No. 2105 [EN]

IMI Working Paper

Foreign Direct Investment, Institutional Quality and Financial Development along the Belt and Road: An Empirical Investigation

Abuduwali Aibai, Huang Xianjing, Luo Yu and Peng Yuchao

INTERNATIONAL MONETARY INSTITUTE

For further information, please visit
http://www.imi.ruc.edu.cn/en/

Weibo WeChat

IMI Working Paper No. 2105 [EN]

Foreign Direct Investment, Institutional Quality and Financial Development along the Belt and Road: An Empirical Investigation*

By **Abuduwali Aibai, Huang Xianjing, Luo Yu and Peng Yuchao***

May 2021

Abstract

The source of financial development is less investigated in the literature, especially the role foreign direct investment (FDI) plays on financial development. Using data from 50 countries joining the Belt and Road Initiative, this article at first time tests the impact of FDI on financial development in a host country. Empirical results show that FDI can significantly improve the development of financial sector, especially the development of financial markets. FDI is found to be a stronger driver of financial development for countries with higher quality institutions. Moreover, FDI not only increases financial deepening, but also enhances financial function.

JEL Classification: F21, G2, K0

Keywords: Financial development, FDI, Institutional quality, The Belt and Road

1. Introduction

Finance is the core of modern economy, and a major engine to promote the economic development of a country. Most of the existing studies highlight financial development is positively associated with economic growth (Pagano 1993; Levine 2005). A good financial system helps transform savings into investment, optimize the resources allocation regardless of time and

*Published in Emerging Markets Finance and Trade, 55:14, 3275-3294, 2019.

*Abuduwali Aibai, School of Finance, Xinjiang University of Finance and Economics, Xinjiang, P.R. China. Huang Xianjing, Business School and China-ASEAN Research Institute, Guangxi University, Guangxi, P.R. China. Luo yu, Research Fellow of IMI, School of Finance, China Financial Policy Research Center, and International Monetary Institute, Renmin University of China, Beijing, P.R. China. Peng Yuchao, Research Fellow of IMI, School of Finance and Belt & Road Finance Institute, Central University of Finance and Economics, Beijing, P.R. China.

space, and spread risk for investors. However, few studies shed light on the determinants of financial development, fewer on the relationship between foreign direct investment (Henceforth, FDI) and financial development. For developing countries, FDI is the most important source of capital inflow, and a significant promoter to technology and industrial upgrading. The existing researches on FDI have paid more attention to the economic impact of FDI on host countries and the institutional conditions of these impacts, however, few scholars have analyzed the influence of FDI on the development of the financial sector in the host country. In the wake of this, this paper intends to make up for the deficiencies of existing literature and to explore the relationship between FDI and financial development.

This paper chooses The Belt and Road countries as the research sample. In the year of 2015, the Chinese government launched the "Belt and Road" initiative to contribute to the common development driven by investment cooperation. It aims to strengthening exchanges and connectivity for common prosperity. "The Belt" refers to the ancient Silk Road Economic Belt, and "The Road" refers to the maritime route of the 21st century. Major countries along the initiative are in Eurasia. By the end of June 30th, 2017, 68 countries besides China have participated in the initiative (see appendix). "The Belt and Road" countries play an important role in the global economy, becoming major driving force to global economic growth in recent years. Therefore, the focus on economic development of The Belt and Road countries helps us better understand the world economy and its pattern.

As the proposer of the initiative, the Chinese government will play a crucial role in it. International investment is vital in the Belt and Road Initiative, and the Asian infrastructure investment bank (AIIB) has become the main institution of multinational investment. These investments will flow to The Belt and Road countries through the national cooperation so as to promote infrastructure construction and economic development. Provided its value of interconnection and mutual prosperity, whether foreign investment can improve economic performance and welfare for host countries has become an important factor affecting their willingness to participate. The level of financial development in The Belt and Road countries is obviously lagged behind, if FDI can promote financial development in these countries, potential for economic growth in those countries will greatly increase. Therefore, this paper aims to explore whether FDI will drive Belt and Road Initiative countries' financial development.

First, this paper empirically tests the relationship between FDI and financial development with samples from countries along the Belt and the Road. At the same time, we also estimate the relationship with global samples during the same period of time to decide whether the outcome is more pronounced for the initiative. Second, we introduce the square of FDI in the regression equation to test whether there is a nonlinear relationship between FDI and financial development. Further, we introduced an interaction term of institutional quality and FDI to see whether the effect of FDI on financial development is altered with different institutional conditions. Finally, we also took into account the financial accessibility, efficiency and stability while exploring the influence of FDI on the quality of financial development. This paper contributes to the existing literature in the following three aspects: first, we expand the determinants of financial development, i.e. demonstrates that FDI affects financial development; second, we find out that the institutional quality matters in FDI-financial development nexus, which enriched relevant researches on institutions and FDI; third, we take the quality of financial development into account. FDI can not only promote the financial deepening (quantity), but also can improve the function of financial sector.

The rest of the paper is organized as follows: the second part is the literature review and research hypothesis; the third part is the empirical design and description of the data; the fourth part is the empirical analysis of the results; the fifth part discusses the influence of FDI on the quality of financial development; and the conclusion.

2. Literature and hypothesis development

2.1 Determinants of financial development

A great deal of academic literature has highlighted the positive role of financial development in economic growth (Pagano 1993; Levine 2005; Law & Singh 2014). An accomplished financial system can improve the supply of financial resources, reduce the transaction costs of financial intermediation activities, improve the efficiency of resource allocation and formation of capital, and hence the economic development. The relationship between financial development and economic growth has become a consensus, but why level of financial development varies in different countries? The academic community has yet to form a consensus. The determinants of financial development entail economic development, institutional culture and openness.

First, economic development is the essential factor in promoting financial development. With the continuous improvement of economic development and the expansion of economic scale, the demand from households and enterprises for financial instruments and services is also increasing (Gurley & Shaw 1967; Goldsmith 1969) . The increased demand has stimulated the innovation and development of the financial sector; therefore, the financial sector has developed with economic development (Robinson 1952). Subsequently, some empirical studies have found that there is a two-way causal relationship between financial development and economic growth (Khan & Senhadji 2003): financial development can promote economic growth and vice versa. In addition to economic growth, inflation rate, the growth rate of investment and other macroeconomic variables are important factor in financial development, and are especially significant to the development of the stock market(Garcia & Liu 1999; Boyd et al. 2001; Yartey 2008).

Second, the system and culture significantly affect the level of financial development. Legal finance points out that a country's legal system and origin will affect the degree of protection of property rights and the protection of investors, and then influence the level and mode of development of the financial market (Beck et al. 2008). La Porta et al. (2002) classified the legal system all over the world in accordance to the origin of law: common law, French law, German law and the Scandinavia law. He found that different countries formed different financial structure. The countries of common law system pay more attention to the protection of investors, which makes it easier to form a market-oriented financial structure. In contrast, the financial system in a country of French legal system and German legal system is more likely to be bank-oriented. Besides the legal system, culture, as an informal institution, also affects financial development. The empirical research of Dutta and Mukherjee (2012) shows that in countries where people are more confident are more active in financial activities, which leads to higher level of financial development in the country.

Third, the higher the degree of openness, the higher the level of financial development. Rajan and Zingales (2003) believe that an opener country’s product market and capital will help with the country’s financial development. Concretely, opening to the outside world includes two aspects: opening trade and opening capital account. As to trade openness, Do and Levchenko (2004)argue that the trade openness will affect the demand for external financing, and then affect the level of financial deepening in the country. Le et al. (2016) empirical tests on the relationship between

trade openness and financial development by using samples from countries in the Asia Pacific region found that the openness of a country's trade is positively related to the development of the banking sector. As to the capital account openness, Mishkin (2009) stressed that capital account liberalization helps increase transparency, reduce the adverse selection and moral hazard, thus reducing the cost of financing from the capital market, and promoting the development of capital market. Zhang et al. (2015) suggests that both trade openness and capital account liberalization contribute to the promotion of financial efficiency.

Capital account liberalization will allow cross-border capital flow and facilitate transactions under the account. With regard to the impact of capital flows on financial development, the existing research focuses on the role of remittance. In recent years, the rapid growth of remittance from foreign employees has become the second largest source of capital inflow in developing countries (Aggarwal et al. 2011). A series of empirical studies from the World Bank show that there is a strong positive correlation between Remittance and the level of financial development (Aggarwal et al. 2011; Demirgüç-Kunt et al. 2011; Anzoategui et al. 2014). However, few scholars paid attention to the influence of FDI on the development of the financial sector. As the most important capital inflow item in developing countries, FDI affects all aspects of its economic development in developing countries. Therefore, this paper will make up for the insufficiency of literature and explore the impact of FDI on financial development.

2.2 FDI and financial development

As one of the most important sources of capital inflow, FDI has a significant positive effect on the host country's economic development (Borensztein et al. 1998; Alfaro et al. 2004; Iamsiraroj 2016). FDI can not only entice capital to the host country, but also bring advanced technology and management experience, which will promote technological progress and economic growth in the country; and investment of multinational companies can create jobs for the host country. However, the existing studies are less concerned with the impact of FDI on the host country's financial system arrangements and the development of the financial sector. Desbordes and Wei (2017) believe that the financial development in the host country and the home country is positively related to FDI. Most studies have emphasized that the host country having a mature financial market is a prerequisite for FDI to promote economic growth (Alfaro et al. 2010). However, these studies did not take into account FDI itself may directly promote financial development in the host country.

FDI can promote the development of the financial sector through the following four aspects: (1) FDI can directly promote the scale of finance. FDI includes direct physical investment and monetary investment. The inflow of currency will be injected directly into the financial system of the host country, which will lead to an increase in the financial scale, thereby promoting the development of the financial sector, especially the banking sector; (2) FDI can accelerate financial development by stimulating short-term financing demand. When FDI flows into the host country, it often goes to new enterprises and projects. FDI is a relatively long-term capital that can be used as the starting capital for a project. During the operation of a project, enterprises need short-term financing to cover short-term liquidity risk. These needs will lead to the development of the financial sector; (3) FDI to the financial sector can bring about advanced financial management techniques and improve financial efficiency. As an important component of FDI, the financial sector FDI generally refers to the establishment of new foreign capital or joint venture financial institutions within the host country. With the inflow of FDI in the financial sector, advanced financial management experience has also been brought to the host country, providing technical support for the host country's financial efficiency; (4) FDI can increase savings by raising the

national income level. The positive role of FDI in economic growth is beyond doubt. While promoting economic growth, FDI has also improved the income level of residents in the host country, thus encouraging residents to save. With the continuous improvement of income levels, the residents have a stronger desire to invest the financial system with excess income, hence the form of savings gradually change from the past deposits into financial assets. To sum up the above aspects, this paper puts forward the hypothesis to be verified:

H1: FDI is positively associated with financial sector development。

2.3 Institutional quality

Since North (1981) pioneered institutional economics, scholars have argued that institutional quality is one of the important factors to economic development (Acemoglu & Verdier 1998). Better institutional quality effectively promotes international trade and FDI (Levchenko 2007; Buchanan et al. 2012). In countries where the legal system is relatively advanced, investors and their property rights enjoy a higher degree of protection. When the social system protects their legitimate rights and interests, investors become more willing to invest. Moreover, under a sound system, the consumer market is more in order and active; the exuberant consumer demand ensures the profitability of the investment projects. Studies on FDI and economic growth of the host country pointed out that the ability to use externalities of FDI determines the effect of FDI on economic growth (Alfaro et al. 2010).This ability is mainly affected by the institutional environment and political stability in that country. For the countries with higher institutional quality and better legal system, the spill over effect of FDI on the host country's economic development will be greater, and then FDI will play a more active role in promoting financial development. Therefore, this paper proposes the hypothesis to be verified:

H2: The effect of FDI on financial development is more pronounced in countries with higher quality institutions.

3.Data and model specification

3.1 Data

We use main proposers of The Belt and Road initiative as data sample to estimate the effect of FDI on financial development. For comparison we also use global samples to estimate the model. Due to hurdles in obtaining data, we only collected data of 50 countries along the Belt and Road from 1989 to 2011. The main macroeconomic variables are from the World Development Indicators database in the World Bank, and the relevant variables of financial development are from the Global Financial Development database system. As to institutional quality, we chose law and order, corruption and ethics tension in the International Country Risk Guide as measures in three different dimensions respectively.

3.2 Model specification: FDI and financial development

According to the foregoing analysis, in order to explore the relationship between FDI and financial development, we constructed the following regression model:

$$FD_{i,t} = \alpha + \beta FDI_{i,t} + \gamma \mathbf{X}_{i,t} + \mu_t + e_i + \varepsilon_{i,t} \quad (1)$$

The subscripts *i* and t refer to the country and time, t=1989-2011. FD stands for financial development, which is often measured in terms of the ratio of private credit to GDP in literatures.

Considering the financial market and banks as two important components of financial system, and financial market development has attracted growing attention, we divide the sum of private credit and stock market value by GDP as a measure of financial development. FDI is the foreign direct investment and is measured by the ratio of GDP to net inflow of FDI. According to hypothesis 1, we predict that the coefficient of FDI is greater than 0, showing that countries along the Belt and Road Initiative with more FDI inflow enjoy higher degree of financial development.

Following Levine et al. (2000), we introduce a conditioning information set (X) into the regression model to avoid missing important variables that affect financial development. Taking into account the price fluctuation will lead to changes of people saving behavior and affect the level of financial development, we control the inflation rate (Inflation). Considering the status of the government in the economy will affect the level of development of the financial market, we control the size of government (Gov), which is measured by government spending as a percentage to GDP. Considering the population structure will affect the social burden, thereby affecting savings, we control the age dependency ratio (Age), using the proportion of people over 65 and under 15as the measurement. As import and export are also vital factors to financial development, we control the trade openness (Trade) measured by the proportion of total import and export in GDP. The detailed variable definitions are shown in Appendix A.

The regression model controls the fixed effects of year (μ_t) to stabilize the global periodical volatility that all countries face; the model also controls the fixed effects of countries (e_i) to capture the individual heterogeneity of country that does not change with time. $\varepsilon_{i,t}$ is random error.

Taking into account the possible nonlinear relationship between FDI and financial development, we introduce the square term of FDI in the regression model. Moderate FDI investment can lead to economic development and financial development in host country, while excessive FDI investment may squeeze out local investment, then hurting the financial development. Therefore, we expect the coefficient of the square term of FDI significantly less than 0, that is to say, with the increase of FDI, the marginal effect of FDI on financial development continues to decline, and there is an optimal FDI level of financial development of the host country.

3.3 Model specification: the moderator effect of institutional quality

In order to test hypothesis 2, we construct the following regression model by introducing the interaction term of institutional quality and the FDI in the benchmark regression model:

$$FD_{i,t} = \alpha + \beta FDI_{i,t} + \delta FDI_{i,t} \times IQ_{i,t} + \lambda IQ_{i,t} + \gamma \mathbf{X}_{i,t} + \mu_t + e_i + \varepsilon_{i,t} \quad (2)$$

where $IQ_{i,t}$ is the institutional quality. Direct measure of the institutional quality is difficult, so we choose the three indexes in International Country Risk Guide as the proxy variables for institutional quality. First, countries and regions with more accomplished legal system have better legal order, and we use the Law and Order (Law) as the first proxy variable of the quality of the system. Second, the more perfect the political system in the country and region, the less corrupt officials are, so we use Corruption as the second proxy variable. Third, the more perfect the social system in countries and regions, the fairer society and the government can be to different races, and hence less racial conflicts, so we use Ethnic tension (Ethnic) as third proxy variables. The greater the value of the indicators, the higher the quality of the system.

$FDI_{i,t} \times IQ_{i,t}$ is the interaction term of FDI and institutional quality. According to the hypothesis 2, we expect the coefficient of the interaction term δ to be significantly greater than 0, that is to say, in countries with higher institutional quality, FDI has a stronger role in promoting financial development. In order to be consistent with the benchmark model, the necessary conditional information sets are still controlled in the regression model, so do the national fixed effects and the annual fixed effects.

3.3 Summary statistics

We divided the 50 sample countries into the Belt countries and the Road countries according to their geographical location and historical features. Among them, the Belt countries entail the 33 countries along the ancient Silk Road route, mainly located in the hinterland of Eurasia; the Road countries refer to the 17 countries along the Silk Road on the sea route, mainly located in India ocean and the Mediterranean Sea. Table 1 shows the mean of the major variables in the sample. Column one to column four listed the mean of countries in terms of world, The Belt and Road, Belt countries and Road countries.

The average level of financial development in "The Belt and Road" countries is 88.99%, much lower than the world average of 104.35%. Among them, the financial development level of Road countries is relatively lagged behind (67.91%),far below the world average, while the financial development level of Belt countries is relatively higher (120.74%). That is to say, coastal countries have higher level of financial development compared to landlocked countries. As far as FDI is concerned, Belt countries is higher (4.27%), while Road countries is relatively low (3.33%). This indicates that Belt countries' economic environment is more desirable for foreign investment. However, this does not mean that there is a negative correlation between FDI and financial development. The trade in coastal Road countries with developed ports are more liberalized, with imports and exports amounting to 92.79% of GDP, while Belt countries is 85.88%, which are both above the world average, thus, The Belt and Road countries are more developed in foreign trade, occupying an important position in the globe. On the institutional quality, concerning legal, corruption or ethnic tension, The Belt and Road countries differ little from the global average. Specifically, compared with Road countries, Belt countries have more robust legal systems, less ethnic conflicts, but are more burdened with serious corruption.

Table 1: Summary Statistics of Key Variable

	World	All	Belt	Road
FD	104.35	88.99	67.91	120.74
FDI	3.72	3.90	4.27	3.33
Gov	16.10	15.58	17.60	12.55
Trade	81.40	88.64	85.88	92.79
Inflation	11.50	9.51	11.80	6.06
Age	39.06	34.50	34.21	34.93
Law	3.76	4.05	4.27	3.77
Corruption	2.97	2.90	2.82	2.99
Ethnic	4.03	4.03	4.14	3.88

Notes: This table reports mean of key variables used in this article The detailed definitions of all variables are shown in the appendix.

4. Empirical results

4.1 Baseline model

Table 2 shows the benchmark estimates of the relationship between FDI and financial development, as shown in column (2), the coefficient of FDI is 1.994, significant at least at the statistical level of 1%, indicating that FDI inflows are significantly positively related to the level of financial development of the host country. Roughly calculated, when FDI increases by 1%, the level of financial development in the host country will increase by about 0.1%. For comparison, we use the same time period of global samples of 110 countries, to estimate the benchmark model. The results are shown in column (1), in which the coefficient of FDI is 2.23, which is significant at the statistical level of 1%. Thus, in both the "The Belt and Road" nations and global-wide, FDI can promote the financial development level, however, the improvement in the "The Belt and Road" countries is somewhat less than the global average. Furthermore, we distinguish Belt countries and Road countries to test the relationship between FDI and financial development. The coefficients of FDI in columns (3) and (4) are 1.458 and 2.805 respectively, and are significant at the statistical level of 1%. That is to say, FDI can significantly promote the level of financial development after distinguishing different sub samples. Hypothesis 1 is verified.

Table 2: Baseline Model: FDI and Financial Development

	(1)	(2)	(3)
	All	**Belt**	**Road**
FDI	1.994***	1.458***	2.805***
	(0.303)	(0.305)	(0.657)
Gov	−1.287***	−0.360	0.0631
	(0.448)	(0.436)	(1.229)
Trade	0.133*	−0.175**	0.500***
	(0.0759)	(0.0865)	(0.140)
Inflation	−0.0866	0.0806	−0.199
	(0.0663)	(0.0588)	(0.434)
Age	3.967***	4.058***	5.099***
	(0.624)	(0.598)	(1.428)
Constant	−111.5***	−124.0***	−173.9***
	(25.65)	(26.31)	(57.05)
Observations	782	470	312
R-squared	0.519	0.663	0.463
Number of countries	50	33	17
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

The complete set of conditional information is controlled in the model. In the column (2) of Table 2, the coefficient of government scale (Gov) is significantly less than 0, indicating that a

strong government is not conducive to the development of the financial sector. Because the development of the financial sector is more dependent on market spontaneous behavior, and strong government regulation weakens the efficiency of the allocation of capital resources in market. The coefficient of dependency ratio (Age) is significantly greater than 0, consistent with the predictions above: heavier social burden, especially the increase in the grey population, will cause rise in the proportion of savings in economy and improvement of the level of financial development (Becker 2007; Butler & Cornaggia 2011). The coefficient of trade openness (Trade) is significantly greater than 0, indicating that trade openness is conducive to the development of the financial sector, which is consistent with the conclusion of Le et al. (2016).

Next, we explore the nonlinear relationship between FDI and financial development. As shown in Table 3, column (1), the coefficient of the squared FDI is -0.098, and is significant at the statistical level of 1%. There is an inverted U-shape relationship between the FDI and the financial development of the host country. The coefficient of the FDI is 4.162, significant at the statistical level of 1%. The rough calculation shows that the optimum level of FDI for financial development is 21%. The FDI levels in most countries are on the left side of the optimal value. Therefore, FDI is still positively related to the level of financial development in the host country, consistent with the regression results of the benchmark model. Additionally, the inverted U-shape relationship implies that the marginal effect of FDI in financial development will continue to decline as the level of FDI improves. Moderate inflow of FDI has a catalytic effect on domestic investment, but excessive amount can crowd out domestic investment and hence less contribution to financial development.

Table 3: The Nonlinear Effect of FDI on Financial Development

	(1)	(2)	(3)
	All	**Belt**	**Road**
FDI	4.162***	1.988***	5.640***
	(0.666)	(0.710)	(1.297)
FDI^2	−0.0980***	−0.0235	−0.133**
	(0.0269)	(0.0285)	(0.0525)
Gov	−1.240***	−0.369	−0.0267
	(0.444)	(0.436)	(1.217)
Trade	0.152**	−0.163*	0.460***
	(0.0754)	(0.0876)	(0.139)
Inflation	−0.0747	0.0802	−0.103
	(0.0658)	(0.0588)	(0.431)
Age	4.286***	4.119***	5.606***
	(0.625)	(0.603)	(1.428)
Constant	−130.1***	−127.9***	−195.0***
	(25.93)	(26.75)	(57.10)
Observations	782	470	312
R-squared	0.527	0.663	0.476
Number of countries	50	33	17
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. FDI^2 is the squared term of *FDI*. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Now, we distinguish the Belt countries and the Road countries to test the nonlinear relationship between FDI and financial development. In column (2) of table 3, the square of FDI is not significant, and first-order term is still significantly greater than 0. It shows that the marginal diminishing effect of Road countries and FDI on financial development is not significant, and there is no statistically significant inverted relation between the two variables. Although the Road countries enjoy higher FDI inflow, they are far away from the optimal level. Further FDI in the Road countries will still significantly promote the development of local financial system. In column (3) of table 3, the first- and second- order term of FDI are both statistically significant at least at the level of 5%. The coefficient of the two term is less than 0, indicating that there exists an inverted U curve relationship between FDI and financial development. The calculation shows that the optimal level of FDI is 2.12%, less than the average value of Road countries FDI. It can be seen that further increase of the FDI in Road countries will have a less contribution to the financial development. The differences between Belt and Road nations stem from their distinct resource endowments and economic structure. The coastal nations have richer resources where the economy is dominated by the trade as a stronger contributor to financial development. Inland

countries have less resources, hence a lagged behind trade and weak economic foundation. The inflow of FDI has more significant effect on financial development than that of trade.

4.2 The moderator effect of institutional quality

Does the impact of FDI on the level of financial development vary with the institutional quality? Table 4 presents estimates of the relationship between FDI, institutional quality and financial development. In the column (1), the coefficient of interaction term of FDI and corruption (Corruption) is 0.738, which is significant at the statistical level of 5%. It shows that FDI plays a more important role in promoting financial development in less corruptive countries. The degree of corruption reflects the level of accomplishment of the political system. In countries with a sounder political system, officials are strictly bound and difficult to corrupt. Corruption will restrict the investment enthusiasm of enterprises. When corruption is restricted, FDI can lead to more investment projects that will spread the advanced technology and management experience to more domestic enterprises to make more active investment, therefore, the spill over effect of FDI to the host country is stronger. Of course, in this process, FDI will play a stronger role in promoting the level of financial development.

Table 4: The Moderator Effect of Institutional Quality on FDI-Finance Nexus

	(1)	(2)	(3)
	All	All	All
FDI	0.103	−1.033	−0.911
	(1.009)	(1.413)	(1.307)
*FDI * Corruption*	0.738**		
	(0.321)		
Corruption	−5.418***		
	(2.072)		
*FDI * Law*		0.788**	
		(0.331)	
Law		6.379***	
		(2.120)	
*FDI * Ethnic*			0.677**
			(0.274)
Ethnic			4.605***
			(1.700)
Gov	−1.311**	−1.099**	−1.287**
	(0.540)	(0.536)	(0.536)
Trade	0.147	0.261***	0.175**
	(0.0906)	(0.0911)	(0.0876)
Inflation	−0.0722	−0.0494	−0.0763
	(0.0712)	(0.0708)	(0.0707)
Age	3.741***	3.957***	3.800***
	(0.709)	(0.699)	(0.700)
Constant	−81.01***	−135.9***	−113.5***
	(29.45)	(30.07)	(28.78)
Observations	652	652	652
R-squared	0.527	0.537	0.538
Number of countries	42	42	42
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this aricle including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

In the column (2), the coefficient of interaction term of FDI and legal order (Law) is 0.788, which is significant at the statistical level of 5%. It shows that FDI plays a more vital role in promoting the level of financial development in countries with better legal order. The legal order reflects the soundness of a country's legal system. As La Porta et al. (2002) emphasized, the perfect legal system that guarantees the legitimate rights and interests of investors will attract more positive investors whose rights are safeguarded. In countries where the legal system is sound, people are more likely to abide by financial contracts and lending and borrowing is smoother. As

a result, investment in FDI enterprises will ask for more domestic financial services, which will further contribute to the improvement of their financial development.

In the column (3), the coefficient of interaction term of FDI and race conflict (Ethnic) is 0.677, which is significant at the statistical level of 5%. This shows that FDI is important in promoting financial development in countries with less ethnic conflicts. In a country with better social system, ethnic groups are less rebellious and thus less ethnic conflict, and we use ethnic conflict as a proxy variable for the social system. In a country with a better social system, people are more likely to accept the impact of foreign cultures. In addition to bringing funds and investment projects, and more importantly, FDI can introduce management concepts, including financial management and business management experience. In a more tolerant country, host country's financial institutions and enterprises are more able to learn from advanced experience brought by FDI, so that FDI can promote more development of financial system, financial technology and financial efficiency.

Combined with the above three aspects, this paper finds that, in countries and regions where the system quality is more accomplished, FDI plays a more important role in promoting financial development. That is to say, hypothesis 2 is validated. In addition, table 5 reports the regression results that distinguish the Belt countries and the Road countries. We find that the coefficients of the interaction terms of the FDI and the institutional quality are in the same direction, but the coefficients of the interaction terms are only significant with Belt countries. This shows that for Belt countries, institutional quality is more important to moderator effect of FDI-finance nexus.

Table 5: The Moderator Effect of Institutional Quality in Belt and Road

	(1)	(2)	(3)	(4)	(5)	(6)
	Belt	Belt	Belt	Road	Road	Road
FDI	−1.779	0.0671	−3.198**	2.114	−1.359	0.706
	(1.147)	(1.592)	(1.533)	(2.601)	(2.904)	(2.587)
*FDI * Corruption*	1.288***			0.246		
	(0.424)			(0.632)		
Corruption	−0.369			−8.274***		
	(2.680)			(3.019)		
*FDI * Law*		0.365			0.856	
		(0.394)			(0.603)	
Law		2.222			7.829**	
		(3.125)			(3.065)	
*FDI * Ethnic*			1.057***			0.356
			(0.340)			(0.475)
Ethnic			1.117			8.146***
			(2.057)			(2.743)
Gov	0.284	0.262	0.0737	0.585	−0.00621	1.033
	(0.541)	(0.555)	(0.543)	(1.418)	(1.455)	(1.418)
Trade	−0.121	−0.116	−0.131	0.447***	0.585***	0.471***
	(0.104)	(0.109)	(0.103)	(0.156)	(0.155)	(0.151)
Inflation	0.140**	0.156**	0.136**	−0.196	−0.0176	0.171
	(0.0630)	(0.0652)	(0.0633)	(0.445)	(0.445)	(0.454)
Age	4.066***	4.137***	4.435***	5.334***	5.507***	5.365***
	(0.651)	(0.662)	(0.675)	(1.694)	(1.684)	(1.675)
Constant	−135.4***	−145.2***	−148.7***	−158.4**	−214.9***	−215.0***
	(30.78)	(32.22)	(29.52)	(65.70)	(66.84)	(66.65)
Observations	365	365	365	287	287	287
R-squared	0.702	0.693	0.704	0.475	0.482	0.489
Number of countries	26	26	26	16	16	16
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. See the Appendix for the detailed definitions of all variables. "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

4.3 Robust Check

In order to ensure the reliability of the empirical results, we carried out the robust test as following.

Firstly, we consider the lag effect of FDI on the level of financial development. When Aggarwal et al. (2011) studies the impact of remittance on financial development, the lagged item of remittance is used as explanatory variable. Doing so can weaken endogeneity problems to some extent and overcome the two-way causality problems between FDI and financial development. Table 6 reports the estimates of the one-term lag of FDI and financial development. We find that

both test of the full sample or subdivided samples show that the one-term lag of FDI is significantly greater than 0 at the statistical level of 1%, and differ little from the regression coefficients in the benchmark model. Thus, it can be seen that the current FDI plays a fairly significant role in promoting the future financial development, which is consistent with the hypothesis of this paper.

Table 6: Robustness Check: the Lagged Effect of FDI on Financial Development

	(1)	(2)	(3)
	All	**Belt**	**Road**
L.FDI	1.659***	1.036***	2.255***
	(0.324)	(0.337)	(0.663)
Gov	−1.284***	−0.321	0.343
	(0.456)	(0.444)	(1.303)
Trade	0.159**	−0.144	0.514***
	(0.0767)	(0.0876)	(0.141)
Inflation	−0.0875	0.0863	−0.207
	(0.0670)	(0.0599)	(0.436)
Age	3.955***	4.041***	5.031***
	(0.636)	(0.612)	(1.465)
Constant	−112.3***	−125.8***	−174.6***
	(26.10)	(26.92)	(57.85)
Observations	779	469	310
R-squared	0.506	0.650	0.454
Number of countries	50	33	17
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. *L.FDI* is the lagged term of *FDI*. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Secondly, we analyze the impact of FDI on short-term growth in financial development. Taking into account the financial development is self-correlated, in order to clearly examine the effect of FDI on short-term financial development, we control the lagged term of financial development in the regression model. Le et al. (2016) uses a similar model setting in analyzing the relationship between trade openness and financial development. Table 7 reports the regression results of this model. First of all, the coefficient of lag term of financial development is statistically significant at the level of 1%, and are ranged from 0 to 1, reflecting that the level of financial development is self-correlated and convergent. Second, the coefficient of FDI is significantly greater than 0 on the statistical level of 1%, which indicates that FDI has a significant effect on the short-term growth of financial development. Third, the coefficient of FDI is smaller than that of the benchmark model, which reflects the positive correlation between FDI and long-term financial development and short-term financial development.

Table 7: Robustness Check: Dynamic Panel Regression

	(1)	(2)	(3)
	All	**Belt**	**Road**
L.FD	0.762***	0.689***	0.810***
	(0.0235)	(0.0350)	(0.0360)
FDI	0.949***	0.776***	0.874**
	(0.200)	(0.215)	(0.434)
Gov	0.117	0.409	0.742
	(0.313)	(0.338)	(0.775)
Trade	–0.00918	0.0409	–0.0791
	(0.0496)	(0.0629)	(0.0874)
Inflation	–0.0911*	–0.00256	–0.130
	(0.0501)	(0.0502)	(0.258)
Age	1.567***	1.885***	1.119
	(0.435)	(0.471)	(0.921)
Constant	–50.95***	–83.04***	–28.94
	(17.42)	(19.94)	(36.06)
Observations	730	436	294
R-squared	0.810	0.843	0.806
Number of countries	49	32	17
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. *L.FD* is the lagged term of financial development. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Thirdly, in order to overcome the possible endogeneity of FDI and financial development, we empirically test the relationship between FDI and financial development with the two-step system GMM approach, as shown in table 8. The two-step system GMM requires the regression equation a dynamic panel model. Following the settings of Aggarwal et al. (2011), we include the lagged term of the financial development in the regression model. We chose the lagged items of endogenous variables as their instrumental variables. AR (2) is the second-order correlation test, and the p value is greater than 0.1, which reflects that the endogeneity of the model is effectively overcome. The Hansen test that can recognize over-identification get a p value greater than 0.1, indicating that the instrumental variable selected is valid. In Table 8 (1) - (3), the coefficients of FDI are significantly greater than 0 on the statistical level of 5%, indicating that FDI can still significantly improve the level of financial development after considering endogeneity problems.

Table 8: Robustness Check: Dynamic Panel Regression by Two-Step System GMM Approach

	(1)	(2)	(3)
	All	**Belt**	**Road**
L.FD	0.935***	0.788***	0.976***
	(0.036)	(0.085)	(0.140)
FDI	0.595***	1.485**	4.118**
	(0.203)	(0.653)	(1.870)
Gov	−1.271***	1.032	−4.549
	(0.471)	(1.062)	(11.458)
Trade	−0.107*	0.551	−0.034
	(0.057)	(0.437)	(0.910)
Inflation	−0.116	0.079	−1.794
	(0.144)	(0.098)	(7.398)
Age	0.081	1.701	1.790
	(0.376)	(3.134)	(1.318)
Constant	56.934	0.000	0.000
	(60.863)	(0.000)	(0.000)
Observations	730	436	294
Number of countries	49	32	17
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
AR(2) p-value	0.026	0.395	0.148
Hansen test p-value	1.000	1.000	1.000

Note: All specifications were estimated using two-step system GMM estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is financial development in all columns, measured as the ratio of the sum of bank credit and market capitalization to GDP. *L.FD* is the lagged term of financial development. See the Appendix for the detailed definitions of all variables. AR(2) is a test for second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation. The Hansen J test of over-identifying restrictions is distributed as Chi-square under the null of instrument validity. We treat all variables except year dummy as potentially endogenous variables. Levels of these variables dated t-2 and further are used as instruments in the first-differenced equations and first-differences of these same variables lagged twice are used as additional instruments in the level equations. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the twenty-first century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Lastly, we divide the financial development into bank development and market development, and test the impact of FDI on the two. Levine (2005) sees banks and the stock market as two important components of the financial system. The financial structure of different countries, that is, the relative proportion of banks and markets, is significantly different from one another. Table 9 shows the empirical results of effect of FDI on bank development and market development, respectively. In all the columns, the coefficients of FDI are greater than 0, which indicates that FDI can substantially improve the level of financial development. However, the coefficients of FDI are only statistically significant in Columns (4)-(6). This suggests FDI has a positive impact on the development of the stock market, while its role in the development of banks is subtle. This may be due to weak financial market in The Belt and Road nations. Small dope of FDI will

significantly help these countries to establish a financial market, thus more marginal effect to the development of financial markets.

Table 9: Robustness Check: the Effect of FDI on Bank Sector Development and Stock Market Development

	Bank development			Market development		
	All	Belt	Road	All	Belt	Road
	(1)	(2)	(3)	(4)	(5)	(6)
FDI	0.099	0.103	0.232	1.575***	1.223***	2.566***
	(0.141)	(0.139)	(0.301)	(0.227)	(0.223)	(0.534)
Gov	0.104	0.419***	−0.473	−1.373***	−1.370***	−0.236
	(0.137)	(0.128)	(0.363)	(0.344)	(0.333)	(0.998)
Trade	0.219***	−0.0374	0.328***	−0.00107	−0.102*	0.289**
	(0.0255)	(0.0311)	(0.0437)	(0.0556)	(0.0605)	(0.114)
Inflation	−0.0306	0.0100	−0.296**	−0.0964**	−0.0371	−0.389
	(0.0202)	(0.0179)	(0.133)	(0.0487)	(0.0428)	(0.351)
Age	0.750***	1.863***	0.0567	1.269***	0.985**	2.116*
	(0.223)	(0.234)	(0.458)	(0.479)	(0.455)	(1.153)
Constant	−37.71***	−69.93***	−1.839	−24.80	−11.86	−78.89*
	(11.39)	(11.66)	(23.67)	(19.71)	(19.95)	(46.00)
Observations	1,399	817	582	809	495	314
R-squared	0.454	0.524	0.545	0.404	0.494	0.427
Number of countries	64	40	24	50	33	17
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variable is bank development in columns (1)–(3), measured as the ratio of bank credit to GDP. The dependent variable is market development in columns (4)–(6), measured as the ratio of market capitalization to GDP. See the Appendix for the detailed definitions of all variables. "All" represents the full sample in this article including 50 countries along "The Belt and Road". "Belt" represents the Silk Road Economic Belt, and "Road" stands for the 21st century maritime Silk Road. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

5 FDI and the quality of financial development

There are many studies about financial development, however, most of which measure financial development by financial deepening, that is, the proportion of financial sector scale to GDP. In fact, the financial sector scale reflects only the quantity of financial development, not the quality. The financial function view of Levine (2002) emphasizes that the improvement of financial function is the core factor to financial development. That is to say, the improvement of financial function is more important than the increase of financial sector scale. China's current level of financial deepening has surpassed the United States, approaching Japan, but no one believes that China's financial development has reached a global leading level. Cihak et al. (2012) divides financial development into four dimensions: financial deepening, financial access, financial efficiency and financial stability. The latter three dimensions all belong to the quality of financial

development. In order to examine the impact of FDI on financial development, this paper examines the relationship between FDI and the quality of financial development.

Table 10: Further Exploration: the Effect of FDI on Financial Function

	Bank			Market		
	Accessibility	***Efficiency***	***Stability***	***Accessibility***	***Efficiency***	***Stability***
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
FDI	0.234***	0.223***	0.120	0.174	0.413	0.471***
	(0.0498)	(0.0599)	(0.0821)	(0.164)	(0.618)	(0.135)
Gov	0.0500	–0.0931	0.101	–0.0370	–0.861	0.158
	(0.104)	(0.0713)	(0.130)	(0.451)	(0.938)	(0.306)
Trade	0.0106	0.0202	–0.0815***	–0.0484	–0.371**	–0.0433
	(0.0219)	(0.0125)	(0.0229)	(0.0441)	(0.151)	(0.0326)
Inflation	–0.0182	–0.158***	–0.00243	–0.0138	0.814***	–0.255***
	(0.0421)	(0.010)	(0.0258)	(0.0677)	(0.153)	(0.0515)
Age	0.314*	0.0242	–1.009***	–0.0956	0.201	0.200
	(0.173)	(0.124)	(0.259)	(0.508)	(1.323)	(0.407)
Constant	–7.503	–6.130	24.43***	54.13***	40.12	–24.68
	(6.415)	(5.831)	(9.412)	(18.26)	(54.31)	(18.80)
Observations	178	997	511	234	801	599
R-squared	0.377	0.365	0.416	0.135	0.113	0.293
Number of countries	31	55	45	20	49	43
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes

Note: All specifications were estimated using fixed effect estimator. Test statistics and standard errors (in parentheses) of all variables in the regressions are asymptotically robust to heteroscedasticity. The dependent variables are bank accessibility, bank efficiency and bank stability in columns (1)–(3), respectively. The dependent variables are market accessibility, market efficiency and market stability in columns (4)–(6), respectively. See the Appendix for the detailed definitions of all variables. All estimations in this table use the full sample including 50 countries along "The Belt and Road". ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Following Cihak et al. (2012), we use the number of accounts owned per capita, the opposite value of net interest margin (NIM), and the opposite value of non-performing loans as measurements of financial access, efficiency and stability for bank system, respectively; we employ assets ratio of listed companies besides the ten largest, stock market turnover rate and the opposite value of price volatility to measure the financial access, efficiency and stability for financial market, respectively. The greater the indicators, the more developed the financial function.

Table 9 shows the estimates of FDI and the quality of financial development. Similarly, we control the size of government, trade openness, inflation and dependency ratio as control variables in the model. Column (1) to (3) show the results of FDI and bank access, efficiency, and stability. In the column (1), the coefficient of FDI is 0.234, which is significant at the statistical level of 1%, indicating that FDI significantly improves the access of banking system in the host country. FDI brings ample employment opportunities and increases the wealth of the host country, thereby increasing the demand for basic financial services and increasing financial outreach. In the column

(2), the coefficient of FDI is 0.223, which is significant at the statistical level of 1%. It shows that there is a positive correlation between FDI and bank efficiency. The FDI of the financial sector can bring about advanced financial management experience directly, and the newly established foreign banks also bring vitality to the host country's banking system. On the one hand, the leading banks in the host country can learn advanced financial management techniques from foreign banks; on the other hand, in the industrial competition, banks have been forced to improve the bank's operating efficiency and competitiveness. In the column (3), the coefficient of FDI is not significant, but it is still greater than 0, indicating that FDI has a subtle effect on bank stability.

In table 9, column (4) to (6) show the results of FDI and the access, efficiency and stability of the financial markets. We find that in column (4) and (5), the coefficient of FDI is greater than 0, but it is not significant, indicating that FDI is less simulative to market access and efficiency. In the column (5), the coefficient of FDI is 0.471 and is significant at the statistical level of 1%, suggesting that FDI significantly improves the stability of the host country's financial markets, because foreign investment institutions and individual investors are more rational than their own residents, thus speculation reduced in the stock market, and making stock prices tend to be relatively stable.

Thus, FDI can not only significantly increase the frequency of financial development, but also promote its quality. FDI has a more positive impact on the scale of the market, while FDI has a more pronounced effect on banks' function. The hypothesis 1 presented in this paper has been validated more comprehensively.

6 Conclusion

As the most vital source of capital inflow, FDI is crucial to developing countries. Existing researches have discussed the positive influence of FDI on economic development, but rarely investigated the direct role of FDI in the development of the financial sector. This paper empirically tests the relationship between FDI and financial development by using a sample of countries along the Belt and Road. China launched The Belt and Road Initiative for economic development and common prosperity through injection of FDI. Promoting financial development in a country is one of the goals. The Belt and Road initiative cannot be done by China only, countries along the initiative will participate in the project when they see real benefits generated by the initiative to their countries.

Data from 50 countries along the Belt and Road Initiative, 1989 to 2011,employ various sample settings and multiple empirical study methods. The results show that there is a significant positive correlation between FDI and the host country's financial sector development, especially for Belt countries, no statistically significant nonlinear relationship between FDI and financial development is found. 1% more FDI of the GDP, the financial development level of the host country will increase by about 0.1%. Distinguishing banks and markets, we find that FDI has a more significant positive impact on the financial deepening of financial markets, while weaker on that of banking system.

Furthermore, we have investigated the institutional conditions for FDI to promote financial development. The empirical analysis shows that FDI plays a more vital role in promoting financial development in countries with better system quality, lower corruption, better legal order and less ethnic conflicts. This shows that a good institutional environment will help enhance the positive role of FDI in the host country's financial development. Finally, we also find that FDI also plays a significant role in promoting the quality of the financial sector, that is, financial access, efficiency and stability. FDI can not only promote the financial deepening of host country, but also can

improve its financial function, and promote the financial development of host country from in terms of quantity and quality.

References

Acemoglu, D., Verdier, T., 1998. Property rights, corruption and the allocation of talent: a general equilibrium approach. The Economic Journal 108, 1381--1403

Aggarwal, R., Demirgüç-Kunt, A., Peria, M.S.M., 2011. Do remittances promote financial development? Journal of Development Economics 96, 255--264

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S., 2004. FDI and economic growth: the role of local financial markets. Journal of International Economics 64, 89--112

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S., 2010. Does foreign direct investment promote growth? Exploring the role of financial markets on linkages. Journal of Development Economics 91, 242--256

Anzoategui, D., Demirgüç, A., Pería, M.S.M., 2014. Remittances and financial inclusion: evidence from El Salvador. World Development 54, 338--349

Beck, T., Demirguc-Kunt, A., Laeven, L., Levine, R., 2008. Finance, firm size, and growth. Journal of Money, Credit and Banking 40, 1379--1405

Becker, B., 2007. Geographical segmentation of US capital markets. Journal of Financial Economics 85, 151--178

Borensztein, E., De Gregorio, J., Lee, J., 1998. How does foreign direct investment affect economic growth? Journal of International Economics 45, 115--135

Boyd, J.H., Levine, R., Smith, B.D., 2001. The impact of inflation on financial sector performance. Journal of Monetary Economics 47, 221--248

Buchanan, B.G., Le, Q.V., Rishi, M., 2012. Foreign direct investment and institutional quality: Some empirical evidence. International Review of Financial Analysis 21, 81--89

Butler, A.W., Cornaggia, J., 2011. Does access to external finance improve productivity? Evidence from a natural experiment. Journal of Financial Economics 99, 184--203

Cihak, M., Demirgüç-Kunt, A., Feyen, E., Levine, R., 2012. Benchmarking financial development around the world. World Bank Policy Research Working Paper 6175, 1--58

Demirgüç-Kunt, A., Córdova, E.L., Peria, M.S.M., Woodruffc, C., 2011. Remittances and banking sector breadth and depth: Evidence from Mexico. Journal of Development Economics 95, 229--241

Desbordes, R., Wei, S., 2017. The effects of financial development on foreign direct investment. Journal of Development Economics 127, 153--168

Do, Q., Levchenko, A.A., 2004. Trade and financial development. Policy Research Working Paper Series 3347, The World Bank.

Dutta, N., Mukherjee, D., 2012. Is culture a determinant of financial development? Applied Economics Letters 19, 585--590

Garcia, V., Liu, L., 1999. Macroeconomic Determinants of Stock Market Development. Journal of Applied Economics 2, 29--59

Goldsmith, R., 1969. Financial structure and economic development. New Haven: Yale University Pres

Gurley, J.G., Shaw, E.S., 1967. Financial structure and economic development. Economic Development and Cultural Change, 257--268

Iamsiraroj, S., 2016. The foreign direct investment--economic growth nexus. International Review of Economics&Finance 42, 116--133
Khan, M.S., Senhadji, A.S., 2003. Financial development and economic growth: a review and new evidence. Journal of African Economies 12, 89--110
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor protection and corporate valuation. The Journal of Finance 57, 1147--1170
Law, S.H., Singh, N., 2014. Does too much finance harm economic growth? Journal of Banking & Finance 41, 36--44
Le, T., Kim, J., Lee, M., 2016. Institutional quality, trade openness, and financial sector development in Asia: An empirical investigation. Emerging Markets Finance and Trade 52, 1047--1059
Levchenko, A.A., 2007. Institutional quality and international trade. The Review of Economic Studies 74, 791--819
Levine, R., 2002. Bank-based or market-based financial systems: which is better? Journal of Financial Intermediation 11, 398--428
Levine, R., 2005. Finance and growth: theory and evidence. Handbook of economic growth 1, 865--934
Levine, R., Loayza, N., Beck, T., 2000. Financial intermediation and growth: Causality and causes. Journal of Monetary Economics 46, 31--77
Mishkin, F.S., 2009. Globalization and financial development. Journal of Development Economics 89, 164--169
North, D., 1981. Structure and change in economic history. Norton, New York.
Pagano, M., 1993. Financial markets and growth: An overview. European Economic Review 37, 613-622
Rajan, R.G., Zingales, L., 2003. The great reversals: the politics of financial development in the twentieth century. Journal of FinancialEconomics 69, 5--50
Robinson, J., 1952. The generalisation of the general theory. The rate of interest and other essays 2, 1--76
Yartey, C.A., 2008. The Determinants of Stock Market Development in Emerging Economies: Is South Africa Different? IMF Working Papers 8032, 1--31
Zhang, C., Zhu, Y., Lu, Z., 2015. Trade openness, financial openness, and financial development in China. Journal of International Money and Finance 59, 287--309

Appendix

Appendix A: Definition of variables

FD: financial development (%), measured by the proportion of credit loads and market value of stocks in GDP.Data from World Bank GFDD database.

FDI: Foreign Direct Investment (%), measured by the proportion of FDI net worth in GDP. Data from the World Bank WDI database.

Trade: Trade Openness (%), measured by the proportion of total import and export trade to GDP. Data from the World Bank WDI database.

Gov: Government size (%) is measured by the share of government spending in GDP. Data from the world bank WDI database.

Inflation：Inflation (%)Data from World Bank WDI database.

Age: The old dependency ratio (%), population proportion of the below-15 and the over-64 in the total population. Data from the World Bank WDI database.

Corruption: Degree of corruption, reflecting the soundness of a country's political system. The value is 0-6: the larger the value, the less the corruption. Data from the ICRG database.

Law: Legal order. It reflects the degree of accomplishment of a country's legal system. The scope of value is 0-6: the larger the value, the more accomplished the legal order. Data comes from the ICRG database.

Ethics: Ethnic conflict. It reflects the soundness of social system of a country. The value range is 0-6: the larger the value, the less the racial conflict. The data comes from the ICRG database.

Bank development: The level of bank development (%) is measured by the proportion of bank credit loads to GDP. The data comes from the world bank GFDD database

Market development: The level of financial market development (%) is measured by the proportion of market value of the stock market in GDP. The data comes from the world bank GFDD database.

Bank accessibility: Bank availability is measured by number of bank accounts per 100 thousand people. The data comes from the world bank GFDD database.

Bank efficiency：Bank efficiency is measured by the reverse of net interest margin (NIM). The data comes from the world bank GFDD database.

Bank stability: Bank stability, the reverse number of non-performing loan ratios. The data comes from the world bank GFDD database

Market accessibility: Market availability, the ratio of the total assets of listed companies other than the top ten to all listed companies' total assets. The data comes from the world bank GFDD database.

Market efficiency: measured by turnover rate. Data from World Bank GFDD database.

Market stability: measured by the reverse value of market price volatility. Data from World Bank GFDD database.

Appendix B:Country list in the sample

Table B1

Country list in the sample.

Country	Code	Type	Country	Code	Type
Armenia	ARM	Belt	Romania	ROM	Belt
Bulgaria	BGR	Belt	Russia	RUS	Belt
Bahrain	BHR	Belt	Saudi Arabia	SAU	Belt
Bhutan	BTN	Belt	Serbia	SRB	Belt
Czech Republic	CZE	Belt	Slovakia	SVK	Belt
Estonia	EST	Belt	Slovenia	SVN	Belt
Georgia	GEO	Belt	Turkey	TUR	Belt
Hungary	HUN	Belt	Ukraine	UKR	Belt
Iran	IRN	Belt	UAE	ARE	Road
Israel	ISR	Belt	Bangladesh	BGD	Road
Jordan	JOR	Belt	Egypt	EGY	Road
Kazakhstan	KAZ	Belt	Croatia	HRV	Road
Kyrgyzstan	KGZ	Belt	Indonesia	IDN	Road
Kuwait	KWT	Belt	India	IND	Road
Lebanon	LBN	Belt	Korea	KOR	Road
Lithuania	LTU	Belt	Sri Lanka	LKA	Road
Latvia	LVA	Belt	Montenegro	MNE	Road
Moldova	MDA	Belt	Malaysia	MYS	Road
Macedonia	MKD	Belt	New Zealand	NZL	Road
Mongolia	MNG	Belt	Oman	OMN	Road
Nepal	NPL	Belt	Philippines	PHL	Road
Pakistan	PAK	Belt	Singapore	SGP	Road
Poland	POL	Belt	Thailand	THA	Road
Palestine	PRT	Belt	Vietnam	VNM	Road
Qatar	QAT	Belt	South Africa	ZAF	Road

Note: According to the disclosure on GOV.cn, by the end of June 30, 2017, “The Belt and Road” participants totaled 68 countries besides China. Due to hurdles in the availability of data, collected sample of 50 countries, among which Belt represents the Silk Road Economic Belt, and Road stands for the 21st century maritime Silk Road. We classified the type of the silk road according to the geographical location of the country.