buildings

MDPI

Article

How Does the One Belt One Road Initiative Affect the Chinese International Architecture, Engineering, and Construction Firms? Empirical Analysis Based on Propensity Score Matching and Difference-in-Differences Method

Jinglei Ye [1], Na Zhang [1,*], Xiaopeng Deng [2] and Yanliang Niu [3]

[1] School of Civil Engineering and Architecture, Zhejiang Sci-Tech University, Hangzhou 310018, China
[2] School of Civil Engineering, Southeast University, Nanjing 211189, China
[3] School of Management, Shijiazhuang Tiedao University, Shijiazhuang 050043, China
* Correspondence: zstuzn828@zstu.edu.cn; Tel.: +86-151-9576-8817

Abstract: With the proposal of the "One Belt One Road (OBOR) initiative", the Chinese architecture, engineering, and construction (AEC) industry has increasingly been exploring the overseas markets. This paper adopted the propensity score matching and difference-in-differences (PSM-DID) method to evaluate the impact of the OBOR Initiative on Chinese international contractors and consulting firms, respectively. The results shows that the OBOR Initiative significantly stimulated the overseas market development of contractors, whereas it had no positive impact on consulting firms. The results may provide comprehensive guidance for industry practitioners, policymakers, and scholars to correctly understand the different characteristics of international contractors and consulting firms, thereby formulating a targeted development strategy.

Keywords: One Belt One Road Initiative; PSM-DID; Chinese architecture, engineering, and construction industry; overseas market development

Citation: Ye, J.; Zhang, N.; Deng, X.; Niu, Y. How Does the One Belt One Road Initiative Affect the Chinese International Architecture, Engineering, and Construction Firms? Empirical Analysis Based on Propensity Score Matching and Difference-in-Differences Method. *Buildings* **2024**, *14*, 2016. https://doi.org/10.3390/buildings14072016

Academic Editor: Ahmed Senouci

Received: 13 May 2024
Revised: 19 June 2024
Accepted: 27 June 2024
Published: 2 July 2024

1. Introduction

Since the proposal of the One Belt One Road (OBOR) Initiative in 2013, China's outward foreign direct investment (FDI) has experienced rapid growth through a series of measures, such as expanding investment scale, broadening investment fields, and strengthening policy support [1]. According to the Ministry of Commerce of the People's Republic of China (MOC), China's outward FDI flows and stock were USD 107.84 billion and USD 660.48 billion, respectively, in 2013, accounting for a global share of 7.6% and 2.5%, respectively [2]. By the end of 2021, China's outward FDI flows and stock had reached USD 178.82 billion and USD 2.79 trillion, accounting for 10.5% and 6.7% of the global total, respectively [3].

The OBOR Initiative has presented unprecedented opportunities for Chinese construction firms to invest in overseas projects [4]. From 2013 to 2020, the Chinese international project contracting accumulated a turnover of USD 1259.51 billion [5]. However, it was found that there exists significantly uneven development between Chinese international contractors and Chinese international consulting firms. According to the Engineering News-Record (ENR), 79 Chinese firms were listed among the top 250 international contractors with a total overseas revenue of USD 112.97 billion [6], whereas only 24 Chinese firms were included in the top 225 international design firms with a total overseas revenue of USD 4.60 billion [7]. Looking back over the past decade, the total revenue of Chinese international contractors on the ENR list was about USD 1 trillion, whereas the revenue of Chinese international consulting firms on the ENR list was only USD 36.53 billion. In addition, the OBOR Initiative involves a wide range of projects, including infrastructure construction, energy development, urban planning, and other fields [8]. Consulting firms

may be more involved in the pre-planning and design stages of the project, while contractors may be more involved in the implementation stage [9]. Therefore, it is worth thinking whether the OBOR Initiative affects Chinese international contractors and consulting firms differently.

Although research on the OBOR Initiative has gained significant attention in the last decade, the majority of the existing literature has focused on areas such as FDI [10], cultural appropriation [11], mutual benefits or loses [12], strategic response [13], economic and trade exchanges [14], and overseas project management [15]. Some studies have compared the impact of the OBOR Initiative on different types of firms, such as state-owned firms and non-state-owned firms [1]. Despite the richness of existing research, empirical analysis on the impact of the OBOR Initiative on Chinese international architecture, engineering, and construction (AEC) firms is scarce. Only several studies focus on the development of infrastructure along the route [16] and engineering procurement in the context of OBOR [17]. No research has compared and analyzed the impact of the OBOR Initiative on consulting firms and contractors, respectively.

The objectives of this paper are (1) to examine the impact of the OBOR Initiative on Chinese international AEC firms; (2) to compare the impact of the OBOR Initiative on Chinese international contractors and consulting firms. This paper aims to reveal the influence of the OBOR Initiative on Chinese international AEC firms, addressing the knowledge gap in previous studies. Furthermore, through comparative research, policymakers can enhance their understanding of the specific impacts of the OBOR Initiative on different types of construction firms. This understanding enables them to make more effective policy adjustments and optimizations, aiming to support the development of all relevant construction firms more efficiently.

2. The Literature Review

2.1. The OBOR Initiative

Since the implementation of the OBOR Initiative, scholars have discussed the impact of the OBOR Initiative on FDI. Tian et al. (2020) documented that the implementation of the OBOR Initiative will help China promote FDI [18]. Yu et al. (2019) collected data on FDI transactions from the Ministry of Commerce to quantitatively measure the impact of the OBOR Initiative on the long-term FDI model of Chinese firms. The study results demonstrated that the OBOR Initiative significantly promoted China's FDI transactions [10]. However, some studies presented an opposing perspective. For example, Chen and Liu (2019) found that the OBOR Initiative does not directly enhance the performance of FDI firms. Instead, it plays a temporary restraining role, with the marginal effect initially increasing and then decreasing [19]. Nevertheless, Yu et al. (2020) argued that the OBOR Initiative significantly promotes the export of countries along the route using the difference-in-differences (DID) method [20]. The empirical results also indicated that the OBOR Initiative has a positive impact on capital-intensive industries, while its impact on labor-intensive industries was not significant. Although existing studies have documented the impact of the policy interventions on construction firms [21], few studies have focused on the impact of the OBOR Initiative on Chinese international AEC firms.

Simultaneously, numerous studies have examined the significance of the OBOR Initiative itself [22], its future development [23], and its influence on countries along the route [24]. For instance, Jiang et al. (2021) discussed the impact of the OBOR Initiative on green economy growth by combining the DID model with the propensity score matching (PSM) method [25]. Enderwick (2018) assessed the potential influence of the OBOR Initiative on trade [26]. Li et al. (2021) analyzed its impact on research and development (R&D) activities [27].

2.2. The OBOR Initiative and Chinese International AEC Firms

The OBOR Initiative plays a crucial role in stimulating economic growth and development in countries along the route [28]. Substantial funds mobilized for OBOR projects, as

emphasized by Liang (2020) [29], primarily originate from crucial financial sources such as the Asian Infrastructure Investment Bank (AIIB), the Silk Road Fund, and the BRICS Development Bank [30]. These financial contributions have played a vital role in facilitating infrastructure development projects [31,32].

The continuous implementation of the OBOR Initiative has led to the expansion and scaling up of projects in countries along the route [33], resulting in a significant surge in global demand for construction and engineering services. Chinese construction and engineering firms are actively expanding globally by participating in the OBOR Initiative and other international cooperation projects spanning diverse sectors such as infrastructure and energy [34,35]. This proactive approach empowers Chinese construction firms to extend their business footprint on a global scale.

The OBOR Initiative also establishes conducive conditions for the advancement of Chinese foreign contracting projects. As indicated by Sun et al. (2022), their research substantiated a significant spatial agglomeration effect in Chinese contracting projects in 46 countries along the route [36]. Furthermore, their study emphasized China's active pursuit of opportunities for resource acquisition within these countries along the route. The OBOR Initiative creates a highly competitive, dynamic environment and cooperation network for construction projects in specific regions [37].

2.3. Overseas Development Indicators

With the liberalization of the construction market, an increasing number of construction firms are expanding into overseas markets to develop their businesses [38,39]. AEC firms are integral components of construction firms, providing AEC services [40]. The overseas development of Chinese international AEC firms can be assessed through various indicators, including international revenue [41,42], the degree of internationalization [43,44], and the scale of projects [45]. International revenue is a widely adopted indicator for gauging the overseas development of international firms, reflecting the implementation of internationalization strategy in AEC firms [46]. For instance, Sullivan (1994) considered a firm's overseas sales or revenue as a meaningful first-order indicator of its involvement in international business [47]. The ENR ranks international contractors and consulting firms based on their international revenue, providing insight into the nature of overseas market development [48]. Therefore, this study selects international revenue as the index to measure firms' international market development.

In addition to assessing the impact of the initiative on Chinese international AEC firms, it is imperative to consider other variables that may influence changes in the dependent variable. This study also needs to account for variables such as the age of the firm [49,50], the size of the firm [51], and the degree of internationalization of the firm [44]. The age of the firm is determined by its oldest establishment at the time of foundation. Longer-operating firms are deemed more competitive in international AEC firms. Firm size is measured by its total revenue, where an increase in a firm's total revenue in overseas markets directly influences its impact on international market. The degree of internationalization is determined by the ratio of its international revenue to its total revenue. The age, scale, and degree of internationalization of firms reflect the differences in their development stages, resource allocation, and international market experience. By considering these factors, we can better understand the impact of the OBOR Initiative on different types and stages of firms. Therefore, the selection of control variables should consider the comprehensive impact on Chinese international AEC firms.

Despite the multitude of studies exploring the influence of the OBOR Initiative, our understanding of how the initiative impacts Chinese international AEC firms remains limited, particularly in observing its distinct effects on contractors and consulting firms. Therefore, this study aims to examine the impact of the OBOR influence on contractors and consulting firms separately. Figure 1 shows the theoretical framework of this paper.

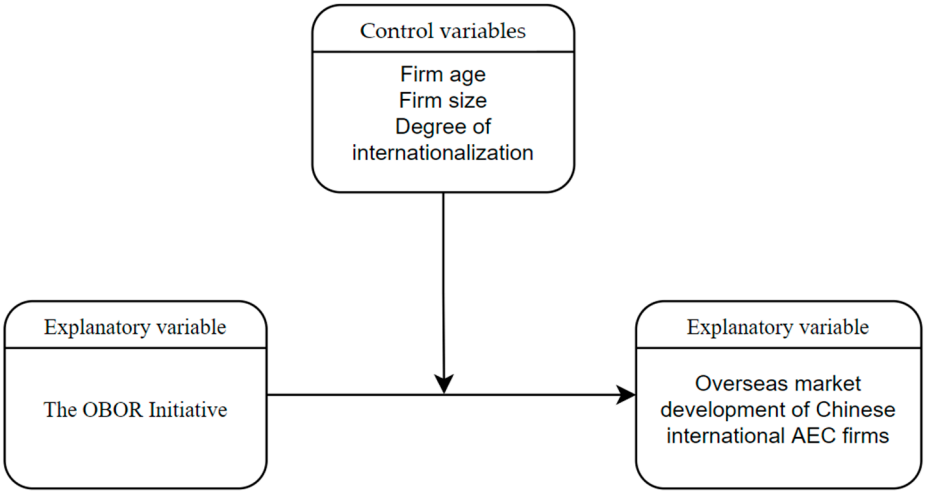

Figure 1. Theoretical framework.

3. Methodology

3.1. Data Sources

The OBOR Initiative was proposed in October 2013, so the initiative implementation time was determined to be 2014. As the COVID-19 pandemic happened in 2020, the time frame of the study was defined as 2008 to 2020. Samples were selected from ENR's the top 250 contractors list and the top 225 design firms list. To observe the impact of the OBOR Initiative, these selected samples needed to be in the ENR list from consecutively 2008 to 2020, or with at most one missing year. Missing data were supplemented using the average growth rate method. The treatment and control groups were carried out based on whether the samples belong to the countries along the route. Finally, 60 contractors were selected from the ENR list, with 18 contactors in the treatment group and 42 contractors in the control group. Meanwhile, a total of 34 consulting firms were selected from the ENR list, with 15 firms in the treatment group and 38 firms in the control group (Appendix A). Totally, 1466 balanced panel data were obtained. Dependent variable: international revenue. To assess the impact of the OBOR Initiative on Chinese international AEC firms, this study used the logarithm of international revenue based on the ENR list as the dependent variable.

Explanatory variables: the interaction term ($treated_i \times time_t$) between the regional and year dummy variables. The regional variable $treated_i$ indicates whether a firm belongs to countries along the route. If a firm belongs to the countries along the route, the variable $treated_i$ was assigned a value of 1; otherwise, it was assigned a value of 0. The year variable $time_t$ was set to 1 for years after 2014 and 0 for years prior.

In addition to the OBOR Initiative, many factors may affect the overseas market development of Chinese international AEC firms. Drawing from previous studies [52,53], several factors were selected as control variables. They were firm age, firm size, and degree of internationalization (Doi). Firm age was calculated as the difference between the current year and the year of establishment. Firm size can be measured by its total revenue. The degree of internationalization was determined as the ratio of overseas revenue to total revenue of firm. In addition, the square of age (Age^2) and degree of internationalization squared (Doi^2) as well as the logarithm of the firm's size (Ln_size) were analyzed as control variables.

3.2. Data Analysis Tool

This study employed the PSM-DID method to quantitatively examine the impact of the OBOR Initiative on Chinese international AEC firms. The DID method is acknowledged as the best method to evaluate the influence of policy implementation [54]. The PSM method is required before applying DID to reduce the endogeneity problem caused by selection bias [55]. Unlike the DID method, PSM-DID rigorously controls dimensions in both the

time and space directions, mitigating the impact of other potential factors on the variables under investigation. Kernel matching is a method to match samples from the control group with the treatment group through weighted averages [56]. This significantly enhances the scientific rigor and objectivity of the experimental results.

In this paper, the PSM-DID model was established and described as follows:

$$Y_{it} = \alpha_0 + \alpha_1 treated_i + \alpha_2 time_t + \alpha_3 treated_i \times time_t + \beta X_{it} + \lambda_i + \gamma_t + \mu_{it} \quad (1)$$

where Y_{it} is the explained variable, denoting the international revenue of the firm i in year t (after logarithmic transformation). The regional dummy variable $Treated_i = 1$ indicates that the firm belongs to countries along the route, and $treated_i = 0$ indicates that it does not belong to countries along the route. The time dummy variable $Time_t = 1$ indicates the year after 2014, and $Time_t = 0$ indicates the year prior to 2014. $Treated_t \times time_i$ are the core explanatory variables; X_{it} represents a series of control variables influencing international revenue, such as firm age, firm size, degree of internationalization, the square of age, the logarithm of size, and the square of degree of internationalization. The λ_i and γ_t denote individual fixed effect and time fixed effect, respectively; μ_{it} represents random error term; and α_0, α_1, α_2, α_3, and β are the parameters to be estimated.

Robustness tests are essential to affirm the reliability of the results [57]. The balanced trend test validates the comparability of firms' overseas market development before the initiative's implementation by assessing whether the trend plots of the treatment and control groups satisfy the parallel trend assumption. Placebo testing confirms consistency by fictionalizing one or more models based on the original model by changing the time interval and sample interval of the study. After conducting robustness tests to strengthen the reliability of the results, this study conducted post-interviews to seek a deeper interpretation of the results, thereby enriching the discussion.

Based on the above model and data, this study conducted an empirical analysis to test the impact of the OBOR Initiative on Chinese international AEC firms. Figure 2 shows the research flow.

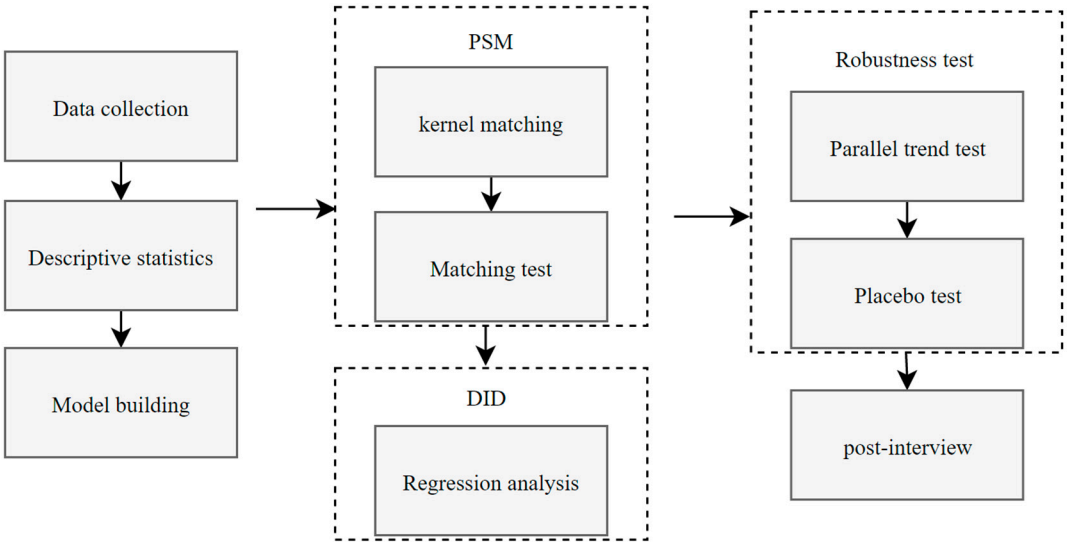

Figure 2. Research flow.

4. Results

4.1. Analysis of Propensity Score Matching Results

In this study, descriptive statistics of the variables are shown in Table 1. The logit model was used to estimate the parameters, and kernel matching was selected to score the sample data. Observable variables were utilized to match AEC firms in both the treatment and control groups within a common range of values. Therefore, this study firstly used kernel matching to the sample data. The results of the matching are presented in Table 2.

Except for the degree of internationalization and the square of internationalization degree, the differences between the treatment group and the control group were found to be insignificant. The deviation of the other four control variables used in PSM was reduced to less than 20% [58]. The distribution of tendency scores, as depicted in Table 2, indicated that the distribution between the treatment and control groups was similar after PSM.

Table 1. Descriptive statistics of consulting firms and contractors.

	A	B	A	B	A	B	A	B	A	B
Variables	**Observations**		**Mean**		**Standard Deviation**		**Min**		**Max**	
Size	689	777	1136	13,220	1345	22,915	1650	94.70	10,399	180,355
Doi	689	777	0.512	0.456	0.303	0.288	0	0	1	1
Age	689	777	53.06	69.95	32.71	48.21	3	1	180	185
Age^2	689	777	3884	7214	5038	8777	9	1	32,400	34,225
Ln_size	689	777	6.313	8.584	1.351	1.355	2.803	4.551	9.250	12.10
Doi^2	689	777	0.354	0.291	0.318	0.292	0	0	1	1

Notes: A represents consulting firms; B represents contractors.

Table 2. Results of the balance test for propensity score matching (consulting firms).

Variable	Sample	Mean	Control	% Bias	% Reduct	T-Test	$p > \|t\|$
		Treated			|Bias|	t	
Age	Unmatched	43.273	57.487	−49.0		−5.25	0.000 ***
	Matched	43.337	39.611	12.9	73.8	1.80	0.072 *
Size	Unmatched	668.01	1290	−50.9		−6.62	0.000 ***
	Matched	671.29	591.33	6.5	87.1	0.86	0.39
Doi	Unmatched	0.53454	0.49787	11.4		1.44	0.151
	Matched	0.53212	0.37363	49.1	−332.3	4.44	0.000 ***
$Size^2$	Unmatched	2297.5	4558.1	−53.7		−5.45	0.000 ***
	Matched	2304.4	1964.2	8.1	85.0	1.83	0.068 *
Ln_size	Unmatched	5.578	6.5627	−74.9		−9.14	0.000 ***
	Matched	5.5883	5.7363	−11.3	85.0	−1.13	0.258
Doi^2	Unmatched	0.41783	0.32326	28.3		3.55	0.000 ***
	Matched	0.41482	0.25214	48.8	−72.0	4.41	0.000 ***

Notes: "Unmatched" represents samples before matching, while "Matched" represents samples after matching. Standard errors appear in parentheses, * indicates $p < 0.05$, and *** indicates $p < 0.001$.

Table 3 reveals that, compared to the pre-matching data, the standard deviations of the other four variables after matching were notably reduced, except for the degree of internationalization and the square of the degree of internationalization. Additionally, the corresponding t-value did not reject the null hypothesis, indicating no systematic difference between the treatment and control groups. This suggests the effectiveness of kernel matching.

Furthermore, to illustrate the matching results, kernel density distributions were plotted before and after matching based on propensity scores, as depicted in Figures 3 and 4. The propensity scores of the samples in the treatment group and the control group mostly overlap, aligning with the common tendency hypothesis. After matching, the overall distribution approximated a normal distribution. Therefore, the matching results of this study passed the balance test.

Table 3. Results of the balance test for propensity score matching (contractors).

Variable	Sample	Mean		Bias (%)	(%) Reduct	T-Test	$p > \|t\|$
		Treated	Control		|Bias|	t	
Age	Unmatched	43.273	56.868	−46.6		−4.99	0.000 ***
	Matched	43.273	38.644	15.9	66.0	2.35	0.019 *
Size	Unmatched	668.01	1319.4	−53.1		−5.85	0.000 ***
	Matched	668.01	642.47	2.1	96.1	0.28	0.782
Doi	Unmatched	0.53454	0.50478	9.2		1.16	0.247
	Matched	0.53454	0.40289	40.8	−342.4	3.62	0.000 ***
$Size^2$	Unmatched	2297.5	4505	−51.9		−5.27	0.000 ***
	Matched	2297.5	1817.7	11.3	78.3	2.83	0.005 *
Ln_size	Unmatched	5.578	6.6022	−78.2		−9.51	0.000 ***
	Matched	5.578	5.7812	−15.5	80.2	−1.51	0.131
Doi^2	Unmatched	0.41783	0.33027	26.2		3.27	0.001 **
	Matched	0.41783	0.28502	39.8	−51.7	3.55	0.000 ***

Notes: Standard errors appear in parentheses, * indicates $p < 0.05$, ** indicates $p < 0.01$, and *** indicates $p < 0.001$.

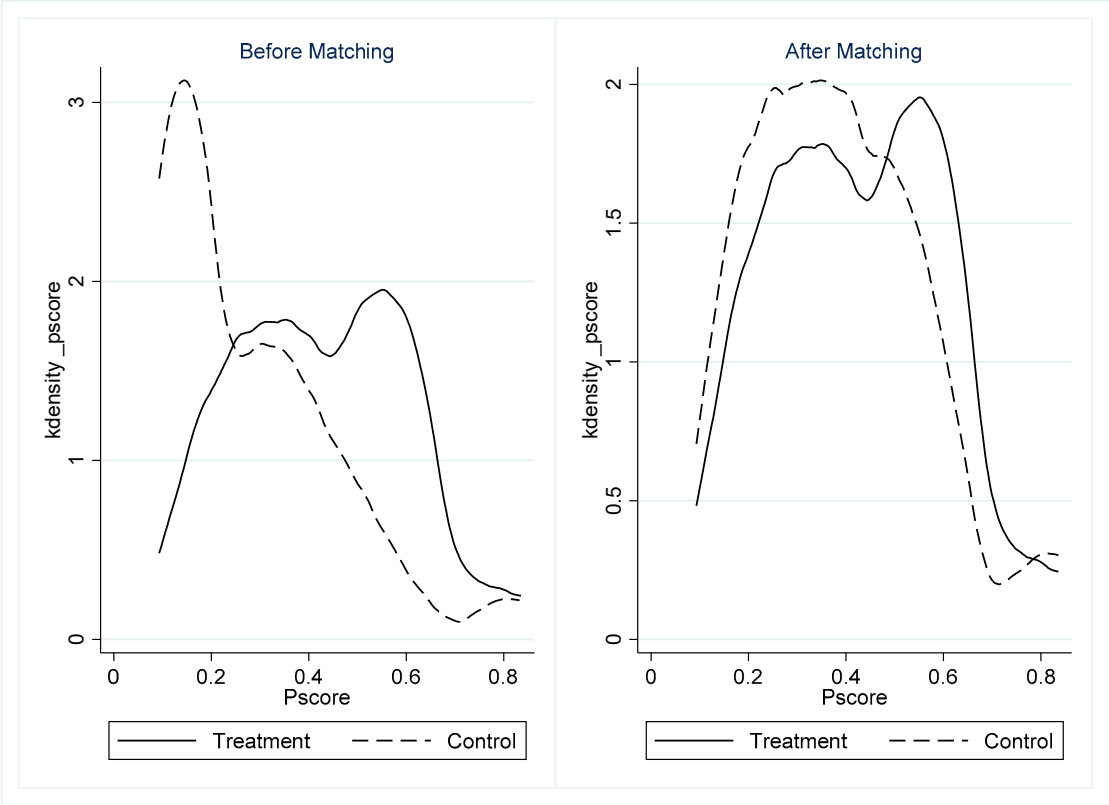

Figure 3. Comparison of kernel density distribution before and after PSM (consulting firms).

4.2. Difference-in-Differences Analysis Results

Table 4 presents the regression results, with column 1 reflecting the analysis conducted without the inclusion of control variables and column 2 incorporating control variables. The results revealed that the presence or absence of control variables did not influence the outcomes. Specifically, the OBOR Initiative exhibited no positive impact on the revenue of consulting firms in countries along the route. Except for firm age, the square of firm age, and firm size, all other control variables demonstrated significance. The internationalization of firms was found to propel overseas market development in Chinese international AEC firms.

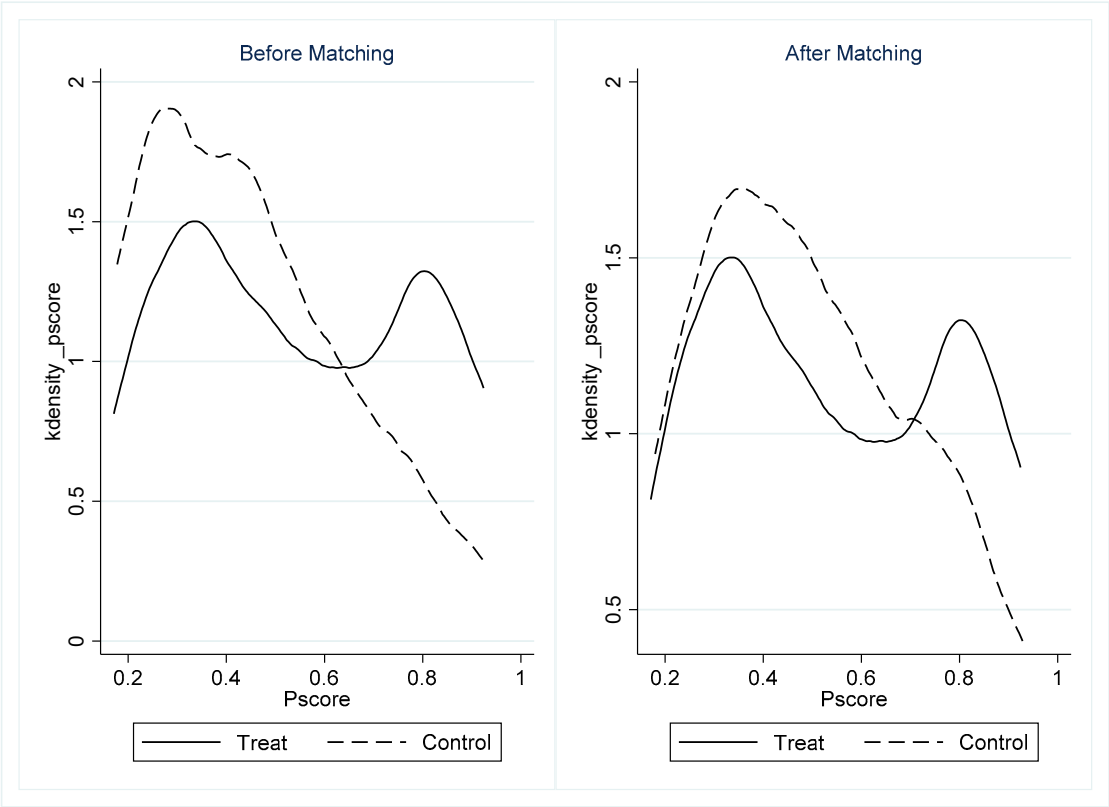

Figure 4. Comparison of kernel density distribution before and after PSM (contractors).

Table 4. Results of difference-in-differences analysis.

Variables	Consulting Firms		Contractors	
	Ln_Revenue	Ln_Revenue	Ln_Revenue	Ln_Revenue
did	−0.496 *** (−4.32)	−0.085 *** (−2.54)	−0.165 (−1.48)	0.034 ** −2.2
Age		0.001 −0.39		0.007 *** −3.99
Size		−0.000 −0.12		−0.000 (−0.94)
Doi		7.175 *** −30.91		6.102 *** −25.42
Age^2		−0.000 (−0.21)		−0.000 *** (−4.24)
Ln_size		0.962 *** −104.89		1.009 *** −70.69
Doi^2		−4.278 *** (−22.10)		−3.468 *** (−16.56)
Constant	5.257 *** −81.22	−2.906 *** (−42.07)	7.091 *** −117.44	−2.961 *** (−20.80)
Observations R-squared	592 0.019	591 0.969	373 0.005	373 0.977

Notes: Standard errors appear in parentheses, ** indicates $p < 0.01$, and *** indicates $p < 0.001$.

Similarly, in Table 4, column 3 presents the results without including control variables, while column 4 includes control variables. The calculation results indicated that the influence of the OBOR Initiative on the contractor's revenue was not significant without

adding other variables. After adding the control variables, the regression results indicated that the OBOB Initiative played a significant role in increasing contractors' revenue in countries along the route. Except for firm size, all other control variables were significant. The length of a firm's operating life and its degree of internationalization facilitated the overseas development of Chinese international AEC firms. This demonstrates that as the firm ages, contractors can accumulate experience, enhance their business in overseas markets, and further strengthen the standing of Chinese international AEC firms in the international construction market.

5. Robustness Tests

The estimation results based on the above model showed that the OBOR Initiative had a positive effect on contractors but had no positive effect on consulting firms. To ensure the reliability of the research results, it is imperative to conduct parallel trend tests and placebo tests, which aim to eliminate alternative hypotheses.

5.1. Parallel Trend Test

The empirical results of the model showed that the OBOR Initiative significantly boosted contractors with no positive impact on consulting firms. However, this result is based on the premise that the trend of international revenue between the treatment group and the control group was parallel before the initiative was proposed. This indicates that there was no systematic difference in international revenue between contractors and consulting firms before the OBOR Initiative was proposed. Therefore, we need to further verify the parallel trend test between the treatment group and the control group before the implementation of the OBOR Initiative [59].

This study selected data from the three years before and after the proposal of the OBOR Initiative to test the parallel trend, as shown in Figure 5. The horizontal axis represents the number of years before and after the implementation of the OBOR Initiative, while the vertical axis represents the estimated interaction coefficient between the treatment group and different years. This coefficient was used to evaluate the impact of the OBOR Initiative on the annual international revenue of firms before and after its implementation.

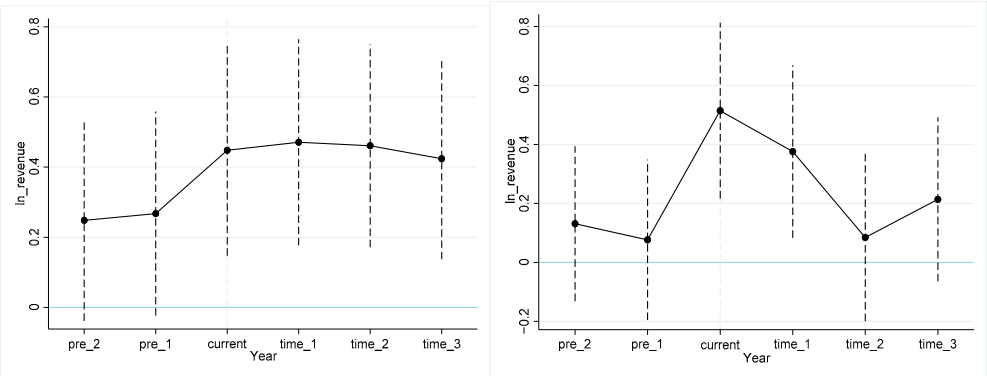

Figure 5. Parallel trend test using the countries along the route as the treatment group ((**left**) consulting firms and (**right**) contractors).

Figure 5 illustrates the outcomes for consulting firms. The interaction coefficient remained around 0 without any significant difference before 2014, indicating that before the implementation of the OBOR Initiative, the change trends of the international revenue of firms from countries along the route and non-countries along the route were essentially parallel. However, as the years increase, the estimated coefficient of the interaction term significantly increases in a positive direction. This indicated that the impact of the OBOR Initiative on consulting firms has gradually emerged since 2014. Consequently, the sample successfully passed the parallel trend test.

As depicted in Figure 5, the results for contractors demonstrate that the correlation coefficients are consistently positive and fluctuated around 0 without any noteworthy difference before 2014. This suggested that the control and treatment groups exhibited the same trend prior to the proposal of the OBOR Initiative. In 2014 and the subsequent year of initiative implementation, the correlation coefficient notably increased and became significantly positive. However, it swiftly returned to near 0 afterwards, indicating that the OBOR Initiative had a significant positive effect during the year of implementation and following year.

In summary, the research model of this study conformed to the parallel trend test, making the conclusion regarding the impact of the OBOR Initiative on Chinese international AEC firms reliable.

5.2. Placebo Test

To examine whether the conclusions of this study are biased due to omitted variables, we conducted a placebo test by randomly assigning treatment and control groups in the matched sample [60,61]. Specifically, 15 firms were randomly selected from the 53 consulting firms to serve as the "pseudo" experimental group, with the remaining firms designated as the control group. Similarly, 18 firms were randomly chosen from the 60 contractors as the "pseudo" treatment group, with the remaining firms constituting the control group. In this paper, the above random generation process was cycled 500 times. Since the "pseudo" test group is randomly generated, it should not significantly impact the explained variables, and its estimation coefficient should be around 0 [62].

The results of the placebo test are shown in Figure 6. The regression coefficients from the randomized trial were concentrated around 0. The actual estimation coefficient (−0.085) represented by the vertical line on the left and the actual estimation coefficient (0.035) on the right belong to abnormal values in the distribution of the placebo test coefficient. Therefore, it can be concluded that there was no obvious missing variable bias in the estimation results of this paper. The placebo test results showed that the setting of the above model (one) was reliable, confirming that the implementation of the OBOR Initiative had a robust impact on Chinese international AEC firms unaffected by other unobserved random variables.

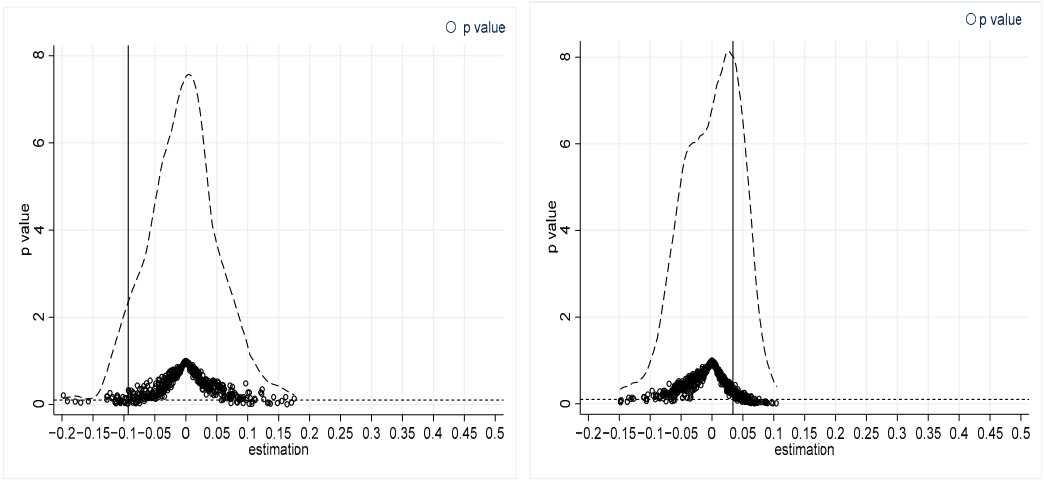

Figure 6. Placebo test results (**left** consulting firms and **right** contractors).

6. Discussion

This paper systematically examined the impact of the OBOR Initiative on Chinese international contractors and consulting firms using the PSM-DID method. The findings provided new insights into future development. The results showed that the OBOR Initiative had a significant positive impact on contractors but had no positive impact on consulting firms. To test the robustness of our findings, post-interviews were conducted with five experts from diverse departments, including general management, supply chain,

marketing, and the project management office (PMO). All respondents affirmed the research outcomes and offered valuable perspectives on the expansion strategies of Chinese international AEC firms. Combined with the existing literature, the following reasons for the results were analyzed.

Firstly, international contractors and consulting firms exhibit having distinct demands for production factors. Contractors primarily engage in fields such as construction, infrastructure development, and engineering, which typically demand substantial capital for operations and maintenance [63]. Therefore, international contractors are typically labor-intensive and capital-intensive firms, requiring significant investments in labor, materials, and equipment for civil engineering and construction activities [64]. This reliance on large-scale funding can be addressed favorably by the OBOR Initiative, which provides significant financing support for their involvement in infrastructure construction projects in countries along the route. Conversely, consulting firms are typical knowledge-based professional service firms [65]. They create customer value by leveraging knowledge, including past experience and innovation, to address non-routine problems, rendering them less dependent on traditional funding sources [66]. Additionally, close collaboration and effective communication with clients contribute to the success of consulting projects, thereby increasing revenue. The years a firm has been in business can enhance its market reputation and attractiveness, positively influencing consulting revenue. These inherent differences explain why the OBOR Initiative has different impacts on contractors and consulting firms.

Secondly, numerous projects financed by Chinese contractors involve collaboration with foreign consulting firms for design consultation. For example, the Karachi–Lahore Expressway was financed by the Export–Import Bank of China and constructed by a Chinese state-owned engineering corporation, which enlisted the design consultation expertise of Parsons Brinckerhoff (U.S.). Similarly, the Pada-Jamna Bridge project in Bangladesh involved Chinese construction firms, with design consultation provided by Mott MacDonald (U.K.). Hence, although the OBOR Initiative facilitated the development of infrastructure projects along the route, Chinese international consulting firms did not acquire as many market opportunities as contractors.

Lastly, technical standards serve as a critical factor limiting the internationalization of consulting firms [67]. Chinese technical standards are constrained by factors such as delayed internationalization efforts and inadequate coordination of standards. There is still a certain gap in the overall level of development compared to European and American standards. Furthermore, Chinese firms participating in the "Belt and Road" project predominantly adhere to European and American standards. Even when Chinese standards are utilized, verification against European and American standards is often required.

7. Conclusions

Studying the impact of the OBOR Initiative on Chinese international AEC firms is crucial for analyzing the direction of the overseas market. Therefore, this study discussed from the perspectives of contractors and consulting firms, respectively. Initially, 113 firms from the ENR list from 2008 to 2020 were selected, resulting in 1466 balanced panel data samples obtained through average growth rate method for missing values. Then, the PSM-DID method was applied to estimate the impact of the OBOR Initiative on Chinese international AEC firms. The empirical results showed that the OBOR Initiative significantly stimulated the overseas market development of contractors, while it had no positive impact on consulting firms. The results also showed that the degree of internationalization had a positive effect on Chinese international AEC firms. In addition, robustness tests confirmed that the empirical results passed the balanced trend test and were not affected by other variables. The results also provide comprehensive guidance for industry practitioners, policymakers, and scholars to correctly understand the different characteristics of international contractors and consulting firms, thereby formulating targeted development strategies.

This research has several limitations to be addressed in future research. Firstly, firms were selected from the ENR list, which overlooks the impact of the OBOR Initiative on small- and medium-sized firms. Secondly, although PSM-DID is widely used to assess policy effect, it may neglect the influence of other policies beyond the OBOR Initiative. Finally, due to the limited data, the contractor's control group consisted of only Chinese firms after screening, which may affect the experimental results.

Despite these limitations, this study still has implications for academia and the AEC firms. Firstly, it provides empirical insights into the impact of the OBOR Initiative on Chinese international AEC firms, offering a robust foundation for stakeholders. Secondly, the research findings can guide governmental entities in formulating targeted policies tailored to the distinctive effects of the OBOR Initiative. Lastly, the study results provide valuable insights for firms seeking to expand into overseas markets. Future research endeavors should select sample data with diverse attributes for similar studies, facilitating comparative analyses and yielding more meaningful conclusions.

Author Contributions: Conceptualization, J.Y.; methodology, J.Y. and N.Z.; software, J.Y.; formal analysis, J.Y.; investigation, J.Y., N.Z., X.D. and Y.N.; writing—original draft preparation, J.Y.; writing—review and editing, J.Y. and N.Z.; funding acquisition, N.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This study is supported by the National Natural Science Foundation of China (NSFC-72201249) and Science Foundation of Zhejiang Sci-Tech University (No. 21052319-Y).

Data Availability Statement: The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

Conflicts of Interest: The authors declare that there are no conflicts of interest regarding the publication of this paper.

Appendix A

No.	Firm	Country	Group
	Contractor		
1	ANSALDO ENERGIA SPA	Italy	Control
2	BECHTEL	U.S.A.	Control
3	BLACK & VEATCH	U.S.A.	Control
4	BONATTI SPA	Italy	Control
5	BOUYGUES	France	Control
6	CHIYODA CORP	Japan	Control
7	COmSA EmTE	Spain	Control
8	DAEWOO ENGINEERING & CONSTRUCTION CO	Korea	Control
9	ED. ZÜBLIN AG	Germany	Control
10	FCC	Spain	Control
11	FLUOR CORP	U.S.A.	Control
12	GS ENGINEERING & CONSTRUCTION	Korea	Control
13	HOCHTIEF AKTIENGESELLSCHAFT	Germany	Control
14	HYUNDAI ENGINEERING & CONSTRUCTION CO	Korea	Control
15	JGC CORP	Japan	Control
16	KAJIMA CORP	Japan	Control
17	KBR INC	U.S.A.	Control

No.	Firm	Country	Group
18	KIEWIT CORP	U.S.A.	Control
19	KINDEN CORP	Japan	Control
20	OBAYASHI CORP	Japan	Control
21	PENTA-OCEAN CONSTRUCTION CO	Japan	Control
22	PER AARSLEFF A/S	Denmark	Control
23	POSCO ENGINEERING & CONSTRUCTION	Korea	Control
24	ROYAL BAM GROUP NV	The Netherlands	Control
25	SACYR	Spain	Control
26	SAMSUNG C&T CORP	Korea	Control
27	SAMSUNG ENGINEERING CO	Korea	Control
28	SK ENGINEERING & CONSTRUCTION CO	Korea	Control
29	SSANGYONG ENGINEERING & CONSTRUCTION CO	Korea	Control
30	STRABAG SE	Austria	Control
31	TAISEI CORP	Japan	Control
32	TECNICAS REUNIdAS	Spain	Control
33	TOYO ENGINEERING CORP	Japan	Control
34	TUTOR PERINI CORP	U.S.A.	Control
35	VINCI	France	Control
36	WORLEYPARSONS LTD	Australia	Control
37	BESIX SA	Belgium	Control
38	GHELLA SPA	Italy	Control
39	IMPRESA PIZZAROTTI & C	Italy	Control
40	MAIRE TECNIMONT	Italy	Control
41	SICIM SPA	Italy	Control
42	SKANSKA AB	Sweden	Control
43	CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD	China	Treatment
44	CHINA GEO-ENGINEERING Corp	China	Treatment
45	CHINA JIANGSU INT'L ECON	China	Treatment
46	CHINA METALLURGICAL GROUP CORP	China	Treatment
47	CHINA National Chemical ENG'G Group Corp	China	Treatment
48	CHINA NATIONAL MACHINERY INDUSTRY CORP	China	Treatment
49	CHINA RAILWAY CONSTRUCTION CORP	China	Treatment
50	CHINA RAILWAY GROUP LTD	China	Treatment
51	CHINA STATE CONSTRUCTION ENGINEERING CORP	China	Treatment
52	CHINA WU YI CO	China	Treatment
53	SINOPEC ENGINEERING (GROUP) CO	China	Treatment
54	CITIC CONSTRUCTION CO	China	Treatment
55	CTCI CORP	China	Treatment
56	DONGFANG ELECTRIC CORP	China	Treatment
57	QINGJIAN GROUP CO	China	Treatment

No.	Firm	Country	Group
58	SHANGHAI CONSTRUCTION GROUP	China	Treatment
59	SHANGHAI ELECTRIC GROUP CO	China	Treatment
60	SINOSTEEL EQUIPMENT & ENGINEERING CO	China	Treatment
	Consulting companies		
1	ASSOCIATED CONSULTING ENGINEERS	Greece	Treatment
2	CHINA COMMUNICATIONS CONSTRUCTION GRP	China	Treatment
3	CHINA INT'L WATER & ELECTRIC CORP	China	Treatment
4	CHINA NATIONAL MACHINERY INDUSTRY CORP	China	Treatment
5	CHINA RAILWAY CONSTRUCTION CORP	China	Treatment
6	CHINA RAILWAY ENGINEERING CORP	China	Treatment
7	CHINA RAILWAY GROUP LTD	China	Treatment
8	CHINA TIANCHEN ENGINEERING CORP	China	Treatment
9	EHAF CONSULTING ENGINEERS	Egypt	Treatment
10	ENERGOPROJEKT HOLDING	Serbia	Treatment
11	KEO INTERNATIONAL CONSULTANTS	Kuwait	Treatment
12	KHATIB & ALAMI, BEIRUT	Lebanon	Treatment
13	LARSEN	India	Treatment
14	LARSEN & TOUBRO LTD	India	Treatment
15	WONG TUNG & PARTNERS LTD	China	Treatment
16	AECOM TECHNOLOGY CORP	U.S.A.	Control
17	ARCADIS NV	The Netherlands	Control
18	ARUP	U.K.	Control
19	ASSOCIATED CONSULTING ENGINEERS	Greece	Control
20	BECA GROUP LTD	New Zealand	Control
21	BECHTEL	U.S.A.	Control
22	BLACK & VEATCH	U.S.A.	Control
23	CDM	U.S.A.	Control
24	CES CONSULTING ENGINEERS SALZGITTER	Germany	Control
25	COWI A/S	Denmark	Control
26	EGIS,	France	Control
27	FICHTNER GMBH & CO	Germany	Control
28	FUGRO NV	The Netherlands	Control
29	GENSLER	U.S.A.	Control
30	HATCH GROUP	Canada	Control
31	HDR	U.S.A.	Control
32	HOK	U.S.A.	Control
33	JGC CORP	Japan	Control
34	KAJIMA CORP	Japan	Control
35	MAIRE TECNIMONT	Italy	Control
36	MOTT MACDONALD GROUP LTD	U.K.	Control

No.	Firm	Country	Group
37	MOTT MACDONALD	U.K.	Control
38	NIPPON KOEI GROUP	Japan	Control
39	PARSONS	U.S.A.	Control
40	PERKINS EASTMAN	U.S.A.	Control
41	PM GROUP	Ireland	Control
42	RAMBOLL GRUPPEN A/S	Denmark	Control
43	SETEC	France	Control
44	SKIDMORE OWINGS & MERRILL LLP	U.S.A.	Control
45	SNC-LAVALIN INC	Canada	Control
46	STANLEY CONSULTANTS' INC	U.S.A.	Control
47	STANTEC INC	Canada	Control
48	SYSTRA	France	Control
49	TECNICAS REUNIDAS	Spain	Control
50	TETRA TECH INC	U.S.A.	Control
51	THORNTON TOMASETTI INC	U.S.A.	Control
52	WATG (WIMBERLY ALLISON TONG & GOO)	U.S.A.	Control
53	WORLEYPARSONS, NORTH SYDNEY	Australia	Control

Notes: Sample firms from ENR; the top 250 contractors list and the top 225 design firms list in 2008–2020.

References

1. Du, J.; Zhang, Y. Does one belt one road initiative promote Chinese overseas direct investment? *China Econ. Rev.* **2018**, *47*, 189–205. [CrossRef]
2. MOC. 2013 Statistical Bulletin of China's Outward Foreign Direct Investment. 2014. Available online: http://fec.mofcom.gov.cn/article/tjsj/tjgb/201511/20151101190468.shtml (accessed on 26 June 2024).
3. MOC. 2021 Statistical Bulletin of China's Outward Foreign Direct Investment. 2022. Available online: http://www.gov.cn/xinwen/2022-11/08/content_5725358.htm (accessed on 26 June 2024).
4. Li, Y.; Shou, Y.; Ding, R.; Sun, T.; Zhou, Q. Governing local sourcing practices of overseas projects for the Belt and Road Initiative: A framework and evaluation. *Transp. Res. Part E Logist. Transp. Rev.* **2019**, *126*, 212–226. [CrossRef]
5. MOC. 2020 Statistical Bulletin on China International Project Contracting. 2021. Available online: http://hzs.mofcom.gov.cn/article/date/202109/20210903196388.shtml (accessed on 26 June 2024).
6. ENR. The Top 250 International Contractors. 2022. Available online: https://www.enr.com/toplists/2022-Top-250-International-Contractors-Preview (accessed on 26 June 2024).
7. ENR. The Top 225 International Design Firms. 2022. Available online: https://www.enr.com/toplists/2023-Top-225-International-Design-Firms-Preview (accessed on 26 June 2024).
8. Huang, Y. Understanding China's Belt & Road initiative: Motivation, framework and assessment. *China Econ. Rev.* **2016**, *40*, 314–321. [CrossRef]
9. Berggren, C.; Söderlund, J.; Anderson, C. Clients, contractors, and consultants: The consequences of organizational fragmentation in contemporary project environments. *Proj. Manag. J.* **2001**, *32*, 39–48. [CrossRef]
10. Yu, S.; Qian, X.; Liu, T. Belt and road initiative and Chinese firms' outward foreign direct investment. *Emerg. Mark. Rev.* **2019**, *41*, 100629. [CrossRef]
11. Chen, Y. *From "Lamb Kebabs" to "Shared Joy": Cultural Appropriation, Ignorance and the Constrained Connectivity within the "One Belt, One Road" Initiative*; Routledge: New York, NY, USA, 2020; pp. 1–16.
12. Albalate, D. High speed rail and tourism: Empirical evidence from Spain. *Transp. Res. Part A Policy Pract.* **2016**, *85*, 174–185. [CrossRef]
13. De Beule, F.; De Lombaerde, P.; Zhang, H. The Chinese Belt and Road Initiative: Strategic responses of governments and multinational companies. *Asia Pac. Bus. Rev.* **2024**, *30*, 209–219. [CrossRef]
14. Jiang, W.; Zhang, H.; Lin, Y. Trade sustainability and efficiency under the belt and road initiative: A stochastic frontier analysis of China's trade potential at industry level. *Emerg. Mark. Financ. Trade* **2022**, *58*, 1740–1752. [CrossRef]
15. Nikjow, M.A.; Liang, L.; Qi, X.; Sepasgozar, S. Engineering procurement construction in the context of belt and road infrastructure projects in west Asia: A SWOT analysis. *J. Risk Financ. Manag.* **2021**, *14*, 92. [CrossRef]

16. Tian, G.; Li, J. How does infrastructure construction affect economic development along the "Belt and Road": By promoting growth or improving distribution? *Emerg. Mark. Financ. Trade* **2018**, *55*, 3332–3348. [CrossRef]
17. Jia, R.; Li, Q.; Deng, X.; Zhao, X.; Yuan, J. Entry mode taxonomy and choice of Chinese international construction companies. *J. Manag. Eng.* **2017**, *33*, 04016058. [CrossRef]
18. Tian, J.; Liu, Y.; Yin, Z. Relationship between Foreign Direct Investment and China's Industrial Upgrading in the Background of the Belt and Road Initiative: An Empirical Study of the Marine Silk Route Enterprises. *J. Coastal Res.* **2020**, *104*, 695–699. [CrossRef]
19. Chen, J.; Liu, W. *The Belt and Road Strategy in International Business and Administration: Corporate Social Responsibility*; IGI Global: Hershey, PA, USA, 2019; pp. 28–51.
20. Yu, L.; Zhao, D.; Niu, H.; Lu, F. Does the belt and road initiative expand China's export potential to countries along the belt and road? *China Econ. Rev.* **2020**, *60*, 101419. [CrossRef]
21. Li, X.; Jin, X.; Li, H.; Gong, L.; Zhou, D. Exploring the impact of policy interventions on project performance through a PSM-DID approach: Evidence from the Hong Kong construction industry. *Eng. Constr. Archit. Manag.* **2023**. [CrossRef]
22. Cheng, L.K. Three questions on China's "belt and road initiative". *China Econ. Rev.* **2016**, *40*, 309–313. [CrossRef]
23. Miao, J. Expectations and realities: Managing the risks of the" Belt and Road" Initiative. *China Q. Int. Strateg.* **2015**, *1*, 497–522. [CrossRef]
24. Fardella, E.; Prodi, G. The belt and road initiative impact on Europe: An Italian perspective. *China World Econ.* **2017**, *25*, 125–138. [CrossRef]
25. Jiang, Q.; Ma, X.; Wang, Y. How does the one belt one road initiative affect the green economic growth? *Energy Econ.* **2021**, *101*, 105429. [CrossRef]
26. Enderwick, P. The economic growth and development effects of China's One Belt, One Road Initiative. *Strateg. Chang.* **2018**, *27*, 447–454. [CrossRef]
27. Li, S.; Su, J.; Liu, Y.; Lepech, M.D.; Wang, J. How "Belt and Road" initiative implementation has influenced R&D outcomes of Chinese enterprises: Asset-exploitation or knowledge transfer? *R&D Manag.* **2021**, *51*, 273–292. [CrossRef]
28. Ramasamy, B.; Yeung, M.C.H. China's one belt one road initiative: The impact of trade facilitation versus physical infrastructure on exports. *World Econ.* **2019**, *42*, 1673–1694. [CrossRef]
29. Liang, Y. RMB Internationalization and Financing Belt-Road Initiative: An MMT Perspective. *Chin. Econ.* **2020**, *53*, 317–328. [CrossRef]
30. Siddiqui, K. One Belt and One Road, China's Massive Infrastructure Project to Boost Trade and Economy: An Overview. *Int. Crit. Thought* **2019**, *9*, 214–235. [CrossRef]
31. Hu, F.; Zhang, X.; Hu, M.; Cook, D.L. Chinese enterprises' investment in infrastructure construction in Cambodia. *Asian Perspect.* **2019**, *43*, 177–207. [CrossRef]
32. Wang, C.; Lim, M.K.; Zhang, X.; Zhao, L.; Lee, P.T.-W. Railway and road infrastructure in the Belt and Road Initiative countries: Estimating the impact of transport infrastructure on economic growth. *Transp. Res. Part A Policy Pract.* **2020**, *134*, 288–307. [CrossRef]
33. Upadhyay, S. The Belt and Road Initiative: Issues and Future Trends. *IQ* **2023**, *79*, 175–188. [CrossRef]
34. Jin, Z.; Deng, F.; Li, H.; Skitmore, M. Practical Framework for Measuring Performance of International Construction Firms. *J. Constr. Eng. Manag.* **2013**, *139*, 1154–1167. [CrossRef]
35. Wang, G.; Zhang, H.; Xia, B.; Wu, G.; Han, Y. Relationship between internationalization and financial performance: Evidence from ENR-listed Chinese firms. *J. Manag. Eng.* **2020**, *36*, 04019044. [CrossRef]
36. Sun, Y.; Sun, H.; Chen, L.; Taghizadeh-Hesary, F.; Zhao, G. Impact of natural-resource dependence on foreign contracting projects of China: A spatial panel threshold approach. *PLoS ONE* **2020**, *15*, e0234057. [CrossRef]
37. Leung, M.; Wei, X.; Wang, C. Demystifying Critical Success Factors for Applying Value Management in Construction Projects along the Belt and Road Regions: Focus Group Study. *J. Constr. Eng. Manag.* **2023**, *149*, 04023066. [CrossRef]
38. Han, S.H.; Kim, D.Y.; Jang, H.S.; Choi, S. Strategies for contractors to sustain growth in the global construction market. *Habitat Int.* **2010**, *34*, 1–10. [CrossRef]
39. Wang, C.; Loo, S.C.; Yap, J.B.H.; Abdul-Rahman, H. Novel capability-based risk assessment calculator for construction contractors venturing overseas. *J. Constr. Eng. Manag.* **2019**, *145*, 04019059. [CrossRef]
40. Zhao, Z.Y.; Xu, K.; Zuo, J.; Tang, C. Developing the international construction contracting market: Enterprise niche approach. *J. Manag. Eng.* **2017**, *33*, 04016027. [CrossRef]
41. Gu, N.; London, K. Understanding and facilitating BIM adoption in the AEC industry. *Automat. Constr.* **2010**, *19*, 988–999. [CrossRef]
42. Lee, K.-W.; Kim, D.Y. Market structure analysis of international construction revenue: A country level analysis. *KSCE J. Civ. Eng.* **2022**, *26*, 4960–4970. [CrossRef]
43. Brida, J.G.; Driha, O.; Ramón-Rodriguez, A.B.; Such-Devesa, M.J. The inverted-U relationship between the degree of internationalization and the performance: The case of Spanish hotel chains. *Tour. Manag. Perspect.* **2016**, *17*, 72–81. [CrossRef]
44. Wang, J.; Mirsardin, I.; Sun, Y.; Yang, X. The internationalization of Chinese multinational enterprises under the Belt-and-Road Initiative. *Strateg. Chang.* **2021**, *30*, 509–515. [CrossRef]

45. Kim, D.Y.; Ashuri, B.; Han, S.H. Financial valuation of investments in international construction markets: Real-options approach for market-entry decisions. *J. Manag. Eng.* **2013**, *29*, 355–368. [CrossRef]
46. Daniels, J.D.; Bracker, J. Profit performance: Do foreign operations make a difference? *Manag. Int. Rev.* **1989**, *29*, 46–56.
47. Sullivan, D. Measuring the degree of internationalization of a firm. *J. Int. Bus. Stud.* **1994**, *25*, 325–342. [CrossRef]
48. Buckley, P.J.; Dunning, J.H.; Pearce, R.D. The influence of firm size, industry, nationality, and degree of multinationality on the growth and profitability of the World's largest firms, 1962–1972. *Rev. World Econ* **1978**, *114*, 243–257. [CrossRef]
49. Duanmu, J.-L. Firm heterogeneity and location choice of Chinese multinational enterprises (MNEs). *J. World Bus.* **2012**, *47*, 64–72. [CrossRef]
50. Wang, Q.; She, S. Research on the transformation and upgrading effect of industrial structure implemented by the 'belt and road' initiative—Based on the test of PSM + DID in 285 cities in China. *Inq. Into Econ. Issues* **2020**, *2*, 132–143.
51. Shao, X. Chinese OFDI responses to the B&R initiative: Evidence from a quasi-natural experiment. *China Econ. Rev.* **2020**, *61*, 101435. [CrossRef]
52. Benito-Osorio, D.; Colino, A.; Guerras-Martín, L.Á.; Zúñiga-Vicente, J.Á. The international diversification-performance link in Spain: Does firm size really matter? *Int. Bus. Rev.* **2016**, *25*, 548–558. [CrossRef]
53. Ganvir, M.B.; Dwivedi, N. Internationalization and performance of Indian born globals: Moderating role of presence of foreign equity. *IJoEM* **2017**, *12*, 108–124. [CrossRef]
54. Xu, Y.; Ge, Y.; Bao, H. The Influence of Administrative Division Adjustment on Enterprise Earnings Management: A Quasi-Natural Experiment on City–County Consolidation. *Buildings* **2022**, *12*, 951. [CrossRef]
55. Song, Z. The capitalization of School Quality in rents in the Beijing Housing Market: A propensity score matching method. *Buildings* **2022**, *12*, 485. [CrossRef]
56. Rosenbaum, P.R.; Rubin, D.B. The central role of the propensity score in observational studies for causal effects. *Biometrika* **1983**, *70*, 41–55. [CrossRef]
57. Qin, J.; Cao, J. Carbon emission reduction effects of green credit policies: Empirical evidence from China. *Front. Environ. Sci.* **2022**, *10*, 798072. [CrossRef]
58. Sun, L.; Li, W. Has the opening of high-speed rail reduced urban carbon emissions? Empirical analysis based on panel data of cities in China. *J. Clean.* **2021**, *321*, 128958. [CrossRef]
59. Yang, X.; Zhang, H.; Li, Y. High-speed railway, factor flow and enterprise innovation efficiency: An empirical analysis on micro data. *Socio-Econ. Plan. Sci.* **2022**, *82*, 101305. [CrossRef]
60. Cheng, B.; Zhang, X.; Qiu, B.; Zuo, J. Does the "Belt and Road" initiative impact a firm's green investments? *Appl. Econ.* **2023**, *55*, 155–169. [CrossRef]
61. Yang, X.; Lin, S.; Li, Y.; He, M. Can high-speed rail reduce environmental pollution? Evidence from China. *J. Clean.* **2019**, *239*, 118135. [CrossRef]
62. Yang, Y.; Zhang, Y. The impact of the green credit policy on the short-term and long-term debt financing of heavily polluting enterprises: Based on PSM-DID method. *Int. J. Environ. Res. Public Health* **2022**, *19*, 11287. [CrossRef] [PubMed]
63. Adnan, H.; Yusuwan, N.M.; Yusof, F.; Bachik, F. Critical Success Factors for Contractors. *Int. J. Eng. Tech. Res. (IJETR)* **2014**, *2*, 107–113.
64. Wu, D.J.; Kleindorfer, P.R.; Zhang, J.E. Optimal bidding and contracting strategies for capital-intensive goods. *EJOR* **2002**, *137*, 657–676. [CrossRef]
65. Woiceshyn, J.; Falkenberg, L. Value creation in knowledge-based firms: Aligning problems and resources. *Acad. Manag. Perspect.* **2008**, *22*, 85–99. [CrossRef]
66. Teece, D.J. *A Dynamic Capabilities-Based Entrepreneurial Theory of the Multinational Enterprise*; Springer: New York, NY, USA, 2014; pp. 8–37.
67. Pantic-Dragisic, S.; Söderlund, J. Swift transition and knowledge cycling: Key capabilities for successful technical and engineering consulting? *Res. Policy* **2020**, *49*, 103880. [CrossRef]