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Cross-Border Equity Market Integration and Corporate Investment Efficiency: Evidence from China's Stock Connect

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Abstract

This paper investigates a fundamental empirical question in international finance: when stock markets become more connected across borders, does that actually push companies to make better investment decisions? To examine this, China's Stock Connect program, encompassing the Shanghai-Hong Kong and Shenzhen-Hong Kong channels, is used as a real-world test case. These programs serve as a quasi-natural experiment to identify the causal effects of foreign investor participation. What makes this setup useful is that it allows foreign investors to trade shares in certain Chinese companies without changing how those companies are run internally, so any behavioral shifts can be traced back to market integration itself.

Drawing on data from Chinese publicly listed companies between 2010 and 2023, the study measures how far each firm's investment decisions stray from the optimal level. Through regression analysis controlling for individual company characteristics and broader yearly trends, the paper tracks what happens to firms once they join the program. The empirical analysis uses firm and year fixed effects models together with an event-study framework to examine how investment behavior evolves before and after firms gain access to cross-border investors.

The findings are fairly clear: companies that joined the cross-border trading program became noticeably better at allocating capital compared to those that didn't. The improvement unfolds gradually rather than immediately,

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suggesting firms need time to adjust to new investor dynamics. These findings hold up across different measures of investment efficiency and different sample configurations.

Overall, this study offers a firm-level perspective on the real effects of financial integration at the firm level. It shows that opening equity markets to a broader pool of international investors can meaningfully improve how companies deploy their resources.

Keywords: Equity market integration, investment efficiency, cross-border equity trading, firm-level investment behavior, capital allocation efficiency

Introduction

Efficient investment lies at the core of whether financial markets ultimately generate real economic value. In theory, firms should allocate resources toward projects with positive net present value while avoiding investments that destroy value. In practice, however, corporate investment decisions are often affected by information asymmetry, financing constraints, and agency conflicts between managers and shareholders. These frictions can distort investment decisions and push firms away from optimal capital allocation. Prior research shows that limited access to external finance and informational problems may lead firms to either over-invest in unprofitable projects or under-invest in valuable opportunities (Almeida & Campello, 2007; Ascioglu et al., 2008). Such distortions are particularly pronounced in emerging markets, where financial systems are still developing, and investor participation remains uneven. As a result, inefficient capital allocation remains a persistent challenge for firms operating in these markets (Richardson, 2006).

Despite the importance of efficient capital allocation, it remains unclear whether financial market integration and expanded investor access can effectively improve corporate investment efficiency in emerging markets. Although financial liberalization policies aim to improve capital allocation and market efficiency, empirical evidence on whether these reforms translate into improved firm-level investment decisions remains inconclusive. This question is particularly relevant in the context of China's gradual capital market opening, where institutional reforms have selectively expanded access to foreign investors rather than fully liberalizing the capital account.

A central institutional development in this process is the introduction of the Shanghai-Hong Kong Stock Connect (2014) and Shenzhen-Hong Kong Stock Connect (2016) programs. These programs allow international investors to directly trade a subset of Chinese A-share firms while preserving existing domestic regulatory and corporate governance structures. Importantly, firm eligibility is determined by transparent exchange-level criteria such as market capitalization, liquidity, and index inclusion, creating a quasi-natural

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experimental setting. This institutional design provides a unique opportunity to identify the causal effects of expanded investor access on corporate investment behavior.

A growing body of literature suggests that financial market integration can help alleviate investment distortions by improving information transparency, strengthening investor monitoring, and reducing financing constraints. When a broader set of investors participates in financial markets, stock prices tend to incorporate more information about firm fundamentals, allowing markets to discipline corporate investment decisions more effectively (Bekaert et al., 2005). In the context of the Stock Connect programs, foreign investor participation has increased market liquidity, enhanced price informativeness, and improved firms' access to external capital. (Deng et al., 2025). At the same time, greater capital market openness may introduce new market dynamics, as institutional opening and global index inclusion can increase investor attention and liquidity, potentially influencing price formation and corporate behavior (Zhang & Ping, 2025).

Recent studies highlight that the economic consequences of financial liberalization depend on institutional design and market conditions. Some evidence suggests that capital market opening improves firm performance and investment behavior through stronger monitoring and improved information environments (Zhao et al., 2024; Jiang et al., 2025). However, other research finds that the real effects of equity market liberalization remain mixed, particularly in economies where financial opening occurs gradually rather than through full capital account liberalization (McLean et al., 2022). In addition, regulatory quality and enforcement capacity may influence how financial market signals translate into real investment decisions (Christensen et al., 2016).

Identifying the effects of financial market integration empirically is challenging because firms that gain access to international investors may differ systematically from those that do not. Institutional reforms that expand investor participation based on predetermined eligibility rules provide a useful quasi-natural experiment for examining these effects. The Stock Connect programs are particularly well suited for this purpose, as they expand investor access without directly altering firms' internal governance structures, allowing observed changes in corporate behavior to be more cleanly attributed to shifts in the external investor environment (Jiang et al., 2025).

Against this backdrop, this study investigates whether expanded investor access through cross-border equity market integration improves corporate investment efficiency. Specifically, the analysis exploits the staggered implementation of the Stock Connect programs as a quasi-natural experiment to examine how firm-level investment behavior changes following inclusion in the program. The population of this study consists of all non-

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financial A-share firms listed on the Shanghai and Shenzhen Stock Exchanges between 2010 and 2023. Using panel data for these firms, the analysis evaluates whether companies that gain access to international investors experience changes in investment efficiency relative to firms that do not participate in cross-border trading.

Investment efficiency is measured as the deviation between actual investment and predicted optimal investment, capturing both over-investment and under-investment. The empirical analysis employs firm and year fixed-effects models together with an event-study framework to examine how investment behavior evolves before and after firms gain access to international investors (Zhao et al., 2024). Additional robustness tests, including propensity score matching, are used to address potential selection bias.

By examining firm-level investment behavior under a quasi-natural experiment created by cross-border equity trading reforms, this study contributes to the literature on financial market integration by providing new evidence on how international investor participation influences corporate capital allocation efficiency in emerging markets. Compared with existing studies, this paper places the Stock Connect programs at the center of the empirical design, thereby offering more direct evidence on the causal impact of institutionalized investor access on firm behavior.

This study contributes to the literature in three ways. First, it provides firm-level evidence on how cross-border equity market integration affects corporate investment efficiency in an emerging market context, extending research that has largely focused on aggregate market outcomes.

Second, the study exploits China's cross-border equity trading reforms as a quasi-natural experiment and applies fixed effects models, event-study analysis, and propensity score matching to identify the causal effects of investor access on corporate investment behavior.

Third, the study links improvements in investment efficiency to firm-level productivity, showing that financial market integration can influence real economic outcomes through more efficient capital allocation.

Literature review

Financial market integration and investment efficiency

A substantial body of research examines how financial market integration influences corporate investment decisions. In a frictionless environment, firms would simply invest in every project with a positive expected return. In reality, however, investment decisions are often shaped by information asymmetries, borrowing constraints, and conflicts between managers and shareholders. These frictions can lead firms to deviate from optimal investment levels, resulting in either over-investment in unproductive

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e-ISSN 1857-7431 (Online)

projects or under-investment in valuable opportunities (Richardson, 2006; Almeida & Campello, 2007).

Financial market integration has been proposed as a potential mechanism for alleviating these distortions. When firms gain access to a broader investor base, stock prices tend to incorporate more information about firm fundamentals, improving price informativeness and facilitating more efficient capital allocation. Empirical evidence from financial liberalization episodes suggests that integration shocks are often associated with lower financing costs, increased investment, and improved firm performance, particularly in emerging markets where financial segmentation is initially high (Bekaert et al., 2005).

In the Chinese context, recent institutional reforms such as the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connect programs have significantly expanded investor participation and improved firms' access to external capital markets. These reforms have strengthened firms' financing capacity and facilitated greater integration with global capital markets (Jiang et al., 2025). At the same time, capital market liberalization can enhance information transparency, increase capital mobility, and strengthen external investor monitoring, which together may contribute to more efficient corporate resource allocation (Deng et al., 2025).

Despite these potential benefits, empirical evidence on the real effects of equity market integration remains mixed. Some studies find that financial liberalization improves firm-level investment efficiency, while others suggest that the effects depend heavily on institutional quality and regulatory enforcement. In markets where financial opening occurs gradually or where institutional protections remain weak, the benefits of integration may be less pronounced (McLean et al., 2022). More recent work also emphasizes that the effectiveness of financial integration depends on the design of the reform and the empirical strategies used to identify its effects (Christensen et al., 2016).

Investor access, information environment, and monitoring

A related stream of literature focuses on how investor access influences the information environment surrounding firms. Outside investors, particularly institutional investors, play an important role in generating and processing information through research activities, trading behavior, and direct monitoring of management. Their presence can improve corporate transparency and reduce information asymmetries between firms and capital providers (Ferreira & Matos, 2008; Chen et al., 2007).

Improved information environments can directly influence investment efficiency. When investors are better able to evaluate firm fundamentals, they can exert stronger pressure on managers to allocate resources more effectively and avoid inefficient investment decisions.

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Foreign investor participation is particularly relevant in emerging markets, where local information frictions are typically more severe. Prior research shows that foreign investors contribute to price discovery and facilitate information transmission across markets, strengthening the link between stock prices and firm fundamentals (Bae et al., 2012). Similarly, capital market opening policies can attract greater investor attention and increase market transparency, which in turn influences firms' valuation and corporate decision-making through enhanced monitoring and information flows (Zhang & Ping, 2025).

At the same time, changes in investor composition can influence corporate governance structures. Increased institutional ownership may strengthen oversight and reduce agency problems, suggesting that the effects of market integration can operate through governance channels as well as financing channels (Aggarwal et al., 2011; Bae & Goyal, 2010).

However, the literature also highlights potential trade-offs. Greater market visibility and investor scrutiny may increase pressure on managers to deliver strong short-term performance. As a result, managers may become reluctant to pursue long-term investment projects whose benefits materialize only in the future. Studies on managerial myopia suggest that increased market pressure can sometimes distort long-term investment incentives (Kraft et al., 2018).

Liquidity, financing constraints, and investment behavior

Stock liquidity represents another important channel linking financial markets to firms' real investment decisions. Higher liquidity reduces transaction costs and improves price efficiency, which can lower firms' cost of capital and facilitate external financing. Classic theoretical work shows that improvements in disclosure and liquidity can reduce the cost of capital and influence firms' investment decisions through improved financing conditions.

Consistent with this view, research on financing constraints demonstrates that firms' investment behavior is often strongly tied to external funding availability, particularly when internal funds are limited. More recent empirical studies further show that financial market innovations and capital market instruments can alleviate financing constraints and improve corporate investment efficiency by expanding financing channels and improving capital allocation mechanisms (Liu, 2025).

Nevertheless, the relationship between liquidity and investment efficiency is not entirely straightforward. While improved liquidity can facilitate external financing, it may also allow investors to exit more easily rather than actively monitor management. This dynamic may weaken corporate oversight and potentially increase agency problems.

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For this reason, governance mechanisms remain central in determining how liquidity affects corporate investment behavior. The impact of liquidity on investment efficiency often depends on the type of investors holding a firm's shares and whether those investors possess the incentives and time horizons necessary to engage in active monitoring (Attig et al., 2012).

Heterogeneity in the effects of market integration

Another consistent finding in the literature is that the benefits of financial market integration are not evenly distributed across firms. Firms facing tighter financing constraints, weaker governance structures, or operating in less developed financial markets often benefit more from expanded investor access and improved monitoring.

Ownership structure and institutional environments also play an important role. In settings where internal governance mechanisms are weak, external market discipline can partially substitute for internal controls, improving corporate investment decisions through stronger monitoring and improved price informativeness (Aggarwal et al., 2011; Chen et al., 2007).

Recent studies examining financial liberalization in China further suggest that the effects of capital market opening vary across firms depending on factors such as ownership structure, industry characteristics, and financing conditions. These differences highlight the heterogeneous ways in which firms respond to institutional reforms (Zhang et al., 2024).

In addition, investor horizons and ownership composition may influence whether financial integration promotes long-term investment or increases short-term pressures. Evidence suggests that increased investor attention can either improve capital allocation or intensify managerial short-termism depending on the trading behavior and investment horizons of participating investors (Kraft et al., 2018; Zhao et al., 2024).

Research hypotheses

Investor access and investment efficiency

In imperfect capital markets, firms may deviate from optimal investment due to information asymmetry, agency conflicts, and financing constraints. Prior research shows that asymmetric information and limited external finance can distort corporate investment decisions, leading to either overinvestment or underinvestment relative to fundamentals (Almeida & Campello, 2007; Ascioglu et al., 2008; Richardson, 2006). When investor participation is limited, stock prices may not fully reflect firm fundamentals, and managerial decisions may face weaker external discipline.

Expanding investor access can improve price informativeness, increase external monitoring, and reduce financing frictions. Institutional and foreign investors play an important role in information production and

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corporate governance, enhancing transparency and strengthening oversight (Ferreira & Matos, 2008; Aggarwal et al., 2011). In emerging markets, foreign participation has been shown to facilitate information transmission and improve market efficiency (Bae et al., 2012). More recent evidence from China's cross-border trading programs shows that stock market liberalization can meaningfully influence firms' long-term investment behavior by reshaping investor composition, improving information transparency, and alleviating financing constraints (Zhao et al., 2024; Deng et al., 2025).

At the macro and firm levels, liberalization and broader market access are often associated with improved operating performance, expanded access to capital, and more efficient capital allocation (Moshirian et al., 2021). In addition, capital market liberalization can enhance firms' access to external financing and strengthen international investment activities, particularly through institutional reforms such as the Stock Connect programs (Jiang et al., 2025). Taken together, these mechanisms suggest that expanded investor participation should improve capital allocation efficiency at the firm level.

Hypothesis 1: Expanded investor access reduces firm-level investment inefficiency by improving information efficiency, strengthening external monitoring, and alleviating financing constraints.

Dynamic effects and investment adjustment

Corporate investment decisions do not typically adjust immediately following a structural change in market access. Firms often require time to adapt their governance practices, internal decision-making processes, and financing structures when new investors enter the market. As the information environment improves and investor monitoring intensifies, firms may gradually adjust their investment behavior toward more efficient capital allocation. Prior research on financial market reforms suggests that the real effects of liberalization often emerge progressively as firms adapt to improved financing conditions and enhanced market discipline (Bekaert et al., 2005). In addition, institutional reforms that expand investor participation can influence firms' strategic investment behavior over time as financial constraints are relaxed and external monitoring becomes stronger (Deng et al., 2025). From a theoretical perspective, these mechanisms imply that the impact of expanded investor access may not appear immediately but instead strengthen over time as firms adjust to the new market environment.

Hypothesis 2: The effect of expanded investor access on investment efficiency emerges gradually and strengthens over time as firms adjust to improved information environments and enhanced investor monitoring.

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e-ISSN 1857-7431 (Online)

Firm characteristics and heterogeneous investment responses

Firm-level characteristics can influence how companies respond to expanded investor participation. In corporate finance research, firms often differ in terms of size, profitability, growth opportunities, and governance structures, which can affect their investment behavior and access to external financing. Prior studies highlight that observable firm characteristics play an important role in shaping corporate investment decisions and financial constraints (Roberts & Whited, 2013).

When firms gain access to a broader investor base, improvements in monitoring, information transparency, and financing conditions may influence their investment decisions. However, these effects may vary depending on firm characteristics such as ownership structure, financial health, and governance quality. Firms with stronger governance structures or better access to external financing may already invest efficiently, while firms facing tighter financial constraints or weaker monitoring may benefit more from expanded investor participation. From this perspective, the relationship between investor access and investment efficiency should persist even after accounting for differences in firm characteristics.

Hypothesis 3: Expanded investor access improves corporate investment efficiency after controlling for firm-level characteristics, although the magnitude of the effect may vary across firms.

Investment efficiency and capital allocation mechanisms

Investment inefficiency cannot be observed directly and is typically inferred from deviations between actual and expected investment levels. Prior research shows that corporate investment decisions may deviate from optimal levels due to financing constraints, information asymmetries, and agency conflicts between managers and shareholders (Richardson, 2006; Almeida & Campello, 2007). These frictions can lead firms to either over-invest in unproductive projects or under-invest in valuable investment opportunities.

Expanded investor participation may help mitigate these distortions by improving the information environment, strengthening external monitoring, and easing financing constraints. As capital markets become more open and investors gain greater access to firms, stock prices can incorporate more firm-specific information, providing clearer signals that guide managerial investment decisions. Previous studies also suggest that improvements in the financial environment and capital market development can enhance corporate investment efficiency by improving capital allocation and reducing financing frictions (Liu, 2025). These mechanisms suggest that expanded investor access improves capital allocation by reducing deviations from optimal investment levels.

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Hypothesis 4: Expanded investor access reduces deviations from optimal investment by improving information efficiency and strengthening market-based discipline.

Investment efficiency and productivity outcomes

Improvements in capital allocation may generate broader real economic consequences. When firms allocate resources more efficiently, they are better positioned to invest in productive technologies, enhance operational efficiency, and improve long-term performance. Research on financial liberalization and integration shows that reforms can affect not only financial variables but also long-term corporate investment and innovation outcomes (Bekaert et al., 2005; Moshirian et al., 2021; Zhao et al., 2024). In addition, capital market liberalization can stimulate firms' strategic investments and technological transformation by reducing agency costs and easing financial constraints (Deng et al., 2025).

Rather than treating productivity as the primary treatment outcome, this study considers firm-level total factor productivity as a secondary consequence of improved capital allocation. If reductions in investment inefficiency are associated with higher productivity, this would suggest that expanded investor access influences real firm performance through more efficient resource allocation.

Hypothesis 5: Reductions in investment inefficiency are associated with higher firm-level productivity, indicating that improved capital allocation translates into real performance gains.

Methods

Sample selection

The sample consists of all non-financial A-share firms listed on the Shanghai and Shenzhen Stock Exchanges over the period 2010-2023. Financial firms are excluded due to their distinct regulatory environments and investment behavior. Observations with missing key financial variables or abnormal accounting values are removed to ensure data quality.

Firm-year data are obtained from annual financial reports and market databases. Because different model specifications require different variables, the number of observations varies across regressions. The baseline investment inefficiency models include approximately 16,500-16,900 firm-year observations, while alternative specifications expand the sample to around 19,000 observations. Productivity regressions, which require additional inputs for total factor productivity estimation, include approximately 15,900-16,000 observations.

Treatment status is defined based on firms' eligibility for expanded investor participation under the Stock Connect program. Firms enter the

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e-ISSN 1857-7431 (Online)

treatment group in the year they become eligible, resulting in a staggered treatment structure. All continuous variables are winsorized at the 1st and 99th percentiles. The panel remains unbalanced to preserve available observations across specifications.

Variables definition

The primary dependent variable is firm-level investment inefficiency, defined as the deviation between actual and expected investment. Following Richardson (2006), inefficiency is proxied using residual-based measures derived from investment models. The detailed construction is described below.

Following Richardson (2006), expected investment is estimated as a function of firm fundamentals:

$$Investment_{it} = \alpha + \beta_1 Growth_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + \beta_4 Size_{i,t-1} + \beta_5 Return_{i,t-1} + \beta_6 Age_{i,t-1} + \beta_7 Investment_{i,t-1} + \varepsilon_{it}$$

where $Investment_{it}$ denotes firm investment, typically measured as capital expenditures scaled by total assets. The explanatory variables capture firm characteristics that determine optimal investment. Specifically, *Growth* represents firm growth opportunities measured by sales growth, *Lev* denotes financial leverage defined as total liabilities divided by total assets, and *Cash* captures internal liquidity measured as cash holdings scaled by total assets. *Size* is the natural logarithm of total assets, *Return* reflects past stock performance, *Age* measures firm maturity based on years since listing, and lagged *Investment* accounts for investment persistence. All explanatory variables are lagged by one period to mitigate simultaneity concerns.

Investment inefficiency is defined as the absolute value of the residual:

$$InefficientInvestment_{it} = |\varepsilon_{it}|$$

Higher values indicate greater deviations from optimal investment, reflecting both over-investment and under-investment.

To ensure robustness, alternative measures of investment inefficiency are constructed using established approaches, including a Tobin's Q-based model (Hayashi, 1982), a GMM-based specification, and residual-based measures following Biddle et al. (2009).

Key variables

The main explanatory variable is:

$$InvestorAccess_{it}$$

which equals one if firm i is eligible for cross-border investor participation in year t and thereafter, and zero otherwise. This variable captures structural changes in investor accessibility rather than short-term trading activity.

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Control variables include standard firm-level characteristics commonly used in corporate finance literature, such as firm size, leverage, profitability, growth opportunities, ownership structure, and governance attributes. All control variables are lagged by one period to mitigate potential endogeneity concerns. Detailed definitions and measurement procedures for all variables are provided in Table 1.

Firm fixed effects are included to control for unobserved, time-invariant heterogeneity across firms, while year fixed effects account for common macroeconomic shocks and time-specific factors affecting all firms.

Table 1: Definition and measurement of variables used in the analysis

Explained variables	InefficientInvestment	Absolute residual from the investment model following Richardson (2006), capturing deviations from optimal investment
	II_Biddle	Investment inefficiency measure based on the Biddle et al.(2009) model using residuals from expected investment
	II_Chen	Investment inefficiency measure based on Chen et al. (2007) model using residual-based estimation
Explanatory variables	InvestorAccess	Dummy variable equal to 1 if firm i is eligible for cross-border investor participation in year t and thereafter, and 0 otherwise
Control variables	Size	Natural logarithm of total assets for the year
	Lev	Total liabilities at the end of the year divided by total assets at the end of the year
	ROA	Return on assets, measured as net income divided by average total assets
	Growth	Operating income for the year / Operating income for the previous year - 1
	Board	Natural logarithm of the number of board directors
	Indep	Independent directors divided by the number of directors
	Dual	Dummy variable equal to 1 if the Chairman and CEO positions are held by the same individual, and 0 otherwise
	Top1	Number of shares held by the largest shareholder / Total number of shares
	BM	Book value / total market value
	SOE	Dummy variable taking the value of 1 if the company is a state-controlled enterprise, 0 otherwise.
	ListAge	ln (current year - year of listing + 1)
	Dturn	Current year average monthly stock turnover rate - Last year average monthly stock turnover rate
	INST	Institutional ownership, measured as the average proportion of shares held by institutional investors during the year

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

Baseline two-way fixed effects model

To test whether expanded investor access improves investment efficiency, the following two-way fixed effects difference-in-differences specification is estimated:

$$InefficientInvestment_{it} = \alpha + \beta InvestorAccess_{it} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where μ_i denotes firm fixed effects and λ_t denotes year fixed effects. The coefficient β captures the within-firm change in investment inefficiency associated with expanded investor access. A negative and statistically significant estimate indicates that expanded investor access is associated with lower investment inefficiency. Standard errors are clustered at the firm level to account for serial correlation.

Dynamic treatment effects and identification

To examine the dynamic adjustment of investment efficiency following expanded investor access, this study employs an event-study specification that estimates treatment effects relative to the timing of firms' eligibility for cross-border investor participation:

$$InefficientInvestment_{it} = \alpha + \sum_{k \neq -1} \theta_k D_{i,t+k} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where $D_{i,t+k}$ are indicator variables capturing event time relative to treatment, with k indexing the number of years before and after a firm becomes eligible for cross-border investor participation. The period immediately preceding treatment $k = -1$ is omitted and serves as the reference category. The event window spans three years before and three years after treatment (t-3 to t+3).

This specification allows the analysis to trace the evolution of investment efficiency both prior to and following the introduction of investor access. In particular, the coefficients on pre-treatment indicators provide a direct test of the parallel trends assumption by assessing whether treated and control firms exhibit similar investment behavior before treatment. The post-treatment coefficients capture the dynamic adjustment process, illustrating how the impact of expanded investor access unfolds over time.

Selection bias and matching framework

To address potential selection bias, propensity score matching is applied to construct a control group of firms with similar pre-treatment characteristics. Treatment probability is estimated using a logit model based on firm characteristics such as size, leverage, profitability, growth opportunities, and ownership structure.

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e-ISSN 1857-7431 (Online)

Matched samples are constructed using nearest neighbor, radius, and kernel matching methods. The baseline model is then re-estimated on the matched sample to verify robustness.

Robustness and alternative specifications

To ensure that results are not driven by a specific measurement approach, the analysis is repeated using alternative proxies for investment inefficiency. Consistent results across specifications strengthen the validity of the findings.

Productivity outcome specification

To evaluate whether improvements in capital allocation translate into real economic gains, firm productivity is modeled as:

$$TFP_{it} = \alpha + \beta InefficientInvestment_{it} = \alpha + \beta\ InvestorAccess_{it} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

The coefficient β captures the relationship between investment inefficiency and productivity. A negative and statistically significant estimate indicates that reductions in investment inefficiency are associated with higher firm-level productivity.

Including both investment inefficiency and investor access allows the analysis to distinguish between the direct association of expanded investor participation and the indirect channel operating through improved capital allocation.

Results

Descriptive statistics

Table 2 presents the descriptive statistics for the main variables used in the analysis. The results present the distribution of investment inefficiency, investor access, and firm-level control variables across the sample of non-financial A-share firms from 2010 to 2023. Overall, the statistics indicate substantial variation in firm characteristics, which provides suitable conditions for examining the relationship between cross-border investor participation and corporate investment efficiency.

Table 2: Descriptive statistics of key variables

Variable	Obs	Mean	Std. Dev.	Min	Max
InefficientInvestment	29415	.048	.062	0	.985
Biddle	31560	.045	.048	0	.454
Chen	31560	.044	.047	0	.453
InvestorAccess	33402	.131	.338	0	1
POST	33402	.062	.241	0	1
Size	28598	21.74	1.23	19.165	27.468
Lev	28598	.444	.205	.027	.991
ROA	28595	.039	.066	-.517	.245
Growth	28205	.182	.44	-.75	5.587

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

BM	28598	.967	.983	.051	12.483
SOE	24684	.455	.498	0	1
ListAge	28598	1.916	.855	0	3.332
Dturn	26481	-.022	.423	-2.516	1.291
INST	28598	.287	.25	0	.887
Top1	25672	.366	.154	.087	.758
Board	28570	2.173	.215	1.099	2.833
Indep	28570	.34	.101	0	.6
Dual	28545	.195	.396	0	1

Note: t statistics in parentheses, * p < .1, ** p < .05, *** p < .01

Baseline effects on investment efficiency

The baseline fixed effects results show a statistically significant link between expanded investor access and investment inefficiency. Firms that are exposed to a broader group of investors have smaller deviations from their optimal investment levels compared to similar firms that do not have such access. The estimated coefficient on investor access is negative and economically meaningful, which points to better capital allocation at the firm level. These results support Hypothesis 1 and align with the idea that greater investor participation improves price informativeness and strengthens external monitoring. With better market signals available, managers seem less likely to overinvest or miss profitable investment opportunities when investor access expands.

Beyond statistical significance, the magnitude of the estimated coefficients is economically meaningful. In the baseline specification, the coefficient on InvestorAccess indicates a reduction in investment inefficiency of approximately 0.008-0.010 units following inclusion in the Stock Connect program. Given that the mean level of investment inefficiency in the sample is around 0.045-0.050, this effect corresponds to a reduction of roughly 16%-22% relative to the sample mean.

This magnitude suggests that expanded investor access leads to a substantial improvement in capital allocation efficiency rather than a marginal adjustment. The results imply that the presence of foreign investors enhances monitoring and information efficiency, thereby reducing both over-investment and under-investment behaviors. From an economic perspective, the effect size is consistent with the notion that financial market integration can meaningfully influence firm-level investment decisions in emerging markets.

Table 3: Baseline fixed effects estimates of the impact of investor access on investment inefficiency

	(1)	(2)
	InefficientInvestment	InefficientInvestment
InvestorAccess	-0.00815**	-0.00777**
	(-2.43)	(-2.35)
Size		0.0260***
		(8.60)

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

Lev		-0.00289
		(-0.25)
ROA		0.00847
		(0.57)
Growth		0.0310***
		(8.37)
BM		-0.00536***
		(-5.09)
SOE		-0.00477
		(-0.95)
ListAge		-0.0157***
		(-3.25)
Dturn		0.00210
		(1.11)
INST		0.0124***
		(2.76)
Top1		0.00523
		(0.33)
Board		-0.0130*
		(-1.91)
Indep		-0.0242
		(-1.34)
Dual		0.00137
		(0.65)
_cons	0.0594***	-0.434***
	(27.34)	(-6.94)
N	16897	16589
adj. R^2	0.140	0.241
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

Dynamic adjustment and identification validity

To check whether the baseline results reflect real causal effects instead of pre-existing trends, the analysis looks at dynamic treatment effects. The event-study results show no statistically significant differences in investment inefficiency between treated and control firms before the treatment, which supports the parallel trends assumption.

After firms are exposed to expanded investor access, investment inefficiency decreases gradually rather than right away. This slow adjustment suggests that firms change their investment behavior over time as monitoring becomes stronger and information conditions improve. The fact that the effect persists also shows that these improvements are not just short-term. These dynamic patterns provide strong support for Hypothesis 2 and reinforce the credibility of the identification strategy.

The dynamic treatment estimates further illustrate how the economic impact of expanded investor access evolves over time. The coefficients in the

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

pre-treatment periods are statistically insignificant and close to zero, supporting the parallel trends assumption and indicating no systematic differences between treated and control firms prior to inclusion.

Following treatment, the estimated coefficients become negative and increase in magnitude over time, suggesting that the improvement in investment efficiency is not immediate but gradually strengthens in the years after firms gain access to foreign investors. Economically, this pattern implies that the benefits of market integration materialize progressively, likely reflecting the time required for foreign investors to influence corporate governance, information environments, and managerial decision-making.

By the third year after treatment, the cumulative reduction in investment inefficiency represents a meaningful proportion of the sample mean, reinforcing the conclusion that Stock Connect participation leads to sustained and economically significant improvements in capital allocation.

Table 4: Dynamic treatment effects and parallel trends test of investor access on investment inefficiency

	(1) InefficientInvestment
Treat×Before3	0.0143
	(0.51)
Treat×Before2	0.0150
	(0.70)
Treat×Before1	0.00261
	(0.47)
Treat×After1	-0.000292**
	(-2.04)
Treat×After2	-0.00745**
	(-2.29)
Treat×After3	-0.0114**
	(-2.15)
Size	0.0263***
	(8.63)
Lev	-0.00283
	(-0.25)
ROA	0.00746
	(0.50)
Growth	0.0309***
	(8.36)
BM	-0.00555***
	(-5.20)
SOE	-0.00462
	(-0.92)
ListAge	-0.0157***
	(-3.24)
Dturn	0.00198
	(1.04)
INST	0.0122***

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

	(2.70)
Top1	0.00619
	(0.39)
Board	-0.0130*
	(-1.92)
Indep	-0.0249
	(-1.38)
Dual	0.00140
	(0.66)
_cons	-0.440***
	(-7.00)
N	16589
adj. R^2	0.242
Firm Fixed Effect	Yes
Year Fixed Effect	Yes

Robustness to selection bias

Even though the fixed effects model controls for differences that do not change over time, selection bias can still be an issue. To deal with this, propensity score matching is used to build a control group of firms that look similar to treated firms before they gain investor access. The results from the matched sample are very similar to the baseline findings.

The effect of investor access on investment inefficiency is still negative and statistically significant, which suggests that the baseline results are not simply driven by observable differences between treated and control firms. This consistency strengthens the causal interpretation and supports Hypothesis 3. It is also important to note that matching is used as a validation tool rather than the main estimation method, which further confirms the robustness of the baseline results.

Table 5: Propensity score matching estimates of the effect of investor access on investment inefficiency

	(1) Radius matching	(2) Kernel matching	(3) Nearest neighbor matching
	InefficientInvestment	InefficientInvestment	InefficientInvestment
InvestorAccess	-0.00794**	-0.00774**	-0.00798**
	(-2.31)	(-2.30)	(-2.34)
Size	0.0266***	0.0261***	0.0261***
	(8.66)	(8.60)	(8.59)
Lev	-0.00446	-0.00291	-0.00287
	(-0.39)	(-0.26)	(-0.25)
ROA	-0.00381	0.00849	0.00856
	(-0.23)	(0.57)	(0.57)
Growth	0.0311***	0.0310***	0.0310***
	(8.32)	(8.37)	(8.36)
BM	-0.00560***	-0.00537***	-0.00541***
	(-5.23)	(-5.10)	(-5.10)

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

SOE	-0.00485	-0.00475	-0.00474
	(-0.96)	(-0.95)	(-0.95)
ListAge	-0.0164***	-0.0158***	-0.0158***
	(-3.36)	(-3.26)	(-3.27)
Dturn	0.00206	0.00212	0.00212
	(1.09)	(1.12)	(1.12)
INST	0.0127***	0.0125***	0.0125***
	(2.80)	(2.77)	(2.77)
Top1	0.00546	0.00511	0.00525
	(0.34)	(0.32)	(0.33)
Board	-0.0128*	-0.0133*	-0.0131*
	(-1.86)	(-1.95)	(-1.92)
Indep	-0.0229	-0.0253	-0.0255
	(-1.25)	(-1.39)	(-1.40)
Dual	0.000885	0.00137	0.00136
	(0.42)	(0.65)	(0.64)
_cons	-0.444***	-0.433***	-0.433***
	(-7.03)	(-6.92)	(-6.92)
N	16469	16556	16530
adj. R^2	0.242	0.241	0.241
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Sensitivity to measurement choice

Since investment inefficiency cannot be observed directly, the baseline model is re-estimated using multiple alternative proxies to ensure the findings are not driven by any single measurement choice. Across all specifications, the relationship between investor access and investment inefficiency remains consistent in both sign and statistical significance, and while coefficient sizes shift slightly, the core conclusions hold.

This robustness across different definitions of the dependent variable provides strong support for Hypothesis 4.

Table 6: Robustness checks using alternative measures of investment inefficiency

	(1)	(2)	(1)	(2)
	II_TobinQ	II_GMM	II_Biddle	II_Chen
InvestorAccess	-0.00793***	-0.00352***	-0.000828**	-0.000360**
	(-2.99)	(-3.19)	(-2.35)	(-2.16)
Size	0.0187***	0.0204***	0.00340**	0.00398***
	(7.45)	(8.94)	(2.54)	(3.00)
Lev	0.00393	0.00516	0.0203***	0.0200***
	(0.42)	(0.57)	(4.24)	(4.20)
ROA	0.0328***	0.0162	0.0309***	0.0355***
	(2.69)	(1.27)	(4.37)	(5.02)
Growth	0.0304***	0.0260***	0.0105***	0.0102***
	(8.36)	(7.79)	(7.03)	(6.93)
BM	-0.00368***	-0.00379***	-0.00249***	-0.00247***
	(-3.75)	(-3.42)	(-3.25)	(-3.30)
SOE	-0.00621	-0.00544	-0.000330	-0.000575

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

	(-1.32)	(-1.26)	(-0.12)	(-0.22)
ListAge	-0.0116***	-0.0162***	-0.00798***	-0.00879***
	(-2.88)	(-3.98)	(-2.77)	(-3.11)
Dturn	0.000766	0.00138	-0.00206**	-0.00170
	(0.43)	(0.77)	(-1.97)	(-1.62)
INST	0.00749*	0.00586	-0.00452	-0.00451
	(1.86)	(1.36)	(-1.45)	(-1.47)
Top1	0.00566	0.0199	0.0205**	0.0191**
	(0.44)	(1.58)	(2.42)	(2.26)
Board	-0.0103*	-0.0105	-0.00628	-0.00683
	(-1.69)	(-1.60)	(-1.41)	(-1.52)
Indep	-0.0224	-0.0146	-0.0163	-0.0145
	(-1.38)	(-0.80)	(-1.30)	(-1.16)
Dual	0.00149	0.00277	0.00258*	0.00262**
	(0.77)	(1.37)	(1.95)	(2.00)
_cons	-0.297***	-0.316***	0.00131	-0.00969
	(-5.70)	(-6.40)	(0.04)	(-0.33)
N	19010	18287	19373	19373
adj. R^2	0.214	0.530	0.257	0.244
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Decomposition of investment inefficiency

To further examine the channels through which expanded investor access improves investment efficiency, this study decomposes total investment inefficiency into over-investment and under-investment.

The results in Table 7 show that the coefficient on InvestorAccess is negative and statistically significant in both specifications. Specifically, expanded investor access reduces over-investment by 0.0186 and under-investment by 0.00393.

From an economic perspective, the larger magnitude observed for over-investment suggests that the primary effect of cross-border investor participation operates through restraining excessive investment behavior. This is consistent with the idea that foreign investors enhance external monitoring and discipline managerial overinvestment in projects with negative net present value.

At the same time, the reduction in under-investment indicates that expanded investor access also alleviates financing constraints and improves firms' ability to undertake valuable investment opportunities. This effect is likely driven by improved stock liquidity, lower cost of capital, and enhanced information transparency.

These findings suggest that cross-border equity market integration improves capital allocation efficiency through two complementary channels: strengthening external monitoring to restrain over-investment and easing financing constraints to reduce under-investment..

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

This decomposition provides deeper support for Hypothesis 1 by showing that the reduction in overall investment inefficiency is not driven by a single margin but reflects improvements in both dimensions of corporate investment behavior

Table 7: Decomposition of investment inefficiency into over-investment and under-investment

	(1) Over_INV	(2) Under_INV
InvestorAccess	-0.0186**	-0.00393*
	(-2.11)	(-1.87)
Size	0.0470***	0.0105***
	(6.16)	(5.38)
Lev	0.0376	-0.0145**
	(1.23)	(-2.26)
ROA	0.0784	-0.00354
	(1.60)	(-0.37)
Growth	0.0490***	0.00463***
	(6.41)	(3.31)
BM	-0.00819***	-0.00237***
	(-3.30)	(-2.58)
SOE	-0.0116	-0.00378
	(-0.81)	(-1.16)
ListAge	-0.0408***	-0.00743**
	(-2.93)	(-2.43)
Dturn	0.00714	0.000631
	(1.08)	(0.51)
INST	0.0225*	0.00546
	(1.76)	(1.57)
Top1	0.00436	-0.00411
	(0.11)	(-0.42)
Board	-0.0214	-0.00315
	(-1.09)	(-0.73)
Indep	-0.0141	-0.0000863
	(-0.24)	(-0.01)
Dual	0.000723	0.000594
	(0.11)	(0.39)
_cons	-0.831***	-0.147***
	(-5.10)	(-3.49)
N	5778	10811
adj. R^2	0.348	0.212
Firm FE	Yes	Yes
Year FE	Yes	Yes

Financing channel and debt structure adjustment

The results in Table 8 show that expanded investor access is associated with a statistically significant reduction in long-term borrowing. The negative coefficient on InvestorAccess suggests that firms rely less on long-term debt financing after gaining access to cross-border investors.

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

From an economic perspective, this finding indicates that improved access to equity capital reduces firms' dependence on external debt financing. As investor participation increases, firms may face lower financing constraints and improved access to equity funding, reducing the need for long-term borrowing.

This evidence supports the financing channel by showing that cross-border investor access alters firms' capital structure and reduces reliance on debt financing.

Table 8: Effect of investor access on long-term debt financing

	(1) long-term_loan
InvestorAccess	-0.00948*
	(-1.81)
Size	0.0284***
	(6.75)
Lev	0.126***
	(11.62)
ROA	-0.0202
	(-0.92)
Growth	-0.000940
	(-0.55)
BM	0.00236
	(1.02)
SOE	-0.00392
	(-0.58)
ListAge	-0.00116
	(-0.25)
Dturn	-0.000209
	(-0.17)
INST	-0.00327
	(-0.81)
Top1	0.0597**
	(2.42)
Board	-0.00644
	(-0.78)
Indep	0.000558
	(0.02)
Dual	-0.00459*
	(-1.81)
	(-6.65)
N	21852
adj. R^2	0.758
Firm FE	Yes
Year FE	Yes

Financing channel and financing constraints

Table 9 provides direct evidence on financing constraints. The results show that the coefficient on InvestorAccess is negative and highly significant

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

when using both the KZ index and the SA index as proxies for financing constraints.

This indicates that firms experience a reduction in financing constraints after gaining access to cross-border investors. Economically, this suggests that expanded investor participation improves firms' ability to obtain external financing, lowers the cost of capital, and enhances financial flexibility.

The consistency across different measures strengthens the conclusion that financial market integration alleviates financing frictions, which in turn contributes to improved investment efficiency.

Table 9: Effect of investor access on financing constraints

	(1) KZ	(1) SA
InvestorAccess	-0.0215***	-0.0843***
	(-9.75)	(10.46)
Size	0.0108***	-0.0395***
	(8.30)	(-8.37)
Lev	0.00360	-0.0127
	(1.07)	(-1.01)
ROA	-0.00223	0.00811
	(-0.33)	(0.33)
Growth	0.00229***	-0.00848***
	(4.06)	(-4.22)
BM	-0.00788***	0.0295***
	(-12.43)	(12.70)
SOE	0.00148	-0.00628
	(0.71)	(-0.83)
ListAge	0.0152***	-0.0452***
	(9.17)	(-7.64)
Dturn	-0.000309	0.000222
	(-0.81)	(0.16)
INST	-0.00351**	0.0135**
	(-2.31)	(2.48)
Top1	-0.0101*	0.0306
	(-1.77)	(1.46)
Board	0.00799***	-0.0304***
	(3.07)	(-3.17)
Indep	0.00437	-0.0128
	(0.64)	(-0.51)
Dual	0.000550	-0.00172
	(0.76)	(-0.65)
_cons	1.004***	-2.606***
	(36.06)	(-25.70)
N	14718	14718
adj. R^2	0.958	0.960
Firm FE	Yes	Yes
Year FE	Yes	Yes

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

Information environment and earnings management

Table 10 examines the information and governance channel using discretionary accruals as proxies for earnings management. The results show that InvestorAccess is negatively and significantly associated with both accrual-based and real earnings management measures. This indicates that firms engage in less earnings manipulation after gaining access to cross-border investors. From an economic perspective, this suggests that foreign investor participation enhances information transparency and strengthens external monitoring. Improved transparency reduces information asymmetry between firms and investors, leading to more accurate pricing of firm fundamentals and better investment decisions.

Table 10: Effect of investor access on earnings management and information transparency

	(1)	(2)
	AbsDA	AbsREM
InvestorAccess	-0.00397***	-0.00329***
	(-2.94)	(-2.75)
Size	0.0304***	0.0311***
	(6.09)	(6.41)
Lev	-0.0154	-0.0127
	(-0.89)	(-0.80)
ROA	0.0174	0.000321
	(0.76)	(0.01)
Growth	0.0309***	0.0278***
	(5.02)	(4.98)
BM	-0.00270*	-0.00317**
	(-1.88)	(-2.20)
SOE	-0.00904	-0.0141**
	(-1.60)	(-2.16)
ListAge	-0.0154**	-0.0170***
	(-2.52)	(-2.79)
Dturn	0.00184	0.00185
	(0.73)	(0.75)
INST	0.0142***	0.0144***
	(2.62)	(2.65)
Top1	-0.00395	-0.00536
	(-0.14)	(-0.19)
Board	-0.0128	-0.0121
	(-1.51)	(-1.46)
Indep	-0.00648	-0.0000511
	(-0.25)	(-0.00)
Dual	-0.000489	-0.00113
	(-0.16)	(-0.36)
_cons	-0.536***	-0.549***
	(-5.07)	(-5.38)
N	8419	8406
adj. R^2	0.257	0.249
Firm FE	Yes	Yes
Year FE	Yes	Yes

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

Productivity effects of investment efficiency

The results in Table 11 provide strong evidence that improvements in investment efficiency translate into real economic gains. The coefficient on InefficientInvestment is negative and highly significant across all specifications, indicating that firms with lower deviations from optimal investment exhibit higher levels of total factor productivity. Economically, this suggests that even modest reductions in investment inefficiency lead to meaningful improvements in firm performance.

In contrast, the direct effect of InvestorAccess on productivity is not consistently significant, implying that the benefits of cross-border investor participation operate primarily through improvements in capital allocation rather than through direct productivity effects.

These findings support Hypothesis 5 and confirm that financial market integration enhances firm performance indirectly by improving investment efficiency.

Table 11: Impact of investment inefficiency and investor access on firm-level productivity

	(1)	(2)	(3)
	TFP_OP	TFP_LP	TFP_ACF
InefficientInvestment	-0.611***	-0.722***	-0.0682***
	(-8.56)	(-11.37)	(-3.34)
InvestorAccess	0.0335	0.0366	0.0264***
	(1.37)	(1.43)	(3.64)
Size	0.204***	0.510***	0.0360***
	(10.18)	(26.26)	(6.72)
Lev	0.289***	0.296***	-0.111***
	(4.50)	(4.99)	(-5.74)
ROA	1.269***	1.221***	1.026***
	(10.48)	(9.91)	(19.59)
Growth	0.179***	0.175***	0.0199***
	(16.26)	(17.60)	(5.76)
BM	-0.0181**	-0.0403***	-0.0146***
	(-1.98)	(-4.38)	(-4.89)
SOE	-0.0630	-0.00828	-0.0163
	(-1.44)	(-0.21)	(-1.13)
ListAge	-0.0115	0.0423	-0.00236
	(-0.32)	(1.23)	(-0.21)
Dturn	0.000776	-0.00183	0.00194
	(0.11)	(-0.25)	(0.75)
INST	0.0268	0.0332	0.00213
	(0.97)	(1.22)	(0.23)
Top1	-0.153	-0.102	-0.0705**
	(-1.41)	(-1.06)	(-2.50)
Board	0.00477	0.0439	0.00590
	(0.08)	(0.75)	(0.37)
Indep	0.108	0.121	0.0278
	(0.77)	(0.89)	(0.63)
Dual	-0.00463	-0.00187	-0.00395

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

	(-0.27)	(-0.11)	(-0.78)
_cons	-0.815*	-3.463***	-0.703***
	(-1.88)	(-8.58)	(-6.28)
N	16035	15915	15915
adj. R^2	0.850	0.928	0.683
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Discussion

This study examines the impact of cross-border equity market integration, proxied by the Stock Connect program, on corporate investment efficiency and its real economic consequences. The empirical results provide strong and consistent evidence that expanded investor access significantly improves firms' capital allocation efficiency. Baseline findings show that firms included in the program experience a statistically significant reduction in investment inefficiency, suggesting that cross-border investor participation enhances external monitoring and mitigates agency problems. This result is consistent with prior literature showing that institutional investors improve corporate governance and investment outcomes (Aggarwal et al., 2011; Ferreira and Matos, 2008).

The decomposition analysis further reveals that improvements in investment efficiency occur through reductions in both over-investment and under-investment. This suggests that foreign investors not only discipline managers and reduce inefficient expansion driven by agency conflicts, but also alleviate underinvestment associated with financial constraints. These results are consistent with the theoretical framework of Richardson (2006) and supported by empirical evidence linking governance quality to more efficient capital allocation (Biddle et al., 2009).

To better understand the underlying mechanisms, this study examines several channels. First, firms reduce their reliance on long-term debt following inclusion in the Stock Connect program, indicating improved access to equity financing and greater capital structure flexibility. This is consistent with the literature on financial liberalization, which argues that opening capital markets lowers financing costs and expands access to external capital (Bekaert et al., 2005; McLean et al., 2022).

Second, the financing constraints analysis based on the KZ and SA indices provides strong evidence that cross-border investor access significantly alleviates financing frictions. The negative and significant coefficients across both measures indicate that firms face fewer constraints after gaining access to international investors. This result aligns with recent studies on China's capital market liberalization, which show that programs such as Stock Connect improve firms' financing conditions and investment efficiency (Zhao et al., 2024; Liu, 2025). By broadening the investor base and

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

improving market access, financial integration enhances firms' ability to fund value-enhancing projects.

Third, the information and governance channel is supported by evidence on discretionary accruals and real earnings management. Firms engage in significantly less earnings manipulation following inclusion in the Stock Connect program, indicating improved transparency and stronger external monitoring. This finding aligns with prior literature emphasizing that foreign investors enhance information environments and reduce information asymmetry in emerging markets (Bae et al., 2012; Christensen et al., 2016).

Importantly, this study also documents the real economic consequences of improved investment efficiency. Investment inefficiency is negatively associated with total factor productivity across multiple estimation methods, implying that better capital allocation leads to higher firm-level productivity. In contrast, the direct effect of investor access on productivity is not consistently significant, suggesting that the benefits of financial integration operate primarily through improvements in investment efficiency rather than direct productivity effects. This highlights capital allocation efficiency as a key channel through which financial market liberalization affects real economic performance.

Recent evidence further supports this mechanism, showing that Stock Connect promotes broader firm-level transformation, including digital upgrading and cross-border expansion (Deng et al., 2025; Jiang et al., 2025; Zhang et al., 2024).

Overall, this study contributes to the literature on financial market liberalization by providing comprehensive evidence on both the mechanisms and economic consequences of cross-border investor participation. By improving corporate governance, reducing financing constraints, and enhancing information transparency, the Stock Connect program promotes more efficient capital allocation and supports firm-level productivity growth in China's capital market. These findings are further complemented by recent research highlighting broader impacts of capital market opening, including its effects on asset pricing and market stability (Zhang and Ping, 2025).

Conclusion

This study investigates the impact of cross-border equity market integration on corporate investment efficiency, using China's Stock Connect program as a quasi-natural experiment. The empirical findings provide robust evidence that expanded investor access significantly reduces investment inefficiency among listed firms. This result suggests that financial market liberalization enhances capital allocation efficiency by improving external monitoring and mitigating agency problems.

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

Further analysis reveals that the improvement in investment efficiency operates through multiple channels. First, firms included in the Stock Connect program exhibit reduced reliance on long-term debt financing, indicating a shift toward more flexible capital structures. Second, both the KZ and SA indices show that financing constraints are significantly alleviated following investor access, suggesting that integration into global capital markets improves firms' ability to obtain external financing. Third, evidence from discretionary accruals and real earnings management indicates that firms engage in less earnings manipulation, highlighting improvements in information transparency and corporate governance. Taken together, these findings demonstrate that cross-border investor participation affects firm behavior through financing, governance, and information channels.

Importantly, this study also documents the real economic consequences of improved investment efficiency. The results show that reductions in investment inefficiency are associated with significant increases in total factor productivity across multiple estimation methods. In contrast, the direct effect of investor access on productivity is not consistently significant, indicating that the benefits of financial integration are primarily realized through improved capital allocation rather than direct productivity effects. This highlights the role of investment efficiency as a key transmission mechanism linking financial market liberalization to real economic performance.

From a broader perspective, the findings contribute to the literature on financial globalization and corporate finance by providing comprehensive evidence on both the mechanisms and outcomes of capital market opening. Consistent with prior and recent studies (Bekaert et al., 2005; McLean et al., 2022; Zhao et al., 2024; Deng et al., 2025), the results suggest that liberalization policies can generate meaningful improvements in firm behavior and economic efficiency in emerging markets.

The study also has important policy implications. For regulators, the results support the continued expansion of capital market opening initiatives, as such policies can enhance corporate governance, ease financing constraints, and improve resource allocation. For firms, greater exposure to international investors creates incentives to improve transparency and optimize investment decisions. For investors, the findings highlight the role of cross-border participation in shaping firm-level outcomes and market efficiency.

Despite these contributions, several limitations should be acknowledged. First, the analysis focuses on listed firms and may not fully capture the effects on smaller or unlisted enterprises. Second, while the identification strategy mitigates endogeneity concerns, unobserved factors may still influence the results. Third, the study primarily examines short- to

ISSN: 1857-7881 (Print)
e-ISSN 1857-7431 (Online)

medium-term effects, leaving long-term impacts of financial integration as an avenue for future research.

Future studies could extend this analysis by exploring heterogeneity across industries, ownership structures, and firm characteristics, as well as by examining additional channels such as innovation, digital transformation, and international expansion. As capital market liberalization continues to deepen, understanding its broader economic implications remains an important direction for further research.

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