World Journal of Management Science
Print ISSN: 2959-9628
Online ISSN: 2959-9636
DOI: https://doi.org/10.61784/wms3110

IMPACTS OF THE BELT AND ROAD INITIATIVE ON PEER EFFECTS IN CHINESE FIRMS' OFDI

ChangQing Li[1*], HongHong Li[1,2]
[1]*School of International Business, Southwestern University of Finance and Economics, Chengdu 611130, Sichuan , China.*
[2]*Guizhou Provincial Investment Promotion Bureau, Guiyang 550000, Guizhou, China.*
[*]*Corresponding Author: ChangQing Li*

Abstract: Based on the perspective of peer effects, this paper takes China's A-share listed companies as research samples to explore the impact of the Belt and Road Initiative (BRI) on peer effects in corporate outward investment. The empirical results show that: (1) The BRI can significantly narrow the gap in outward investment between individual firms and their industry peers as well as provincial peers, indicating that both industry peer effects and geographic peer effects prevail in the outward investment activities of Chinese enterprises. (2) For state-owned enterprises and firms located in the 18 provinces along the BRI routes, the Initiative substantially reduces their outward investment gaps relative to peer enterprises, while such effect is not statistically significant for non-state-owned enterprises and firms outside these provinces. (3) Government subsidies strengthen the BRI's influence on industry peer effects of corporate outward investment in China. Similarly, the degree of marketization across provinces enhances the BRI's impact on peer effects in outward investment among intra-provincial enterprises.
Keywords: The BRI; Outward investment; Peer effects

1 INTRODUCTION

Peer effects were first extensively studied in the field of sociology. A large body of literature has confirmed the existence of peer effects in people's behaviors such as smoking, decision-making and academic performance. Manski (1993) argued that individuals are inevitably influenced by the groups they belong to in essence [1]. In existing studies, peer effects are also referred to as peer group effects or social contagion [2-3].

There is a clear distinction between peer effects and herding effects. Herding effects emphasize irrational herd behavior, which is premised on irrational assumptions and leads to irrational outcomes [4]. By contrast, peer effects are based on the rational economic man hypothesis. Individual behaviors tend to converge under the influence of peers. Generally driven by information asymmetry and opacity, peer effects represent rational decisions made by individuals to reduce decision-making risks.

Since the launch of the BRI, China has promoted investment facilitation, reduced or eliminated investment barriers, and effectively advanced international production capacity cooperation through exchanges of technology, resources, and talent with countries along the route. This has significantly enhanced the attractiveness of these countries to Chinese firms. As a result, Chinese enterprises have accelerated their "going global" process, and their outward foreign direct investment (OFDI) has increased rapidly. However, an important question remains: is the substantial investment by Chinese firms in BRI countries driven by profit maximization considerations or by learning from peer firms within the same industry? Scholars have not yet provided a clear answer to this question. To address this gap, this study, grounded in the BRI policy, investigates whether Chinese firms' OFDI exhibits peer effects and examines the underlying mechanisms, thereby exploring the influence of the BRI on corporate investment peer behavior.

2 THEORETICAL BASIS AND RESEARCH HYPOTHESES

2.1 Peer Effects

International scholars first applied the concept of peer effects to the field of education. Winston and Zimmerman (2003) [5], using data on individual students' academic performance, SAT scores, and their roommates' SAT scores across three schools, found that roommates' academic characteristics significantly influenced individual academic achievement. Yuan et al. [6], based on survey data from 30 rural schools in Anhui Province, empirically examined peer effects at both the class level and the individual peer level, finding that peer effects had a significant positive impact on students' standardized math scores. Angela and Alexander (2021) used data on peers from a private university in Colombia during 2019 and found that peers' academic performance positively influenced students' own academic outcomes [7].

Peer effects have also been studied in other areas of sociology. Dishion and Tipsord (2011) investigated peer contagion effects among children and adolescents [8], showing that problematic behaviors could spread to other peers within the same group through friendships and cliques. Duncan (2011) [9], using smoking data from 75,000 adolescents across 26 European countries, found that a one percentage point increase in the proportion of "typical" classmates who smoked was associated with a 0.31–0.38 percentage point increase in adolescent smoking rates. Gwozdz (2015) [10], studying obesity among 14,000 children in eight European countries, found that peer effects also existed in childhood obesity. Furthermore,

scholars have examined adolescent school dropout [11], internet addiction [12], and online shopping consumption habits [13], finding significant peer effects in these domains as well.

2.2 The BRI and Peer Effects in Outward Investment

Economic policies exert a profound influence on corporate investment behaviors. For instance, Xiao and Jin (2020) find that development zone policies can significantly expand firms' investment scale and narrow the gap between individual firms and the industry average [14], which proves the existence of prominent peer effects in corporate investment. As a macro-level policy, the BRI receives support from local governments and functional departments during implementation and serves as a key approach to achieving strategic goals. It boosts enterprises' confidence in participating in the BRI and thereby stimulates their outward investment [15]. A firm's investment decisions are affected by those of its peers within the same industry or region.

Bao and Goetz (2026) confirm that local peer firms' investment exerts a significantly positive causal impact on corporate investment [16]. Their study shows that spillovers only occur within the same type of capital — physical or intangible — and the impact is more salient for operationally essential capital. Studies by Li et al. (2020) also suggest that firms tend to mimic their counterparts when making investment decisions, namely the presence of investment peer effects [3].

Accordingly, the BRI stimulates outward investment of individual enterprises via policy incentives, and further drives other peer firms to conduct outward investment through peer effects. Based on the above analysis, we propose the following hypothesis:

H1: Firms under the BRI show significant peer effects in outward investment.

Since the launch of the BRI, China has strongly supported its enterprises in engaging in large-scale project cooperation and infrastructure construction with countries along the route. Macro-level policies have a more pronounced impact on state-owned enterprises (SOEs). Xiao and Jin (2020) found that government development zone policies significantly promote peer effects in corporate investment [14], and SOEs are more likely than non-SOEs to increase their investment scale, exhibiting stronger peer effects. Similarly, under the support of relevant policies, the BRI attracts some SOEs to actively invest abroad. Guided by the BRI, 18 provinces along the route have been designated as key development provinces, and 26 major node cities have been identified. Consequently, targeted supporting policies have been introduced to leverage the functional positioning and development directions of these 18 provinces and 26 node cities. As a result, firms in these provinces enjoy more opportunities and policy advantages, which may lead them to imitate the general investment behavior of the majority of firms in the same industry or province, resulting in more significant peer effects in outward foreign direct investment (OFDI). Based on this, this paper proposes the following hypotheses:

H1a: The peer effects in OFDI are more significant for SOEs than for non-SOEs.

H1b: The peer effects in OFDI are more significant for firms located along the BRI route than for non-route firms.

2.3 Moderation Effect and Peer Effects in OFDI

2.3.1 Moderating effect of subsidies

As a major strategic decision designed to foster a new pattern of all-round opening-up in China, the BRI coordinates both domestic and international priorities, and its implementation relies on a full range of supporting policies. On the one hand, local governments actively align with the top-level planning of the central authorities; on the other hand, they guide local resources toward regions and sectors encouraged by the BRI. Similar to other industrial policies, local governments and competent authorities issue guiding documents alongside supporting measures to deliver macroeconomic regulation goals, including industrial catalog guidance, tax incentives, fiscal subsidies and credit support [15].

Local action plans for the BRI generally include preferential policies such as credit, insurance and fiscal funds for enterprises investing in BRI-related projects. For instance, Lianyungang City in Jiangsu Province put forward proposals on fiscal funding, tax incentives and port-of-departure tax rebates for key projects. In 2017, the State Taxation Bureau of Fuzhou Economic and Technological Development Zone took the BRI as an opportunity to build a tax information sharing platform, strengthen tax source monitoring, and help enterprises avert tax-related risks in a timely manner. Qinghai and Chongqing also required financial institutions to adjust credit policies so as to deliver more accessible financing support for enterprises engaged in BRI-related businesses.

As a crucial driver for advancing infrastructure connectivity, financial integration and unimpeded trade under the BRI, local governments offer substantial fiscal support and preferential policies to enterprises. Government subsidies, tax incentives and other policies effectively cut down firms' costs of outward investment and operation, reduce their overall expenditures and improve operational performance, thereby boosting outward investment activities [17]. Firms along the routes share identical policy environments and receive similar subsidies and preferential treatments, which strengthens their motivation for outward investment and further leads to convergent investment behaviors. Accordingly, this paper puts forward the hypothesis,

H2: Subsidies moderate the BRI's peer effects on firms' OFDI.

2.3.2 Moderating effect of market liberalization

Since the launch of the Belt and Road Initiative, apart from cutting firms' operating costs and boosting their outward investment, preferential BRI-related policies issued by local governments have also significantly driven high-quality economic development in China [18]. Through top-level policy design, a new pattern of opening-up at a higher level has been established, enabling the Initiative to play a positive role in advancing domestic high-quality economic growth. It

helps enhance domestic innovation capacity and openness, prioritizes ecological and environmental protection, coordinates solutions to potential problems, and improves the level of social welfare across all links of socioeconomic operation.

As an economic cooperation initiative, the BRI significantly boosts the investment scale of supported enterprises by mitigating risks in outward investment, generating abundant investment opportunities, and cutting down the costs for Chinese firms to "go global" [19]. Numerous studies have also confirmed that government policies substantially shape the behaviors of Chinese enterprises [20]. Regions with a high degree of marketization feature fair competition, transparent markets and rational resource allocation, where firms show stronger enthusiasm for outward investment. By contrast, regions with low marketization usually lag in economic development and have imperfect financial systems. Firms in such regions face higher uncertainty risks and thus are less motivated to invest overseas. Based on the above analysis, we propose the following hypothesis,

H3: Market liberalization moderates the BRI's peer effects on firms' OFDI.

3 RESEARCH DESIGN AND DATA DESCRIPTION

3.1 Sample Selection

This study takes the launch of the BRI as a quasi-natural experiment, designating the years 2014 and onward as the experimental period. The sample period spans from 2009 to 2020, and the research objects are all A-share listed companies. In the data selection process, all financial firms and ST (special treatment) firms are excluded. Industry classification follows the classification standards issued by the China Securities Regulatory Commission (CSRC) in 2012. Investment data and basic firm information are sourced from the CSMAR database, while BRI classification data are obtained from the key "Belt and Road" concept stock section of the iFinD database. Since some firms located in BRI route provinces are not actually engaged in BRI-related business, while some firms outside the 18 designated provinces are closely involved with the BRI, it would be inaccurate to classify firms into treatment and control groups solely based on whether they are located in a BRI route province. Following the approach of Xu et al. (2019) [20], this study identifies firms listed in the "Belt and Road" concept stock section of the iFinD database as BRI-supported firms.

3.2 Model Specification and Variable Selection

3.2.1 Model specification

This study regards the BRI as a quasi-natural experiment and adopts the Difference-in-Differences (DID) model to evaluate policy effects. Following Xiao and Jin (2020), we construct the regression model as follows:

$$y_{it}=\beta_0+\beta_1 DID_{it}+X_{it}+\sigma_i+\theta_t+\varepsilon_{it} \quad (1)$$

Here, y_{it} represents the peer effect of corporate investment. Following the approaches of Xiao and Jin (2020) and Chen (2021) [18,21], it is measured as the absolute difference between a firm's investment amount and the mean investment amount of its peer firms. This study examines the peer effects of corporate outward foreign direct investment (OFDI) from two perspectives: industry-level peer effects and geographic peer effects. DID_{it} is a dummy variable indicating whether a firm is a BRI-affiliated firm in year i. It takes the value of 1 if the firm belongs to a BRI-affiliated firm, and 0 otherwise. If the coefficient β_1 is significantly different from zero, it indicates that the BRI significantly affects the peer effect of corporate OFDI. X_{it} represents control variables, including firm age, firm size, tangible asset ratio (TAR), leverage ratio, return on total assets (ROA), Tobin's Q, management shareholding ratio, board size, and proportion of independent directors. σ_i denotes firm fixed effects, θ_t denotes year fixed effects, and ε_{it} is the random error term.

3.2.2 Variable selection and description

(1) Dependent Variable

The dependent variable refers to the peer effect of corporate outward investment. Following Xiao and Jin (2020) [18], it is measured by the absolute value of the gap between a firm's outward investment and the average outward investment of its peers. This study constructs two proxy variables: industry peer effect and geographic peer effect.

Firms within the same industry, classified according to the CSRC 2012 Industry Classification Standard, are defined as industry peers; those located in the same province are defined as geographic peers. A smaller value of this indicator indicates a narrower difference in outward investment between the firm and its peers, which means a stronger peer effect.

(2) Independent Variable

We adopt a dummy variable for the Difference-in-Differences (DID) framework to identify whether a firm is located along the BRI routes and affected by the policy, so as to examine the BRI's impact on peer effects in corporate outward investment. Firms categorized as BRI concept stocks in the iFinD database are assigned to the treatment group, while the rest belong to the control group. The year 2014 and onwards is defined as the policy implementation period. The core explanatory variable is constructed by interacting the time dummy and treatment dummy.

(3) Control Variables and Other Characteristic Variables

This study selects corporate financial indicators as control variables, including firm age (age), return on total assets (ROA), firm size (size), tangible asset ratio (TAR), Tobin's Q (TQ), managerial shareholding ratio (Mshare), independent director ratio (Indrate), and board size (Board).

Table 1 Variable Definitions

Variable Type	Variable Symbol	Variable Name	Description
Independent Variable	DID	"BRI" dummy variable	Interaction term of year and group.
Dependent Variable	PE1/PE2	PE1: industry-level peer effect; PE2: geographic peer effect	Both PE1 and PE2 are measured as the absolute difference between a firm's investment and the mean investment of its peer firms.
Control variables	age	Firm age	Number of years since firm establishment
	size	Firm size	Natural logarithm of total assets
	TAR	Tangible asset ratio	Ratio of tangible assets to total assets
	TQ	Tobin's Q	Market value of the firm / replacement cost of assets
	Mshare	Management shareholding ratio	Ratio of shares held by directors, supervisors, and senior executives to total shares
	Board	Board size	Number of directors on the board

Descriptive statistics are conducted for all variables in the model, and the results are presented in Table 2. The statistical results show that the mean value of the industry peer effect is 26.92, and the mean value of the geographic peer effect is 25.36. Firm size ranges from 1.453 to 28.636, indicating a relatively large variation. Return on total assets has a mean of 0.051 and a standard deviation of 0.075, with slight fluctuations. The average managerial shareholding ratio is 11.97, with a minimum value of 0 and a maximum value of 100.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
PE1	13546	26.918	2.557	15.405	32.372
PE2	13551	25.362	2.127	13.472	32.013
size	10473	22.478	1.453	17.813	28.636
age	10468	17.458	5.88	1	53
TBQ	10189	2.107	2.392	0.038	101.466
TAR	10473	0.927	0.094	0.213	1
Mshare	12934	11.972	19.817	0	100
Board	13413	8.73	1.793	0	18

4 EMPIRICAL ANALYSIS

4.1 Baseline Regression

Based on the Difference-in-Differences (DID) model, this paper conducts a baseline analysis on the impact of the BRI on peer effects in Chinese firms' outward investment. The results are reported in Table 3. Columns 1 and 2 take the industry peer effect as the dependent variable, while Columns 3 and 4 adopt the geographic peer effect instead.

The regression results show that when the dependent variable is the industry peer effect of outward investment, the coefficient of the core explanatory variable DID is significantly negative regardless of whether control variables are included. After incorporating control variables, the coefficient reaches -0.252. This finding indicates that the BRI narrows the investment gap between individual firms and their industry peers, which verifies a significant industry peer effect in outward investment. In other words, the BRI substantially promotes the industry peer effect of corporate outward investment.

Similarly, Column 4 presents the influence of the BRI on the geographic peer effect, with the DID coefficient being -0.224. It suggests that the Initiative reduces the investment disparity between firms and their geographic peers, demonstrating that the BRI also significantly fosters the geographic peer effect in outward investment.

Table 3 Baseline Regression Results

	(1)	(2)	(3)	(4)
Variables	PE1	PE1	PE2	PE2
DID	-0.201**	-0.252***	-0.303***	-0.224**
	(-2.36)	(-2.66)	(-3.58)	(-2.37)
age		0.237***		0.221***
		(31.02)		(28.89)
TQ		0.028***		-0.007
		(2.91)		(-0.77)
TAR		-0.719***		0.156
		(-2.89)		(0.63)
size		-0.079**		-0.013
		(-2.19)		(-0.37)
Mshare		-0.002		-0.000
		(-0.89)		(-0.05)
Board		0.021		-0.028*

		(1.25)		(-1.72)
Constant	24.586***	24.092***	23.171***	20.972***
	(558.11)	(28.08)	(528.87)	(24.45)
Observations	13,546	9,729	13,551	9,734
year FE	yes	yes	yes	yes
N	2,867	2,040	2,867	2,040
R2	0.615	0.631	0.487	0.526

Note: *** p<0.01, ** p<0.05, * p<0.10; t-statistics in parentheses.

4.2 Robustness Tests

4.2.1 Parallel trend test

A prerequisite for applying the Difference-in-Differences (DID) model is the satisfaction of the parallel trend assumption. Accordingly, this section examines whether the peer effects of outward investment of firms along the BRI routes and other firms exhibited parallel trends before the initiative was launched. The parallel trend assumption holds if there is no significant difference in industry and geographic peer effects between the treatment group and the control group prior to policy implementation.

Following Zhang and Xie (2020) [22], we replace the time dummy with annual dummies covering the sample period from 2009 to 2020 and adopt the event study method to analyze the dynamic policy effects. The dashed lines in the figures represent the 95% confidence intervals of the estimated coefficients.

As shown in Figure 1, no significant difference is observed in the industry peer effect between the two groups before the BRI implementation. After the policy takes effect, the gap between individual firms' outward investment and the industry average is statistically different from zero. Although the gap narrows slightly over time, the value of the treatment group remains significantly lower than that of the control group. This confirms that the BRI reduces the divergence in outward investment within the industry, leading to prominent industry peer effects after policy implementation.

In terms of the geographic peer effect (Figure 2), the treatment group and the control group show no significant discrepancy in the pre-policy period, which satisfies the parallel trend assumption for DID estimation. A notable divergence emerges after the policy launch, indicating that the BRI exerts an impact on firms' geographic peer effects.

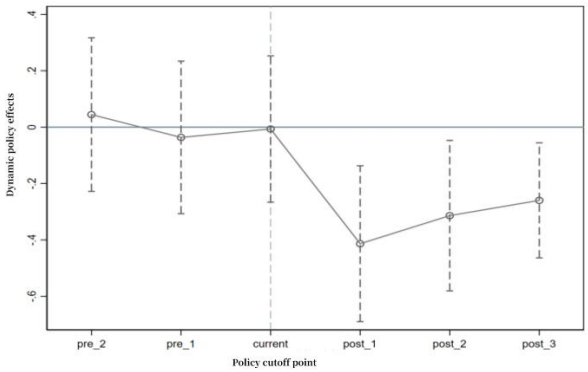

Figure 1 Parallel Trend Test of Industry Peer Effects

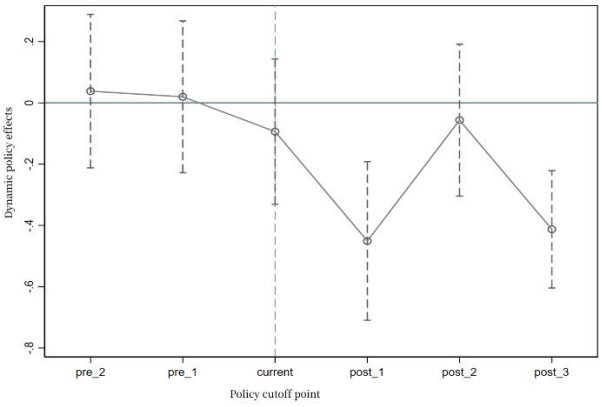

Figure 2 Parallel Trend Test of Geographic Peer Effects

4.2.2 Placebo test

To ensure the reliability of the regression results, this study conducts a placebo test. Following the approach of Jin and Shen (2019) [23], we randomly select 293 firms to construct a fictitious treatment group, assuming that these firms are affected by the BRI, while the remaining firms serve as the control group. Using the industry-level peer effects and geographic peer effects of corporate outward foreign direct investment (OFDI) as dependent variables, we perform 500

regressions. Figures 2 and 3 report the probability density distributions of the estimated coefficients of the BRI's impact on industry-level and geographic peer effects of Chinese firms' OFDI, respectively, based on the randomly drawn samples. As shown in the figures, the estimated coefficients are distributed around zero, approximating a normal distribution, and most of the corresponding p-values are greater than 0.1. Therefore, the probability of obtaining the baseline regression results from the random samples is extremely low, indicating that the assumption of a fictitious treatment group is invalid and confirming the credibility of the BRI's impact on corporate peer effects.

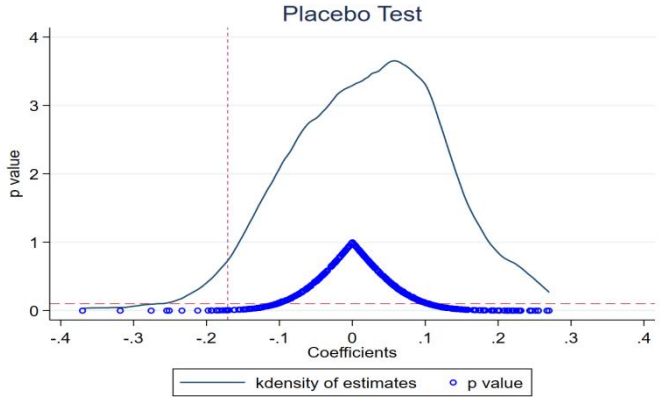

Figure 3 Placebo Test for Industry-Level Peer Effects

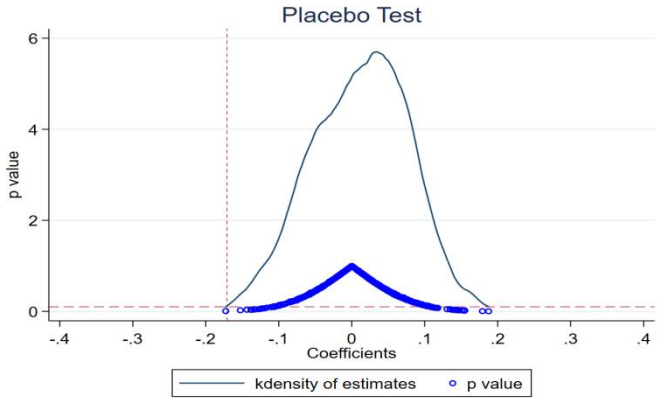

Figure 4 Placebo Test for Geographic Peer Effects

4.2.3 Alternative variable measurement

To further verify the robustness of the empirical results, this study follows Zhang and Jiang (2015) and Fang (2012) and adopts the median value of outward investment within each industry to replace the previously used industry average [25-26]. The industry peer effect is re-measured as the difference between a firm's outward investment and the industry median value. Likewise, we use the provincial median of outward investment instead of the provincial average to construct the indicator for geographic peer effect.

The re-estimation results are presented in Table 4. For the industry peer effect, the coefficient of the BRI variable remains significantly negative at the 1% level with and without control variables, which is consistent with the baseline regression findings. This proves that the conclusion regarding the BRI's impact on industry peer effects in outward investment is robust.

As for the geographic peer effect, the coefficient turns negative but statistically insignificant after the variable redefinition and the inclusion of control variables. A plausible explanation is that using the provincial median outward investment as the proxy may lead to substantial measurement bias. Since firms within the same province cover diverse industries, their investment volumes differ greatly. Using only the median value introduces considerable randomness into the regression.

Table 4 Robustness Test of Peer Effects

	(1)	(2)	(3)	(4)
Variables	PE1_med	PE1_med	PE2_med	PE2_med
DID	-0.274***	-0.290***	-0.084***	-0.035
	(-10.09)	(-9.64)	(-2.86)	(-0.99)
size		-0.004		0.058***
		(-0.39)		(4.27)
age		0.238***		0.227***
		(97.96)		(79.10)
TBQ		-0.008***		-0.005

		(-2.63)		(-1.47)
TAR		-0.141*		0.207**
		(-1.78)		(2.21)
Mshare		-0.005***		0.001
		(-6.70)		(0.80)
Board		-0.005		-0.006
		(-0.86)		(-0.90)
Constant	17.584***	15.161***	17.598***	13.663***
	(1,252.62)	(55.62)	(1,158.55)	(42.32)
Observations	13,555	9,737	13,555	9,737
year FE	yes	yes	yes	yes
N	2,867	2,040	2,867	2,040
R2	0.857	0.866	0.835	0.809

4.2.4 Propensity score matching test

To eliminate the biases caused by inherent differences between the treatment and control groups and the non-random selection of policy implementation, this study combines Propensity Score Matching and Difference-in-Differences (PSM-DID) for further robustness checks. Following Xu et al. (2019) [20], we adopt firm characteristic variables including firm size for matching. A Logit model is estimated to calculate the propensity score for each sample. We then select firms with similar propensity scores from non-supported enterprises as the control group and perform 1-to-1 nearest-neighbor matching with replacement. The results show that the deviation between the two groups declines substantially after matching, indicating a good matching quality.

We re-examine the relationship between the BRI and peer effects in corporate outward investment based on the matched samples. As reported in Table 5, both industry and geographic peer effects are statistically significant at the 10% level, which is consistent with the previous conclusions.

Table 5 Results of Propensity Score Matching

	(1)	(2)
Variables	PE1	PE2
DID	-0.181*	-0.182*
	(-1.86)	(-1.85)
age	0.239***	0.222***
	(31.07)	(28.45)
TBQ	0.046***	0.012
	(3.37)	(0.83)
TAR	-0.793***	0.109
	(-3.14)	(0.43)
size	-0.091**	-0.012
	(-2.45)	(-0.32)
Mshare	-0.002	-0.001
	(-1.00)	(-0.30)
Board	0.016	-0.035**
	(0.99)	(-2.06)
Constant	24.483***	21.022***
	(27.75)	(23.58)
Observations	9,566	9,573
year FE	yes	yes
N	2,020	2,021
R2	0.638	0.526

4.3 Heterogeneity Analysis

4.3.1 Firm heterogeneity based on ownership structure

Yang et al. (2018) showed that when firms receive policy support [26], they gain access to more resources. Under the policy support of the BRI, large state-owned enterprises (SOEs) obtain greater resource advantages. To analyze the differential impact of the BRI on the peer effects of outward foreign direct investment (OFDI) across different ownership types—i.e., which ownership group is primarily affected by the policy—this study divides listed firms into SOEs and non-SOEs based on their ownership nature, and discusses the heterogeneous effects of the BRI. The results are shown in Table 6. For SOEs, both the industry-level peer effects and geographic peer effects of OFDI are significant at the 1% level, consistent with the baseline regression results, with coefficient values significantly negative. In contrast, the regression results for non-SOEs are not significant. This indicates that the impact of the BRI on the peer effects of Chinese firms' OFDI is concentrated among SOEs, while its effect on non-SOEs is insignificant.

Table 6 Heterogeneity Analysis by Ownership Type

	(1)	(2)	(3)	(4)
Variables	PE1	PE1	PE2	PE2

	(nature=1)	(nature=0)	(nature=1)	(nature=0)
DID	-0.376***	0.223	-0.218**	-0.239
	(-3.22)	(1.29)	(-1.96)	(-1.29)
size	-0.157**	-0.138***	0.056	-0.025
	(-2.36)	(-2.87)	(0.89)	(-0.49)
TBQ	-0.028	0.037***	-0.026	-0.004
	(-1.16)	(2.92)	(-1.17)	(-0.31)
TAR	-1.667***	-0.038	-0.631	0.542*
	(-3.03)	(-0.13)	(-1.21)	(1.80)
Mshare	0.100***	-0.001	0.002	0.000
	(2.91)	(-0.51)	(0.05)	(0.14)
Board	0.030	0.017	-0.065***	-0.007
	(1.30)	(0.65)	(-2.97)	(-0.25)
age	0.261***	0.259***	0.208***	0.235***
	(22.83)	(22.22)	(19.21)	(18.80)
Constant	25.507***	24.708***	20.296***	20.639***
	(15.56)	(22.07)	(13.04)	(17.23)
Observations	3,883	5,645	3,885	5,648
year FE	yes	yes	yes	yes
N	637	1,452	637	1,452
R2	0.593	0.673	0.571	0.490

4.3.2 Firm heterogeneity based on geographic characteristics

Following the launch of the BRI, relevant authorities designated 18 provincial regions along the routes as key development areas in light of their geographical locations, functional positioning and industrial advantages. Firms located in these regions receive stronger policy support and are more inclined to conduct outward investment. Given their similar external operating environment, peer effects in outward investment are expected to be more pronounced among firms along the BRI routes than those outside.

Table 7 presents the grouping regression results based on provincial geographic characteristics. For the industry peer effect of outward investment, the DID coefficient is significantly negative at the 1% level for firms along the BRI routes, implying that the Initiative exerts a notable impact on their peer effects. By contrast, the coefficient is statistically insignificant for non-route firms, which means the BRI produces no meaningful influence on their peer effects. In terms of geographic peer effect, the coefficient remains significantly negative at the 1% level for route firms, while it shows no significance for non-route firms.

Overall, the BRI significantly strengthens peer effects in outward investment for enterprises in the 18 key provincial regions along the routes, yet has no substantial impact on firms outside these areas.

Table 7 Heterogeneity Test Based on Geographic Characteristics

	(1)	(2)	(3)	(4)
Variables	PE1	PE1	PE2	PE2
	Treat=1	Treat=0	Treat=1	Treat=0
DID	-0.407***	-0.077	-0.342***	-0.033
	(-3.19)	(-0.56)	(-2.99)	(-0.31)
size	-0.203***	0.090	0.026	-0.035
	(-4.32)	(1.56)	(0.60)	(-0.80)
age	0.249***	0.221***	0.195***	0.260***
	(25.06)	(18.68)	(21.72)	(28.75)
TBQ	0.021*	0.073***	-0.017*	-0.009
	(1.80)	(4.22)	(-1.69)	(-0.70)
TAR	-0.428	-0.815**	0.563*	-0.347
	(-1.33)	(-2.09)	(1.95)	(-1.16)
Mshare	0.001	-0.013***	-0.001	0.002
	(0.34)	(-3.26)	(-0.46)	(0.66)
Board	0.066***	-0.035	-0.026	-0.012
	(3.00)	(-1.42)	(-1.32)	(-0.61)
Constant	25.956***	21.036***	20.229***	21.074***
	(23.14)	(15.58)	(20.05)	(20.40)
Observations	5,577	4,152	5,581	4,153
year FE	yes	yes	yes	yes
N	1,151	905	1,151	905
R2	0.630	0.646	0.701	0.563

4.4 Mechanism Analysis

In this section, this study attempts to verify the mechanism through which the BRI affects corporate peer effects from the

perspectives of government subsidy intensity and the degree of provincial marketization. Following the approach of Wang and Lu(2019), the moderating variable of government subsidy intensity is incorporated into the baseline model to examine whether the mechanism is significant. The specific model is as follows:

$$y_{it}=\beta_0+\beta_1 DID_{it}+\beta_2 mdv_{it}+\beta_3 DID_{it}mdv_{it}+X_{it}+\sigma_i+\theta_t+\varepsilon_{it} \quad (2)$$

Here, y_{it} represents the peer effect of corporate investment, calculated in the same manner as above, using industry-level peer effects and geographic peer effects to measure the peer effects of corporate outward foreign direct investment (OFDI). mdv_{it} is the moderating variable, which refers to government subsidy intensity (sub) and the degree of marketization (market). Government subsidy intensity is defined as the ratio of current government subsidies to total assets (Yuan, 2020). The degree of marketization is measured using the marketization index, following the approaches of Zhao et al. (2019) [27]. The marketization index is primarily used to measure the external governance environment of a province; a higher index value indicates a better external governance environment. DID_{it} is a dummy variable indicating whether a firm is a BRI-affiliated firm in year i, taking the value of 1 if yes and 0 otherwise. X_{it} represents control variables, σ_i denotes firm fixed effects, θ_t denotes year fixed effects, and ε_{it} is the random error term.

According to the results in Table 8, the interaction term between the independent variable and the moderator variable (DID×sub) is significantly positive at the 10% level, indicating a prominent moderating effect of government subsidy intensity. Following Jiang (2022) [28], a positive coefficient of the interaction term together with a significantly negative DID coefficient suggests that government subsidy intensity weakens the main effect. In other words, it mitigates the impact of the BRI on peer effects in corporate outward investment.

A possible explanation is that government subsidies reduce investment costs and stimulate outward investment activities. Driven by policy support and fiscal funds, firms make investment decisions less by imitating their peers.

The subsample regression results further reveal that government subsidy intensity mainly affects the peer effects of outward investment among state-owned enterprises, while no significant effect is observed for non-state-owned enterprises.

Table 8 Moderating Effect of Subsidy Intensity

	(1)	(2)	(3)
Variables	PE1	PE1	PE1
	full-sample	Nature=1	Nature=0
DID	-0.358***	-0.528***	0.199
	(-3.42)	(-4.10)	(1.04)
sub	-4.911*	-8.939**	-2.531
	(-1.89)	(-2.27)	(-0.73)
DID×sub	21.321*	29.061*	4.804
	(1.71)	(1.95)	(0.21)
TBQ	0.068***	-0.001	0.056***
	(5.04)	(-0.03)	(3.56)
TAR	-0.620**	-1.603***	0.009
	(-2.37)	(-2.86)	(0.03)
Mshare	-0.001	0.108***	0.001
	(-0.48)	(3.21)	(0.25)
Board	0.025	0.049**	0.008
	(1.48)	(2.09)	(0.33)
size	-0.083**	-0.169**	-0.139***
	(-2.18)	(-2.47)	(-2.76)
age	-0.124***	-0.155***	-0.129
	(-2.72)	(-2.75)	(-1.58)
Constant	28.071***	30.948***	28.761***
	(26.21)	(16.18)	(19.52)
Observations	9,440	3,737	5,512
year FE	yes	yes	yes
N	2,031	630	1,448
R2	0.639	0.599	0.680

Further, this study adopts the marketization index as the moderator to explore how the external market governance environment influences the relationship between the BRI and peer effects in corporate outward investment. The results are presented in Table 9. Herein, *Market* refers to the overall provincial marketization index; *market1* denotes the relationship between government and market; *market2* represents the development of the non-state-owned economy; *market3* stands for the development of product markets; *market4* indicates the development of factor markets; and *market5* reflects the development of intermediary organizations and the legal environment.

Column 1 of Table 9 reports the results using the overall marketization index as the moderator. The interaction term between the marketization index *Market* and DID is significantly positive at the 1% level, while the main effect of DID is significantly negative. This evidence suggests that a higher degree of marketization substantially weakens the BRI's impact on geographic peer effects in firms' outward investment.

In terms of sub-indicators, the interaction terms of DID with *market1* (government-market relationship), *market2* (development of non-state-owned economy) and *market4* (development of factor markets) are all significantly positive at

the 1% level. The interaction term of DID with *market5* (intermediary organizations and legal environment) is significantly positive at the 5% level, whereas the coefficient for *market3* (product market development) is statistically insignificant. It demonstrates that the government-market relationship, development of non-state-owned economy, factor market development, as well as intermediary organizations and legal environment all play moderating roles.

The findings imply that firms tend to rely more on peer imitation when the local business environment is poor. As the business environment improves, firms become less dependent on mimicking peers and are more willing to make independent decisions on outward investment.

Table 9 Moderating Effect of Marketization Index

	Marketization Index	Gov.-Market Relationship	Non-state Economy	Product Market	Factor Market	Intermediaries & Law
Variables	Market	Market1	Market2	Market3	Market4	Market5
	(1)	(2)	(3)	(4)	(5)	(6)
DID	-1.658***	-0.878***	-1.406***	-0.211	-0.795***	-0.762***
	(-3.98)	(-2.77)	(-3.13)	(-0.85)	(-2.84)	(-2.93)
market	0.516***					
	(16.47)					
DID×market	0.153***					
	(3.50)					
market1		0.023				
		(1.32)				
DID×market1		0.088**				
		(2.15)				
market2			0.032			
			(1.13)			
DID×market2			0.114***			
			(2.69)			
market3				0.127***		
				(6.66)		
DID×market3				0.005		
				(0.16)		
market4					0.090***	
					(6.43)	
DID×market4					0.046**	
					(2.06)	
market5						0.254***
						(18.69)
DID×market5						0.053**
						(2.30)
Constant	17.622***	20.724***	20.720***	19.681***	20.918***	20.784***
	(20.32)	(23.47)	(23.21)	(22.40)	(24.46)	(24.80)
Observations	9,734	9,734	9,734	9,734	9,734	9,734
control	yes	yes	yes	yes	yes	yes
year FE	yes	yes	yes	yes	yes	yes
N	2,040	2,040	2,040	2,040	2,040	2,040
R2	0.543	0.527	0.527	0.529	0.529	0.548

5 RESEARCH CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Research Conclusions

This study employs the Difference-in-Differences (DID) model to examine the impact of the BRI on peer effects in outward investment of Chinese listed firms. Using A-share listed companies as the research sample, we classify firms into industry peers and geographic peers based on industrial and provincial characteristics, and analyze the policy effects of the BRI.

The main conclusions are as follows. First, the BRI significantly strengthens peer effects in corporate outward investment. After the implementation of the Initiative, obvious investment convergence emerges among Chinese firms, reflected in both industrial and provincial investment convergence. Second, the BRI mainly drives investment convergence among state-owned enterprises (SOEs), while no significant peer effect is observed for private enterprises. A possible reason is that SOEs can gain more policy support and government subsidies, which mitigates information asymmetry and external risks. With stronger willingness to invest overseas, SOEs show prominent peer behavior in outward investment. Third, compared with firms in non-BRI provinces, enterprises located in the 18 key BRI-related provinces present more significant investment convergence. It indicates that the BRI exerts its influence primarily on firms in these key provincial regions.

5.2 Policy Recommendations

First, the government shall take full account of industry and geographic peer effects when designing relevant policies. On the one hand, it may harness such peer effects to set benchmarks for corporate outward foreign direct investment (OFDI), guide more enterprises to participate in overseas investment and foster investment synergies. On the other hand, authorities need to guard against potential downsides of peer effects, and steer firms to learn from peers rationally. This will help curb herd investment behavior and ensure sound development of corporate OFDI.

Second, enterprises should seize investment opportunities arising from the BRI. When conducting OFDI, firms shall evaluate their own competitive strengths and make prudent investment decisions while drawing on peers' practices. Corporate managers are advised to engage in rational imitation, actively identify viable investment projects, and formulate strategies compatible with external conditions as well as firms' own capacities and development goals, so as to avoid blind and excessive imitation. Widespread peer effects tend to trigger overinvestment, lower investment efficiency and amplify investment risks.

Third, governments at all levels should roll out supportive policies to facilitate Chinese enterprises' going-global strategy. Meanwhile, it is essential to transform government functions, standardize firms' overseas investment activities and coordinate industrial relations to restrain excessive peer effects. Authorities shall further optimize the business environment, advance market-oriented reforms and reduce unnecessary government intervention, so as to build a sound ecosystem for both outbound and inbound investment and give full play to the market's regulatory role. In addition, targeted measures should be adopted to forestall clustering risks in OFDI. Timely regulation and adjustment will sustain the healthy growth of corporate overseas investment.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

FUNDING

This paper was supported by the Humanities and Social Science Research General Program of Ministry of Education of China (Grant No. 21YJC790071).

REFERENCES

[1] Manski F C. Identification of endogenous social effects. The Review of economic studies, 1993, 60(3): 531-542.
[2] Joo C, Yang I, Yang T. Peer group effect in firm cash holding policy: Evidence from korean manufacturing firms. Asia-Pacific Journal of Financial Studies, 2016, 45(4): 535-573
[3] Li J N, Zhong T L. Peer Effects in Corporate Investment: Empirical Study Based on Chinese Listed Firms. Chinese Journal of Management Science, 2019, 27(12): 22-31.
[4] Ma L. An Empirical Test of the Herding Effect: Evidence from the China Stock Market. Nankai Economic Studies, 2016(1): 144-153.
[5] Winston G C, Zimmerman D J. Peer Effects in Higher Education, NBER Working Papers 9501. National Bureau of Economic Research, Cambridge, MA, 2003. DOI: 10.3386/w9501.
[6] Yuan Z H, Min S, Xiang C. Impacts of Peer Effects on Academic Performance in Rural Primary Schools in China. Education & Economy, 2018, 34(1): 65-73.
[7] Angela G, Alexander V. Peer effects on First-Year university students' results: The role of classmates' academic performance and socioeconomic status. Mathematics, 2021, 9(23): 1-26.
[8] Dishion T J, Tipsord J M. Peer contagion in child and adolescent social and emotional development. Annual review of psychology, 2011, 62(1): 189-214.
[9] Duncan M. Estimates of peer effects in adolescent smoking across twenty six European Countries. Social Science & Medicine, 2011, 73(8): 1186-1193.
[10] Gwozdz W, Sousa-Poza A, Reisch L A, et al. Peer effects on obesity in a sample of European children. Economics and Human Biology, 2015, 18: 139-152
[11] Li Q. Peer Effect on Children's School Dropout of Compulsory Education in Rural China. Education & Economy, 2019, 35(4): 36-44.
[12] Ning K, Zhu Z Y, Zhu Z. Peer Effects on Adolescent Internet Addiction and the Moderating Role of Family Factors. World Economic Papers, 2021, 5: 67-85.
[13] Xi M M, Wu Z J. Study on the Herd Behavior of China Double Eleven Online Buyers: Based on the Bayes Probit Model. Economic Management Journal, 2020, 42(9): 95-110.
[14] Xiao Y X, Jin X J. "Economic enclave" policies and enterprises' investment: the peer effect or the catch-up effect?. Industrial Economics Research, 2020(6): 113-127.
[15] Xu S, He X Y, Zhong K. The Belt and Road Initiative and Chinese Firms' Financial Constraints. China Industrial Economics, 2019(7): 155-173.
[16] Bao Y M, Goetz M R. Local peer effects and corporate investment. Journal of Corporate Finance, 2026, 97: 102935. DOI: 10.1016/j.jcorpfin.2025.102935.
[17] Lerche A. Direct and indirect effects of investment tax incentives. American Economic Review, 2025, 115(8): 2781-2818.

[18] Du L F, Li B B. Can the Belt and Road Initiative Boost High-quality Economic Development in China? An Empirical Analysis Based on the Difference-in-Differences Method. Huabei Finance, 2022(5): 18-34.
[19] Qiang G L, Xu H J. The Belt and Road Initiative, Corporate Strategy and Enterprise Investment. Economic Survey, 2021(5): 61-70.
[20] Wang K M, Liu J, Li X X. Industrial Policy, Government Support and Corporate Investment Efficiency. Journal of Management World, 2017(3): 113-124+145+188.
[21] Chen H, Guo L, Long J X. An Analysis of Peer Effects in Executive Compensation of Listed Companies. Statistics and Decision, 2021(21): 179-183.
[22] Zhang P F, Xie S Y. The Belt and Road Initiative and China's Outward Foreign Direct Investment: An Empirical Analysis Based on the Difference-in-Differences Method. Review of Investment Studies, 2020(11): 88-95.
[23] Jin G, Shen K R. The Chinese Overseas Transportation Investment Effect in Countries along the Belt and Road: Development Effect or Debt Trap. China Industrial Economics, 2019(9): 79-97.
[24] Zhang D L, Jiang X F. Managerial Ability and the Herd Behavior of Corporate Investment: Considering the Moderating Effect of Compensation Fairness. Accounting Research, 2015(8): 41-48+96.
[25] Fang J X. Corporate Investment Decision-making Convergence in China: Herd Behavior or Wave Phenomenon?. Journal of Finance and Economics, 2012, 38(11): 92-102.
[26] Yang X Q, Yin X Q, Meng Q X. Which to Be More Diversified: Industrial-policy-supported or Non-supported Enterprises?. Economic Research Journal, 2018, 53(9): 133-150.
[27] Zhao Y H, Zhang Z, Feng T W, et al. Big Data Development, Institutional Environment and the Efficiency of Government Governance. Journal of Management World, 2019(11): 119-132.
[28] Jiang T. Mediating Effects and Moderating Effects in Causal Inference. China Industrial Economics, 2022(5): 100-120.