies have yielded remarkably contrasting results.

For instance, Laurenceson (2001), using Chinese national level data, concluded that investment financed through domestic loans has been productive, at least when compared with other investment financing sources. Similar results were obtained by Liu and Li (2001) who attempted to shed light on the same issue using provincial data. But, Aziz and Duenwald (2002) dismiss financial development as a catalyst for growth among Chinese provinces. Using a similar approach, Boyreau-Debray (2003) finds that credit extended by the banking sector has a negative impact on growth. But these facts neither are undisputed and a more recent study by Hao (2006) finds that Chinese growth has been fostered by the substitution of loans for state budget appropriation, but not by loan expansion. These findings are challenged by Cheng and Degryse (2006), Guariglia and Poncet (2006), and Guillmont *et al.*, (2006) who argue that banking sector development spurs economic growth in China.

Generally speaking, the empirical literature on FDI in China could be categorized into two groups: Those who investigate the cause of the large FDI inflow and those who investigate the consequence of such inflow. That is, economists raise and try to answer two questions: Why would China absorb so much FDI consistently for two decades, and what is the impact of that FDI.[8] But although FDI in China has stimulated growth in income that would almost surely not have been realized in the absence of this investment, the results remain contrasting[9]. A majority of empirical studies supports the growth enhancing effect of FDI in China through various links (Whalley and Xin, 2006; Tseng and Zebregs, 2002; Sun and Parikh, 2001; Berthelemy and Demurger, 2000; Borensztein *et al.*, 1998). But other studies conclude that technology transfer and the spill over effects

[8] See Cheung and Lin (2004).

[9] For an overview of the literature on the relationship between FDI and economic growth: Borensztein *et al.,* (1995); Bende-Nabende and Ford (1998).

are more limited, and argue that much if not most of the correlation between FDI and superior economic performance is driven by reverse causality (Yong and Lan, 1997; Rodrik, 1999).

III. Data and Description of Variables

The key data used in this paper are indicators of financial depth, financial sector development and distortions, as well as measures of real economic growth and its sources. The sample consists of a panel of 28 provinces in Mainland China for the period 1986 to 2003[10]. The data is compiled from the China Statistical Year Book (1990-2004) and the Comprehensive Statistical Data and Materials on 50 Years of New China (1999)[11]. All monetary values are converted to 1990 constant prices by using provincial GDP deflator.

Indicators of financial sector development

The main purpose of our empirical analysis is to investigate whether the development of the financial sector is a factor in the link between FDI and economic growth. To asses the robustness of our results the present paper categorizes nine indicators into three groups following Guarglia and Poncet (2006). The three groups of indicators are measures of financial depth; misallocation of financial resources; and, market-oriented financing respectively. These indicators allow us to account for both size and a quality effect of financial intermediaries.

Group 1: Indicators of financial depth:

It is difficult to construct accurate financial depth indicators of China, especially at the provincial level, since the data related with monetization variable (say M2 over GDP) is only available at national level. Goldsmith (1969) suggested an indicator defined as the ratio of total financial assets to GDP to represents the financial structure and financial development of one country or region, popularly called the financial interrelation ratio, FIR. In this paper we use a similar variable to measure the financial deepening, or banking sector size, of a province defined as the ratio of total (bank and non-bank) credits to GDP (*Finance 1*). The second indicator is defined as the ratio of household

[10] China is administratively decomposed into 31 provincial units which fall into three categories: provinces (a total of 22), autonomous regions (a total of 5), and municipal cities (a total of 4). Tibet, Sichuan and Chongqing are excluded from our sample due to data constraints.

[11] We are grateful to Alessandra Guariglia and Sandra Poncet, and Yao Yang for providing additional data of financial indicators.

saving deposits to GDP (*Finance 2*). This indicator excludes corporate deposits, which might be affected by central government's credit policies. As argued by Hao (2006), household's deposits are based on households own decisions, and are much less influenced by central government policies. These two indicators measure the financial resources that are available for investment in China.

Group 2: Indicators for misallocation and distortion

To evaluate the specific impact of misallocation of funds we rely on two indicators measuring the role of state interventionism induced distortions in the financial sector. The first indicator is the ratio of loans to deposits, which serves as a proxy for centre re-lending (*Finance 3*). We follow the previous literature and consider this to be a measure of the Central Bank's credit to local branch banks aimed at helping them to meet their lending quotas (Boyreau-Debray, 2003; Guirgilia and Poncet, 2006). Thus, this is a measure of the interventionism of the Central Bank. In China, while the volume of deposits is determined by economic activity, the volume of lending is largely determined by policy objectives and is set through a credit plan independently of branch banks in each region to finance the lending target from local deposits.

As pointed out by Boyreau-Debray (2003), some rapidly growing provinces could therefore have a low credit quota and be constrained in their lending relative to the rapid growth of their deposits. Alternatively, branch banks in slower growing regions could be assigned high quotas with insufficient local deposits to finance their lending: these provinces would depend on the Central Bank to lend them additional funds. The second indicator in this group aims at measuring the relative size of the state-owned banks, which is given by the ratio of SOBs credits to total bank credits (*Finance 4*).

Group 3: Indicators for market-oriented financial transactions

The precondition of the efficiency of financial systems is the marketization process of financial markets, which implies that financial resources should be used under the condition of profit maximization. In this paper we rely on the information of the decomposition of fixed asset investment by resource, which includes domestic loans, state budgetary appropriation and retained earnings. Retained earning is usually recognized as the hardest constraint for financing, while domestic loans are softer, although it is harder than budgetary appropriation in the sense of misallocation and distortion. The directions of financial resources can also proxy for the efficiency when

they are used.

Another indicator of financial sector development in different regions is defined as the ratio of real non-bank credits to GDP, which measure the level of marketization in the financial system. Finally, we also use the ratio of credits to private sectors. We borrow this indicator from Lu and Yao (2004), who derive the indicator by dividing short-term credits to non-state sectors by total credits. This indicator serves as an instrument for the efficiency of domestic financial development.

There are altogether five indicators in this group: (i) Fixed asset financed by domestic loans to state budgetary appropriation (*Finance 5*), (ii) The ratio of fixed assets financed by self raised funds to total credits (*Finance 6*), (iii) Fixed asset financed by budgetary appropriation to total credits (*Finance 7*), (iv) the ratio of real non-bank credit to GDP (*Finance 8*), and (v) The ratio of credits to private sectors (*Finance 9*).

Financial sector development: a factor in the link between FDI and economic growth

Here, we construct an interaction term between the proxy for FDI and the financial development indicators. These interaction terms are then used to evaluate whether the development of the financial sector is in fact a link between FDI and economic growth. In Alfaro *et al.,* (2004), they simply multiply the FDI variable with financial indicators. In the present paper we first use the value of FDI over GDP (*FDI*) as the proxy for FDI and then multiply by the various financial indicators. We also construct a dummy by comparing the value of one financial indicator in a specific year to its average value across different regions in that year and multiply by the proxy for FDI. If the finance indicator is larger than average, then we set the dummy as one, otherwise zero. Finally, the FDI variable is multiplied with the finance variable when that is larger than a threshold, which is also given by the average value of a financial indicator. Thus, the latter two specifications investigate whether the interaction between FDI and a higher level than average of the finance indicator exert a positive or negative effect on economic growth. We have three indicators: (i) *FDI*Financial*, (ii) *FDI*Dummy* and, (iii) *FDI*Finance* (threshold).

Indicators of economic growth

The methodology follows the voluminous growth literature, which was initiated by the

seminal paper of Barro (1991)[12]. The present paper, however, add a novelty to the existing literature by adding a new variable in the growth regression - the percent of GDP per capita in one province of one year relative to the total of all provinces in that year (*GDPRATIO*). The construction of this variable is motivated by the fact that macroeconomic data are in some sense always endogenous and relate to each other. In the standard case, we minimize the endogeneity problem, by using a dynamic panel-data model as the basic specification with the chosen indicator for annual growth. But, while traditionally, economists use annual growth rate or the absolute value of GDP per capita as the dependent variable, both of them may cause some problems in this respect: In a dynamic panel-data specification, variables are differenced before regression analysis begins. But, growth rate itself is a difference, and another difference on this difference would have little sense in representing the variation of growth.

As for GDP per capita, it measures the change in absolute value, and its difference in scale with other indicators which we would use (various ratios between zero and one, for instance presenting financial development) might cause sensitivity problem in the estimation. To avoid these potential problems, we use our new indicator for growth: the percent of GDP per capita in one province of one year relative to the total of all provinces in that year (*GDPRATIO*). This indicator, which varies between 0 and 1, will be an absolute value in each year, and its variation represents the annual growth from one year to the next. In addition, it not only captures the growth of one province in a specific year, but it also contains the information of relative development across different provinces.

Control variables

The economic growth category includes control variables such as: government expenditure over GDP (*GOV*) as a measure of the scale of government, length of railway per square kilometer (*HW*) as a proxy for transportation development, and the ratio of total trade to GDP (*OPENNESS)*. To ensure that the interaction term of FDI and financial indicators does not proxy for FDI or the level of development of financial sector alone, both of the latter variables, i.e. FDI and financial indicators, should be included in the regression independently. The summary statistics of all variables are presented in Table 3.

[12] Although economists have a long way to go before they reach a consensus about which variables should be included in their growth regression, Sala-I-Martin (1997a and 1997b) provide a useful method to test for the robustness of different variables in explaining economic growth.

[Table 3 about here]

IV. Empirical Analysis

Model specification

This section presents the specification of our empirical model. To avoid the endogeneity problem, we construct a dynamic panel-data model as follows:

$$y_{it} = \alpha_i + \beta_1 y_{it-1} + \beta_2^{'} X_{it} + \varepsilon_{it} \tag{1}$$

where y and X represent *GDPRATIO* and independent variables respectively; α_i represent fixed individual differences between each province; ε_{it} are error terms. First difference of equation (1) would eliminate the fixed specific effects of each province and therefore we get

$$y_{it} - y_{it-1} = \beta_1 (y_{it-1} - y_{it-2}) + \beta_2^{'} (X_{it} - X_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) \tag{2}$$

For estimation of equation (2), we use the system of Generalized-Method-Moments (GMM) panel estimator proposed by Arellano and Bond (1991), and Blundell and Bond (1998)[13]. In order to control for the possible endogeneity of the regressors, we use once lagged first differenced of the regressions as instruments in the level equation. The inclusion of the regression in levels in addition to that in first differences help to cope with weak instrument biases.

The consistency of GMM estimator depends on the validity of the assumption that $\varepsilon_{it} - \varepsilon_{it-1}$ does not exhibit serial correlations and the validity of the instruments. Therefore, we use the AR (2) test and the Sargan test to test for second order serial correlation and over-identifying restrictions, respectively. Failure to reject each of the null hypotheses of both tests would guarantee the feasibility of this model.

[13]The GMM estimator has been widely used in recent empirical analysis, particularly in the studies of macroeconomics and finance. This method has a number of advantages: the GMM estimator is good in exploiting the time-series variation in the data, accounting for unobserved individual effects, allowing for the inclusion of lagged dependent variables as regressors, and therefore providing better control for endogeneity of all the explanatory variables. See Beck *et. al., (2000)* for a complete discussion of the advantages and limitations of GMM estimators.

The results

As previously explained, the aim of this paper is to empirically investigate whether the development of China's financial sector is a factor in the link between FDI and economic growth. Therefore, the empirical analysis focuses first-and-foremost on the interaction terms between FDI and the finance indicators, but also take into consideration aspects of the FDI variable and finance indicators alone. Table 4 to Table 12 reports estimates of equation (2) using each of the nine financial indicators as the independent variable in the regression and, hence directly provide the results of central interest of this paper.

We begin by providing the general results: The regressions satisfy the specifications tests, that is., all results are proved to reject the null hypothesis of second order autocorrelation, and they pass the Sargan specification test. The coefficients of the lag of *GDPRATIO* are significantly positive in all nine tables, and thus display a strong relationship with the dependent variable from one period to the next. Also our proxies for openness, the share of government investment and transportation enters as positive and significant determinants of economic growth.

Group1: Indicators of financial depth

Tables 4 and 5 report estimates of equation (2) using the two measures of financial depth in each province as finance indicators, that is., the ratio of real total credit to GDP and the ratio of household savings to GDP. The outcomes in the Tables show that FDI is positive and significantly related to economic growth. The interaction terms are negative and significant in this group using any of the three alternative specifications. That is, the results remain unchanged whether or not we use a higher than average value of the finance indicator in the regression. When entered as a single variable, the *Finance 1* and *Finance 2* indicators in Table 4 and Table 5, also displays a significantly negative relationship with economic growth. A somewhat cautious interpretation of the results given by the threshold model may be warranted due to a fewer number of observations used in the regression. But, the problem noted, these results at least crudely support our conclusion.

[Table 4 about here]

Our findings contrast with the typical conclusion of most cross-country studies that have analyzed the finance-growth nexus, finding a positive link between financial depth and economic growth. On the other hand, they confirm the findings for China in Guarglia and Poncet (2006). The present paper suggests that these negative effects spills-over to the interaction between FDI and the finance indicators. As explained in Naughton (2006), China has a far deeper financial system than any other major transition economy. But, this achievement also had costs. With a banking system full of cash, government officials have naturally been tempted to use bank surpluses to finance SOEs. Indeed, financing for these firms shifted toward reliance on bank financing during the mid-1980s. In part, this change was a conscious policy response to the decline in budgetary revenues from costless budgetary grants to interest-bearing, repayable loans. Thus, our findings are at least partly attributed by the policies which promoted inefficient allocation of savings as SOBs were forced to lend on non-commercial terms thus forcing the intermediation of savings into capital with low returns on the margin. These facts, in turn, weaken the relationship between FDI and China's domestic financial system, as given by the negative and significant interaction term.

[Table 5 about here]

Group 2: Indicators for misallocation and distortion

Tables 6 and 7 reports the estimates using the two indicators for government intervention in financial resources in a province, that is; the ratio of loans to deposits (*Finance 3*) and the ratio of SOBs credit to total bank credits (*Finance 4*). Larger value of these two indicators would imply more severe intervention. Both Tables reports significant and positive coefficients of the FDI variable alone. Table 6 reports no significant coefficients of the interaction term, while the interaction terms displayed in Table 7 is both significant and negative. The finance indicator alone displays a significant negative relationship with economic growth in both Tables. These findings are attributed to the inefficient allocation of savings by the state-banking sector, as well to the fact that state-owned banks largely – but recently to a lesser extent – support the relatively inefficient state-owned sector.

[Table 6 about here]

[Table 7 about here]

Group 3: Indicators for market-oriented financial transactions

This group of financial indicators represents market-oriented financing. Financial resources of fixed asset are categorized into three types, that is. budget appropriation, domestic loans and self-raised funds. As the budget of these three means of financing tightens, the efficiency is also supposed to be increasing with them. That is, harder budget constraints lead to more efficient use of the capital.

The empirical findings perfectly coincide with this predication. Of particular interest to this paper and, as reported in Table 8, with the ratio of domestic loans over budget appropriation (*Finance 5*) as the finance indicator, we find that the interaction between FDI and the finance indicator display a significant and positive effect on economic growth when the finance indicator is above its average value[14]. Moreover, both FDI and the finance indicator alone are positive and significant in the regression. Thus, the result in Table 8 also give support to the findings in Hao (2006) and imply that the more domestic loans relative to budget appropriation, the more efficient use of the financial resources.

[Table 8 about here]

Table 9 reports that higher shares of self-raised funds have positive and significant impacts on economic growth through its interactions with FDI. Thus, the findings support those reported in Table 8. The FDI variable alone provide mixed results but indicate there is generally a significant and positive effect on economic growth. Table 10 reports that financing through budgetary appropriation exerts a significant negative impact on economic growth by its own means but, more importantly so for this paper, also suggest that its interaction with FDI is negative and significant.

[Table 9 about here]

[Table 10 about here]

[14] As previously noted, the fewer observations used in the threshold specification warrants some concern as to the validity of the results.

Table 11 and Table 12 report the findings using the finance indicators that instrument the efficiency of domestic financial sector development. Table 11 reports the result using credit from non-SOBs, that is., the *Finance 8* indicator. Here the interaction term displays negative and significant coefficients in all three specifications. When entered as a single variable, the *Finance 8* indicator displays a positive and significant coefficient, and so do the FDI variable. These results suggests that financing from non-SOB sources, at least generally speaking, are better utilized than credit provided by the SOBs, but that there is an incomplete relationship between the financial intermediaries and FDI.

[Table 11 about here]

Table 12 reports the results using the ratio of credits to the private sector to total credit (*Finance* 9) as an indicator for the marketization process of financial resources. As we can see from the Table, there is a significantly positive impact on economic growth when credit to the private sector interacts with FDI, while the FDI variable alone displays a significantly negative effect on economic growth. Even though these results warrants concern due to the limited number of observations, the notion that economic growth responds positively to the interaction of market-oriented financing and FDI is noteworthy; follows logic, and is in line with the results previously derived in this paper.
All-in-all, Table 8 through Table 12 suggest that less state interventionism and more market-oriented financing mechanisms is a factor in the link between FDI and economic growth.

[Table 12 about here]

V. Summary

The past decades has witnessed dramatic increases in foreign capital flows to China, of which foreign direct investment (FDI) has played a crucial role. The economics-literature explains well the short-term considerations, such as the determinants and consequences of such inflows, in China. But, as financial integration becomes a reality for China it is intrinsically important that we develop a better understanding of how economic growth respond to FDI and what role the domestic financial system plays in this process. That is, we must also address the longer-term consequences of financial sector development.

This paper is the first attempt to analyze that role in China. So far, this has been largely neglected in the empirical literature on China. The present paper uses a dynamic panel-data model and data for 28 Chinese provinces over the period 1986-2003. We have focused on a wide range of financial indicators, accounting both for the size and the quality of financial institutions, and which represent different functions in China's financial system. Moving beyond the existing literature, we have also introduced new measures of economic growth, as well as interaction between FDI and finance indicators.

This paper support the empirical literature in general, such as Bailliu (2000), Hermes and Lensink (2003), Alfaro *et al.*, (2004), and Durham (2004), and provides new evidence for China in particular, that the development of financial intermediation towards more market-oriented financing is a factor in the link between FDI and economic growth. Although this premise has been gaining popularity, there has been no available econometric evidence to the authors' knowledge to support this claim for China until now. The results also provide further support to Cheng and Degryse (2006), Guarglia and Poncet (2006), and Guillmont *et al.*, (2006) who argue that banking sector development spurs economic growth in China.

China's financial system is not yet developed according to the standards of industrialized countries, but the steady development of the country's financial system do enhance the response of economic growth to FDI. Further adoption of market based lending principles and less state intervention in financing is likely to enhance this effect. Although these results in fact suggest that China might receive more benefits from its domestic financial system than previously understood, the results imply that continued financial sector reforms would provide an even better economic environment for foreign and, hence domestic capital.

Reference

Aghion, Phillippe; Diego Comin; and Peter Howitt. 2005. "When Does Domestic Saving Matter for Economic Growth?" NBER Working Paper 12275.

Alfaro, Laura; Areendam Chanda; Sebnem Kalemli-Ozcan; and Selin Sayek. 2004. "FDI and Economic Growth, The Role of Local Financial Markets." *Journal of International Economics*, 64: 113-134.

Arellano, Manuel, and Stephen Bond. 1991. "Some Test of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *Reviews of Economics Studies,* 58: 277-97.

Aziz, Jahangir, and Christoph Duenwald. 2001. "China's Provincial Growth Dynamics." IMF Working paper WP/01/03.

Bailliu, Jeannine. 2000. "Private Capital Flows, Financial Development and Economic Growth in Developing Countries." Working paper 2000-15, Bank of Canada, July.

Barro, Robert. 1991. "Economic Growth in a Cross Section of Countries." *Quarterly Journal of Economics* 106(2): 407-441.

Barthelemy, Jean-Phillippe; and Sylvie Demurger. 2000. "Foreign Direct Investment and Economic Growth: Theory and Application to China." *Review of Development Economics*, 4(2): 145-155.

Beck, Thorsten; Ross Levine; and Norma Loayza. 2000. "Finance and the Sources of Growth." *Journal of Financial Economics* 58, nos. 1-2:261-310.

Bende-Nabende, Anthony; and Jeffrey Ford. 1998. "FDI, policy adjustments and endogenous growth, multiplier effects from a small dynamic model for Taiwan, 1959-1995." *World Development*, 26: 1315-1330.

Blomström, Magnus; and Ari Kokko. 1998. "Multinational Corporations and Spillovers, *Journal of Economic Surveys*." 12: 247-277.
Blundell, Richard; and Stephen Bond. 1998. "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models." *Journal of Econometrics*, Vol. 87: 115-143.

Borenzstein, Eduardo; Jose De Gregorio; and Jong-Wha Lee. 1998. "How Does Foreign Direct Investment Affect Economic Growth?" *Journal of International Economics*, 45: 115-135.

Boyreau-Debray, Genevieve; and Shang-Jhi Wei. 2004. "Can China Grow faster: A Diagnosis of the Fragmentation of Its Domestic Capital market." IMF Working Paper 04/76. Washington, D.C.: International Monetary Fund.

Cheung, Leonard; and Yum Kwan. 2000. "What are the Determinants of the Location of Foreign Direct Investment? The Chinese Experience." *Journal of International Economics*, 51: 379-400.

Cheung, Leonard; and Hans Degryse. 2006. "The Impact of Bank and Non-Bank Financial Institutions on Local Economic Growth in China." Tilburg University, CentER, No. 2006-82.

Cheung, Kui-ya; and Ping Lin. 2004. "Spill over effects of FDI on Innovation in China: Evidence from the Provincial Data." *China Economic Review*, 15: 25-44.

Durham, J. Benson. 2004. "Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth." *European Economic Review*, 48: 285-306.

Goldsmith, Raymond. 1969. Financial Structure and Development, New Haven: Yale University Press.

Guariglia, Alessandra.; and Sandra Poncet. 2006. "Are financial distortions and impediment to economic growth? Evidence from China." Unpublished manuscript, University of Nottingham, UK., and Université Paris 1 Panthéon-Sorbonne.

Guillaumont, Jeanneney; and Ping Hua. 2002. "The Balassa-Samuelson Effect and Inflation in the Chinese Provinces." *China Economic Review* 13, nos.2-3: 134-60.

Guillaumont, Jeanneney; Ping Hua; and Zhicheng Liang. 2006. "Financial Development, Economic Efficiency, and Productivity Growth: Evidence From China." *The Developing Economies*, XLIV-1 (March): 27-52.

Hermes, Niels; and Lensink RRobert. 2003. "Foreign Direct Investment, Financial Development and Economic Growth." *Journal of Development Studies*, 40: 142-163.

Huang, Yasheng. 2003. "Selling China—Foreign Direct Investment During the Reform Era." Cambridge: Cambridge University Press.

Laurenceson, James; and Joseph Chai .2001. "State Bank and Economic Development in China." *Journal of International Development*, Vol. 13., Issue 2: 211-225.

Levine, Ross. 1997. "Financial Development and Economic Growth: Views and Agenda." *Journal of Economic Literature*, 35, 2: 688-726.

Levine, Ross. 2005. Finance and Growth: Theory and Evidence. Chapter 12 in Aghion, P., and S. Durlauf (EDS): Handbook of Economic *Growth*, The Netherlands: Elsevier Science

Lipsey, Robert. 2002. "Home and Host Country Effects of FDI." NBER Working Paper 9293.

Liu, Tung; and Kui-wai Li. 2001. "Impact of Liberalization of Financial Resources in China's Economic Growth: Evidence From provinces." *Journal of Asian Economics*; 12: 245-262.

Mckinnon, Ronald .1973. "Money and Capital in Economic Development." Washington: Brooking Institution.

Makki, Shirva; and Agapi Somwaru. 2004. "Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries." *American Journal of Agricultural Economics*, 86: 795-801.

Naugthon, Barry. 2006. The Chinese Economy: Transition and Growth, The MIT Press, Cambridge, Massachusetts.

Rodrik, Dani. 1999. "The New Global Economy and Developing Countries: Making Openness Work." Policy Essay No. 24 Overseas Development Council, Washington D.C.

Sala-I-Martin, Xavier. 1997a. "I just ran two million regressions." *American Economic Review*, Vol.87, No.2: 178-83.

Sala-I-Martin, Xavier. 1997b. "I just ran four million regressions." Unpublished manuscript, Columbia University and Universitat Pompeu Fabra.

Shaw, Edwards. 1973. Financial Deepening in Economic Development. Oxford University Press, New York, NY.

Shirai, Sayuri. 2002. "Banking Sector Reforms in India and China: Does India's Experience Offer Lessons for China's Future Reform Agenda?" JBICI Discussion Paper Series, Discussion Paper No. 2.

State Statistical Bureau. 2004. China Statistical Yearbook. China Statistical Publishing House.

State Statistical Bureau. 1999. Comprehensive Statistical Data and Material On 50 Years Of New China. China Statistical Publishing House.

Sun, Haishun; and Ashok Parikh. 2001. "Exports, Inward Foreign Direct Investment and Regional Economic Growth in China." *Regional Studies*, Vol. 35.3: 187-196.

Tseng, Wanda; and Haru Zebregs. 2002. "Foreign Direct Investment in China: Some Lessons for Other Countries." IMF Policy Discussion Paper, PDP/02/3.

Whalley, John; and Xian Xin. 2006. "China's FDI and Non-FDI Economies and the Sustainability of Future High Chinese Economic Growth." NBER Working Paper Series, WP. 12249.

Wong, Richard; and Sonia Wong. 2001. "Competition in China's Domestic Banking Industry." *Cato Journal*, Vol. 21. No. 1: 19-41.

Yong, Ping; and Stephen Lan. 1997. "Technology Transfer to China Through Foreign Direct Investment." *Regional Studies*, 31(7): 669-679.

Table 1: Concentration of deposits and loans: Four State- Owned Bank concentration ratios (%), 1990 – 2003

	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
Deposits	91	72	69	71	70	63	62	59	57	56
Loans	98	68	69	66	69	59	56	54	53	52

Source: China Statistical Yearbook.

Table 2: Development of financial markets, 1990 – 2003 (percent)

	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
M2/GDP	82	104	112	122	133	146	151	163	176	189
FIR	171	177	181	194	225	221	222	237	260	279
FMR	30	58	58	57	54	74	71	68	82	91
NBC/GDP	4	17	20	23	25	24	24	27	25	20
HHSFI/GDP	35	47	54	61	67	71	70	71	75	78

Source: China Statistical Yearbook. M2/GDP = money and quasi-money / gross domestic product; FMR = Financial interrelation ratio; NDC = non-bank credit; HHSFI = household saving deposits in financial intermediaries.

Table 3: Descriptive statistics, 1986—2003

Variable	Mean	Std dev	Min	Max	Obser
Dependent Variable					
GDP per capita ratio	0.036	0.022	0.01	0.125	476
FDI and Controls					
FDI/GDP	0.029	0.041	0	0.241	471
Openness	0.22	0.283	0.03	1.72	476
Government expenditure/GDP	0.131	0.053	0.05	0.35	476
Length of railway per sq. km	0.724	0.579	0.1	2.61	476
Financial Indicators					
Total credits/GDP *(Finance 1)*	0.798	0.316	0.319	2.75	454
Household savings/GDP*(Finance 2)*	0.514	0.289	0.14	2.38	476
Loans/deposits *(Finance 3)*	1.108	0.372	0.422	3.147	476
State-owned bank credits/total bank credit *(Finance 4)*	0.724	0.136	0.44	0.937	450
Financing by domestic loans/state budgetary appropriation *(Finance 5)*	4.68	3.636	0.12	21.54	440
Financing by self-raised funds/ total financing *(Finance 6)*	0.475	0.0918	0.27	0.74	440
Financing by budgetary appropriation /total financing *(Finance 7)*	0.086	0.072	0.01	0.52	440
Non-bank credits/GDP*(Finance 8)*	0.148	0.168	0.037	1.47	454
Credits to private sectors/total credit *(Finance 9)*	0.171	0.072	0.05	0.35	224

Table 4: Financial Indicator: the ratio of real total credits to GDP

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.830 ***	0.839***	0.719***
	(0.017)	(0.0175)	(0.030)
FDI *(D1*)	0.026***	0.018***	0.003
	(0.005)	(0.0041)	(0.004)
FDI (*LD*)	0.0005	-0.0008	0.002
	(0.003)	(0.003)	(0.004)
Openness (*D1*)	0.0027 ***	0.002***	0.004***
	(0.0004)	(0.0004)	(0.001)
Interaction term (*D1*)	-0.0206 ***	-0.0104***	-0.0186***
	(0.005)	(0.003)	(0.002)
Finance 1	0.0002	-0.0003	-0.001***
	(0.0003)	(0.0003)	(0.0005)
GovExp	0.0060***	0.005***	0.011***
	(0.001)	(0.001)	(0.002)
Railway	0.0015 ***	0.0015***	-0.0006
	(0.0005)	(0.0005)	(0.0007)
Constant	-0.00005 ***	-0.00005***	-0.00009
	(0.00001)	(0.00001)	(0.00002)
Observations	417	417	200
Sargan test	0.033	0.0251	0.5707
P-value autocorrelation AR(2)	0.6725	0.6997	0.3980

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 1 = total credit / gross domestic product; GovExp = government expenditure.

Table 5: Financial Indicator: The ratio of household savings to GDP

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.824 ***	0.807***	0.709***
	(0.017)	(0.0167)	(0.039)
FDI (*D1*)	0.018***	0.0109***	0.011**
	(0.004)	(0.003)	(0.004)
FDI (*LD*)	0.0056**	0.0035	-0.0048
	(0.003)	(0.003)	(0.004)
Openness (*D1*)	0.003 ***	0.003***	0.003***
	(0.0003)	(0.0004)	(0.0005)
Interactions (*D1*)	-0.022 ***	-0.0104***	-0.001**
	(0.005)	(0.003)	(0.0007)
Finance 2	-0.001	-0.002***	0.0003
	(0.0006)	(0.0004)	(0.001)
GovExp	0.005***	0.004***	0.003
	(0.0016)	(0.0016)	(0.003)
Railway	0.0013 **	0.001**	0.003***
	(0.0005)	(0.0005)	(0.0009)
Constant	-0.00001	-0.00003*	-0.00009*
	(0.00002)	(0.00001)	(0.00005)
Observations	439	439	186
Sargan test	0.0695	0.0212	0.89
P-value autocorrelation AR(2)	0.5202	0.5060	0.88

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 2 = household savings / gross domestic product; GovExp = government expenditure.

Table 6: Financial Indicator: The ratio of loans to deposits

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.816***	0.827***	0.794***
	(0.018)	(0.0173)	(0.041)
FDI (*D1*)	0.009	0.007**	0.01
	(0.007)	(0.003)	(0.013)
FDI (*LD*)	-0.0008	-0.001	0.004
	(0.003)	(0.003)	(0.007)
Openness (*D1*)	0.002 ***	0.002***	0.0003 **
	(0.0004)	(0.0003)	(0.001)
Interaction term (*D1*)	-0.001	0.0008	-0.003
	(0.007)	(0.002)	(0.012)
Finance 3	-0.001***	-0.001***	-0.0007
	(0.0003)	(0.0003)	(0.0004)
GovExp	0.0035***	0.0047***	0.003
	(0.001)	(0.0017)	(0.002)
Railway	0.001**	0.0009**	0.003***
	(0.0005)	(0.0005)	(0.0005)
Constant	-0.0001 ***	-0.0001***	-0.0001***
	(0.00002)	(0.00002)	(0.00003)
Observations	439	439	209
Sargan test	0.0831	0.0763	0.86
P-value autocorrelation AR(2)	0.5369	0.4561	0.4919

Note: Dependent variable: GDP per capita ratio.*, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 3 = Loans / deposits; GovExp = government expenditure.

Table 7: Financial Indicator: The ratio of SOBs credits to total bank credits

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.833***	0.803***	0.684***
	(0.019)	(0.0179)	(0.028)
FDI (*D1*)	-0.02	0.015***	0.065***
	(0.015)	(0.003)	(0.014)
FDI (*LD*)	0.001	0.006**	0.002***
	(0.003)	(0.003)	(0.004)
Openness (*D1*)	0.0021 ***	0.002***	0.002***
	(0.0004)	(0.0004)	(0.0007)
Interactions (*D1*)	-0.036**	-0.013***	-0.071***
	(0.018)	(0.002)	(0.0179)
Finance 4	-0.0016**	0.001	-0.0007
	(0.0008)	(0.0007)	(0.0011)
GovExp	0.0055***	0.003*	0.0007
	(0.002)	(0.001)	(0.002)
Railway	0.0015 ***	0.0011**	0.0086***
	(0.0005)	(0.0005)	(0.0007)
Constant	-0.00007 ***	-0.00004***	-0.00009***
	(0.00001)	(0.00001)	(0.00002)
Observations	413	413	215
Sargan test	0.07	0.03	0.041
P-value autocorrelation AR(2)	0.733	0.723	0.531

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 4 = state-owned bank credit / total bank credit; GovExp = government expenditure.

Table 8: Financial Indicator: The ratio of fixed asset financed by domestic loans to state budgetary appropriation

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.813 ***	0.824*	0.855***
	(0.019)	(0.019	(0.048)
FDI (*D1*)	0.0068	0.0006	0.015***
	(0.004)	(0.004)	(0.007)
FDI (*LD*)	0.0001	0.0009	0.005
	(0.003)	(0.003)	(0.003)
Openness (*D1*)	0.0028 ***	0.002***	0.002**
	(0.0004)	(0.0005	(0.001)
Interactions (*D1*)	0.00009	0.007**	0.001**
	(0.0004)	(0.003)	(0.0006)
Finance 5	0.000002	0.000005	0.0001***
	(0.00003)	(0.00002)	(0.00004)
GovExp	0.003	0.003*	-0.006
	(0.002)	(0.002	(0.007)
Railway	0.001**	0.0009*	0.003**
	(0.0005)	(0.0005)	(0.001)
Constant	-0.00005 ***	-0.00005***	-0.0001**
	(0.00001)	(0.00001)	(0.00004)
Observations	403	403	157
Sargan test	0.196	0.3121	0.857
P-value autocorrelation AR(2)	0.4981	0.4538	0.5083

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 5 = financing by domestic loans / state budgetary appropriation; GovExp = government expenditure.

Table 9: Financial Indicator: The ratio of fixed asset financed by self raised funds to total credit

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.822***	0.825***	0.847***
	(0.018)	(0.019)	(0.029)
FDI (*D1*)	-0.026*	0.006*	0.049**
	(0.012)	(0.0039)	(0.017)
FDI (*LD*)	0.002	0.0005	0.001
	(0.003)	(0.003)	(0.005)
Openness (*D1*)	0.0028 ***	0.002***	-0.005
	(0.0004)	(0.0004)	(0.001)
Interactions (*D1*)	0.05 ***	0.0003	-0.055
	(0.024)	(0.002)	(0.035)
Finance 6	0.0002	0.001	0.00001
	(0.0003)	(0.0007)	(0.0009)
GovExp	0.004***	0.003**	0.002
	(0.001)	(0.0017)	(0.003)
Railway	0.001**	0.0012**	0.0044***
	(0.0005)	(0.0005)	(0.0007)
Constant	-0.00005 ***	-0.00005***	-0.00003*
	(0.00001)	(0.00001)	(0.00002)
Observations	403	403	209
Sargan test	0.243	0.289	0.89
P-value autocorrelation test	0.276	0.537	0.175

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 6 = financing by self-raised funds / total financing; GovExp = government expenditure.

Table 10: Financial Indicator: The ratio of fixed asset financed by budgetary appropriation to total credit

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.816 ***	0.820***	0.852***
	(0.019)	(0.019)	(0.036)
FDI (*D1*)	0.006*	0.009***	0.001
	(0.004)	(0.0003)	(0.006)
FDI (*LD*)	0.00035	-0.0002	0.003
	(0.003)	(0.003)	(0.003)
Openness (*D1*)	0.003 ***	0.002***	0.007***
	(0.0004)	(0.0004)	(0.002)
Interactions (*D1*)	0.023	-0.0074**	-0.047**
	(0.03)	(0.003)	(0.026)
Finance 7	0.001	-0.007**	-0.006
	(0.001)	(0.003)	(0.0009)
GovExp	0.0007***	0.0006*	0.002
	(0.0023)	(0.002)	(0.002)
Railway	0.001 ***	0.0007	0.0012***
	(0.0005)	(0.005)	(0.0005)
Constant	-0.00006 ***	-0.00005***	-0.00007***
	(0.00001)	(0.00001)	(0.00002)
Observations	403	403	200
Sargan test	0.1774	0.2279	0.864
P-value autocorrelation test	0.537	0.5044	0.27

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 7 = financing by budgetary appropriation / total credit; GovExp = government expenditure.

Table 11: Financial Indicator: The ratio of non-bank credit to GDP

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.851 ***	0.836 ***	0.669***
	(0.0183)	(0.018)	(0.043)
FDI (*D1*)	0.016***	0.014 ***	0.002***
	(0.003)	(0.003)	(0.0007)
FDI (*LD*)	0.002	-0.0018	0.0166***
	(0.003)	(0.003)	(0.004)
Openness (*D1*)	0.0025 ***	0.002 ***	-0.009**
	(0.0004)	(0.0004)	(0.004)
Interactions (*D1*)	-0.053***	-0.003*	-0.006*
	(0.012)	(0.002)	(0.003)
Finance 8	0.001***	0.0002	0.001
	(0.0006)	(0.0004)	(0.0009)
GovExp	0.006***	0.004***	0.005
	(0.0019)	(0.001)	(0.003)
Railway	0.001208***	0.001***	0.003***
	(0.0005)	(0.0005)	(0.0009)
Constant	-0.00007***	-0.0005**	-0.0001***
	(0.00001)	(0.00001)	(0.00004)
Observations	417	417	166
Sargan test	0.160	0.0523	0.8823
P-value autocorrelation AR(2)	0.5915	0.6717	0.8559

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 8 = Non-bank credit / gross domestic product; GovExp = government expenditure.

Table 12: Financial Indicator: The ratio of private sector credit to total credit

Variables	FDI*Finance	FDI*dummy	Threshold
Gdpratio (*LD*)	0.649 ***	0.645***	0.517***
	(0.034)	(0.034)	(0.053)
FDI (*D1*)	-0.007	-0.006	-0.021***
	(0.005)	(0.005)	(0.006)
FDI (*LD*)	0.007	0.0007	0.002
	(0.004)	(0.004)	(0.005)
Openness (*D1*)	0.006 ***	0.006***	-0.001
	(0.0006)	(0.0006)	(0.0016)
Interactions (*D1*)	0.001 ***	-0.002	0.0196*
	(0.019)	(0.002)	(0.0132)
Finance 9	-0.0009	-0.0003	-0.0005
	(0.0001)	(0.0011)	(0.0012)
GovExp	-0.002	0.005***	-0.004
	(0.003)	(0.001)	(0.004)
Railway	0.0021***	0.0021***	0.002***
	(0.0007)	(0.0007)	(0.0009)
Constant	-0.00003	-0.00003***	-0.00008
	(0.000043)	(0.00004)	(0.00006)
Observations	196	196	97
Sargan test	0.242	0.277	0.0058
P-value autocorrelation test	0.116	0.18	0.276

Note: Dependent variable: GDP per capita ratio. *, **, ***denotes significance at 10, 5 and 1 percent respectively. Standard deviations in parentheses. GDPratio = per capita gross domestic product ratio; FDI = foreign direct investment; Finance 9 = credit to private sectors ; GovExp = government expenditure.