Uncertain Supply Chain Management 13 (2025) 155–164

Contents lists available at GrowingScience

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

Uncertainty of FDI access relaxation on trans-regional investment in Indonesia: Evidence from publicly listed companies (2010-2022)

Muhammad Yusuf[a*], Ferly Aninditya[b], Muhammad Ikra[b], Nuraeni[b], Irzan Soepriyadi[c] and Arfendo Propheto[d]

[a]*Institut Teknologi dan Bisnis Bank Rakyat Indonesia, Indonesia*
[b]*Universitas Muhammadiyah Jakarta, Indonesia*
[c]*IBI Kosgoro 1957, Indonesia*
[d]*Business Creation, BINUS Business School, Bina Nusantara University, Jakarta 15143, Indonesia*

A B S T R A C T

Article history:
Received May 15, 2024
Received in revised format May 23, 2024
Accepted July 15 2024
Available online
July 15 2024

Keywords:
Foreign Direct Investment
Access Relaxation
Trans-regional
Indonesia enterprises

This study examines the impact of relaxation of Foreign Direct Investment (FDI) access on the trans-regional investment behavior of Indonesian enterprises. Utilizing data from publicly listed companies between 2010 and 2022, this study investigates how easing FDI restrictions influences the geographic distribution of subsidiaries. The findings indicate that FDI access relaxation significantly promotes trans-regional investment, driven by reduced government subsidies and lower market intervention. These mechanisms enable enterprises to expand beyond local markets by decreasing their dependency on government support and lowering their transaction costs. Robustness tests, including first-order difference models and dynamic distribution tests, confirmed the reliability of the results. This study suggests that a further reduction in FDI restrictions can enhance domestic market integration, mitigate capital market segmentation, and promote inclusive economic growth. This study contributes to the literature by providing empirical evidence of the economic benefits of FDI access policies and offers new strategies for addressing market segmentation in Indonesia.

1. Introduction

In recent years, global trade protectionism has increased, leading to increased uncertainty in the international trade environment. Countries have begun to explore the potential of their domestic markets to mitigate the adverse effects of external market instability on their economic development. For instance, India has implemented the "Make in India" initiative to encourage the development of domestic manufacturing; European countries such as France and Italy have implemented protectionist measures for domestic food and agricultural products; and the Brazilian government has provided tax incentives and trade protection to encourage the production of domestic products by local companies, reducing reliance on imported products. In the process of promoting effective circulation within domestic markets, the segmentation of domestic capital markets poses a key obstacle.

Capital market segmentation refers to the inability of capital to flow freely and efficiently across regions within a country owing to various barriers, thus causing the capital markets in different regions to be isolated from each other, specifically manifested by a low level of trans-regional investment (Young, 2000). Capital market segmentation is a widespread issue faced by many countries worldwide (Carvache-Franco et al., 2023). In Indonesia, capital market segmentation is particularly severe (Anggraini et al., 2022). Fiscal decentralization in Indonesia formally began with the enactment of the Law on Regional Autonomy (Law No. 22/1999) and the Law on Fiscal Balance between the Central Government and the Regions (Law No. 25/1999). These laws were part of a broader reform agenda following the end of President Suharto's regime in 1998. The

* Corresponding author
E-mail address muhammadyusuf310171@gmail.com (M. Yusuf)

ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

doi: 10.5267/j.uscm.2024.7.008

implementation of these laws started in 2001, marking the beginning of significant fiscal decentralization efforts in Indonesia. Consequently, local governments, for purposes such as tax and GDP competition, utilize market intervention measures to impede the inflow and outflow of capital into and out of their regions. This results in the severe fragmentation of Indonesia's capital markets along administrative boundaries and poses significant challenges for local enterprises to invest transregionally (Jones & Hameiri, 2020).

How can capital market segmentation be effectively alleviated, thereby promoting the free flow of capital across different regions? Existing literature provides suggestions such as transportation infrastructure construction, establishing trans-regional chambers of commerce, political affiliations, and industrial policy support (Cao & Jia, 2020; Bu et al., 2017). From the perspective of policy implementation, the Indonesian government has proposed promoting high-level opening-up to the outside world and establishing a new development pattern in which domestic and international markets can boost each other. This provides us with the new perspective that deepening opening-up may be an effective way to mitigate domestic capital market segmentation.

Attracting Foreign Direct Investment (FDI) is a core means of opening up Indonesia. The former State Planning Commission (1993) issued the Guidance of Foreign Investment Industries, which stipulated the industries where FDI was encouraged, restricted, and prohibited. In 2018, the National Development and Reform Commission and the Ministry of Commerce jointly issued the "Special Administrative Measures for Foreign Investment Access (Negative List)", while the "Catalogue" was abolished. The Negative List specifies the industries where FDI is prohibited and follows the principle of "non-prohibition means permission", emphasizing equal treatment of domestic and foreign capital in industries outside the Negative List. Since 2019, prohibited industries on the Negative List have been continuously reduced, with a reduction of up to 64%.

The relaxation of FDI access positively impacts domestic capital flows by enhancing local marketization. This improvement weakens the market intervention capabilities of local governments and reduces the barriers enterprises face in making trans-regional investments. From a negative perspective, foreign entry may intensify market competition and thus enhance the motivation of local governments for local protection. Local governments may provide more government subsidies or political shelters to help local enterprises survive and win intense market competition. Consequently, enterprises become more dependent on local governments, reducing their willingness to invest transregionally. Based on the above analysis, whether the relaxation of FDI access can promote local enterprises' trans-regional investment still requires further verification.

This study uses Indonesian publicly listed companies from 2010 to 2022 as samples, manually collects data on annual FDI access policies and the geographical distribution of subsidiaries of listed companies, and examines whether FDI access relaxation can promote enterprise transregional investment and its specific impact paths. This study makes the following three marginal contributions:

1. This study offers a new solution for the issue of capital market segmentation. Alleviating market segmentation to facilitate domestic market circulation is effective for economic development. By examining the relationship between FDI access relaxation and domestic capital market segmentation, we verify the effectiveness of the opening-up strategy and provide a new approach to mitigating market segmentation.

2. It explores the economic consequences of FDI access from the perspective of enterprise transregional investment. The existing literature has discussed the impact of FDI access policies on domestic enterprise innovation, enterprise productivity, and the productivity gap between industries, but there is a lack of discussion on trans-regional investment. This study, combining Indonesia's unique institutional background, examines the impact of FDI access on trans-regional investment and provides empirical evidence for the economic consequences of relaxing FDI access.

3. This study uses FDI access policies as a proxy variable for foreign entry, replacing the commonly used foreign inflow volume in the literature, which effectively mitigates the impact of endogeneity issues on research results.

2. Literature Review and Theoretical Analysis

2.1 Barriers to Transregional Investment in Indonesia

Indonesia, with its diverse geography and regional disparities, presents both opportunities and challenges for transregional investment. On the one hand, different regions offer distinct resources, labor markets, and economic conditions that can be beneficial for businesses looking to diversify and optimize their operations (Chakrabarti & Mitchell, 2013). However, the actual level of transregional investment in Indonesia remains low (Devadason & Mubarik, 2020). Some enterprises prefer to invest overseas rather than across regions (Boisot & Meyer, 2008). Existing research generally attributes this to local governments hindering capital flow trans-regionally through market intervention, leading to capital market segmentation (Becker 2007). From the perspective of local governments, trans-regional investment implies an outflow of local capital elements. Employment opportunities and tax revenues generated by transregional subsidiaries often remain in the regions where these subsidiaries are located, making it difficult for local governments to benefit (Pi & Zhang, 2019). Additionally, the inflow of capital from other regions may disrupt the operations of local enterprises (Fang 2009). To prevent the encroachment of local resources, local governments often adopt various regulatory measures, such as providing preferential policies in finance, taxation, and subsidies to local enterprises, or imposing lengthy and complex business registration and approval procedures to hinder the inflow and outflow of capital (Ahern et al., 2015).

From the perspective of enterprises, transregional investment usually incurs high transaction costs. These costs include overcoming barriers to entry into other regions and additional costs to navigating institutional obstacles imposed by local protectionist systems (Chen & Zhang, 2023). In many cases, these transaction costs are much higher than those required for local investment, thereby causing enterprises to hesitate to pursue transregional investments (Li & Lu, 2020). Meanwhile, local governments often provide substantial support to local enterprises through subsidies and capital injections, which decreases the local advantages of enterprises as their trans-regional investments increase, thus weakening their willingness to invest in other regions (Liu et al., 2018).

2.2 Policies and Impact of FDI Access Relaxation in Indonesia

Indonesia has implemented various policies to attract foreign direct investment (FDI) over the years. In 2018, Indonesia replaced the "Catalogue for the Guidance of Foreign Investment Industries" with the "Special Administrative Measures for Foreign Investment Access (Negative List)". The Negative List specifies industries in which FDI is restricted or prohibited, while industries outside the Negative List follow the principle of equal treatment of domestic and foreign capital. By 2023, Indonesia had significantly reduced the number of industries on the Negative List, aiming to attract more foreign investment (OECD, 2020).

Relaxation of FDI access policies has been verified to significantly increase the inflow of foreign investment, thereby demonstrating the effectiveness of these policies. Stimulating innovation, alleviating financing constraints, and increasing profit margins are crucial pathways through which FDI access relaxation improves the productivity of Indonesian manufacturing enterprises (OECD 2020). Moreover, FDI access relaxation also enhances local enterprises' profitability by promoting their production scale, management efficiency, and labor output ratio. However, research on the effect of FDI access relaxation on capital market segmentation is limited.

2.3 Local Government Strategies and the Impact of FDI Access Relaxation on Market Integration

Local governments use two major approaches, market intervention and policy support, to reduce enterprises' ability and willingness to invest transregionally, which leads to capital market segmentation. The core purpose of local government intervention is to achieve short-term regional economic growth for political promotion (Fan et al., 2013). Previous studies have pointed out that aside from using local protection measures such as market intervention and policy support, encouraging market competition and promoting regional economic integration are also crucial for local governments to develop the local economy and achieve political promotion (Pan & Yu, 2011).

FDI access relaxation can raise the costs of implementing a "market segmentation" strategy while bringing more benefits to a "market integration" strategy. First, the relaxation of FDI access attracts more high-quality foreign enterprises to local markets, thereby increasing the costs of local protection. Compared with domestic enterprises, foreign enterprises often have stronger competitive advantages, which are further enhanced with FDI access relaxation (Fan et al., 2013). Consequently, local enterprises' market share and profit margins are squeezed, forcing local governments to invest more resources in maintaining protection policies. This increases the cost for local governments to intervene in markets.

Secondly, the relaxation of FDI access can increase the benefits of local governments implementing a "market integration" strategy by promoting marketization. Foreign capital tends to choose regions in which resource endowments match their comparative advantages. The continuous inflow of foreign capital strengthens the advantageous industries in each region, benefiting local enterprises' trans-regional investments (Zhou & Lei, 2023). The improvement in marketization can alleviate market segmentation, implying that local governments opting for a "market integration" strategy may achieve higher economic benefits.

Based on this analysis, we believe that the continuous relaxation of FDI access increases both the costs of local protection and the benefits of market integration, driving local governments to shift their economic strategy from "market segmentation" to "market integration," thereby promoting enterprises' trans-regional investments.

However, local governments may also have predatory motives for intervening in transregional investments. Driven by political promotion pressures, local governments might restrict trans-regional investments to reduce resource outflows and reduce the difficulty of predatory actions. To ensure political mission fulfillment, local governments may increase support for local enterprises, making them more dependent on government support, thereby further weakening their capability and willingness for trans-regional investments.

3. Methodology

3.1 Sample Selection and Data Sources

In this research, we analyzed data from 77 publicly listed companies in Indonesia over a cumulative total of 1,001 firm-years, covering the period from 2010 to 2022. This extensive dataset allows us to capture a broad and comprehensive view of the companies' performance and behavior over multiple years. By including a diverse range of companies across different sectors, we can ensure that our findings are robust and generalizable.

We identify whether enterprises are affected by the relaxation of FDI access with two policy documents: the "Catalogue for the Guidance of Foreign Investment Industries (Catalogue)" and the "Special Administrative Measures for Foreign Investment Access (Negative List)." For trans-regional investments, we use the subsidiary's name to identify the province in which the subsidiary is located. If it is not the same province as its parent company, it is determined to be a trans-regional subsidiary. For subsidiaries whose names do not contain address information, we use internet tools to search and determine. Subsidiaries that could not be traced through either channel were excluded. Firm-level data are sourced from the Indonesian Stock Exchange database, whereas provincial-level data are derived from the National Bureau of Statistics database.

3.2 Model Specification and Variable Description

In the main regression section, we construct a mixed panel regression model with the full sample to test the impact of FDI access relaxation on enterprises' TRI.

$$Trans_{ri}=\beta_0+\beta_1 Open_{i,t}+\beta_2 Control_{i,t}+\sum Year+\sum Industry+\epsilon$$

The dependent variable is trans-regional investment ($Trans_{ri}$). Following Cao et al. (2015), we measure $Trans_{ri}$ by dividing the number of trans-region subsidiaries by the total number of subsidiaries in a listed company. The explanatory variable is the relaxation of FDI access (open). If the industry of company ii in year tt is not restricted or prohibited in the "Catalogue" or the "Negative List", the value of $Open_{i,t}$ is set to 1. Conversely, if the industry is listed within the restricted or prohibited areas in the "Catalogue" or the "Negative List" for year t, $Open_{i,t}$ is set to 0. Following Cao et al. (2015), we select the following control variables at both the enterprise and provincial levels: firm size (Size), profitability (ROA), fixed asset ratio (Tang), leverage ratio (Lev), establishment years (Age), equity concentration (Shrcr), dual role (Dual), number of subsidiaries (Tsub), state-owned enterprise (SOE), per capita GDP of the province (GDP), and population density (Popuden). The specific measurement methods used for each variable are listed in Table 1. Considering the significant influence of industry and time factors on the dependent variable, we also controlled for industry and year fixed effects and adjusted the standard errors for enterprise-level clustering. To mitigate the impact of omitted variables at the enterprise level on the regression results, we present the regression results after controlling for the firm-fixed effect.

Table 1
Definition of the variables

Name	Abbreviation	Definition
Trans-region Investment	$Trans_{ri}$	The ratio of the number of trans-region subsidiaries to the total number of subsidiaries in a firm.
The relaxation of FDI access	Open	If the industry of the firm is not included in the restriction or the prohibition lists of the "Catalogue" and the "Negative List" for the year, the value is 1; otherwise, it is 0.
Firm size	Size	The natural logarithm of total assets.
Profitability	ROA	The ratio of net profit to total assets.
Fixed asset ratio	Tang	The ratio of net fixed assets to total assets.
Leverage ratio	Lev	The ratio of total liabilities to total assets.
Establishment years	Age	The number of years since the establishment of the firm.
Equity concentration	Shrcr	The ratio of the largest shareholder's holdings to the total shares.
Dual roles	Dual	If the chairman and CEO are the same person, the value is 1; otherwise, it is 0.
Number of Subsidiaries	Tsub	The total number of a firm's subsidiaries.
State-owned enterprise	SOE	If the controlling shareholder is state-owned, the value is 1; otherwise, it is 0.
Per capita GDP	GDP	The natural logarithm of the per capita GDP of the province where the firm is registered.
Population density	Popuden	The ratio of the permanent population in the province where the firm is registered to the urban area.

4. Empirical Results and Analysis

4.1 Descriptive Statistics and Single Variable t-test

Table 2 presents the descriptive statistics for the main variables. The mean value of $Trans_{ri}$ is 0.482, indicating that listed companies have nearly 48.2% subsidiaries established in other provinces. The mean value of Open is 0.604, suggesting that 60.4% of the enterprises belong to industries with a higher level of FDI access relaxation. Additionally, the mean value of SOE is 0.397, indicating that 39.7% of the listed companies in the sample are state-owned enterprises. The distribution of the other continuous variables was consistent with the statistical results in the existing literature.

Table 2
Descriptive Statistics

Variable	Mean	Std. Dev	Min	Max
$Trans_{ri}$	0.482	0.261	0.000	1.000
Open	0.604	0.489	0.000	1.000
SOE	0.397	0.489	0.000	1.000
Size	22.372	1.532	19.183	28.405
ROA	0.039	0.071	-0.485	0.269
Tang	0.274	0.195	0.005	0.952
Lev	0.421	0.197	0.009	0.961
Age	16.501	7.643	1	63
Shrcr	0.349	0.148	0.001	0.886
Dual	0.225	0.418	0.000	1.000
Tsub	4.310	1.623	0.000	15.000
GDP	15.500	0.845	13.674	17.854
Popuden	1.205	1.349	0.004	10.765

4.2 Regression Results Analysis

Table 3 reports the impact of FDI access relaxation on enterprises' transregional investment. The results show that regardless of whether control variables and fixed effects are added to Model 1, the regression coefficient of Open is significantly positive at the 5% level, indicating that FDI access relaxation can promote enterprises' trans-regional investment. Considering that some industries have been relaxed since the introduction of FDI access policies, their industry characteristics may influence the regression results. By excluding enterprises in industries that have always been relaxed during the sample period, the results remain robust. The regression results in Table 3 support H1a.

Table 3
The Relationship of FDI Access Relaxation and Trans-region Investment

Dependent variable: $Trans_{ri}$	Full sample	Excluding consistently accessible industries
	-1	-2
Open	0.053**	0.017**
	(6.89)	(2.39)
Size		0.030**
		(6.89)
ROA		-0.110**
		(-2.89)
Tang		-0.120**
		(-3.97)
Lev		-0.006
		(-0.30)
Age		-0.001*
		(-2.05)
Shrcr		-0.000
		(-1.12)
Dual		0.008
		(1.14)
Tsub		0.001**
		(7.96)
GDP		-0.030*
		(-2.22)
Popuden		-0.021*
		(-1.61)
SOE		-0.120**
		(-11.22)
_cons	0.426**	0.196
	(56.85)	(1.00)
Year	NO	YES
Industry	NO	YES
Firm	NO	NO
N	1001	1001
adj. R^2	0.008	0.180

*Note: The values within parentheses report the t-statistics adjusted for heteroscedasticity-robust standard errors. *, **, and *** represent the significance levels of 10%, 5%, and 1%, respectively. The same applies to the other tables in the subsequent sections.*

4.3 Robustness Test

4.3.1 First-order Difference Model Regression

To better mitigate endogeneity issues arising from omitted variable bias, we construct a first-order difference model (Model 2). For all continuous variables, we used the current period value minus the previous period value and employed this difference as the input value for these continuous variables in the regression analysis.

$\Delta Trans_{ri} = \beta_0 + \beta_1 Open_{i,t} + \beta_2 \Delta Control_{i,t} + \sum Year + \sum Industry + \epsilon$

The regression results for Model 2 are listed in Table 4. The results indicate that relaxing FDI access significantly increases the proportion of subsidiaries located in other regions in relaxed industries. This result is consistent with the main regression results and alleviates endogeneity issues.

Table 4
First-order Difference Model Regression

Dependent variable: d. $Trans_{ri}$	**-1**	**-2**
Open	0.027*** (4.72)	0.012** (2.25)
d.Size	0.225*** (17.90)	
d.ROA	-0.042** (-2.12)	
d.Tang	0.015 (0.46)	
d.Lev	0.065** (2.32)	
Age	-0.001*** (-2.75)	
d.Shrcr	-0.000 (-0.34)	
Dual	0.007** (2.05)	
d.Tsub	0.020*** (24.89)	
d.GDP	-0.108** (-1.97)	
d.Popuden	-0.020 (-0.89)	
SOE	-0.041*** (-12.75)	
_cons	0.111*** (3.65)	
Year	YES	YES
Industry	YES	YES
N	1001	1001
adj. R^2	0.018	0.330

4.3.2 Dynamic Distribution Test of Subsidiaries

The main regression results show a significant positive correlation between FDI access relaxation and regional investments. An alternative explanation for this result is that the industries in which governments choose to relax FDI access may already have a higher level of trans-regional investment, or the trans-regional subsidiaries in these industries may be more likely to survive. To exclude this alternative explanation, we constructed Model 3 for a dynamic distribution test of subsidiaries.

Table 5
Dynamic Distribution Test of Subsidiaries

Dependent variable	**$NTrans_{ri}$**	**$RnTrans_{ri}$**	**$RnTrans_{ri2}$**	**$LogTrans_{ri}$**	**$LogTrans_{ci}$**
Open	0.126** (2.45)	0.011*** (3.50)	0.019** (2.30)	0.060*** (4.20)	0.049*** (4.05)
Size	0.113*** (3.35)	0.005*** (2.20)	0.034*** (3.15)	0.187*** (17.45)	0.188*** (18.00)
ROA	2.099*** (9.00)	0.141*** (10.65)	-0.032 (-0.75)	-0.443*** (-5.10)	-0.313*** (-3.70)
Tang	-0.848*** (-6.38)	-0.078*** (-10.50)	-0.169*** (-8.30)	-0.524*** (-7.60)	-0.358*** (-5.45)
Lev	0.174 (1.60)	0.011* (1.70)	-0.007 (-0.41)	0.143*** (2.75)	0.194*** (3.80)
Age	-0.029*** (-5.70)	-0.002*** (-6.75)	-0.001 (-1.62)	-0.006** (-2.35)	-0.006*** (-3.05)

Table 5
Dynamic Distribution Test of Subsidiaries (Continued)

Dependent variable	$NTrans_{ri}$	$RnTrans_{ri}$	$RnTrans_{ri2}$	$LogTrans_{ri}$	$LogTrans_{ci}$
Shrcr	-0.004*	0.000	-0.000***	-0.005***	-0.003***
	(-1.75)	(0.40)	(-2.82)	(-5.00)	(-4.60)
Dual	0.179***	0.010***	0.009	0.032*	0.033*
	(4.05)	(4.10)	(1.62)	(1.85)	(1.85)
Tsub	0.105***	0.002***	0.001***	0.030***	0.030***
	(40.60)	(10.65)	(12.75)	(36.40)	(35.90)
GDP	-0.289***	-0.013***	-0.034***	0.001	-0.127***
	(-3.98)	(-3.65)	(-4.25)	(0.02)	(-3.80)
Popuden	-0.109**	-0.007**	-0.041***	-0.036	0.008
	(-3.72)	(-1.65)	(-3.75)	(-0.70)	(0.70)

5. Mechanism Test

5.1 Reduction in Government Support

As previously mentioned, the relaxation of FDI access intensifies local market competition and squeezes the profit margins of local enterprises. In this case, if local governments want to maintain the performance of local enterprises, they must pay higher support costs. This would weaken the willingness and ability of local governments to provide support, thereby driving them to shift their economic development strategies from market segmentation to market integration. Thus, we examine whether there are changes in the intensity of government support following the relaxation of FDI access, and whether it further affects enterprises' trans-regional investment.

We tested the government support mechanism in two dimensions: government subsidies and government procurement. Government subsidies ($Govern_{Subs}$) are measured using the natural logarithm of the subsidy amount received by the enterprise. Table 6 reports the results of the government subsidy mechanism. The results show that there is a significant negative correlation between Open and government subsidies, and Subsidy is significantly negatively correlated with the trans-region investment ($Trans_{ri}$). This indicates that after the relaxation of FDI access, local governments choose to reduce subsidies to enterprises, which, in turn, enhances their willingness to invest in the trans-region. The regression results which use the first-order difference model, remain consistent.

Table 6
Test of Government Subsidy Mechanism

Dependent variable:	$Govern_{Subs}$	$Trans_{ri}$	$d.Govern_{Subs}$	$d.Trans_{ri}$
Open	-0.285***	-0.004***	-0.232***	0.010**
	(-5.80)	(-3.35)	(-5.25)	(2.10)
$Govern_{Subs}$		0.018**		-0.003***
		(2.40)		(-2.40)
Size/d.Size	0.167***	0.035***	0.106**	0.225***
	(7.15)	(7.60)	(2.60)	(17.50)
ROA/d.ROA	-0.108	-0.119***	-0.247**	-0.043*
	(-0.50)	(-3.05)	(-2.30)	(-1.80)
Tang/d.Tang	-0.985***	-0.128***	-0.133	0.015
	(-8.60)	(-4.35)	(-1.40)	(0.40)
Lev/d.Lev	0.088	-0.008	-0.322***	0.068**
	(0.90)	(-0.33)	(-3.25)	(2.42)
Age	0.002	-0.002**	0.001	-0.001**
	(0.44)	(-2.12)	(0.28)	(-2.42)
Shrcr/d.Shrcr	-0.002	-0.000	-0.000	-0.000
	(-1.65)	(-1.26)	(-0.20)	(-0.15)
Dual	-0.085**	0.008	-0.074*	0.006*
	(-2.00)	(1.16)	(-1.95)	(1.78)
Tsub/d.Tsub	0.019***	0.003***	0.011***	0.024***
	(10.10)	(8.40)	(4.00)	(26.10)
GDP/d.GDP	0.075	-0.038**	0.700**	-0.112**
	(1.35)	(-2.35)	(2.38)	(-2.00)
Popuden/d.Popuden	-0.050	-0.024*	0.138	-0.018
	(-1.30)	(-1.75)	(1.15)	(-0.82)
SOE	0.270***	-0.137***	0.240***	-0.045***
	(5.90)	(-12.30)	(6.20)	(-12.80)
_cons	-4.150***	0.190	-0.248*	0.102***
	(-5.60)	(0.95)	(-1.90)	(4.35)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	1001	1001	1001	1001
adj. R^2	0.245	0.185	0.150	0.335

5.2 Reduction in Government Market Intervention

As analyzed in the previous section, governments not only reduce enterprises' willingness to invest trans-regionally by providing policy support but also by intervening in the market. The relaxation of FDI access fosters marketization and increases the economic benefits that local governments can gain by integrating the market, thus leading them to choose to reduce intervention in enterprises' trans-regional investments. Thus, we examine whether the relaxation of FDI access can help enterprises reduce transaction costs incurred during the trans-regional investment process, thereby examining the government intervention mechanism.

We construct the transaction cost variable $Transaction_1$, measured by the ratio of the sum of management, financial, and sales expenses to total operating income, as well as $Transaction_2$, measured by the ratio of the sum of management and sales expenses to total operating income. Table 7 shows the regression results. The results show that the coefficients of $Trans_{ir}$ are significantly positive for $Transaction_1$ and $Transaction_2$, indicating that trans-regional investment incurs additional transaction costs for enterprises, and the interaction term between Open and $Trans_{ir}$ is significantly negatively correlated with $Transaction_1$ and $Transaction_2$, suggesting that the relaxation of FDI access can reduce the transaction costs associated with trans-regional investment. This indicates that after the relaxation of FDI access, the level of government intervention in enterprises' trans-regional investment has declined.

Table 7
Test of Government Intervention Mechanism

Dependent variable:	Transaction1	Transaction2
Open_ $Trans_{ir}$	-0.019**	-0.013**
	(-2.52)	(-2.05)
$Trans_{ir}$	0.018***	0.017***
	(3.55)	(3.60)
Open	0.016**	0.013**
	(2.35)	(2.25)
Size	-0.027***	-0.026***
	(-14.90)	(-16.25)
ROA	-0.658***	-0.531***
	(-26.55)	(-24.10)
Tang	-0.021	-0.046***
	(-1.60)	(-4.15)
Lev	0.003	-0.085***
	(0.15)	(-8.75)
Age	0.001	0.001
	(1.45)	(0.97)
Shrcr	-0.000***	-0.000***
	(-3.95)	(-2.95)
Dual	0.007*	0.007**
	(1.90)	(2.30)
Tsub	0.001***	0.001***
	(5.20)	(7.05)
GDP	-0.017***	-0.011**
	(-2.95)	(-2.05)
Popuden	-0.006	-0.003
	(-1.18)	(-0.63)
SOE	-0.021***	-0.015***
	(-5.70)	(-4.30)
_cons	0.985***	0.901***

6. Conclusion

This study explores the impact of relaxation of Foreign Direct Investment (FDI) access on the transregional investment behavior of enterprises in Indonesia. Utilizing data from publicly listed companies between 2010 and 2022, this study examined the influence of FDI access policies, specifically those outlined in the “Catalogue for the Guidance of Foreign Investment Industries” and the “Special Administrative Measures for Foreign Investment Access (Negative List)”. The findings indicate that the relaxation of FDI access significantly promotes enterprises’ trans-regional investment, suggesting that easing restrictions on foreign investment enables local businesses to expand their operations across different regions more effectively.

The research highlights two critical mechanisms through which FDI access relaxation influences trans-regional investment: government support and market intervention. It was found that the relaxation of FDI access led to a reduction in government subsidies for local enterprises. This reduction in subsidies enhances enterprises’ willingness to invest beyond their home regions, as they become less reliant on local government support. Additionally, the study reveals that FDI access relaxation reduces the level of government market intervention, thereby lowering the transaction costs associated with trans-regional investments. This reduction in intervention further facilitated the flow of capital across the regions.

Robustness tests, including first-order difference model and dynamic distribution tests, confirmed the reliability of these findings. These tests address potential endogeneity issues and alternative explanations, reinforcing the conclusion that FDI access relaxation fosters trans-regional investment.

The results of this study have several important implications. For policymakers, the findings support the strategy of leveraging FDI access relaxation to enhance domestic market integration, suggesting that further reduction in restrictions on foreign investment can facilitate economic development and mitigate capital market segmentation. For economic development, promoting trans-regional investment through relaxed FDI policies can help balance the economic disparities between different regions in Indonesia, leading to more inclusive growth. This study underscores the importance of utilizing relaxed FDI policies to explore new market opportunities across regions, thereby reducing dependence on local government support and enhancing competitiveness.

Author Contributions

Muhammad Yusuf led the conceptualization and methodology of the study, carried out formal analysis, drafted the original manuscript, and supervised the research process. Ferly Aninditya was responsible for data curation, reviewing and editing the manuscript, and creating visualizations. Muhammad Ikra contributed to data collection and investigation and assisted in reviewing and editing the manuscript. Nuraeni conducted the literature review, performed data analysis, and participated in manuscript review and editing. Irzan Soepriyadi managed the software, ensured validation, and oversaw data management. Arfendo Propheto provided resources, handled project administration, and literature review. All authors have read and agreed to the published version of the manuscript.

Data Statement

The data for this research, which investigates the impact of Foreign Direct Investment (FDI) access relaxation policies on inter-regional investment by publicly listed Indonesian companies from 2010 to 2022, can be found at the following link https://bit.ly/3W4bDIg

References

Ahern, K. R., Daminelli, D., & Fracassi, C. (2015). Lost in translation? The effect of cultural values on mergers around the world. *Journal of Financial Economics*, *117*(1), 165-189.

Anggraini, P. G., Utami, E. R., & Wulandari, E. (2022). What happens to the stock market during the COVID-19 pandemic? A systematic literature review. *Pacific Accounting Review*, *34*(3), 406-425.

Becker, B. (2007). Geographical segmentation of US capital markets. *Journal of Financial Economics*, *85*(1), 151-178.

Boisot, M., & Meyer, M. W. (2008). Which way through the open door? Reflections on the internationalization of Chinese firms. *Management and Organization Review*, *4*(3), 349-365.

Bu, D., Tu, C., & Luo, H. (2017). Can industrial policies alleviate market segmentation? An empirical study based on the perspective of offsite equity investment by enterprises. *Industrial Economic Research*, *6*, 75-88.

Cao, C., Jia, F. (2020). Offsite chambers of commerce and enterprise development across regions. *Economic Research*, *55*(4), 150-166.

Cao, C., Zhou, D., Wu, C., & Zhang, T. (2015). Market segmentation and the distribution of offsite subsidiaries. *Management World*, *9*, 92-103+169+187-188.

Carvache-Franco, M., Regalado-Pezua, O., Sirkis, G., Carvache-Franco, O., & Carvache-Franco, W. (2023). Market segmentation in urban tourism: A study in Latin America. *PLOS ONE*, *18*(5).

Chakrabarti, A., & Mitchell, W. (2013). The persistent effect of geographic distance in acquisition target selection. *Organization Science*, *24*(6), 1805-1826.

Chambers, D., Sarkissian, S., & Schill, M. J. (2018). Market and regional segmentation and risk premia in the first era of financial globalization. *Review of Financial Studies*, *31*(10), 4063-4098.

Chen, Z., & Zhang, Z. (2023). Stabilizing foreign capital: Internal market conditions, open-to-outside policies, and their complementarity. *Finance & Trade Economics*, *44*(1), 134-153.

Devadason, E. S., & Mubarik, S. (2020). ASEAN and the EU: an assessment of interregional trade potentials. *International Economics and Economic Policy*, *17*(3), 705-726.

Fan, P. H., Wong, T. J., & Zhang, T. Y. (2013). Institutions and organizational structure: The case of state-owned corporate pyramids. *Journal of Law, Economics & Organization*, *29*(6), 1217-1252.

Fan, X., Song, D. L., & Zhao, X. Y. (2017). How infrastructure construction reduces market segregation in China: Achievements and problems. *China Economist*, *12*(6), 28-41.

Fang, J. (2009). Market segmentation and the damage to resource allocation efficiency—Evidence from corporate mergers and acquisitions. *Financial Research*, *35*(9), 36-47.

Jones, L., & Hameiri, S. (2020). Southeast Asian regional governance: Political economy, regulatory regionalism and ASEAN integration. *The political economy of Southeast Asia: Politics and uneven development under hyperglobalisation*, 199-224.

Khanna, T., & Yafeh, Y. (2007). Business groups in emerging markets: Paragons or parasites? *Journal of Economic Literature*, *45*(2), 331-372.

Law No. 22/1999 on Regional Government (Indonesia). (1999).

Law No. 25/1999 on Fiscal Balance between the Central Government and the Regions (Indonesia). (1999).

Li, P., & Lu, X. (2020). Foreign capital liberalization and the productivity of manufacturing enterprises in China. *Nankai Economic Studies*, *4*, 88-106.

Liu, C., Kang, M., & Qiu, L. (2018). Foreign capital inflow and the profit margins of domestic enterprises: Evidence from manufacturing enterprises in China. *The World Economy*, *41*(11), 98-120.

Organisation for Economic Co-operation and Development. (2020). Investment Policy Reviews: Indonesia 2020. OECD Publishing.

Pan, H., & Yu, M. (2011). The helping hand, the predatory hand, and offsite mergers and acquisitions. *Economic Research*, *46*(9), 108-120.

Pi, J., & Zhang, P. (2019). Local government subsidies and systemic overcapacity under the background of foreign capital inflows. *International Economic Cooperation*, *35*(12), 70-84.

Redding, S. J., & Turner, M. A. (2015). Transportation costs and the spatial organization of economic activity. In G. Duranton, J. V. Henderson, & W. Strange (Eds.), *Handbook of Regional and Urban Economics* (pp. 1339-1398). Amsterdam: Elsevier.

State Planning Commission. (1993). Catalogue for the Guidance of Foreign Investment Industries

Xia, L., Lu, M., & Yu, W. (2011). The nexus between government and business and inter-provincial investment—Empirical evidence from listed companies in China. *Management World*, *7*, 128-140.

Young, A. (2000). The razor's edge: Distortions and incremental reform in the People's Republic of China. *The Quarterly Journal of Economics*, *115*(4), 1091-1135.

Zhou, Z., & Lei, L. (2023). Does the adjustment of economic growth targets promote capital flow? —From the perspective of inter-regional investment of enterprises. *Nankai Management Review*, *8*, 1-25.