BRI's Effects on Foreign Investments: DID Test Based on China's Greenfield Investments in 2005-2016

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Abstract: *This paper employs relatively more detailed and accurate data currently available from the Global Corporate Greenfield Investments Database 2005-2016 for an all-round analysis of the investment effects of the Belt and Road Initiative (BRI) based on the difference-in-differences (DID) model as an effective identification method for event evaluation. Our findings suggest that the BRI has sharply increased growth in outbound greenfield investments by Chinese companies and led to an increase in the number of investment projects in BRI countries by around 32%. A series of validity and robustness tests has demonstrated the existence of such positive effects. The BRI has facilitated greenfield investments by Chinese companies through "five links," i.e. infrastructure interconnection, policy communication, financial intermediation, trade, and people-to-people exchanges. Our heterogeneity analysis found that geographically, the BRI has played a more significant role in facilitating investment growth in the Maritime Silk Road countries and China's neighboring countries involved in the BRI, and no significantly positive effect exists for investment in economies with high political risks. From a dynamic perspective, the BRI stimulates investment by expanding the intensive margins, i.e. spurring investment growth in existing investment projects or economies home to those projects. Judging by the results of the difference-in-differences-in-differences (DDD) model, the BRI's positive effects on outbound investment are focused on infrastructure sectors such as energy, transportation and communication. In terms of the sources of investment, the BRI did not create any significant investment promotion effect for key Chinese provinces involved in the BRI..*

Keywords: *BRI, OFDI, DID, greenfield investment, "five links"*
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1. Introduction

In September 2013, General Secretary Xi Jinping put forth the Belt and Road Initiative (BRI) during his visit to Kazakhstan, bringing into the implementation stage this state-level top-down design critical to China's economic transformation and upgrading. The proposal of the BRI was intended to set the scene for a new paradigm of China's opening up. Under the BRI, countries will broaden the scope of investment, expedite investment facilitation, and encourage companies to participate in BRI infrastructure development and industrial investment. With those priorities, the BRI is expected to influence the choice of target countries, key industries and investment modes of Chinese enterprises in going global. According to data from the Ministry of Commerce, Chinese enterprises made direct

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investments in BRI countries exceeding 90 billion US dollars from 2013 to 2018, up 5.2% on an annual average basis. Aside from such aggregate data, we are keen to learn about the BRI's actual effects on outward foreign direct investments (OFDI), the underlying mechanisms of such effects, and whether heterogeneous effects exist, i.e. differences in investment modes, key industries and target countries. Answering these questions helps identify flaws and potential problems of the BRI's implementation and provide an important theoretical reference for China's historic leap from a major OFDI source country to a strong and competitive one.

Existing studies on China's OFDI were carried out from three perspectives: First, those focusing on the economic factors (Luo and Ge, 2013; Chen and Xu, 2009), natural resources (Chen and Xu, 2009; Yan, 2013), location (Buckley *et al*., 2007), and political systems (Globerman and Shapiro, 2002; Wang *et al.*, 2014) of host countries. Second, a few studies examined how the domestic development of home countries influenced OFDI. For instance, Yu (2015) investigated the effects of financial development in host countries on OFDIs from Chinese enterprises from the perspective of heterogenous motivations. The result suggests that financial development in host countries may create positive effects on OFDIs from Chinese companies at the quantitative level. Third, other academics discussed the effects of bilateral investment treaties (BIT) on China's OFDIs from the perspective of international economic and trade cooperation (Zong *et al.*, 2012; Yang *et al.*, 2016). Regretfully, existing studies have yet to conduct a comprehensive analysis of the investment promotion effects of a specific policy event and in particular, use such event as an entry point for causality identification. This gap offers a potential for breakthrough for this paper.

The BRI involves 65 countries and regions and provides a quasi-natural experiment for analyzing the external investment promotion effect of a specific policy event. Based on China's greenfield investment data from 2003 to 2016, this paper employs the difference-in-differences (DID) model to evaluate the effects of the BRI as a policy event on overseas investments by Chinese enterprises. To identify the policy effects, we generated a combined set of data by integrating the *Global Greenfield Investments Database of 2003-2016* with the World Development Indicators (WDI) and the Worldwide Governance Indicators (WGI). The reason that we focus on greenfield investment as the subject matter of research is that China's greenfield investment projects are almost twice as numerous in BRI economies as in non-BRI economies according to the *Global Greenfield Investments Database*. Meanwhile, we also performed an analysis of data from the *Statistical Communiqué of China's Outbound Direct Investments*, which reports the flow of merger and acquisition (M&A) investments by Chinese companies in BRI economies since 2015. We found that BRI economies were not the primary targets for M&As by Chinese companies. From 2015 to 2017, the flow of M&As by Chinese companies in BRI economies only accounted for 4.9% to 17% of the total volume of M&As by Chinese companies, or 3.4%-10.3% of the total FDI flows by Chinese companies in the same period. For BRI countries, greenfield investment is the primary mode of investment by Chinese companies. For this reason, it is of greater realistic significance to investigate the BRI's effects on greenfield investment, which is identified as the subject matter of research in this paper.

On the basis of existing research, this paper's marginal contributions include the following: First, unlike previous feasibility analyses on the investment environment of target countries - for instance, Tan and Zhou (2015) employed a stochastic frontier gravity model to investigate the trade potentials of the Maritime Silk Road, and Zhang (2015) estimated the level of trade facilitation in BRI countries, this paper offers an innovation of systematically evaluating the BRI's implementation using a difference-in-in-differences (DID) model for an *ex-post* analysis to identify the BRI's investment promotion effects and the heterogeneous attributes of those effects.

Second, aside from examining whether the BRI has positive investment effects, this paper further performs an in-depth analysis of the intrinsic mechanism of the BRI's effects on OFDI, which marks an earliest attempts to reveal the BRI's "five links" mechanism.

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Third, the *Global Greenfield Investment Database of 2003-2016* is a currently available global greenfield investment database. This database contains relatively complete records of actual OFDI projects from China, presenting an overall picture of greenfield investments by Chinese companies. As a key advantage, the database employed in this paper offers real information about overseas investment projects by enterprises and not just information about investment review and approval. In the robustness analysis, we have adopted firm data from the *Catalogue of Overseas Investment Enterprises and the Statistical Communiqué on China's Outbound Direct Investments* issued by the Ministry of Commerce to bring about stringent empirical conclusions.

2. Literature Review and Mechanism Analysis

The BRI is not just a free trade agreement. It represents a strategic goal of "going global" for regional cooperation in a broader scope and at higher and deeper levels. The BRI is expected to promote the orderly flow of economic factors, efficient resource allocation, and in-depth market integration by enhancing interconnection in transportation, energy and network infrastructures. The BRI's implementation has been followed by a surge in investments by Chinese companies in BRI countries. The question is through which conduits does the BRI facilitate the overseas investments by Chinese companies?

Theories on the choice of investment destinations by multinational companies (MNCs) made the earliest discussions on the choice of international investment destinations. Dunning (2008) made an early observation that MNCs were motivated to invest overseas to seek markets, efficiencies (cost reductions due to new technologies), and resources (including strategic assets). Subsequently, numerous studies have paid attention to OFDIs by Chinese companies. Buckley *et al.* (2007) identified political risk, cultural distance, exchange rate, inflation and international trade as critical determinants of firm investment decisions aside from the three classical factors. Based on the above studies, Pradhan (2011) examined the correlation between the geographical distribution of China's FDIs and whether host countries had executed two-way investment agreements and double tax agreements (DTAs) with China and whether host countries were offshore financial centers. In addition, Yan (2013) believes that improving infrastructure helps reduce the costs of factor turnover and information access, increase opportunities for firms to make profits, and hence attract more foreign investment. More recent studies started to focus on how uncertainties in overseas markets would influence the international development of enterprises. Aside from the direct motivations to invest overseas, MNCs must consider uncertainties and risks in making outbound direct investments. Bloom and Van Reenen (2007) believe that uncertainties would cause firm forecasts to be less accurate, thus prompting firms to invest more cautiously. Chinese and international academics such as Conconi *et al.* (2016) and Rao *et al.* (2017) found a significant negative correlation between uncertainties and firm investment at the empirical level.

The currently limited yet increasing discussions on China's BRI and OFDIs are the most relevant to our research. Existing studies on OFDIs from the perspective of the BRI have focused on the determinants of investment, which include (i) the institutional and environmental factors of host countries. He and Xu (2018), Zhang and Long (2018) *et al*. respectively examined the effects of such factors as business environment and trade barriers of host countries on investments by Chinese companies in BRI countries. (ii) Competitive strengths of companies. Based on the heterogeneous trade theory, Cui *et al*. (2018) and Zhang *et al*. (2018) and Zhang (2018) respectively investigated how export experience and trade cost had influenced OFDIs by Chinese companies in BRI countries. (iii) Institutional or geographical distance between host and home countries. Fang and Zhao (2017) and Shen and Jin (2018) respectively studied how geographical distance and institutional distance would influence direct investments by Chinese companies in BRI countries. As the most relevant study to ours, Du and Zhang (2018) employed micro-level firm data to investigate the BRI's effects on overseas M&As

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and found that state-owned enterprises (SOEs) dominated infrastructure investments while private companies dominated non-infrastructure investments. Regretfully, existing studies have yet to carry out any systematic analysis on the intrinsic mechanism of whether and how the BRI has facilitated overseas greenfield investments by Chinese companies, and stringent causality analysis is lacking.

The BRI has identified policy communication, infrastructure interconnection, trade facilitation, financial intermediation, and people-to-people exchanges as its five pillars, or the "five links" as referred to in this paper. We believe that political ties, infrastructure, financial support and cultural exchanges underpinning the "five links" will provide critical support to OFDIs by Chinese companies. Based on existing research on MNCs' choice of investment destinations and research literature on the BRI, we will investigate the mechanisms of the "five links" under the BRI as key drivers of investment by Chinese companies under the BRI, which will greatly mitigate uncertainties and external risks.

2.1 Infrastructure Connectivity

Infrastructure interconnection is the foundation for cooperation and development. It is also a priority under the BRI. According to the *BRI Big Data Report (2017)*, China has opened direct air routes with 43 BRI countries, and more than 5,000 cargo train trips have been made between China and 29 cities in 11 European countries. Infrastructure's positive effects on investment can be explained from the two perspectives of reducing cost and raising return (Donaldson and Hornbeck, 2016). Numerous empirical studies on OFDIs by Chinese companies - such as Wang and Zhang (2013) - have also proven infrastructure's positive effects on OFDI. Aside from SOEs and involved private companies motivated by State policies to invest, improving infrastructure along the BRI routes also attracts Chinese companies to invest in BRI countries (Du and Zhang, 2018).

2.2 Policy Communication

Policy communication offers an important assurance for the BRI. According to the National Development and Reform Commission (NDRC), China exchanged 43 visits between heads of state and government with BRI countries in 2017 and signed 15 documents on bilateral relations with 11 countries. During the BRI Summit, 18 heads of state and government from BRI countries visited China and signed over 270 documents on economic and trade cooperation with China. Existing literature identified regional cooperation as an important means to ease political relationships between countries. For instance, Sun and Sun (2017) found that free trade agreements (FTAs) had improved China's political relationships with neighboring countries; Mansfield and Pevehouse (2000) uncovered the potentials for preferential trading arrangements (PTAs) to reduce the likelihood of conflict between member countries. Good political relationships may also bridge institutional differences and facilitate investment between countries. Buckley *et al*. (2007) identified the political risks, exchange rates, inflation and international trade of host countries as key determinants for Chinese companies to decide to invest overseas.

2.3 Financial Intermediation

Financial intermediation is a key pillar for the BRI. Established in December 2015, the Asian Infrastructure Investment Bank (AIIB) proposed by China has become a key platform for financial intermediation under the BRI. By 2018, AIIB saw its membership expand to 87 countries, and invested a total of 5.43 billion US dollars in 28 projects. According to the National Development and Reform Commission (NDRC), China had established renminbi clearing arrangements in seven BRI countries by June 2018, and 11 Chinese-funded banks had created 71 tier-1 institutions in 27 BRI countries. Existing research identified financial factor as a key determinant of firms' internationalization behaviors (Manova, 2008). Desbordes and Wei (2014) systematically discussed the effects of financial development in home and host countries on OFDI. Empirical evidence from China also supports the OFDI effects of financial development. For instance, Yu (2015) discovered that financial development in host countries could

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induce OFDI growth. Furthermore, Lyu *et al.* (2019) noted that financial development in both BRI host and home countries could promote OFDIs by Chinese enterprises.

2.4 Trade Facilitation

Trade facilitation is a priority of the BRI. According to the *Big Data Report on BRI Trade Cooperation 2018*, China's trade with BRI countries totaled 1,440.32 billion US dollars, up 13.4% YoY, which was 5.9 percentage points above China's overall trade growth. Trade with BRI countries made up 36.2% of China's total import and export volume. Meanwhile, steady progress was made in the development of free-trade areas along the route. By August 2018, China had signed or upgraded five free-trade agreements with 13 BRI countries. Globerman and Shapiro (1999) found that trade-enhancing government initiatives - especially trade liberalization policies - would boost investment and economic cooperation with BRI countries. More recent studies such as Conconi *et al*. (2016), based on data of Belgium companies, found that previous export experience would encourage OFDI. Empirical evidence from China also verified the positive investment effects of trade. Buckley *et al*. (2007) identified trade as a key determinant of outbound investments by Chinese companies. Cui *et al*. (2018) also found that previous export experience would significantly boost OFDI in BRI countries.

2.5 People-to-people Exchanges

People-to-people exchanges are the foundation for the BRI. According to the *Big Data Report on the BRI (2017)*, China has formed 2,315 pairs of sister cities with various countries, or 75 pairs of sister cities for each province, autonomous region or municipality on average. Given the complexity of the international market and the cultural and institutional diversity of host countries, companies are faced with greater risks in their overseas operations. Such factors as cultural distance pose more uncertainties in their OFDIs. Similar to geographical distance, cultural distance bears a direct impact on the costs of trade and investment between countries (Sala *et al*., 2008). Jiang (2015) *et al*. uncovered a U-shaped correlation between cultural distance and business risks facing OFDIs by Chinese companies. Moreover, studies on the BRI also found that cultural distance would influence firms' overseas operations. For instance, Zeng and Gong (2017) estimated the cultural distance between countries based on the Hofstede cultural dimension database and uncovered a significant impact of cultural distance on exports.

3. Empirical Methodology and Data

3.1 Econometric Model Specification

The BRI spans from Pacific countries in the east to Baltic countries in the West and covers 65 countries in Central Asia, West Asia, North Africa, Southeast Asia, South Asia and the Central and Eastern Europe, including 11 countries from ASEAN, 18 from West Asia, eight from South Asia, five from Central Asia, seven from the Commonwealth of Independent States, and 16 countries from Central and Eastern Europe. Among them, 25 countries are along the 21st-Century Maritime Silk Road and 40 countries along the Silk Road Economic Belt. With the BRI's launch as a quasi-natural experiment, this paper employs the difference-in-differences (DID) method to examine the BRI's effects on OFDIs by Chinese companies. Referencing Lu and Yu (2015), this paper selects BRI countries as the treatment group and non-BRI countries as the control group to create the following DID model:

$$y_{ct} = \beta silk_dum_{ct} + X_{ct}\gamma + \alpha_c + \psi_t + \varepsilon_{ct} \quad (1)$$

$$silk_dum_{ct} = silkroad_c \cdot post_t \quad (2)$$

Equation (1) is a DID estimation model considering the fixed effects of time and country. Where, y_{ct} is the number of greenfield investment projects made by Chinese companies in specific host countries (after logarithmic conversion). $post_t$ is the dummy variable of the treatment period. Since the BRI was

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announced in 2013, $post_t$ is specified to be 1 for 2013 and subsequent years and 0 for the preceding years. $silkroad_c$ is the dummy variable of the treatment group, and denotes whether a host economy is along the BRI route. If so, this variable is specified as 1; otherwise, it is set to be 0. $silk_dum_{ct}$ is the interaction term between the dummy variable of the period after the BRI's announcement and the dummy variable of the treatment group. It is also the core variable for the DID method. X_{ct} is a group of host country characteristic variables that change with time. ψ_t is the fixed effect of year, α_c is the fixed effect of country, and ε_{ct} is the stochastic error term. We are concerned with the coefficient of the core explanatory variable β, whose economic implication can be interpreted as the BRI's impact on the growth of overseas greenfield investment projects by Chinese companies.

Control variable X_{ct} in this paper includes: (1) economic aggregate of the investment destination (GDP logarithm, lngdp) and per capita income level (per capita GDP logarithm, lngdp); (2) GDP growth rate (gdp_growth): higher growth rate means more business opportunities and greater attraction to firm investment; (3) referencing Wang *et al*. (2014), we have controlled for the key institutional variables of host countries, including corruption control (corruption), regulatory quality (regulation), government efficiency (government), and the rule of law (law).

3.2 Data Explanation

This paper employs the consolidated data from the *Global Greenfield Investment Database 2005-2016* from the fDi Markets, the World Development Indicators (WDI) from the World Bank, and the Worldwide Governance Indicators (WGI). Among them, the fDi Markets database contains the most comprehensive information about overseas greenfield investments by global companies, involving all greenfield investment projects in all countries and regions. Hence, this currently available comprehensive greenfield investment database can be used to examine the current status of China's overseas investment projects. Since most of China's OFDIs occurred after 2005, we specified the temporal dimension of samples to be 2005-2016 with 2,328 sample observations involving relevant information about 199 countries and regions, including 60 BRI economies.

4. Analysis of Empirical Results

4.1 Benchmark Regression Results

This section will investigate the actual effects of the BRI's implementation on OFDIs by Chinese enterprises. Specifically, the BRI's OFDI effects will be tested based on the specifications of equation 1 while controlling for the fixed effects of country and year and the country-level control variables with results shown in Table 1. Columns (1) through (3) of Table 1 report the regression results with new projects as a dependent variable. For the robustness of results, we use the stock of projects in Column (4) as dependent variable. Compared with other countries and regions, there could be an intrinsic trend of change in investment in BRI countries that is not the BRI's policy effect. For instance, many BRI countries are developing economies whose improving investment climate attracts Chinese companies to invest. Neglecting the potential trend of change in the dependent variables of the treatment group will lead to a bias of missing variables and render the estimated results to be unreliable.

Referencing Li *et al*. (2016), we introduced the interaction term between the Silk Road Economic Belt and Maritime Silk Road and the temporal trend. The above interaction term controls for the trend of change in the number of investment projects for countries in the Silk Road Economic Belt and Maritime Silk Road treatment groups. As can be found from Table 1, the BRI has significantly positive effects on firm investment. No matter measured by the flow or stock of projects, there is a sharp increase in the number of investment projects for treatment-group countries after the BRI's announcement. Notably, the dependent variable after logarithmic conversion can be interpreted as the percentage change in the number of projects. Since the stock of projects in non-BRI economies far eclipses those in BRI

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Table 1: Benchmark Regression Results

	(1)	(2)	(3)	(4)
silk_dum	0.1590** (0.0631)	0.1364** (0.0665)	0.3130*** (0.0941)	0.1704*** (0.0640)
Control variable of country	No	Yes	Yes	No
Fixed effect of country	Yes	Yes	Yes	Yes
Fixed effect of year	Yes	Yes	Yes	Yes
Temporal trend of control group	No	No	Yes	No
Number of cluster variables	194	177	177	194
Sample size	2,328	2,063	2,063	2,328
R^2	0.740	0.739	0.742	0.751

Source: calculated by authors.
Notes: (1) Numbers in parentheses are robust standard errors clustered at the country level, *p< 0.10, **p< 0.05, ***p< 0.01. The same below. (2) All subsequent regression results have controlled for the fixed effect of country and year, which will not be repetitively reported in the table of regression results.

economies, the percentage change in the stock of projects will be influenced by the number of existing projects. From this perspective, the flow of projects is more consistent with the requirements of the common trend hypothesis of the DID model. For this reason, it is more appropriate to use the flow of projects as the dependent variable. Hence, the results of Table 1 are consistent with expectations.

4.2 Analysis of DID Estimation Validity

The feasibility of empirical results reported in the benchmark model is subject to the validity of the DID estimation method. We performed a series of validity tests of the benchmark regression results, including the parallel trend test and a few placebo tests. Overall, there is no significant deviation in our estimation results.[1]

4.3 Heterogeneity Analysis

Considering the heterogeneity of firms' OFDIs on various dimensions, this section makes a detailed discussion of the investment promotion effects of potential heterogenous factors.[2]

4.3.1 Separate discussion of the Maritime Silk Road and Silk Road Economic Belt countries

In terms of route and transportation mode, the BRI encompasses the Maritime Silk Road and the Silk Road Economic Belt. The Maritime Silk Road includes China - Southeast Asia route, China - South Asia - Persian Gulf route, and China - Red Sea Bay - Western Indian Ocean route. The Silk Road Economic Belt includes the China - Mongolia - Russia Economic Belt to the northeast and the New Eurasia Continental Bridge to the northwest and links various countries in Central Asia, West Asia and the Central and Eastern Europe to the west. Judging by the results of regression, the BRI's effects on China's OFDI are chiefly reflected in the Maritime Silk Road countries while the effects on the Silk Road Economic Belt countries had yet to be fully revealed. This result is robust when the two different control groups are both taken into consideration.

4.3.2 Differentiated discussion of neighboring BRI countries and non-neighboring countries

Based on the gravity model, geographical distance has always been a key determinant of OFDI and international trade. The effects of geographical distance on firms' internationalization have been widely

[1] In the interest of length, detailed results are not elaborated here but available upon request.
[2] Ibid.

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discussed in the existing literature (Tinbergen, 1962). Hence, we consider it necessary to further examine BRI countries according to their geographical distance to China. In this paper, BRI countries bordering China on land are defined as "neighboring BRI countries", and other countries are defined as non-neighboring BRI countries. Overall, the BRI has significantly increased investments in neighboring BRI countries, but the investment promotion effects are limited for non-neighboring BRI countries.

4.3.3 Differentiated discussion of high-risk and low-risk economies

Due to the irreversibility of investment, uncertainties and high risks are key barriers to OFDI (Conconi *et al*., 2016). Thus, this section further examines how the BRI influences OFDI after introducing the political risk factors of host countries. Referencing Conconi *et al*. (2016), we analyzed host countries' political risks using the political risk rating indicators of 138 economies provided by the International Country Risk Guide (ICRG) released by the Political Risk Services Group (PRS Group). Specifically, these indicators include government stability, the political risks of investment projects, religious and political risks, and the level of democratization. An economy is classified as a politically high-risk economy if various indicator values are above the median level; otherwise, it is regarded as a low-risk economy. As can be seen from the regression results, the BRI's investment promotion effects had yet to be brought into full play in politically risky economies, as manifested in a significantly or insignificantly negative estimation coefficient. This result points to importance to tighten risk control during the BRI's implementation to offer more protection to OFDI.

4.3.4 Differentiated discussion of OFDI types

Referencing Conconi *et al*. (2016), economies receiving OFDIs from Chinese companies are classified into the following types: (i) economies in which China had already invested before the BRI and did not withdraw during the sample period are defined as economies with continued investments; (ii) economies in which China had previously invested but ceased to invest in the subsequent five years are defined as economies with exited investments; (iii) economies in which China had never previously invested are defined as economies in which China has yet to enter or re-enter. Based on the sample period, economies in which China had invested during 2003-2007 are defined as previously invested economies. The regression samples are thus dated between 2007 and 2016 following the occurrence of investment. On the whole, the BRI's investment effects are realized by continuing investment growth in the invested economies, as reflected in the substantial investment growth in economies with continuing investments under the BRI. This result is similar to Nocke and Yeaple's (2007) finding that previous investment experience had a tremendous impact on firms' subsequent investment behaviors. It takes greater fixed costs, uncertainties and risks to kick off a new investment project. In the current stage, therefore, the BRI's investment promotion effects are chiefly manifested in the expansion of intensive margins, which is consistent with the reality of the initial period of the BRI's implementation.

4.3.5 Examination based on sector-country/province-country dimensions

The *Vision and Actions on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road* has identified infrastructure interconnection as a priority under the BRI, which includes the harmonization of standards, transportation, energy cooperation, and communication. Projects under the BRI range from railways to sea ports and airports, power plants, power transmission and oil and gas pipelines, and infrastructure. According to the sector classification of investment projects provided by fDi Markets, such infrastructure projects encompass coal, oil and gas, renewable energies, building materials, communication, transportation, and warehousing sectors. Since the BRI was put forth in 2013 and remains in the early implementation stage, priority sectors for infrastructure development are also priorities under the BRI. Since the *Vision and Actions* identified 18 provinces, autonomous regions and municipalities as priorities, this section also examines the BRI's OFDI effects for China's

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various provinces, autonomous regions and municipalities. Regression results indicate that the BRI's implementation has sharply increased investments in the priority sectors of BRI countries, and this effect exceeds those on ordinary sectors. However, OFDIs from key provinces, autonomous regions and municipalities under the BRI were not significantly more numerous than those from other provinces, autonomous regions and municipalities. This result largely has to do with the sample interval dated till 2016. Since the policy was introduced for only a year in key provinces, autonomous regions and municipalities, the effects of policy implementation could be insignificant and subject to a lag effect. Therefore, it is necessary to conduct further discussions and analysis in follow-up research. After a longer period of data becomes available, the evaluation of policy effects will be more accurate and comprehensive.

4.4 Mechanism Test

Based on literature review and mechanism analysis, we investigated the mechanism in which the BRI stimulates OFDIs by Chinese enterprises from five aspects, including policy communication, trade facilitation, financial intermediation, infrastructure interconnection, and people-to-people exchanges. Table 2 reports the results of analysis of the BRI's effects on interconnection.

In Column 1 of Table 2, we used the number of mutual visits between senior officials from both sides (lnvisit, logarithmic conversion of visits, greetings and meetings in third countries) as the proxy variable of policy communication based on data from the website of the Ministry of Foreign Affairs.

In Column 2, we used the trade density indicator released by the WITS to measure the closeness of trade ties between China and various economies (trade_intensity). The higher this index, the closer trade ties China has with target economies.

In Column 3, we used the total number of subsidiaries of Chinese-funded banks in target economies as the proxy variable of financial intermediation considering the level of China's participation in financial development in target economies. Such data were collected manually from the websites of Chinese-funded banks.

In Column 4, we used the number of direct flights between China and target economies as the proxy variable of infrastructure interconnection (airline) for an analysis of the policy effects on infrastructure interconnection based on data from the International Civil Aviation Organization (ICAO).

In Column 5, we identified cultural goods (culture_goods) from China's exports based on the 2009 UNESCO Cultural Statistics Framework released by UNESCO. Export data are from China Cargo Export Statistics 2007-2015 provided by UN COMTRADE. We substituted the sum between the two categories of exports - including pure cultural goods and cultural products and supporting materials and equipment - respectively into the model. Considering the potential trend of change in the dependent variables of the control group, we introduced the interaction term between the treatment group and the temporal trend to control for the problem referencing the benchmark model in Column 3 of Table 1 with

Table 2: Test of the "Five Links" Mechanism of the BRI Initiative

	(1)	(2)	(3)	(4)	(5)	(6)
	Lnvisit	trade_intensity	findev	Airline	culture_goods	
silk_dum	0.0909**	1.2787***	0.9531***	0.6882***	0.3213**	0.2293**
	(0.0391)	(0.1815)	(0.1521)	(0.0283)	(0.1600)	(0.1096)
Control variable of country	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	2,052	2,198	2,052	907	1,636	1,636

Source: Calculated by the authors.

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estimated results listed in Table 2.

Column (1) of Table 2 tests the BRI's effects on policy communication. It can be found that the BRI's proposition has been followed by a sharp increase in China's two-way and multi-way policy communication with BRI economies. This shows the BRI's significant effects of policy communication. Column (2) reports the BRI's policy effects on trade facilitation from the perspective of trade ties. It can be found that China's trade ties with BRI economies have greatly increased after the BRI's implementation. That is to say, the BRI contributes positively to trade facilitation with BRI economies. Column (3) tests the BRI's policy effects on financial facilitation between China and BRI countries from a financial development perspective. It can be found that compared with other economies, there was a sharp increase in the subsidiaries of Chinese-funded banking financial institutions in BRI countries. This result reveals the BRI's positive effects on financial intermediation between China and BRI economies. Column (4) reveals that after the BRI's implementation, China's direct civil aviation flights with BRI economies have increased significantly. This indicates not only the BRI's positive effects on China's interconnection with BRI economies, but the positive conditions created by convenient exchanges of personnel, documents and goods for overseas greenfield investments by Chinese companies in BRI countries. Lastly, Columns (5)-(6) respectively report the regression results of cultural exports of the above two statistical scopes. It can be found that after the BRI's implementation, cultural communication has led to a sharp increase in BRI countries' imports of Chinese cultural goods. This effect is significant for cultural goods in both narrow and broad senses.

5. Concluding Remarks and Policy Implications

This paper employs the difference-in-differences (DID) model as an effective identification method for event identification based on relatively complete and accurate data from the *Global Greenfield Investment Database 2003-2016* for a comprehensive analysis of the BRI's investment promotion effects. Our conclusions include: First, the BRI's implementation has led to a sharp increase in overseas greenfield investments by Chinese enterprises, resulting in an increase in the number of investment projects in BRI countries by as much as 15.9% to 31.3%. This empirical result has passed the DID validity tests, including placebo test, parallel trend test, control for multiple fixed effects, and multiple robustness test.

Second, the BRI's positive effects on greenfield investments by Chinese enterprises were realized through the "five links," including infrastructure interconnection, policy communication, financial intermediation, trade facilitation, and people-to-people exchanges.

Third, we found through a heterogeneity analysis that the BRI's positive effects on overseas investment were more evident in investment growth in Maritime Silk Road countries and neighboring BRI countries.

Moreover, when host economies faced greater political risks, the BRI's positive investment promotion effects were absent. From a dynamic perspective, the BRI's investment promotion effects are chiefly manifested in the expansion of intensive margins, i.e. the BRI drives investment growth in economies with pre-existing investment experiences or projects.

Lastly, we further found based on a difference-in-difference-in-differences (DIDD) method in sector-country/province-country dimensions, the BRI's overseas investment effects are concentrated in such sectors as coal, oil and gas, renewable energies, building materials, communication, transportation, and warehousing sectors. However, this initiative did not create immediate positive effects on foreign investments in key BRI provincial-level regions, which warrant attention in future policy implementation.

The Silk Road Economic Belt and the 21st Century Maritime Silk Road, or the Belt and Road Initiative (BRI), is intended to explore a new paradigm of China's opening up. The BRI's priority is to

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involve domestic enterprises in infrastructure construction and industrial investment in BRI countries. After five years of implementation, the BRI has effectively boosted direct investments by Chinese companies in BRI countries, especially in the Maritime Silk Road countries, priority sectors, and projects with previous investment experience. During the BRI's implementation, investment incentives to key BRI provincial-level regions have been limited, and investment growth is largely intensive. In the BRI's future implementation, priority should be given to expediting extensive marginal investment growth and propelling OFDI growth in key provincial-level regions in economically less developed regions. Lastly, we should tighten risk control for BRI projects and offer greater protection to overseas investment by companies.

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