

THE DRIVING EFFECT OF RMB INTERNATIONALIZATION ON FIRMS' OUTWARD FOREIGN DIRECT INVESTMENT: MECHANISMS AND EMPIRICAL EVIDENCE

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Abstract: *Using panel data for Chinese A-share listed companies from 2009 to 2024, this paper examines whether RMB internationalization is associated with firms' outward foreign direct investment (OFDI) and explores the channels through which this relationship may operate. The paper argues that RMB internationalization reduces currency-conversion frictions and exchange-rate exposure, improves the cross-border financing environment, and strengthens firms' incentives to search for overseas markets when domestic competition intensifies. After controlling for firm fixed effects, city fixed effects, firm characteristics, and macroeconomic conditions, the RMB Internationalization Index (RII) is positively and significantly associated with firm-level OFDI. Additional evidence shows that RMB internationalization increases the probability that firms hold RMB-denominated OFDI stock, and that firms with prior RMB-denominated OFDI experience respond more strongly to improvements in RMB internationalization. The analysis also clarifies the treatment of year fixed effects, discusses potential time-trend bias and reverse causality, and interprets the results as conditional empirical evidence rather than definitive causal proof. The findings suggest that RMB internationalization is not only a macro-level monetary process but also an institutional condition that shapes micro-level corporate globalization decisions..*

Key words: *RMB internationalization; outward foreign direct investment; listed firms; cross-border settlement; exchange-rate risk*

JEL classification: F23, F33

1. INTRODUCTION

China's outward foreign direct investment has entered a stage of steady scale expansion and structural upgrading. As Chinese firms become more deeply involved in global production networks, the currency environment surrounding cross-border investment has become increasingly important. In practice, many Chinese firms still rely heavily on third-party international currencies such as the US dollar or the euro when conducting overseas investment. This reliance may generate double currency conversion, higher settlement costs, longer fund-transfer cycles, currency mismatches in contracts, and greater uncertainty in investment returns.

The steady international use of the RMB provides a possible institutional solution to these constraints. When RMB settlement, pricing, financing, and risk-management functions expand in cross-border investment, firms can reduce exchange costs, hedge part of their currency exposure, access more diverse RMB financing channels, and conduct overseas investment with greater certainty. At the same time, firms' OFDI can feed back into RMB internationalization by expanding the use of RMB in real-sector cross-border transactions. This feedback relationship creates potential reverse-causality concerns, which are explicitly discussed in the research design and empirical interpretation below. This paper focuses on whether a higher level of RMB

internationalization is associated with greater OFDI by Chinese listed firms.

Compared with existing studies, this paper contributes in two ways. First, it shifts the analysis from aggregate OFDI flows to micro-level listed-firm behavior, thereby providing evidence on how a macro monetary process is connected with corporate investment decisions. Second, it organizes the transmission channels into a unified framework: transaction-cost saving and exchange-rate risk reduction, financing-constraint relief and internal capability improvement, and competitive pressure in the domestic market. To address identification concerns, the paper clarifies why full year fixed effects are not included in the baseline specification, adds a discussion of possible time-trend bias and reverse causality, and adopts more cautious language when interpreting the empirical results.

2. LITERATURE REVIEW

The literature on OFDI emphasizes that overseas investment is a high-fixed-cost and high-uncertainty activity. Heterogeneous-firm theories of trade and investment suggest that only firms with sufficient productivity, ownership advantages, and financial capacity can overcome the liability of foreignness and invest abroad (Yan & Yan, 2025). At the firm level, financing constraints, total factor productivity, innovation capacity, and managerial international experience are widely regarded as key determinants of OFDI (Liu et al., 2019; Ma et al., 2026; Wen et al., 2025). At the macro level, exchange-rate volatility, host-country institutions, domestic financial development, and economic policy uncertainty can all alter firms' expected costs and returns from overseas investment (Ben & Ma, 2025; He et al., 2021; Zhou et al., 2022).

RMB internationalization has recently become an important institutional variable in studies of Chinese firms' international operations. Existing research has measured RMB internationalization from the perspectives of domestic and external circulation, international pricing, cross-border settlement, and reserve functions (Shi, 2023; Wang & Zhu, 2022). Other studies find that RMB internationalization may help exporters cope with exchange-rate fluctuation through product-quality effects and imported-intermediate-cost effects (Han & Chen, 2022), and is also linked to firm export growth (Zhen & Dai, 2023).

A smaller but growing literature connects RMB internationalization directly with cross-border investment. Studies have examined RMB settlement in two-way FDI, the interaction between RMB functions and RMB-denominated OFDI, and the way RMB internationalization

cooperation weakens the negative effect of political distance on China's overseas investment (Ao, 2023; Gu & Li, 2021; Xiang & Dai, 2021). However, most of these studies are conducted at the aggregate or country-pair level. Micro-level evidence on firms remains relatively limited, and the channels through which RMB internationalization affects corporate OFDI require further clarification. This paper addresses this gap by combining a theoretical mechanism framework with listed-firm panel evidence.

3. THEORETICAL ANALYSIS AND HYPOTHESES

3.1. TRANSACTION-COST SAVING AND EXCHANGE-RATE RISK REDUCTION

The most direct effect of RMB internationalization comes from the RMB's functions as a medium of exchange and a unit of account. When firms rely on third-party currencies for overseas investment, they often go through an 'RMB--third-party currency--host-country currency' conversion chain. This chain generates explicit costs such as exchange fees and settlement fees, as well as implicit costs such as longer settlement cycles, currency mismatches in contracts, and additional compliance costs. As RMB settlement becomes more widely accepted in cross-border investment, firms can use RMB for capital transfers, profit repatriation, and investment liquidation, thereby reducing these frictions.

OFDI is also exposed to exchange-rate risk because investment projects are usually large, long-term, and uncertain. Third-party currency settlement exposes firms to both RMB-third-party-currency and third-party-currency-host-currency volatility. RMB internationalization allows more transactions to be priced and settled in RMB and supports the development of offshore RMB derivative markets, helping firms manage exchange-rate exposure more effectively (Zhang et al., 2023). Therefore, the first hypothesis is proposed: H1. A higher level of RMB internationalization promotes firms' OFDI by reducing cross-border transaction costs and exchange-rate risk.

3.2. FINANCING-CONSTRAINT RELIEF AND INTERNAL TRANSMISSION

OFDI requires substantial sunk costs and long-term financing. RMB internationalization can improve firms' financing conditions in both domestic and offshore markets. Domestically, the development of cross-border RMB financial services improves financial institutions' ability to support overseas investment projects. Internationally, offshore RMB markets expand firms' access to RMB bonds, syndicated loans, and

other long-term financing tools. This may relieve financing constraints and provide more stable funding for innovation, technology upgrading, and managerial improvement. Related evidence on corporate short-term debt used for long-term investment also highlights the importance of financing-maturity structure under uncertainty (Li et al., 2022).

The relief of financing constraints may affect OFDI through two internal channels. The first is an innovation-efficiency channel.

With more stable funds, firms can increase R&D, introduce advanced technology, and improve production processes, thereby strengthening ownership advantages that support overseas expansion. The second is a risk-taking channel. Lower financing pressure and lower cash-flow uncertainty improve firms' capacity to bear the sunk costs and operational risks associated with foreign investment.

Previous studies also distinguish profit-driven and innovation-driven motives in Chinese enterprises' OFDI decisions (Qi & Zhang, 2021). Thus, H2 is proposed: RMB internationalization promotes firms' OFDI by relieving financing constraints and improving innovation efficiency and risk-taking capacity.

3.3. DOMESTIC COMPETITION PRESSURE

RMB internationalization may also reshape domestic competition.

A more convenient RMB settlement system lowers the cost for foreign goods and foreign firms to enter the Chinese market. At the same time, a stronger RMB and more open cross-border capital flows can weaken the price competitiveness of some export-oriented firms, redirecting capacity back to the domestic market and intensifying local competition.

When domestic margins narrow, firms may seek growth through overseas production networks, foreign sales channels, and cross-border resource allocation.

Accordingly, H3 is proposed: RMB internationalization can promote firms' OFDI by intensifying domestic market competition and pushing firms to expand abroad.

Taken together, RMB internationalization can reduce cross-border investment costs, stabilize expected returns, relieve financing constraints, strengthen internal capabilities, and encourage firms to search for new growth space outside the domestic market. The core hypothesis of this paper is therefore: H4. RMB internationalization has a positive driving effect on Chinese firms' outward foreign direct investment.

4. RESEARCH DESIGN

4.1. MODEL SPECIFICATION

To test the relationship between RMB internationalization and firm-level OFDI, this paper estimates the following fixed-effects model:

$$\ln OFDI_{ict} = \beta_0 + \beta_1 RII_t + \sum_{k=1}^n \beta_k Controls_{it} + \mu_i + \mu_c + \varepsilon_{ict}$$

Here, *i* denotes firm, *c* denotes the city in which the firm is located, and *t* denotes year. The dependent variable *lnOFDI* measures the outward investment level of listed firms. *RII* is the RMB Internationalization Index. *X* represents firm-level control variables, and *Z* represents macroeconomic controls. Firm fixed effects and city fixed effects are included to absorb time-invariant heterogeneity across firms and cities.

Because *RII* is a national annual index and varies mainly over time, a full set of year fixed effects would absorb most of the identifying variation in the core explanatory variable and create severe multicollinearity. Therefore, year fixed effects are not included in the baseline specification. To mitigate concerns that *RII* may capture broader time trends, the model controls for GDP growth and financial development and clusters robust standard errors at the firm level. The coefficient on *RII* is interpreted as a conditional empirical association consistent with the proposed mechanisms, rather than as definitive causal proof.

4.2. VARIABLES AND DATA

The dependent variable is firm-level outward foreign direct investment.

A listed firm is treated as having OFDI when its overseas related party is an overseas subsidiary, joint venture, or associate of the listed company and the firm's control equity exceeds 10 percent. The annual OFDI stock is logged to obtain *lnOFDI*. The core explanatory variable is the RMB Internationalization Index compiled by the International Monetary Institute of Renmin University of China.

The annual *RII* is constructed from quarterly values and reflects the international use of RMB in trade settlement, financial transactions, and official reserves. The sample covers Chinese A-share listed firms from 2009 to 2024. Financial firms, ST and *ST firms, observations with missing key variables, and observations with abnormal accounting values are excluded. Continuous variables are winsorized at the 1 percent level.

The final sample contains 606 firms, 16 years, and 9,178 firm-year observations. The main data sources are CSMAR, the RMB Internationalization Report, and official macroeconomic statistics

Table 1. Variable definitions

Symbol	Variable	Measurement	Source
lnOFDI	Firm OFDI	Natural log of annual OFDI stock	CSMAR
RII	RMB internationalization	Annual average of quarterly RII	RMB Internationalization Report
Size	Firm size	Natural log of total assets	CSMAR
Lev	Leverage	Total liabilities / total assets	CSMAR
ROA	Profitability	Return on total assets	CSMAR
ATO	Asset turnover	Total asset turnover	CSMAR
Cashflow	Cash-flow ratio	Operating cash flow / total assets	CSMAR
FIXED	Fixed-asset ratio	Net fixed assets / total assets	CSMAR
Growth	Revenue growth	Operating revenue growth rate	CSMAR
ListAge	Listing age	ln(current year - listing year + 1)	CSMAR
Cap	Capital intensity	ln(total assets / employees)	CSMAR
gGDP	GDP growth	Provincial real GDP growth rate	Official statistics
FD	Financial development	Deposits and loans / GDP	Official statistics

Source: Authors' estimation

Table 2. Descriptive statistics

Variable	Mean	Std. dev.	Min	Max	N
lnOFDI	6.0938	8.2992	0	20.6888	9178
RII	2.7053	1.8668	0.02	6.055	9178
Size	22.9767	1.4989	15.5773	28.6437	9178
Lev	0.4917	0.1939	0.0236	1.6981	9178
ROA	0.0405	0.0672	-1.3241	0.8156	9178
ATO	0.7928	0.7313	0.0008	11.8015	9178
Cashflow	0.0513	0.0713	-0.7418	0.4941	9178
FIXED	0.2114	0.1523	0	0.7822	9178
Growth	0.2322	2.3257	-0.9991	140.2414	9178
ListAge	2.6655	0.5875	0	3.5553	9178
Cap	14.5947	0.9947	9.7193	20.0176	9178
gGDP	0.0933	0.0464	0.0084	0.2282	9178
FD	4.1083	1.6405	1.3028	7.5058	9178

Source: Authors' estimation

4.3. IDENTIFICATION STRATEGY AND LIMITATIONS

The empirical design contains several safeguards but also has limitations. Firm fixed effects control for time-invariant firm characteristics, and city fixed effects control for persistent local differences. Firm-level controls and macroeconomic controls are included to reduce omitted-variable bias from observable changes in financial conditions and economic development. However, RII is a national-level annual index. Because its variation is primarily time-series variation, adding year fixed effects would leave little independent variation for estimating the RII

coefficient. This is a common challenge when studying national monetary variables in firm-level panels.

Reverse causality is another concern. Individual listed firms are unlikely to determine the national level of RMB internationalization by themselves, but aggregate OFDI activity may contribute to the broader international use of the RMB. For this reason, the paper avoids claiming a fully causal effect and interprets the estimated coefficient as evidence consistent with the proposed mechanisms. The lagged CNY interaction test further shows that firms with prior RMB-denominated investment experience respond more

strongly to RII, but it should be viewed as heterogeneity evidence rather than a complete solution to endogeneity. Future work can use policy shocks, instrumental variables, or transaction-level settlement data to further improve causal identification.

5. EMPIRICAL RESULTS

5.1. BASELINE REGRESSION

Table 3 reports the baseline regression results. Column (1) controls only for firm fixed effects and city fixed effects. Column (2) adds firm-level controls. Column (3) further adds macro controls, including GDP growth and financial development. In all three specifications, the coefficient of RII is positive and significant at the 1 percent level. In column (1), the coefficient is 0.6674.

After adding firm controls, it rises to 0.9688. After adding macro controls, it remains 0.9702 and highly significant. These results indicate that RMB internationalization is positively associated with listed firms' OFDI after observable firm-level and macroeconomic factors are controlled for.

The result is consistent with the theoretical logic that lower cross-border transaction costs and lower uncertainty make overseas investment more feasible. It is also consistent with heterogeneous-firm theory, in which firms choose among domestic production, exporting, and FDI according to fixed and variable costs. When RMB internationalization reduces currency-related frictions, more firms may cross the threshold required for overseas investment.

Table 3. Baseline regression results

Variable	(1) lnOFDI	(2) lnOFDI	(3) lnOFDI
RII	0.6674*** (0.0734)	0.9688*** (0.1315)	0.9702*** (0.1472)
Size		0.6491** (0.3153)	0.6466** (0.3150)
Lev		2.7695** (1.2390)	2.7746** (1.2398)
ROA		-2.0255 (2.5467)	-2.0644 (2.5455)
ATO		0.8479 (0.5619)	0.8491 (0.5626)
Cashflow		-0.6586 (1.5617)	-0.5929 (1.5716)
FIXED		4.4667** (1.9294)	4.4789** (1.9310)
Growth		-0.7290*** (0.2654)	-0.7461*** (0.2706)
ListAge		-2.5687*** (0.5948)	-2.5887*** (0.6006)
Cap		0.0024 (0.3176)	-0.0010 (0.3187)
gGDP			1.0477 (2.0286)
FD			0.0730 (0.2608)
Firm FE	YES	YES	YES
City FE	YES	YES	YES
Firm controls	NO	YES	YES
Macro controls	NO	NO	YES
Observations	9178	9178	9178
Adj. R2	0.2969	0.3039	0.3038

*Note: Robust standard errors clustered at the firm level are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

Source: Authors' estimation

5.2 MECHANISM EVIDENCE: RMB-DENOMINATED OFDI

To examine whether RMB internationalization expands the actual use of RMB in cross-border investment, this paper uses CNY, an indicator for

whether a firm has RMB-denominated OFDI stock in a given year. Column (1) of Table 4 uses CNY as the dependent variable. The RII coefficient is 0.0367 and significant at the 1 percent level, meaning that a one-unit increase in RII is associated with a 3.67 percentage point increase in

the probability that a firm has RMB-denominated OFDI stock. Column (2) adds CNY to the OFDI regression. CNY is significantly positive, and RII remains significantly positive.

Because CNY is directly related to OFDI stock, it is not interpreted as a strict mediator. Instead, it is used as supplementary evidence that RMB internationalization expands RMB use in cross-border investment and is associated with a higher OFDI level. This supports the transaction-cost and exchange-rate-risk mechanism in H1, while also avoiding an over-interpretation of the mechanism test as a complete causal mediation design.

Table 4. RMB-denominated OFDI mechanism and heterogeneity tests

Item	(1)	(2)
Panel A: CNY mechanism		
Dependent variable	CNY	lnOFDI
RII	0.0367*** (0.0056)	0.5418*** (0.1365)
CNY		11.6709*** (0.3498)
Controls	YES	YES
Firm FE / City FE	YES / YES	YES / YES
Observations	9178	9178
Adj. R2	0.2413	0.4411
Panel B: prior RMB-denominated OFDI experience		
Dependent variable		lnOFDI
RII		0.8556*** (0.1507)
Lagged CNY		4.0849*** (0.8186)
RII x Lagged CNY		0.5009*** (0.1719)
Controls		YES
Firm FE / City FE		YES / YES
Observations		8367
Adj. R2		0.3406

*Note: Robust standard errors clustered at the firm level are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

Source: Authors' estimation

5.3 HETEROGENEITY: PRIOR RMB-DENOMINATED OFDI EXPERIENCE

Firms that have already used RMB in overseas investment may be better able to absorb the benefits of RMB internationalization. To test this possibility, the paper introduces lagged CNY and

its interaction with RII. Panel B of Table 4 shows that the coefficient of RII is 0.8556 and significant at the 1 percent level; the coefficient of lagged CNY is also significantly positive; and the interaction term is 0.5009 and significant at the 1 percent level. For firms without prior RMB-denominated OFDI experience, the marginal effect of RII is 0.8556. For firms with prior experience, the total marginal effect is 1.3565, calculated as $0.8556 + 0.5009$.

This result suggests that the benefits of RMB internationalization are not distributed evenly across all firms. Firms familiar with RMB cross-border settlement, fund transfer, exchange-rate management, and overseas investment procedures can use RMB internationalization more effectively. Therefore, prior RMB-denominated OFDI experience strengthens the positive relationship between RMB internationalization and OFDI. This heterogeneity test partially addresses differences in firms' ability to use RMB-related policy and financial instruments, but it does not exhaust all possible dimensions of heterogeneity, such as ownership, industry, region, or host-country exposure.

5.4 ROBUSTNESS OF INTERPRETATION: TIME TRENDS, HETEROGENEITY, AND REVERSE CAUSALITY

A key identification concern relates to the exclusion of year fixed effects. In the present setting, the main explanatory variable is measured at the national-year level; therefore, a conventional two-way fixed-effects model with a full set of year dummies would mechanically absorb the main variation in RII. The baseline model instead includes firm fixed effects, city fixed effects, firm controls, GDP growth, and financial development. These controls help reduce the risk that the estimated relationship is driven only by broad macroeconomic trends, but they cannot fully replace a design based on exogenous variation.

The heterogeneity result provides additional evidence that the RII-OFDI relationship is stronger among firms that have already accumulated RMB-denominated OFDI experience. This pattern is consistent with the argument that familiarity with RMB settlement, cross-border fund transfer, and exchange-rate management allows firms to benefit more from RMB internationalization. Nevertheless, other heterogeneity dimensions may also matter, including ownership type, industry characteristics, regional financial development, and host-country exposure.

Potential reverse causality should also be recognized. While the OFDI activity of a single listed firm is unlikely to change the national RII,

the aggregate overseas expansion of Chinese firms may promote RMB use abroad. The empirical analysis therefore provides evidence of a positive and theoretically consistent association, rather than a definitive causal estimate. Accordingly, the coefficient should be read as theoretically consistent evidence rather than definitive causal proof.

6. CONCLUSION AND POLICY IMPLICATIONS

6.1 CONCLUSION

Based on panel data for Chinese A-share listed companies from 2009 to 2024, this paper examines the relationship between RMB internationalization and firms' outward foreign direct investment. The main finding is that RMB internationalization is positively and significantly associated with corporate OFDI. This relationship remains evident after controlling for firm fixed effects, city fixed effects, firm characteristics, and macroeconomic variables.

Mechanism evidence shows that RMB internationalization significantly increases the probability that firms hold RMB-denominated OFDI stock, indicating that RMB internationalization expands RMB use in cross-border investment and reduces reliance on third-party currencies. Heterogeneity analysis further shows that firms with prior RMB-denominated OFDI experience respond more strongly to RMB internationalization, suggesting that firm-level familiarity with RMB settlement and financing tools affects the ability to capture policy benefits.

Overall, the evidence indicates that RMB internationalization is not only a macro financial-opening process but also a micro-level institutional condition that influences firms' global resource allocation.

By reducing currency frictions, stabilizing expected returns, and improving the cross-border financial environment, RMB internationalization appears to strengthen Chinese firms' incentives and capacity to invest abroad. Nevertheless, because the core explanatory variable mainly varies over time and full year fixed effects cannot be included without absorbing it, the empirical results should be interpreted cautiously. Future research may further strengthen causal identification by using external policy shocks, instrumental variables, or more detailed host-country and transaction-level data.

6.2 POLICY IMPLICATIONS

First, China should steadily promote RMB internationalization and expand RMB use in cross-

border investment. Policy should continue to improve RMB settlement, financing, clearing, and risk-management systems for overseas equity investment, profit repatriation, mergers and acquisitions, and debt financing. Priority can be given to regions where Chinese firms are active, including Belt and Road economies and RCEP members.

Second, financial institutions should provide more targeted RMB financial services for firms going global. Because OFDI involves large funding needs, long cycles, and high uncertainty, banks and other institutions should develop RMB loans, cross-border syndicated loans, offshore RMB bonds, and exchange-rate hedging products that match firms' overseas investment needs.

Third, RMB internationalization should be combined with innovation support. Firms can use improved cross-border resource-allocation conditions to increase R&D, technology acquisition, and participation in global innovation networks. Policy tools such as development finance, export credit insurance, and overseas intellectual-property services can help firms convert innovation advantages into international competitiveness.

Fourth, firms should strengthen exchange-rate risk management. Although RMB internationalization reduces reliance on third-party currencies, overseas investment still faces host-country currency volatility, dollar liquidity shocks, and global financial uncertainty. Firms should build internal risk-management systems and use forward contracts, swaps, options, and other instruments appropriately.

Fifth, policy benefits should be extended from experienced large firms to a wider range of market participants. Since firms with prior RMB-denominated OFDI experience respond more strongly to RMB internationalization, regulators and financial institutions should reduce the information cost of first-time RMB cross-border investment, especially for private firms, small and medium-sized firms, and firms in inland regions. This will help prevent RMB internationalization from benefiting only firms that already possess strong international operating experience.

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