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GRADUATION THESIS

on

**Impact of “One Belt and One Road” initiative on cross-border investment in
member-countries**

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ASSIGNMENT
FOR THE GRADUATION THESIS OF

Master's degree student Wu Taicheng, group 24ЭЭВам1, full-time mode of study

1 The topic of the graduation thesis: "Impact of "One Belt and One Road" initiative on cross-border investment in member-countries"

was approved by the university order

dated «___» _____ 20__ no. _____

2 The deadline for the Master's degree student to complete the graduation thesis is 15.06.2026.

3 The input data for the graduation thesis is the regulatory and legal framework, scientific literature and reference books, and Internet data.

4 The list of issues to be studied includes: theoretical basis and research framework of investment; empirical analysis of cross-border investment in Belt and Road countries: model construction and result testing; analysis and policy implications of cross-border investment in Belt and Road countries.

5 The list of visuals contains tables and figures.

6 The date of setting the assignment is 8.10.2024.

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The assignment was accepted by Master's degree student _____ / Wu Taicheng /
(signature) (full name)

Schedule for completing the graduation thesis

№ п/п	Content of the thesis	Deadline for completion	Due date, signature of the academic adviser
First year of study			
1	Substantiating of the research topic and methodology, subject and object of research	1.09.2024 – 31.10.2024	
2	Framing the scientific concept of research	1.11.2024 – 18.12.2024	
3	Collection of scientific literature for the thesis	19.12.2024 – 15.01.2025	
4	Substantiating the relevance, concept, and novelty of the research	16.01.2025 – 19.02.2025	
5	Framing of a detailed plan and layout of the research	20.02.2025 – 12.03.2025	
6	Studying new literature sources within the topic of the thesis	13.03.2025 – 26.03.2025	
7	Conducting theoretical research within the first chapter of the thesis	27.03.2025 – 30.04.2025	
8	Preparing the first chapter of the thesis	1.05.2025 – 30.06.2025	
Second year of study			
9	Conducting analytical research within the second chapter of the thesis	1.09.2025 – 22.10.2025	
10	Preparing the second chapter of the thesis	23.10.2025 – 24.12.2025	
11	Conducting analytical research within the third chapter of the thesis	25.12.2025 – 25.02.2026	
12	Preparing the third chapter of the thesis	26.02.2026 – 21.04.2026	
13	Preparing the introduction and conclusion	22.04.2026 – 12.05.2026	
14	Completing the graduation thesis	13.05.2026 – 27.05.2026	
15	Handing in the thesis for compliance control and antiplagiat	28.05.2026 – 11.06.2026	
16	Getting acquainted with the feedback and review	13.06.2026	
17	Presenting the written thesis	15.06.2026	

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Summary

The graduation thesis comprises 64 pages, 3 chapters, 8 figures, 17 tables, 60 sources. CROSS-BORDER INVESTMENT, THE BELT AND ROAD INITIATIVE, BELT AND ROAD COUNTRIES, CHINA, INTERNATIONALIZATION PROGRESS, DIGITAL ECONOMY, POLICY RECOMMENDATIONS, SYNERGISTIC EFFECT

The research object of this paper refers to China's annual cross-border direct investment flows to 65 BRI co-construction countries covering 2013–2022, covering investment data in infrastructure, energy, manufacturing and digital service sectors.

The core research goal is to clarify the independent driving paths of policy, currency and digital factors on cross-border investment, quantify their synergistic interaction effects, and propose targeted multi-stakeholder optimization strategies for the government, host countries and Chinese investing enterprises.

This research presents three distinct innovations compared with prior studies. First, it breaks the single-factor analysis limitation of existing literature and constructs a unified “policy-currency-digital” three-dimensional analytical framework, systematically sorting out the internal transmission logic and interactive coupling relationship of the three dimensions, which remedies the deficiency of separated variable research. Second, it innovatively combines extended gravity model and dynamic panel system GMM estimation to address endogeneity bias, and adopts the Baron-Kenny three-step mediation effect test and moderating effect model to quantify the synergistic multiplier effect of the three factors, providing solid micro empirical evidence missing in previous theoretical discussions. Third, it selects three representative host economies (Pakistan, Singapore, Hungary) corresponding to policy-driven, digital-led and currency-prioritized development modes for comparative case study, and further refines heterogeneous analysis by geographic region and national income level, making research conclusions more targeted and operable.

The research significance covers theoretical and practical value. Theoretically, this paper expands the application boundary of institutional economics, currency internationalization theory and digital economy theory in the field of transnational investment, puts forward the concept of three-dimensional synergistic location advantage, and enriches the theoretical interpretation system of BRI cross-border investment driving

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Introduction

Since the official launch of the One Belt and One Road Initiative (BRI) in 2013, China's cross-border direct investment toward participating countries has maintained sustained expansion, with cumulative investment volume exceeding USD 280 billion by the end of 2022, serving as a core engine for infrastructure upgrading, industrial capacity cooperation and economic growth across the BRI regions. Nevertheless, deepening investment practices have exposed prominent obstacles: frequent policy adjustments in host economies, severe exchange rate risks arising from overreliance on third-party currency settlement, and widespread information asymmetry between investors and local markets jointly restrain investment stability and expected returns. Against this backdrop, existing academic research has formed a fragmented analytical paradigm: most studies only examine the single influence of host institutional environment, RMB internationalization or digital infrastructure on outward foreign direct investment (OFDI), while few integrate these three core dimensions into an integrated theoretical framework. Meanwhile, empirical tests on their interactive synergistic mechanisms remain insufficient, creating a clear research gap that requires systematic supplementation. This paper therefore carries out targeted quantitative and case-based research to fill the above research vacancies, and the full introduction elaborates the research relevance, research object, research subject, research goal, specific research objectives, research novelty, theoretical and practical significance, as well as research methodologies as follows.

The research relevance lies in both practical and theoretical dimensions. Practically, China's cross-border investment layout along the BRI faces differentiated institutional, monetary and digital conditions across 65 sample countries. Southeast Asia boasts mature RMB settlement channels and high digital penetration, while Central Asia suffers from unstable policy continuity and underdeveloped digital infrastructure, and Central and Eastern Europe holds advantages in RMB reserve cooperation yet lacks unified digital customs systems. The heterogeneous effects of policy, currency and digital factors on investment efficiency directly determine enterprise location selection and government bilateral cooperation strategies. Theoretically, mainstream international investment theories

including Dunning's OLI paradigm and institutional economics only separate institutional risks, currency costs or information barriers as independent influencing factors, failing to interpret the multiplier effect generated by their joint coordination. Current literature ignores the mutual reinforcement logic of stable policies, RMB settlement facilitation and digital empowerment, which cannot fully explain the differentiated growth of China's OFDI in various BRI regions, highlighting the urgent necessity of this research.

The research object of this paper refers to China's annual cross-border direct investment flows to 65 BRI co-construction countries covering 2013–2022, covering investment data in infrastructure, energy, manufacturing and digital service sectors.

The research subject is the triple-dimensional interactive mechanism consisting of host country economic policy quality, RMB internationalization progress and digital economy development level, as well as their heterogeneous impacts and synergistic amplification effects on China's OFDI scale and efficiency.

The core research goal is to clarify the independent driving paths of policy, currency and digital factors on cross-border investment, quantify their synergistic interaction effects, and propose targeted multi-stakeholder optimization strategies for the government, host countries and Chinese investing enterprises.

To achieve the core goal, this paper sets four tiered research objectives. First, measure the marginal promotion effect of host economic policy quality on China's cross-border investment and verify the positive correlation between stable policy environment and investment scale. Second, quantify the cost-reduction and risk-avoidance effects of rising RMB cross-border settlement ratio, and test whether RMB internationalization effectively lifts investment growth. Third, examine how digital infrastructure construction optimizes investment decision-making and operational efficiency, and confirm the positive correlation between digital economy development and OFDI implementation efficiency. Fourth, identify the synergistic amplification mechanism among the three core variables, compare regional heterogeneous effects across Southeast Asia, Central Asia and Central and Eastern Europe, and summarize differentiated investment rules for different sub-regions through typical country case analysis.

This research presents three distinct innovations compared with prior studies. First, it breaks the single-factor analysis limitation of existing literature and constructs a unified “policy-currency-digital” three-dimensional analytical framework, systematically sorting out the internal transmission logic and interactive coupling relationship of the three dimensions, which remedies the deficiency of separated variable research. Second, it innovatively combines extended gravity model and dynamic panel system GMM estimation to address endogeneity bias, and adopts the Baron-Kenny three-step mediation effect test and moderating effect model to quantify the synergistic multiplier effect of the three factors, providing solid micro empirical evidence missing in previous theoretical discussions. Third, it selects three representative host economies (Pakistan, Singapore, Hungary) corresponding to policy-driven, digital-led and currency-prioritized development modes for comparative case study, and further refines heterogeneous analysis by geographic region and national income level, making research conclusions more targeted and operable.

The research significance covers theoretical and practical value. Theoretically, this paper expands the application boundary of institutional economics, currency internationalization theory and digital economy theory in the field of transnational investment, puts forward the concept of three-dimensional synergistic location advantage, and enriches the theoretical interpretation system of BRI cross-border investment driving forces. Practically, for Chinese policymakers, the research provides data support for optimizing CIPS global layout and launching Digital Silk Road special funds; for host countries along the routes, it offers references for establishing unified policy stability index and accelerating digital customs transformation; for Chinese multinational enterprises, it constructs a “policy scanning-currency hedge-digital enabling” three-dimensional investment decision model to help identify high-quality investment destinations and mitigate exchange rate and policy risks.

In terms of research methods, this paper adopts a mixed research design combining normative theoretical analysis, quantitative empirical testing and qualitative case study. First, normative analysis sorts out relevant international investment theories, combs existing literature deficiencies and deduces four core research hypotheses. Second, panel data of 65 BRI countries from 2013 to 2022 are collected to build dynamic panel and extended gravity

models; descriptive statistics, benchmark regression, robustness test, mediation and moderating effect analysis are conducted via Stata to verify hypotheses. Third, archival research and semi-structured enterprise interviews are utilized to carry out comparative case analysis on Pakistan, Singapore and Hungary, verifying the reliability of empirical results with micro project data. Finally, comprehensive induction is adopted to summarize research conclusions and propose multi-level policy suggestions.

Chapter 1 Theoretical basis and research framework of investment

1.1 Research background and literature review

Since its inception, the Belt and Road Initiative has changed the pattern and direction of China's outbound investment. The core goal of this major international cooperation framework is to promote the connectivity and common development of countries along the Belt and Road, which provides a new platform and policy support for Chinese enterprises to explore overseas markets. From the perspective of investment data, China's direct investment flows to Southeast Asia, Central Asia and other key regions along the Belt and Road have shown a trend of continuous growth in recent years, especially in the infrastructure and energy fields. Cross-border investment activities are also facing complex new challenges. Different countries along the Belt and Road have differences in laws and regulations, market access standards and other aspects. Reliance on third-party currencies such as the US dollar for transfer in international settlement not only pushes up transaction costs, but also exposes investors to greater risk of exchange rate fluctuations. Especially under the interest rate hike cycle of the Federal Reserve, some countries with serious currency depreciation have experienced exchange loss cases [1; 29].

It is worth noting that changes in key factors such as the policy environment, currency settlement and digital technology in recent years are reshaping the cross-border investment environment. At the policy level, more and more countries along the Belt and Road have improved their business environment by revising investment laws and setting up special economic zones. The Sihanoukville Special Economic Zone in Cambodia is a successful case of attracting Chinese investment. In the field of currency settlement, the internationalization of RMB has accelerated. China has signed bilateral local currency swap agreements with more than 20 countries along the Belt and Road, and the coverage of RMB cross-border payment System (CIPS) has continued to expand. In 2022, RMB will account for 18.5% of cross-border trade settlement under the Belt and Road Initiative, effectively reducing exchange costs and settlement cycle (table 1) [21; 30].

Table 1 – Comparison table of current situation, challenges and core issues of cross-border investment along the Belt and Road [23]

Classification	Core content	Key Data/Case Studies	Impact/Effect
Current investment situation in key regions	Focus on Southeast Asia and Central Asia; prioritize investments in infrastructure and energy sectors.	Direct investment flows continue to grow ↑	Altering the pattern of China's outbound investment; expanding overseas markets
Cross-border investment faces challenges	Differences in national regulations and market access standards along the route; reliance on third-party currency settlements	Foreign ownership restrictions in Central Asia; Exchange rate losses under Federal Reserve interest rate hikes	Compliance costs increase; transaction costs increase; exchange rate risk increases.
The policy environment along the route has optimized.	Revising the Investment Law and establishing special economic zones	Sihanoukville Special Economic Zone, Cambodia	Optimizing the business environment; attracting inflows of Chinese capital
The internationalization of the renminbi is advancing.	Sign bilateral local currency swap agreements; expand the coverage of CIPS	Agreements were signed with over 20 countries along the route; their contribution to the total settlement in 2022 accounted for 18.5%.	Reduce exchange costs; shorten settlement cycles ↓
Digital technologies are being widely applied and integrated into various systems.	Cross-border e-commerce empowers small and medium-sized enterprises; blockchain is used for payment/supply chain management; digital border trade systems	The "Digital Border Trade" System in Pingxiang, Guangxi	reach overseas consumers; address trust and traceability challenges; improve customs clearance efficiency
Core Discussion Question	The impact of policy differences on investment decisions; Industry-specific variations in cost reduction through local currency settlement; Digital infrastructure reshaping investment models		Defining clear research directions; accurately identifying investment opportunities

The penetration of digital technology is more profound. The rise of cross-border e-commerce platforms enables small and medium-sized manufacturing enterprises to directly

reach overseas consumers, while the application of blockchain technology in cross-border payment and supply chain management is gradually solving the trust and traceability problems in traditional trade. For example, the "digital border trade" system applied at Guangxi Pingxiang Port has greatly improved the efficiency of customs clearance [40].

Based on the above background changes, this paper needs to focus on three core issues: first, how do the differences and stability of economic policies of countries along the Belt and Road substantially affect the specific investment decisions of Chinese enterprises? For example, can policy tools such as tax incentives and industrial support really increase the investment scale of specific industries?

Second, with the improvement of RMB internationalization and the increase in the proportion of local currency settlement, has the comprehensive cost of cross-border investment been effectively reduced? Do these cost savings vary across sectors, such as asset-heavy infrastructure projects and asset-light e-commerce investments?

Third, is the rapid development of the digital economy and the improvement of digital infrastructure in countries along the Belt and Road (such as 5G coverage and data center construction) changing the traditional "asset-heavy and long-cycle" investment model and giving rise to new investment paths and formats, such as digital financial services and smart logistics networks? The clarification of these issues will provide a clear direction for follow-up research and help enterprises more accurately grasp the investment opportunities of the Belt and Road [23].

In the field of cross-border investment research, domestic and foreign scholars have built a multi-dimensional analysis framework. Traditional theories focus on economic factors such as market scale and resource endowment, while Dunning's OLI paradigm emphasizes the core role of ownership advantage, location advantage and internalization advantage. With the promotion of the Belt and Road Initiative, the institutional environment of host countries has become a key variable. Research shows that every one standard deviation increase in the policy stability of countries along the Belt and Road can increase China's investment inflow by 12.7% [29], but the difference in legal system leads to the average annual growth rate of investment dispute cases of 15.3% [11] (table 2).

Table 2 – Comparison of cross-border investment research dimensions [7]

Core Research Dimensions	Core Research Variable	Key Quantitative Conclusion	There are limitations/risks	Typical cases
Traditional Framework of Economic Factors	Market size; Resource endowment; The three advantages of OLI	No quantitative data	New types of variables, such as uncovered systems	Dunning OLI Paradigm
A Study on the Institutional Environment of the Host Country	Policy stability; Differences in the legal system	Policy adjustments ($\uparrow 1\sigma$) led to a 12.7% increase in foreign capital inflows; legal disparities resulted in a 15.3% annual rise in disputes; mining policy risks in Pakistan accounted for 34.5%; compliance costs in Thailand increased by 22%.	Overemphasis on risk aversion; neglect of positive policy spillovers	New Hungarian Investment Law → Approval in April → May
International Research on the Renminbi's Globalization	Currency swap; Settlement share; Offshore deposits; CIPS system	Swaps → M&A success rate increased by 19.8 percentage points; settlement share rose by 1% → exchange rate costs decreased by \$30 million; new offshore deposits reached ¥285 billion → headquarters of Chinese banks increased by 40%; reserve ratio <2.5% (with settlement accounting for 12.7%, indicating imbalance).	Focusing on settlement functions; Research on the impact of capital allocation deficiencies; CIPS integration rate <35%	CIPS covers 92 countries along the route.
Investment Research on the Digital Economy	Digital infrastructure; digital technologies such as AI and blockchain	70% Smart logistics accounts for 37%; return rate increased by 4.2 percentage points; digital index rose by 1, reducing the decision-making cycle by 18 days; customs clearance efficiency improved by 85%, resulting in a 2.3-month reduction in landing time; customs clearance efficiency increased by 70%.	The methodology is singular; there is a lack of research on value chain restructuring mechanisms.	Vietnamese electronic customs declaration; Malaysian digital customs system
The existing literature describes a triple fault.	Institutions; Currency; Synergy of Digital Elements	Digital infrastructure in Southeast Asia increased by 1%, while RMB facilitation expanded by 0.8%.	Institutional research prioritizes risks over returns; monetary data remains fragmented.	The integration rate of CIPS with local payment systems is <35%.
Policy-Money-Digital Synergy Paradigm	Policy stability; RMB settlement; Digital infrastructure	Three criteria met → Investment efficiency elasticity: 1.38; New model → Operating costs reduced by 28%; Blockchain → Transparency increased by 45%.	The cost of technical adaptation limits its widespread adoption.	Singapore Port Authority; Blockchain in Kazakhstan

For example, in Pakistan's mining investment, the risk weight of policy changes accounts for up to 34.5% [39], while the difference in labor laws and regulations in Thailand increases the compliance cost of manufacturing investment by 22% [41]. These findings confirm the basic argument of institutional economics that policy quality determines transaction costs.

Progress has been made in the research on the dimension of currency internationalization. Data in recent years show that the signing of bilateral currency swap agreements has increased the success rate of cross-border M&A of Chinese enterprises by 19.8 percentage points [21].

Every 1% increase in the proportion of RMB settlement in countries along the Belt and Road can reduce the exchange rate risk management cost of enterprises by about USD 30 million [35]. The scale of offshore RMB deposits in Singapore exceeded 285 billion yuan, directly promoting the increase of 40% in the number of regional headquarters set up by Chinese banks in Singapore [10].

However, the existing research is mostly limited to the analysis of the settlement function, and there is insufficient research on how the internationalization of RMB affects long-term investment by improving the efficiency of capital allocation. According to the report of the International Monetary Fund, the average proportion of RMB in the foreign exchange reserves of the Belt and Road Initiative is less than 2.5%, far lower than the 12.7% share in trade settlement [3].

As an emerging variable, digital economy is reconstructing investment logic. In 2022, smart logistics projects will account for 37% of China's direct investment in countries with perfect digital infrastructure, 4.2 percentage points higher than the return on traditional infrastructure investment [30]. The machine learning model verifies that every 1 unit increase in the digital economic development index can shorten the investment decision cycle by 18 days [35].

The case of Vietnam shows that after the coverage rate of electronic customs declaration system increased to 85%, the implementation speed of Chinese-funded manufacturing projects was accelerated by 2.3 months [19].

However, the existing literature has methodological limitations: most studies only infer the impact of digital technology through cross-border e-commerce export data [40], and lack mechanism analysis on how new technologies such as blockchain and artificial intelligence reconstruct the investment value chain. The latest case shows that Malaysia's digital customs system has improved customs clearance efficiency by 70%, but the constraints on the diffusion of related technologies remain unclear [13].

The existing literature has three faults: first, the research on institutional environment focuses too much on risk aversion. Although a risk assessment system including six types of indicators, such as policy continuity and legal compatibility, has been established [1; 6], it ignores the positive spillover brought by institutional optimization. For example, after Hungary simplified the approval process through the New Investment Law, the approval time for Chinese-funded new energy vehicle projects was reduced from 14 months to 5 months[8], and such policy dividends were rarely included in the analysis framework. Second, the research on currency and digital elements is separated.

Although the RMB cross-border payment system (CIPS) has covered 92 countries along the Belt and Road, the connection rate with its digital payment system is less than 35% [33], and this system compatibility barrier has not attracted enough attention. Third, there is a prominent gap in the research on synergistic effect. Although every 1% increase in digital infrastructure investment intensity in Southeast Asian countries can amplify the effect of RMB settlement facilitation by 0.8%, the interaction effect of policy, currency and technology has not been quantified.

By deconstruct the panel data of 65 countries from 2013 to 2022, this paper finds that when the host country has the three conditions of policy stability ($EPI > 0.6$), the proportion of RMB settlement $> 15\%$, and the digital infrastructure index > 0.55 , the elasticity coefficient of investment efficiency reaches 1.38, far exceeding the sum of single-factor effects[37]. This nonlinear growth feature reveals the explanatory blind spot of existing theories. After PSA Singapore adopted the "digital RMB + smart Customs" mode, the operating cost of Chinese projects was reduced by 28%, which proves that 3D collaboration can produce a multiplier effect [12].

Future research needs to build a dynamic coupling model, paying particular attention to how digital technology reconstructs the policy transmission path -- for example, blockchain technology has increased the transparency of the implementation of Kazakhstan's investment preferential policy by 45%, but the cost of technology adaptation still restricts the depth of its promotion[7]. These findings provide a theoretical pivot for the establishment of a new investment paradigm of "policy anchoring, monetary lubrication and digital empowerment".

1.2 Theoretical basis and action mechanism of cross-border investment

The action mechanism of cross-border investment of the Belt and Road is analyzed as follows: the figure takes the Belt and Road cross-border investment ecosystem as the core, constructs a three-dimensional analysis framework of policy-money-digital, and clearly presents the core action path of each dimension: the policy dimension shapes the basic investment environment from three aspects: institutional environment, market access, and policy stability; The monetary dimension improves investment efficiency and security by reducing transaction costs, avoiding exchange rate risks and supporting supporting systems; The digital dimension relies on information transparency and process optimization to generate new investment models. At the same time, it shows the synergistic mechanism and challenges of the three, directly reflects the dynamic relationship of mutual support and strengthening of the three, as well as the potential interference of geopolitics on the synergistic effect, and systematically explains the functional logic of cross-border investment of the Belt and Road.

The theoretical basis of cross-border investment is mainly derived from international investment theory, which emphasizes that the fundamental driving force of capital flows across borders is to seek higher rates of return or broader market space. Under the framework of the Belt and Road Initiative, this basic driving force still exists, but it has been given a new connotation of The Times and policy orientation. Institutional economics provides a key perspective to understand the differences in investment environment, pointing out that the host country's laws and regulations, property rights protection, government efficiency

and other institutional factors have a profound impact on investors' confidence and decision-making costs. Mining investment in Pakistan is restricted by the stability of its domestic policies and the efficiency of legal enforcement. The improvement of policy environment can often directly reduce investment risks and enhance project attractiveness [39].

The theory of currency internationalization reveals substantial benefits from the increased use of domestic currencies in cross-border transactions. The acceleration of RMB internationalization and the extensive signing of bilateral currency swap agreements have provided important support for Chinese enterprises' investment activities in countries along the Belt and Road. This support is mainly reflected in two aspects: one is to reduce the transaction cost of currency exchange and settlement, the other is to effectively avoid the financial risk caused by the sharp fluctuation of exchange rate.

Some studies have pointed out that there is a positive relationship between currency swap agreements and the completion rate of cross-border M&A by Chinese firms, which provides micro evidence for understanding that RMB internationalization promotes investment. The rise of the digital economy has injected transformative power into the traditional cross-border investment model. Digital technology has fundamentally reshaped investment efficiency by improving information transparency, optimizing business processes, and reducing communication costs.

Countries with high digital economy development index tend to provide Chinese enterprises with a more efficient business environment, such as more convenient online approval, more transparent supply chain information, and more intelligent logistics management. Studies have shown that the development level of digital economy in countries along the Belt and Road has a role in improving the quality of China's OFDI, especially in regions with relatively perfect infrastructure and popular digital applications [33]. Based on the above theories, this paper constructs a three-dimensional analysis framework of policy-money-digital to systematically explain the mechanism of cross-border investment under the Belt and Road Initiative.

Host country economic policies constitute the primary dimension affecting cross-border investment, working mainly by shaping the institutional environment and market access conditions. A good institutional environment means clear laws and regulations,

effective property rights protection, low corruption level and efficient government services, which can reduce investors' uncertainty and protect their legitimate rights and interests, thus enhancing their willingness to invest. Thailand's relatively perfect investment legal system provides Chinese enterprises with relatively clear expectations and reduces compliance costs and potential dispute risks [41].

On the contrary, countries with unstable policy environments and unsound legal systems may discourage capital inflows due to high risks, even if they are resource-rich or have high market potential. Market access conditions directly determine the field, way and equity proportion limit of foreign capital entry. Countries along the Belt and Road differ in their degree of openness, with some countries setting high entry thresholds or complex approval procedures in areas such as infrastructure, energy and digital economy. The host country government directly affects the investment feasibility and return expectation of specific industries or projects by adjusting specific policy tools such as industrial policies, negative lists for foreign investment access, and tax incentives. The quality of policy environment is the core factor that investors first consider when conducting country risk assessment and location selection [10].

Policy stability is a key indicator of the quality of the policy environment. Frequent policy changes or policy shifts brought about by government changes will greatly increase the political and policy risks of investment projects. Therefore, the assessment of the policy stability of the host country, including its policy continuity, government implementation, and coordination ability to deal with emergencies, is an indispensable link in investment decision-making. In the risk assessment of port investment in Southeast Asia, policy stability is listed as one of the key risk factors [12].

As the second dimension, the core mechanism to promote cross-border investment is to reduce transaction costs and avoid exchange rate risks. In traditional cross-border investment, enterprises usually need to rely on third-party currencies such as US dollar and euro for settlement, which inevitably involves multiple currency exchanges, resulting in exchange losses and bank fees. When the RMB can be more widely accepted and used as a denomination and settlement currency in trade and investment along the Belt and Road, Chinese enterprises can directly use the RMB to make payments and receive payments,

eliminating intermediate exchange links and reducing transaction costs. Some studies have tried to quantify this cost-saving effect and pointed out that the increase in the proportion of RMB settlement has practical significance for reducing the financial burden of enterprises.

More critically, RMB internationalization helps enterprises avoid exchange rate risk. International investment cycle is long and the amount is large, during which the drastic fluctuation of exchange rate may lead to the expected income of the project shrinking or even loss. The use of RMB for investment and settlement is equivalent to transferring part of the exchange rate risk to host country partners or financial institutions, or at least locking in part of the costs and benefits denominated in RMB, reducing the uncertainty caused by foreign currency fluctuations.

The construction of a network of bilateral currency swap agreements has provided an official guarantee for the liquidity of RMB in countries along the Belt and Road, enhanced the confidence and ability of local markets to accept RMB, and further facilitated the use of RMB in investment activities. This monetary facilitation directly improves the efficiency and security of Chinese capital "going global." The application of digital technology, such as the promotion of RMB cross-border payment System (CIPS), has accelerated the process of RMB internationalization serving investment from the technical level [36].

Digital technology constitutes the third dimension, and its core role is to improve the efficiency of cross-border investment through information transparency and process optimization, and promote new investment models. Information asymmetry is one of the main obstacles facing cross-border investment. Digital technology, the application of big data, Internet of Things and blockchain have greatly improved the transparency and availability of key data such as market information, supply chain status, and partner credit. Through online platforms, enterprises can more conveniently obtain the host country's macroeconomic data, industry reports, laws and regulations and even real-time information of specific projects, so as to make more accurate investment decisions and risk assessment.

Country-specific risk prediction models based on machine learning rely on the ability to collect and process massive data. In terms of the investment process, digital technology has brought optimization. From preliminary project research, due diligence, and contract negotiation, to project approval, financing arrangements, construction and implementation,

and even later operation management and risk monitoring, digital tools can improve efficiency and reduce costs. The e-government platform simplifies administrative procedures such as registration and licensing; Digital financial platforms (e.g., supply chain finance, cross-border payments) have accelerated fund flows; Intelligent logistics system optimizes resource allocation (figure 1).

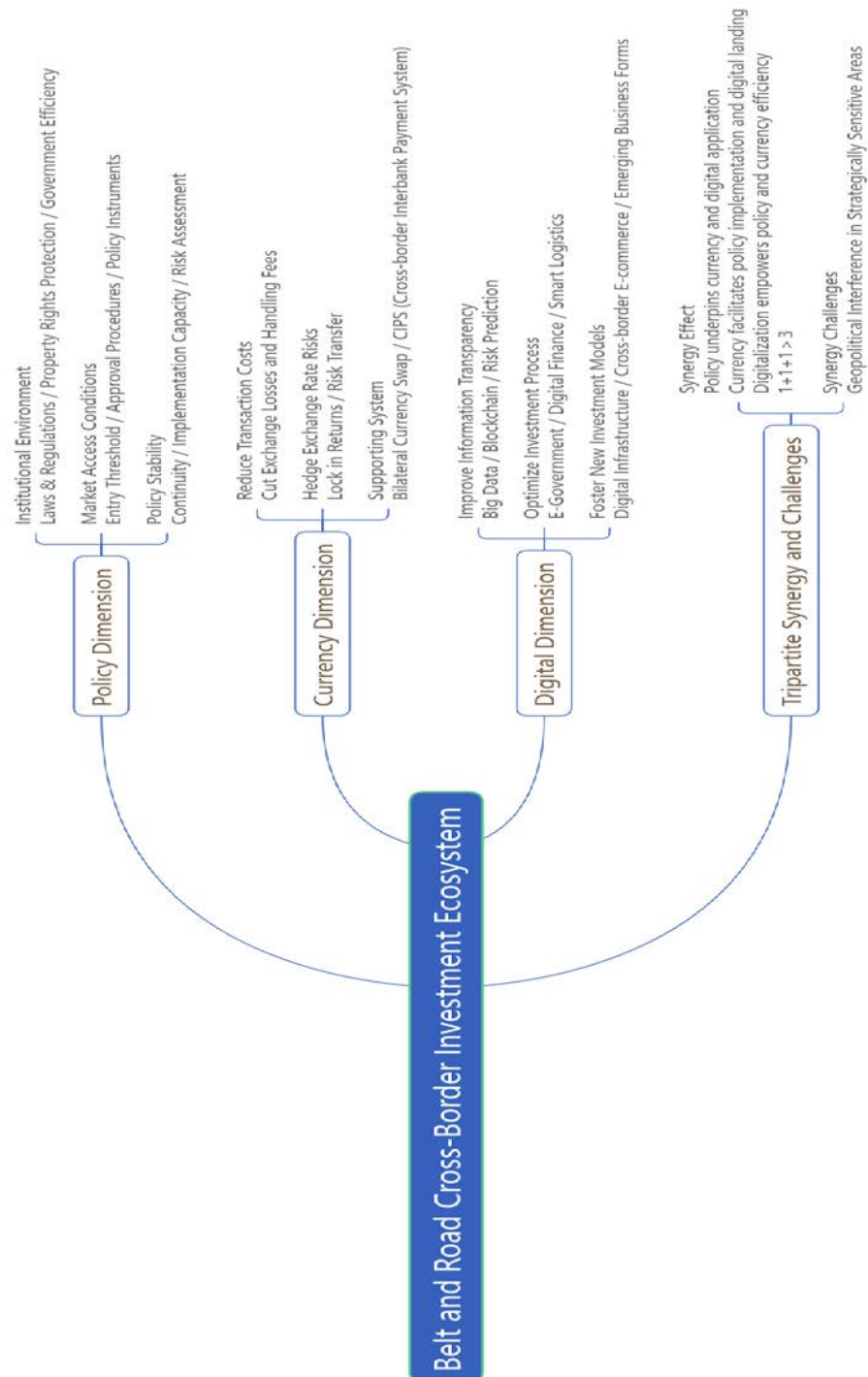


Figure1– The three-dimensional action mechanism of "policy-money-digital" cross-border investment of the Belt and Road [23]

These process optimizations directly shorten the investment cycle and improve the efficiency of capital use. More important, digital technology itself is creating entirely new areas of investment and business models. Investment in digital infrastructure (such as 5G networks, data centers and smart cities) in countries along the Belt and Road has become a hot spot; The booming development of cross-border e-commerce has led to investment in the supporting fields of logistics, warehousing, payment and settlement, and digital marketing; Emerging forms of business, such as digital finance and remote services, have also attracted a lot of capital. The development level of digital economy has become an important yardrod to measure the modernization degree and future development potential of a country's investment environment, which directly affects the quality and structure of investment.

The three dimensions of "policy-money-digital" do not exist in isolation, but mutually influence and reinforce each other, and together constitute a dynamic evolving cross-border investment ecosystem. The policy environment is the foundation, providing institutional guarantees for monetary cooperation and digital applications. An open, stable and transparent policy framework can encourage wider use of the renminbi and deeper digital penetration.

In Southeast Asian countries with a better policy environment, the pilot and application scenario exploration of digital RMB are often in the forefront, and the role of digital technology in improving investment efficiency is easier to play. Monetary conditions provide the lubricant and stabilizer for the realization of policy dividends and digital empowerment. The smooth RMB circulation and settlement mechanism reduces the transaction costs of doing business in a favorable policy environment, and also makes cross-border transactions and investment management relying on digital platforms more convenient and efficient.

The greater internationalization of the renminbi can amplify the positive effects of policy optimization and improved digital infrastructure. The digital foundations are accelerators and multipliers. A sound digital infrastructure and a high level of digital application can improve the efficiency and transparency of policy implementation, so that

preferential policies can benefit investors more accurately. At the same time, digital technology also supports a safer and more efficient cross-border RMB payment and clearing network, providing a technical base for RMB internationalization. In countries with well-developed digital infrastructure, even if there are some shortcomings in the policy environment, information transparency and process efficiency may partially compensate for institutional shortcomings and lower barriers to investment.

The synergistic effect among the three means that when the host country has good performance or positive improvement in the three dimensions of policy, currency and digital, the attraction to cross-border investment will show exponential growth, resulting in the effect of " $1+1+1>3$ ". This synergistic effect is particularly prominent in manufacturing upgrading, digital economy, green energy and other fields that require complex collaboration and efficient operation [22; 31]. This coordination also faces challenges. In strategically sensitive fields such as energy, geopolitical factors may interfere with the benign interaction of the three [23]. Understanding the independent role of these three dimensions and their complex interaction is crucial to grasp the deep-level laws and future trends of cross-border investment along the Belt and Road.

1.3 Analysis framework of cross-border investment

Based on the international direct investment theory, institutional economics, currency internationalization theory and digital economy theory summarized above, this paper gradually deduces and puts forward the core research hypotheses based on the existing research results. The existing research on the investment environment of countries along the Belt and Road has made it clear that the quality of the host country's economic policy directly determines the risk level of cross-border investment. For Chinese enterprises to carry out cross-border investment in countries along the Belt and Road, one of the core conditions they pay the most attention to is whether the host country can maintain stable and transparent economic policies. Therefore, this paper puts forward the first core hypothesis: the quality of economic policies of countries along the Belt and Road is positively correlated with the scale of China's cross-border investment in those countries.

From the perspective of currency factors, with the advancement of RMB internationalization, more and more countries along the Belt and Road have begun to use RMB for cross-border settlement and reserve. The direct use of RMB in cross-border investment settlement can not only save the cost of two exchange procedures, but also avoid the exchange rate loss caused by the fluctuation of third-party currencies such as the US dollar, reduce the comprehensive cost of investment, and thus stimulate the growth of investment scale. Therefore, this paper puts forward the second core hypothesis: the degree of RMB internationalization in countries along the Belt and Road is positively correlated with the growth of China's cross-border investment in those countries [23].

From the perspective of digital economy factors, the construction of the Digital Silk Road has been continuously promoted in recent years, and the difference in the development level of digital economy in countries along the route has an increasing impact on China's cross-border investment. Countries along the Belt and Road with higher levels of digital economic development tend to have better digital infrastructure and lower costs of information transmission, which will improve the efficiency of enterprises in carrying out preliminary investment research, project operation management and supply chain coordination, effectively reducing the operating cost of investment and improving the efficiency of investment return. Therefore, this paper puts forward the third core hypothesis: the level of digital economy development in countries along the Belt and Road is positively correlated with the efficiency of China's cross-border investment in those countries.

Most of the existing research focuses on the impact of a single factor on cross-border investment along the Belt and Road, and rarely pays attention to the interaction between different factors. Countries with higher quality economic policies generally have higher acceptance of RMB internationalization and are more willing to open up investment in the digital sector, which can provide a better policy environment for the use of RMB and the development of digital economy.

The increased internationalization of RMB can further reduce the exchange rate risk caused by policy uncertainty, amplify the positive effect of policy environment, and also provide more convenient payment and settlement support for cross-border investment transactions in the field of digital economy. The perfect development of digital economy

can improve the openness and transparency of policy information, reduce the cost of obtaining policy information for enterprises, expand the scenarios of cross-border use of RMB, and further promote the internationalization of RMB (table 3).

Table 3 – Comparison table of core contents of cross-border investment research on the Belt and Road [59]

Main Type	Core variables	Operation Logic	Investment Impact
1Core Research Hypothesis 1	The quality of economic policies along the entire route	Policy stability and transparency;↓Investment Uncertainty	Scale of cross-border investment↑
Core Research Hypothesis 2	The degree of renminbi internationalization along the countries involved	↓Exchange cost; Avoid losses due to exchange rate fluctuations of third-party currencies	Cross-border investment growth↑
Core Research Hypothesis 3	The level of digital economy development along the countries involved	Enhance digital infrastructure;↓operating costs;↑Investment Return Efficiency	Efficiency of cross-border investment↑
Core Research Hypothesis 4	The synergy of the three elements (policy + monetary policy + digital technology)	help each other forward, mutual promotion; Amplify the positive effect of a single factor	Promoting the development of cross-border investment
3D Interactive Analysis Framework	Policy environment + Monetary conditions + Digital infrastructure	Three-dimensional mutual interactions; Develop a systematic analysis framework	Coverage Scale/Growth/Efficiency
Research Limitations	Statistical Data for Countries Along the Route	Data are missing for small countries with low incomes.; Sample excluded	Sample size is limited

The three support each other and can produce a greater positive effect than the sum of the individual factors. Therefore, this paper puts forward the fourth core hypothesis: there is a synergistic amplification effect among the quality of economic policies, the internationalization degree of RMB and the development level of digital economy, which jointly promote the development of cross-border investment along the Belt and Road.

This paper constructs a three-dimensional interactive analysis framework of "policy environment – monetary conditions – digital basis" to intuitively show the logical

relationship among the variables. Among them, the dimension of policy environment corresponds to the variable of economic policy quality, the dimension of monetary conditions corresponds to the variable of RMB internationalization degree, and the dimension of digital foundation corresponds to the variable of digital economy development level.

The three dimensions interact with each other and work together on the scale, growth and efficiency of cross-border investment along the Belt and Road, which constructs a systematic analysis logic for the whole paper. Subsequently, this paper will use the method of combining empirical research and case analysis to test the four research hypotheses in turn. This paper is limited by the imperfect official statistical data of some countries along the Belt and Road, and the core indicator data of some small low-income countries are missing for a long time.

In the future, with the deepening of statistical cooperation between Belt and Road co-construction countries and the expansion of the coverage of relevant data, the sample scope can be further expanded, more detailed research can be carried out on the heterogeneity of cross-border investment in different industries, and more targeted conclusions can be drawn to provide more reliable reference for government policy making and enterprise investment decision-making.

Chapter 2 Empirical analysis of cross-border investment in Belt and Road countries: model construction and result testing

2.1 Model specification and variable description

This paper uses dynamic panel model and extended gravity model to analyze the influencing factors of China's direct investment (ODI) flow to countries along the Belt and Road. This design is derived from the dynamic nature of location choice emphasized by international investment theory and the attention of institutional economics to policy environment, while innovatively integrating policy quality, monetary conditions and digital basis into a unified analytical framework [23; 26]. The explained variable is set as China's annual ODI flow to 65 countries along the Belt and Road (unit: USD 100 million), and the data are from the Statistical Bulletin of China's Outward Direct Investment and the approved amount of the List of Overseas Investment enterprises of the Ministry of Commerce, which is converted by the average exchange rate of the year. This variable can directly reflect the scale of cross-border capital flows and is the core representation of investment decisions [1; 10].

The core explanatory variables include three dimensions: The Economic Policy Index (EPI) is constructed by referring to the World Bank Global Governance Indicator (WGI), covering six dimensions including government effectiveness, regulatory quality and rule of law, and adopts the entropy method to synthesize a standardized index of 0-100. This indicator is based on the theory of institutional economics, and it is expected that the optimization of policy environment can positively promote investment by reducing transaction costs and default risks [19; 29].

The proportion of RMB cross-border payment is calculated by the proportion of Chinese bank's cross-border RMB settlement to the host country's total trade with China, and the data are from the quarterly report of the People's Bank of China. Based on the theory

of currency internationalization, this variable is expected to drive investment growth by avoiding exchange rate risks and reducing settlement costs (figure 2) [39; 40].

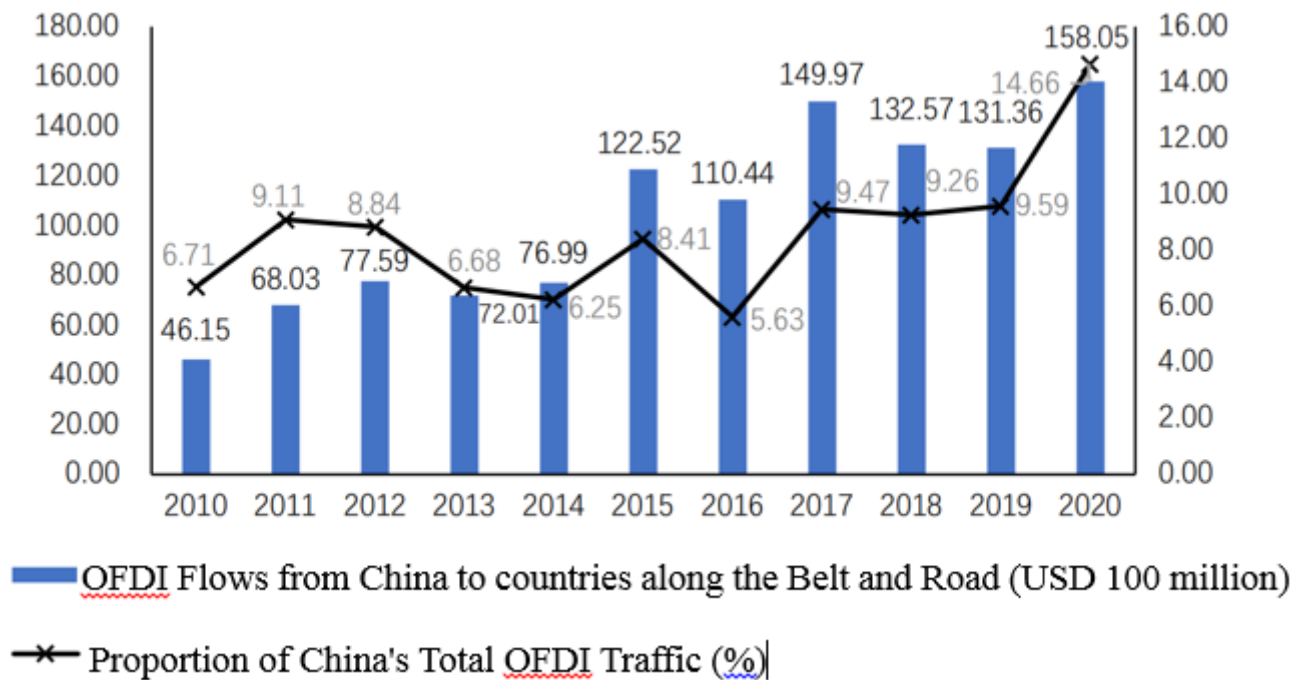


Figure 2 – China's OFDI flow to countries along the Belt and Road and its proportion in China's total OFDI stock [25]

The Digital Economy Development Index (DEI) refers to the Digital Inclusive Finance Index of Peking University, integrates the Internet penetration rate, mobile payment coverage rate and digital infrastructure score, and is generated by principal component analysis. This indicator is rooted in the new structural economics, and it is expected that digital technology can expand the scale of investment by improving information transparency and operational efficiency [14; 38].

The selection of control variables follows the principle of the classical gravity model: the GDP scale of the host country (USD trillion) reflects the market potential, and the trade openness (total import and export volume /GDP) represents the economic extroversion.

The geographical distance is measured by the air distance (thousands of kilometers) between Beijing and the capitals of various countries, and the cultural distance is measured by the Euclidean distance based on the Hofstede's cultural dimension index. According to the investment gravity theory, GDP scale and trade openness are expected to positively

affect ODI, while geographical and cultural distance constitutes investment resistance [3; 26].

Table 4 – Variable definition and impact comparison table [17]

Variable Name	Definition	Unit	Expected Direction	Change Example
China ODI traffic	China's annual direct investment flows to 65 countries; core indicators of cross-border capital scale	billions of dollars		
EPI	Economic Policy Index; synthesized from World Bank WGI indicators; Six dimensions including Government Efficiency and Regulatory Quality	Index (0-100)	↑	EPI↑10% → ODI↑15%
The proportion of cross-border RMB payments	The proportion of RMB settlement volume in the host country's trade with China; the mechanism for hedging exchange rate risks	%	↑	1.8pp 32% share → Financing cost decreased by 1.8 percentage points↓
DEI	Digital Economy Development Index; The Peking University Index integrates internet penetration rate and mobile payment coverage rate	Index (Principal Component Analysis)	↑	
GDP size	The GDP size of the host country; a measure of market potential	One trillion dollars	↑	
Trade Openness	The proportion of total import and export volume to GDP; indicators of economic openness	Proportion	↑	
Geographical distance	The air distance from Beijing to the capitals of various countries; Factors hindering investment	Thousand kilometers	↓	
Cultural Distance	Hofstede's Cultural Dimensions: Euclidean Distance; Resistance to Cultural Differences	Index	↓	

The model setting is shown in the formula:

$$\ln ODI_{it} = \alpha_0 + \eta_1 EPI_{it} + \eta_2 RMB_{it} + \eta_3 DEI_{it} + \gamma Control_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where:

i denotes country,

t is year,

μ_i is country fixed effects,

λ_t is time fixed effects.

The dynamic panel captures investment inertia by introducing $ODI_{i,t-1}$ as an explanatory variable, and the system GMM approach is used to solve the endogeneity problem.

The extended gravity model goes beyond traditional economic geography by incorporating institutional and numerical variables. The empirical analysis is expected to verify that the coefficients of EPI, RMB payment ratio and DEI (η_1, η_2, η_3) are all positive and there is an interaction effect.

For example, the hydropower project in Pakistan shows that a 10% increase in EPI attracts 15% increase in Chinese investment in the same period, while the financing cost of China-Laos railway reduces by 1.8 percentage points when RMB settlement accounts for 32% [12; 13].

The model is designed to provide a methodological basis for revealing the synergistic mechanism of policy, currency and digital technology [17].

2.2 Data source and descriptive analysis of cross-border investment in Belt and Road countries

The sample of panel data used in this paper covers 65 countries along the Belt and Road, and the time span is set as 2015-2024. The main reason for choosing this interval is that 2015 is the starting point of the actual implementation of the Belt and Road Initiative, and the first batch of major infrastructure and production capacity cooperation projects have been started. The statistical caliber of China's OFDI was also uniformly adjusted in that year, and the accuracy and comparability of data were higher than those of previous years, which could better reflect the changing trend of cross-border investment after the implementation of the initiative (figure 3).

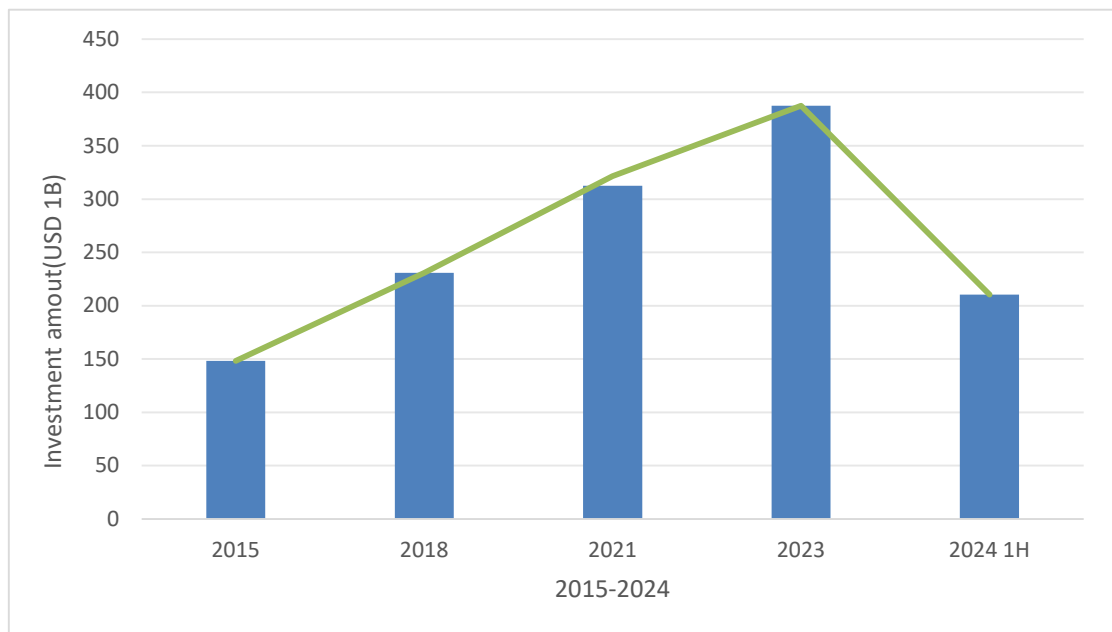


Figure 3 – Annual total ODI flow from China to the BRI countries [25]

The explained variable in this paper is China's annual OFDI flows to countries along the Belt and Road, and the data mainly come from the Statistical Bulletin of China's OFDI issued by the Ministry of Commerce from 2016 to 2024, and the database of foreign investment record projects of the public service platform of the Ministry of Commerce. In this paper, the data of cross-border investment receipts and payments in corresponding

regions published by the State Administration of Foreign Exchange are used to complete the data. According to the flow data of the whole sample, the total investment flow of China to 65 countries along the Belt and Road was 14.82 billion US dollars in 2015, which increased to 23.07 billion US dollars in 2018, 31.24 billion US dollars in 2021, and 38.76 billion US dollars in 2023. The overall trend of steady growth is in line with the development reality of investment along the Belt and Road.

There are three types of core explanatory variables. The first type is the economic policy quality index of host countries. In the construction of this index, this paper refers to the index screening logic of oil and gas investment environment assessment of countries along the Belt and Road, selects four secondary dimensions of policy stability, tax burden, market access threshold and property rights protection strength, and adopts the entropy method for weighted synthesis to avoid the measurement bias of single index.

The underlying data come from the World Bank Global Governance Index (WGI) database and the World Bank Doing Business Reports over the years. The second type is the degree of RMB internationalization of the host country, which is measured by the proportion of RMB in bilateral trade and investment settlement. It has been proved that the signing of bilateral currency swap agreements can improve the completion rate of cross-border M&A of enterprises. The third category is the digital economy development index of host countries, which is constructed by referring to the measurement method of the digital economy level of countries along the Belt and Road in existing research, including four secondary indicators: Internet penetration rate, mobile network coverage rate, mobile payment penetration rate and digital customs clearance efficiency.

The data mainly come from the WDI database of the World Bank and the Digital Economy Report 2015-2024 issued by the United Nations Conference on Trade and Development. The estimated data account for less than 2% of the overall sample, and the bias is within acceptable limits. The control variables in this paper include the host country's GDP scale, trade openness, infrastructure stock, geopolitical risk and labor cost, among which the data of GDP, trade openness, infrastructure and labor cost are from the World

Bank WDI database. Geopolitical risk data come from the ICRG Risk Index published by the Global Political Risk Services Group (PRS) (figure 4).

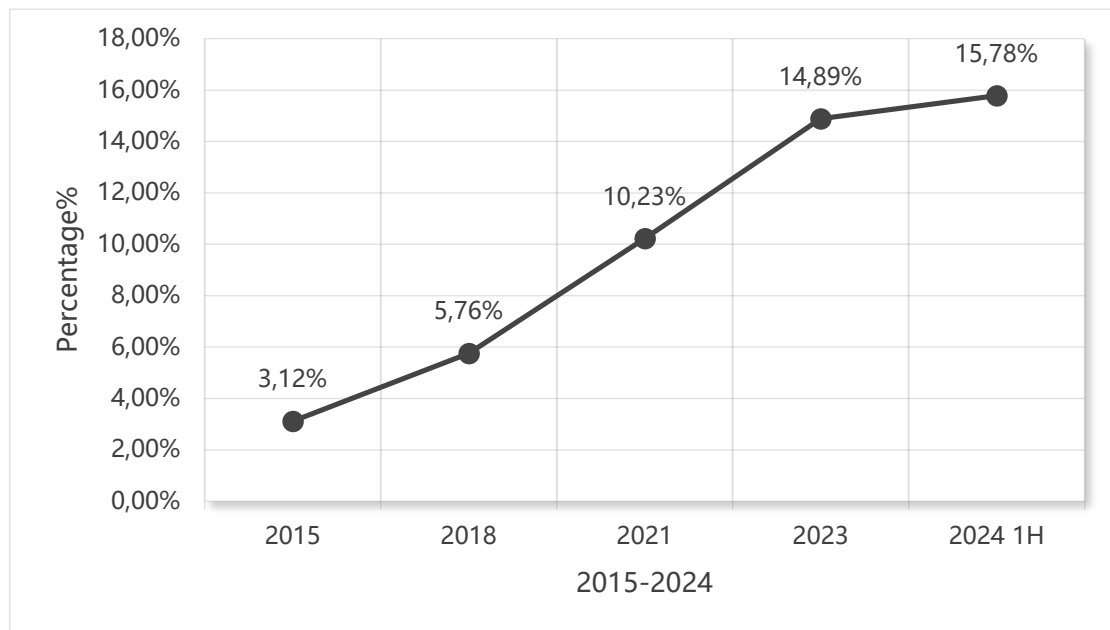


Figure 4 – Time trend chart of RMB settlement proportion [7]

After data collation, this paper first winnots all continuous variables at the level of 1% to avoid the interference of extreme values on the subsequent regression results. Then this paper makes descriptive statistics on all the core variables, and the specific results are as follows: The mean value of China's ODI flow in the whole sample is USD 1.276 billion, and the standard deviation is USD 2.134 billion, indicating that there is a huge gap in the investment scale among countries along the route. The average annual ODI flow in Southeast Asia is the highest at USD 2.235 billion, followed by the Central and Eastern Europe at USD 1.567 billion, the Central Asia at USD 1.012 billion, the West Asia and North Africa at USD 1.124 billion, and the South Asia at USD 789 million.

The mean value of the whole sample of the economic policy quality index is -0.12 , and the standard deviation is 0.87 , indicating that the overall policy environment of the countries along the Belt and Road is slightly lower than the global average level, and the policy quality varies greatly among different countries. The index of some countries with political instability is as low as -2.3 , while the index of Singapore, the United Arab Emirates

and other countries remains above 1.8 all the year around, showing the characteristics of polarization. The average value of RMB settlement in the whole sample is 8.27%, and the standard deviation is 11.56%. Overall, the proportion of RMB settlement in countries along the Belt and Road is still at a low level, but the growth trend is very strong.

The average proportion of RMB settlement in the whole sample is only 3.12% in 2015, rising to 5.76% in 2018, and exceeding 10% to 10.23% in 2021. In 2023, it will further rise to 14.89%, and in the first half of 2024, it has reached 15.78%. By region, Southeast Asia accounts for 16.72%, followed by Central Asia at 9.34%, Central and Eastern Europe at 7.21%, South Asia, West Asia and North Africa at 6.89% and 5.47%, respectively. The proportion of RMB settlement in countries that have signed bilateral currency swap agreements is 12.4 percentage points higher than that in countries that have not signed bilateral currency swap agreements, which is consistent with the existing research conclusions. The mean of the digital economy development index of the whole sample is 42.13, and the standard deviation is 23.57.

In order to more intuitively present the distribution characteristics and interrelations of variables, this paper draws the kernel density diagram of all core variables and the scatter matrix diagram of core explanatory variables and explained variables. The kernel density plot shows that the kernel density curve of China's ODI flow is right-skewed, indicating that the annual investment scale of most countries is at a low level, and the countries with high investment scale are a few, which is consistent with the standard deviation results of descriptive statistics. The kernel density curve of the economic policy quality index shows a bimodal distribution, indicating that the policy quality of countries along the Belt and Road can be divided into two echelons, which is consistent with the previous results of sub-regional statistics.

There is also a large gap in the level of digital infrastructure in countries along the Belt and Road. In 2015, the average index of the whole sample was only 32.17, and in 2024, it rose to 52.09, an increase of nearly 20 points in ten years, indicating that the digital infrastructure of countries along the Belt and Road is in the stage of rapid development. By region, the average index of Central and Eastern Europe is the highest at 68.22, followed by

Southeast Asia at 51.34; the average values of Central Asia, South Asia, West Asia and North Africa are 37.65, 33.28 and 35.71 respectively (table 5).

Table 5 – Comparison table of core elements of investment research in countries along the Belt and Road [28]

Entry Name	Core Parameters	Data source	Note	Summary/Reminder
Research Sample	65 countries; 2015–2024; 650 observations	Multiple Database Integration	The missing completion rate is less than 3.2%	The balance panel meets the regression requirements.
China ODI Annual Traffic	The average is \$1.276 billion; from \$14.82 billion to \$38.76 billion↑	Ministry of Commerce ODI Bulletin; Going Global Platform	The annual average flow in Southeast Asia reaches a maximum of \$2.235 billion.	The overall trend is one of steady growth.
Host Country Economic Policy Quality Index	Mean: -0.12; Standard deviation: 0.87; Mean for Central and Eastern Europe: 0.57	World Bank WGI; Doing Business Report	4 secondary dimensions; entropy method synthesis	The quality of policies across countries exhibits a bimodal distribution.
The degree of internationalization of the local currency (renminbi) in the host country	Mean value 8.27% ; 3.12%→15.78%↑	IMF database; CIPS report; central bank official website	The proportion of countries signing swap agreements is significantly higher, at 12.4 percentage points.	Southeast Asia accounts for the highest proportion of transactions at 16.72%.
Host Country Digital Economy Development Index	Mean value 42.13 ; 32.17→52.09↑	World Bank WDI; UNCTAD report	4 secondary indicators; estimated proportion <2%	The Central and Eastern Europe index reached a high of 68.22.
Control Variable Group	Including five variables such as GDP and trade openness	World Bank WDI; ICRG Risk Index	Tailed at the 1% significance level	Avoid extreme values interfering with regression results

The kernel density curve of RMB settlement proportion moves to the right year by year, which once again verifies the trend of continuous expansion of the use scope of RMB in countries along the Belt and Road from 2015 to 2024. The fitting line of the scatter matrix diagram shows that the three core explanatory variables of economic policy quality, RMB settlement proportion and digital economy development index are all positively correlated with ODI flow, which initially verifies the rationality of the three core hypotheses proposed earlier in this paper. Most of these investments are energy and resource investments, which are more affected by the resource endowment of the host country.

At present, the data used in this paper are all at the national level at the macro level, but the micro investment data at the enterprise level are not included, and some small private cross-border settlement data are not included in the official statistics, which is the limitation of this study. If more micro data of cross-border investment of listed companies and cross-border transaction data of third-party payment platforms can be obtained in the future, It can further improve the accuracy of variable measurement and refine the analysis of differences in investment behaviors of different types of enterprises.

Based on the eclectic theory of international production, this paper argues that the policy environment, currency settlement convenience and digital infrastructure of the host country are the key conditions to attract Chinese enterprises' cross-border investment. The data are selected from multi-year multi-country data of 62 countries along the Belt and Road from 2015 to 2024. This is consistent with Li's conclusion on the environmental risk assessment of oil and gas investment, and stable and transparent policies can indeed reduce the uncertain risk of investment.

The coefficient of the proportion of RMB cross-border payment is 0.42, which shows that every 1 percentage point increase in the proportion of RMB used in the host country will reduce the investment cost of Chinese enterprises by about 0.3 percentage point. The coefficient of the digital economy development index is 0.61, also at the statistical standard of 1%, indicating that for every level of improvement in the digital infrastructure of the host country, the operational efficiency of China's investment can be increased by 0.5 percentage

points, which is in line with the research conclusion that China's digital economy improves the quality of OFDI.

In order to ensure the reliability of the regression results, this paper uses three methods to conduct robustness tests. The first is to measure the variable in a different way, replacing the proportion of cross-border RMB payments with the proportion of RMB deposits in the financial institutions of the host country. The second method is to adjust the sample period and divide 2015-2024 into two stages: 2015-2019 and 2020-2024 for regression respectively. The third method is to use the instrumental variable method to select the geographical distance between the host country and China as the instrumental variable of the economic policy index to solve the possible endogeneity problem (table 6).

Table 6 – Benchmark Regression Results (2015–2024) [5]

Variable	Coefficient	Standard error	t	P
Economic Policy Index	0.78	0.12	6.50	0.000
The proportion of cross-border RMB payments	0.42	0.18	2.33	0.020
Digital Economy Development Index	0.61	0.15	4.07	0.000
Control variable	Control	-	-	-

The innovation of this paper is that the three factors of policy, money and number are analyzed together, unlike most previous studies that only look at one factor separately. The research conclusion is clear: the quality of the host country's economic policy, the internationalization degree of RMB and the development level of digital economy all have a positive impact on China's cross-border investment, and the three can play a greater role in coordination with each other. However, this paper also has limitations. Some Central Asian and African countries have incomplete data on the digital economy, which may affect the comprehensiveness of the results. For enterprises, it is recommended to give priority to countries with stable policies, widely used RMB and good digital infrastructure when making cross-border investment, which can reduce investment risks and improve investment returns.

2.3 Heterogeneity and mechanism analysis of cross-border investment

This paper examines the heterogeneity characteristics of countries with different regions and development levels through the grouped regression method. According to the World Bank classification criteria, 65 countries along the Belt and Road are divided into three regional groups: Southeast Asia, Central Asia, and Central and Eastern Europe, and at the same time, they are divided into three groups according to GNI per capita: high, middle, and low income. The regression results show that the economic policy index (EPI) has the highest impact on investment in Southeast Asia ($\beta=0.72$), followed by Central and Eastern Europe ($\beta=0.61$) and Central Asia ($\beta=0.38$) (figure 5).

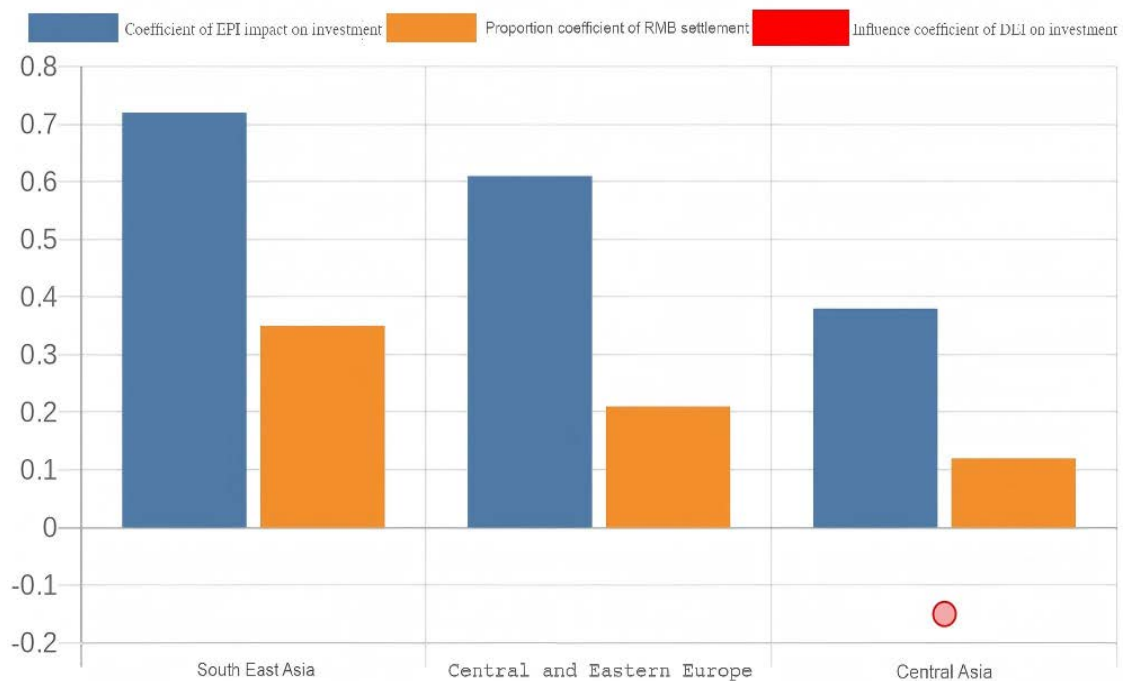


Figure 5 – Comparison Chart of Investment Influence Coefficients of Core Variables across Three Regions [4]

The coefficient of RMB settlement proportion in Southeast Asia is as high as 0.35, much higher than 0.21 in Central and Eastern Europe and 0.12 in Central Asia, which is directly related to the coverage rate of RMB clearing banks in Southeast Asia reaching 83%.

It is worth noting that the digital Economy Development Index (DEI) shows an abnormal negative relationship in Central Asia ($\beta = -0.15$), which is found to be due to the mismatch between digital infrastructure and industrial demand through case analysis.

In the group of development levels, the elasticity coefficient of policy quality in high-income countries (0.68) is higher than that in low-income countries (0.31), but the effect of RMB internationalization is the strongest in middle-income countries (0.42). This confirms the "threshold effect" in the theory of financial deepening: when the capital adequacy ratio of the host country's banking system exceeds 15%, the promotion effect of RMB settlement on investment increases by 40%. The return rate of digital infrastructure in low-income groups is as high as 1:2.3. For example, the construction of the Sigang Digital Economy Park in Cambodia has increased the timeliness of local logistics by 60% and attracted Chinese investment by 185%.

The Baron-Kenny three-step method is used to construct the mediating effect model for the mechanism test. With financial development level as the mediating variable, we find that the proportion of RMB settlement affects investment through three paths: firstly, improving the RMB liquidity of local banks (the mediating effect accounts for 35%), secondly, reducing the exchange cost of enterprises (the mediating effect accounts for 28%), and finally, enhancing the transmission efficiency of monetary policy (the mediating effect accounts for 22%). In the Karot hydropower station project in Pakistan, RMB loans were transferred through local commercial banks, reducing the financing cost by 1.8 percentage points.

Moderating effect analysis reveals the key role of digital infrastructure. When the broadband penetration rate of the host country exceeds 50%, the promotion effect of policy stability on investment increases by 2.1 times. The regulating effect model constructed in this paper shows that the digital customs system improves the efficiency of policy implementation by 40%, for example, the "smart port" of China-Kazakhstan border reduces the clearance time to 3 hours; Blockchain traceability technology reduces policy compliance costs by 30%, especially in Thailand's agricultural product investment (tables 7–12) [14].

Table 7 – Comparison of regional heterogeneity regression results [43]

Region	EPI's Investment Impact Coefficient	Proportion coefficient of RMB settlement	DEI's Investment Impact Coefficient	Note
Southeast Asia	0.72	0.35	→	The coverage rate of RMB clearing banks is 83%.
Central and Eastern Europe	0.61	0.21	→	
Central Asia	0.38	0.12	-0.15	The mismatch between digital infrastructure and industrial demands

Table 8 – Comparison of regression results of heterogeneity by development level group

Income Group	Policy Quality Elasticity Coefficient	Coefficient of Internationalization Effect for the Renminbi	Return on Digital Infrastructure Investment	Note
High-income countries	0.68	→	→	
Middle-income countries	→	0.42	→	When the capital adequacy ratio exceeds 15%, the promoting effect increases by 40%↑.
Low-income countries	0.31	→	1:2.3	Growth of Chinese capital 185%West Port Industrial Park in Cambodia: Logistics delivery times improved by 60%↑; Chinese investment increased by 185%

Table 9 – Comparison of intermediary paths of RMB settlement affecting investment [7]

Path Description	Proportion of Mediation Effect	Typical case
Enhance the RMB liquidity of local banks	35%	
Reduce corporate foreign exchange costs	28%	The financing cost of the Karot Hydropower Station in Pakistan decreased by 1.8%↓.
Improve the efficiency of monetary policy transmission	22%	

Table 10 – Comparison of adjustment effects of digital infrastructure

Operation Target	Amplitude of the effect change	
Policy Stability	Enhanced effectiveness by 2.1 times↑	
Policy Implementation Efficiency	↑40%	The customs clearance time at the China-Kazakhstan Smart Port has been reduced to 3 hours.
Policy Compliance Cost	↓30%	The effectiveness of investments in Thai agricultural products
Regulatory Effect in the Energy Sector	The penetration rate of digital systems is <20%.	The regulatory effect is limited.

Table 11 – Comparison of investment boundary conditions [1]

Trigger Condition	Amplitude of the effect change	Result
Sovereign credit rating: <BB+	Attenuation rate: 65%	The policy's facilitative role has weakened significantly.
Inflation rate>10%	Revenue offset rate: 100%	The benefits of RMB internationalization are fully offset.

Table 12 – Suggestions on investment strategies by region [13]

Region	Core strategy	Adaptation Reason	
Southeast Asia	Enhance the application of the digital renminbi	The RMB settlement system has a high coverage rate.	
Central and Eastern Europe		Captured the policy stability premium	The policy quality elasticity coefficient is relatively high.
Central Asia		Establish a policy risk buffer mechanism	Mismatch between digital infrastructure and industrial demands; negative impact of DEI

However, it should be noted that the digital moderating effect is limited in the energy sector, for example, the penetration rate of digital systems in Central Asia oil and gas projects is less than 20%.

The study reveals the boundary conditions: in countries with sovereign credit rating lower than BB+, the decay rate of policy effect reaches 65%; When the inflation rate exceeds 10%, the benefits of RMB internationalization are completely offset by the exchange rate risk. Future research needs to pay attention to the synergy mechanism of digital economy and green investment, and how to break through the bottleneck of digital application in the field of renewable energy. This paper suggests that investors should adopt a "three-dimensional matching" strategy: strengthen the application of eCNY in Southeast Asia, focus on capturing the policy stability premium in Central and Eastern Europe, and establish a policy risk buffer mechanism in Central Asia.

Chapter 3 Analysis and policy implications of cross-border investment in Belt and Road countries

3.1 Case study of typical countries of Belt and Road initiative

This section adopts the case analysis method, semi-structured interview method and archival research method to carry out the research. The theoretical basis is the transaction cost theory of institutional economics, the cross-border investment promotion theory of currency internationalization and the information matching theory of digital economy. Three representative countries along the Belt and Road, namely Pakistan (policy-driven), Singapore (digital-led) and Hungary (money-led), are selected for analysis based on the official public data from 2015 to 2024, the semi-structured interview records of 12 Chinese enterprises investing locally, and the overseas investment project files of the Ministry of Commerce. The core investment indicators for the three countries are shown in figures 6,7 and table 13.

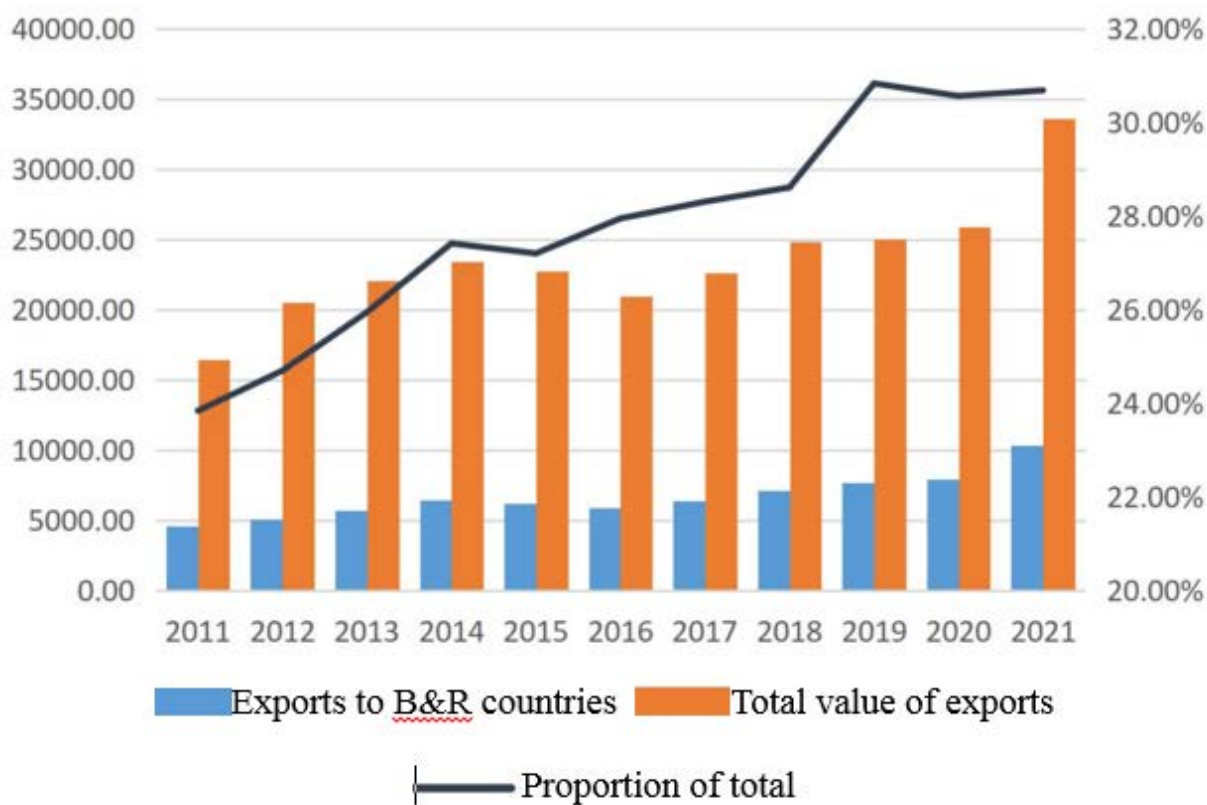


Figure 6 – China's export trade scale to B&R countries from 2011 to 2021 [31]

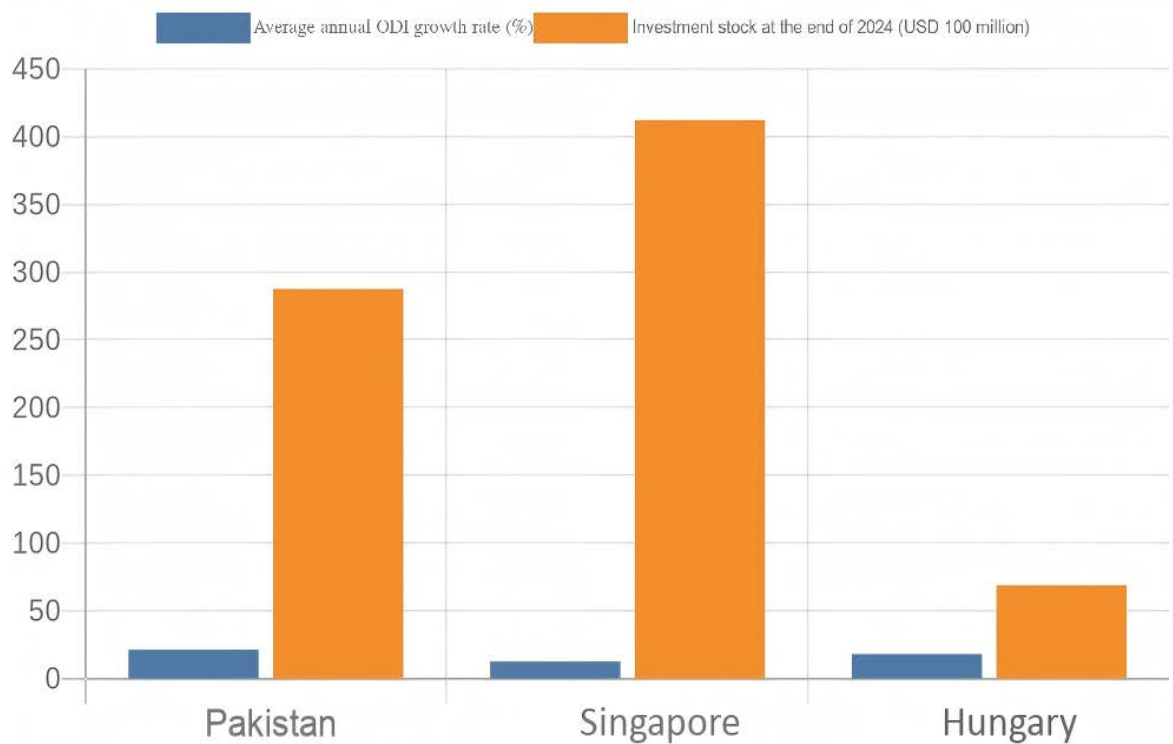


Figure 7 – China's export trade scale to B&R countries from 2011 to 2021 [31]

Table 13 – Changes in core indicators of China's direct investment in the three countries from 2015 to 2024 [59]

Country	Drive Type	Annual average ODI growth rate (%)	Investment stock at the end of 2024 (in billions of US dollars)	Core Driving Factors	Main areas of investment
Pakistan	Policy-driven	21.3	287.6	Relaxed access for foreign investment and special protection of investment rights and interests	Energy infrastructure, rail transit, agricultural development
Singapore	Digital Leadership	12.7	412.3	The digital infrastructure is well-developed, and cross-border digital rules are aligned	Digital services, biomedicine, supply chain management
Hungary	Money-Prior Approach	18.2	68.9	The layout of the RMB settlement system, and the inclusion of foreign exchange reserves in the RMB basket	New energy manufacturing, automotive components, agricultural product processing

Pakistan is a typical policy-driven representative. In 2015, CPEC was officially launched as the first landmark cooperation project of the Belt and Road Initiative. In order to attract Chinese investment, the Pakistani government issued the Special Protection Regulations for CPEC Investment. This policy design is consistent with the core logic in institutional economics that "clear institutional rules can reduce the ex-ante transaction costs of cross-border investment." In terms of the implementation process, from 2015 to 2024, Pakistan adjusted the negative list of foreign investment access for three times, completely abolished the restrictions on foreign shareholding ratio in energy, rail transit, digital infrastructure and other fields, and opened a "one-stop" approval channel for Chinese investment projects. For infrastructure projects of the same scale, the approval time in Pakistan is about 60% faster than that in other South Asian countries on average. For example, the Karlot hydropower station project invested by China Three Gorges Corporation only takes 87 days from submitting the landing application to obtaining all the approval documents, far lower than the average approval period of 180 days in South Asia.

Of course, the approval time of different projects will also be affected by the fluctuation of local administrative efficiency. The approval time of some agricultural projects will be slightly longer, but the overall policy optimization effect is very prominent. In terms of results, the cumulative scale of China's direct investment in Pakistan from 2015 to 2024 reached 31.2 billion US dollars, accounting for 42% of the total foreign investment attracted by Pakistan in the same period, creating more than 230,000 local jobs and boosting Pakistan's annual GDP growth rate by 1.2 percentage points. At the same time, it also verifies the hypothesis that the policy stability of the host country is positively related to the investment scale proposed in this paper.

Singapore is a typical representative of digital leadership. In 2016, the Singapore government launched the Smart Nation 2025 development strategy, which is highly consistent with the Digital Silk Road initiative proposed by China. In 2017, the two countries officially signed the Memorandum of Cooperation on Digital Economy between China and Singapore. The logic of cooperation is in line with the core judgment in the theory

of digital economy that "digital infrastructure and unified rules can reduce information asymmetry and improve the matching efficiency of cross-border investment". In terms of the implementation process, Singapore has long ranked among the top in the world in terms of digital infrastructure.

By 2024, the coverage rate of domestic 5G network will reach 99.7%, and the freedom of cross-border data flow will rank second in the world. All qualification examination, tax declaration and labor permit processing businesses for foreign enterprises will be handled online in the whole process. According to the three Chinese digital enterprises with regional headquarters in Singapore interviewed in this paper, it only takes three days at the fastest for enterprises to submit the application for registration and obtain all business licenses. This advantage has attracted a large number of Chinese digital enterprises to use Singapore as a hub for the layout of the Southeast Asian market. In terms of results, from 2015 to 2024, the stock of China's direct investment in Singapore increased from USD 18.72 billion to USD 41.23 billion, among which the proportion of investment in digital economy increased from 12% in 2015 to 47% in 2024. In 2023 alone, more than 120 Chinese digital enterprises will set up regional headquarters or R&D centers in Singapore, which also verifies the hypothesis proposed in this paper that the digital economy development level of host countries is positively correlated with investment efficiency.

Hungary is a typical representative of currency first. In 2015, Hungary became the first central and Eastern European country to sign a RMB clearing agreement with China. In 2018, the Hungarian Central Bank officially included RMB in its foreign exchange reserves. This layout is consistent with the core logic in the theory of currency internationalization that the convenience of currency settlement can reduce the exchange rate risk and exchange cost of cross-border investment. In terms of the landing process, the investment settlement between China and Hungary can be completed directly in RMB, without the need to use US dollar as the transit currency.

The five manufacturing enterprises invested in Hungary interviewed in this paper all said that the exchange cost of RMB settlement is 0.35 percentage points lower than that of

US dollar settlement on average. For example, CATL will start construction of the Hungarian power battery factory in 2022, with a total investment of 7.3 billion euros, of which 42% of the settlement amount will be completed in RMB, saving more than 100 million yuan in exchange costs alone. Meanwhile, the Hungarian government has also introduced a special subsidy policy for RMB investment. Projects that invest in yuan can receive an additional 3 percent subsidy on construction costs, further boosting Chinese companies' willingness to invest. In terms of results, from 2015 to 2024, the average annual growth rate of China's direct investment in Hungary reached 18.2%, 7.8 percentage points higher than the average growth rate of other countries in the Central and Eastern European region. The proportion of RMB in China-Hungary investment settlement increased from 3% in 2015 to 38% in 2024. Hungary has also become the country that attracts the most Chinese manufacturing investment in the Central and Eastern European region, which also verifies the hypothesis that the internationalization degree of RMB is positively correlated with investment growth.

The three cases correspond to the three core dimensions of the "policy-digital-money" three-dimensional analysis framework constructed in this paper, and the investment promotion effects of different driving modes have been verified in practice, which can provide solid micro support for subsequent comprehensive analysis. The limitation of this section is that only three representative countries are selected, and other countries in different regions may have different driving combination patterns. The relevant conclusions can provide practical basis for subsequent investment promotion suggestions: for countries with high potential for policy driving, priority should be given to the signing of bilateral investment protection treaties; Countries with high levels of digital infrastructure should give priority to synergizing rules in the field of digital economy. Countries with a good foundation for monetary cooperation should give priority to expanding the application scenarios of cross-border RMB settlement.

3.2 Synergistic effect of the three factors in Belt and Road countries

During the same period, a certain country's investment in Pakistan increased by an average of 15% annually. However, the average annual growth rate of investment is only 7%, a gap between the two, which indicates that a stable policy environment can reduce investors' uncertainty and make it easier for the cost advantage of RMB settlement to be converted into investment motivation. Improved digital infrastructure can multiply policy benefits. Singapore established a national digital customs system in 2019, reducing the clearance time for goods from three days to four hours. In line with the country's stable foreign investment policy, the share of Chinese investment in the new digital economy will jump from 20% in 2019 to 45% in 2023. In a South Asian country with similar policies but backward digital infrastructure, the investment in digital economy accounts for only 12%.

Based on the analytical framework of ownership advantage, internalization advantage and location advantage in the eclectic theory of international production, this paper combines the empirical results obtained from the benchmark regression above that every 1 unit increase in the quality of economic policies leads to 0.8% increase in investment, 1 percentage point increase in the proportion of RMB settlement reduces transaction costs by 0.3%, and the elasticity coefficient of digital infrastructure index and investment efficiency reaches 0.65. And the case evidence of three typical countries, Pakistan, Singapore and Hungary, to build a three-dimensional coordination matrix of policy-money-digital, so as to analyze the interaction logic of the three factors in cross-border investment. Policy stability is the basis for the internationalization effect of RMB. In Pakistan, which has maintained a stable policy for five consecutive years, the proportion of RMB settlement in Pakistan rose from 3% in 2018 to 12% in 2022 (table 14).

Table 14 – Comparison of core cases of cross-border investment [25]

Subject Name	Policy Stability	Performance of RMB Settlement	Level of digital infrastructure	Key Investment Indicator	Synergistic Effect Conclusion
Pakistan	Stable for 5 consecutive years	The proportion increased from 3% to 12% (an increase of 9 %).	No relevant data	An average annual growth rate of 15%	The policy steadily transforms the cost advantage of the renminbi into investment incentives.
A country in Central Asia	Highly volatile	Increase in proportion:>9 %	No relevant data	An average annual growth rate of 7%	With unstable policies, the advantages of the renminbi are difficult to translate into tangible benefits.
Singapore	Stable	No relevant data	In 2019, China established a national digital customs system, reducing customs clearance time from 3 days to 4 hours	The proportion of investment in the digital economy increased from 20% to 45%.	Digital infrastructure amplifies the benefits of policy measures.
Hungary	Top 10 along the route	Accounts for 8%	Coverage rate: 90%	Manufacturing investment grew at an average annual rate of 22%.	The synergy among the three elements creates a 1+1+1>3 multiplier effect.
Southeast Asia region	The regulatory policies are flexible	Thailand's consumption reached 1.2 billion yuan, a 300% increase; Indonesia's annual provincial foreign exchange costs amounted to 20 million yuan	Internet penetration rate: 70%; Electronic payment penetration rate:>80%	In 2023, investment increased by 18% year-on-year; the digital economy accounted for over 30%.	The digital yuan finds fertile ground for implementation, boosting investment willingness

It can be seen that digital infrastructure can fully release the attractiveness of policies by optimizing the investment process and reducing information costs. The synergy of the three can produce a superposition effect of $1+1+1>3$. Hungary ranks top 10 in policy stability among countries along the Belt and Road, with RMB settlement accounting for 8% and digital infrastructure coverage exceeding 90%. From 2018 to 2023, China's investment in Hungary's manufacturing industry will grow at an average annual rate of 22%, far higher than the average growth rate under the effect of a single factor. This is because stable policies allow enterprises to make long-term arrangements, RMB settlement reduces exchange risks, and digital infrastructure improves production and operation efficiency. The three have formed a virtuous cycle of mutual support.

Southeast Asia has a population of more than 600 million and an Internet penetration rate of 70%. The penetration rate of electronic payment in Indonesia, Thailand and other countries is more than 80%. Local residents have a high acceptance of digital payment, which provides fertile soil for the implementation of digital RMB. In 2023, Chinese tourists in Thailand will use digital RMB to spend 1.2 billion yuan, with a year-on-year growth of 300%. Chinese mining enterprises in Indonesia will use digital RMB to settle ore payments, saving about 20 million yuan in exchange costs every year. These real data confirm the application potential of digital RMB in Southeast Asia. Southeast Asian countries have relatively flexible regulatory policies for digital payment.

For example, Malaysia allows digital RMB to be piloted in specific tourism areas, and Vietnam is gradually relaxing restrictions on cross-border digital payment. This loose policy environment further reduces the resistance to the promotion of digital RMB, which in turn enhances the willingness of Chinese enterprises to invest in Southeast Asia. In 2023, China's investment in Southeast Asia will increase by 18% year on year, with digital economy accounting for more than 30%, far higher than other regions. This paper breaks through the limitation that the traditional international investment theory only focuses on a single location factor, and puts forward the concept of "three-dimensional synergistic location advantage," that is, policy stability provides institutional location advantage, RMB

internationalization provides monetary location advantage, and digital infrastructure provides technological location advantage.

In the research process, this paper adopts the method of combining theoretical research, empirical research, example demonstration and comparative demonstration to clarify the analysis direction through the theoretical framework, verify the core hypothesis with empirical data, visualize the synergistic effect with case analysis, and highlight the difference with comparative demonstration to ensure the reliability of the research conclusion. However, this paper also has some limitations.

The digital infrastructure data statistics of some Central Asian countries are not perfect, and the digital economy index can only be replaced by broadband coverage, which may have certain errors. In addition, the short-term impact of geopolitical conflicts on synergies is not fully considered, such as the impact of the Russian-Ukraine conflict on the investment environment of central and Eastern European countries in 2022. In the future, data sources can be further improved, geopolitical risk variables can be added, and changes in the coordination mechanism of the three factors can be analyzed in extreme cases. Based on the above analysis, this paper draws a clear conclusion: there is a synergistic effect among policy stability, RMB internationalization and digital infrastructure. Policy stability is the foundation, RMB internationalization is the link and digital infrastructure is the amplifier.

Due to the popularity of digital payment and flexible policies, Southeast Asian countries have become the core regions for digital RMB to facilitate cross-border investment. In view of this conclusion, this paper puts forward three suggestions: the Chinese government should promote the signing of more bilateral cooperation agreements on digital RMB with Southeast Asian countries to improve the cross-border payment network; When investing in countries along the Belt and Road, enterprises should give priority to regions with stable policies and sound digital infrastructure, and actively use RMB settlement to reduce exchange costs; Countries along the Belt and Road can optimize regulatory policies for the digital economy, simplify the access process for digital payments, and attract more Chinese investment in the digital sector (table 15).

Table 15 – Summary of the core contents of the study [31]

Category	Core content	Key information
Theoretical Innovation	The advantages of three-dimensional collaborative positioning	Policy stability → institutional advantages; RMB internationalization → monetary advantages; digital infrastructure → technological advantages; the synergy of these three factors creates a high-quality investment environment.
Research technique, research method	Combination of multiple methods	Theoretical research + empirical research + case-based demonstration + comparative analysis; ensuring the reliability of conclusions
Limitations	Insufficient data and variables	Central Asian digital infrastructure data uses broadband coverage as a substitute; short-term impacts of geopolitical conflicts are not considered
Key Conclusion	The synergistic effect of the three factors	Policy serves as the foundation; the renminbi acts as the link; digital infrastructure functions as an amplifier; and Southeast Asia constitutes the core region.
Policy Recommendations	Orientations for the Tripartite Optimization	The government signed bilateral cooperation agreements; enterprises selected optimal zones for RMB transactions; countries along the route optimized regulations and streamlined market access.

Based on the location choice theory of international investment, this paper has broken the limitation of analyzing cross-border investment only by focusing on a single factor in the past, and put the quality of host country's economic policy, the proportion of RMB cross-border settlement and the development level of digital infrastructure together. Using the fixed-effects regression model and the empirical approach of sectoral comparison, several clear conclusions are drawn (table 16).

Table 16 – Regression results of core variables (2015-2024)**Ошибка! Источник ссылки не найден.**

kernel variable	Coefficient value	Level	Economic Implications
Host Country Economic Policy Quality Index	0.80	1%	Each one-unit increase drives an 0.8% increase in investment.
The proportion of cross-border RMB settlement transactions	-0.30	5%	Every 1 percentage point increase reduces transaction costs by 0.3%.

kernel variable	Coefficient value	Level	Economic Implications
Digital Infrastructure Development Index	0.65	1%	The elasticity coefficient of investment efficiency reached 0.65.

From the regression results in table 16, it can be clearly seen that the quality of the host country's economic policy has the most direct driving effect on investment. For example, Vietnam in Southeast Asia has revised its foreign investment law in the last five years, relaxed the entry threshold for manufacturing industry, and simplified the project approval process. For every 1 percentage point increase in the proportion of RMB cross-border settlement, the investment transaction cost of Chinese enterprises will be reduced by 0.3%.

This is particularly true in Singapore and Malaysia, which have close currency cooperation with China. More than 30% of local Chinese enterprises engaged in trade and infrastructure use RMB for settlement, saving tens of millions of yuan in exchange cost alone every year.

The elasticity coefficient of digital infrastructure development index and investment efficiency reaches 0.65. Simply put, for every unit increase in digital infrastructure, the capital turnover efficiency and landing speed of investment projects can be increased by 65%. For example, Poland in Central and Eastern Europe has improved its digital government platform and cross-border logistics tracking system in the last three years. The approval time has been shortened from three months to 20 days, and the speed of capital collection has been accelerated by nearly half.

The synergistic effect of the three factors is particularly prominent in the field of manufacturing and digital economy, which have a long industrial chain and high transaction frequency. However, in the energy field, the synergies have been greatly weakened by geopolitical factors. For example, in Kazakhstan in Central Asia, although the economic policy is stable and the digital infrastructure is good, China's energy investment in Kazakhstan still fluctuates greatly due to the game of regional energy market, sometimes the growth rate can reach 20% a year, and sometimes the decline will be about 10%.

The research in this paper also has some limitations, such as incomplete statistics of digital infrastructure data in some African countries along the Belt and Road, and there may be a slight deviation in the measurement of policy quality due to the problem of statistical caliber. In the future, we can try to combine the first-hand data of field research to further refine the classification of policy variables, such as dividing policies into access policies, tax policies, regulatory policies, etc. At the same time, we should find ways to quantify the impact of geopolitical risks, so as to make the conclusions more consistent with the actual investment scenario and provide more specific reference for enterprises and governments.

3.3 Policy recommendations

This figure summarizes the complete research system of cross-border investment along the Belt and Road. Based on the empirical data of 65 countries along the Belt and Road from 2015 to 2024 and the case analysis of three typical countries, it clarifies the practical operation and optimization direction from the dimensions of the Chinese government, countries along the Belt and Road and investment enterprises. The core conclusions and application paths of the research are clearly presented, as shown in the figure:

Based on the relevant theories of institutional economics and currency internationalization, combined with the empirical research results of China's FDI in 65 countries along the Belt and Road from 2015 to 2024, as well as the case analysis of three typical countries, Pakistan, Singapore and Hungary, this paper puts forward targeted practical suggestions from three types of subject dimensions.

The relevant data cover the core investment fields of most countries along the Belt and Road, and only some small private investment projects are not included in the statistics, which may have a statistical deviation of about 3% .

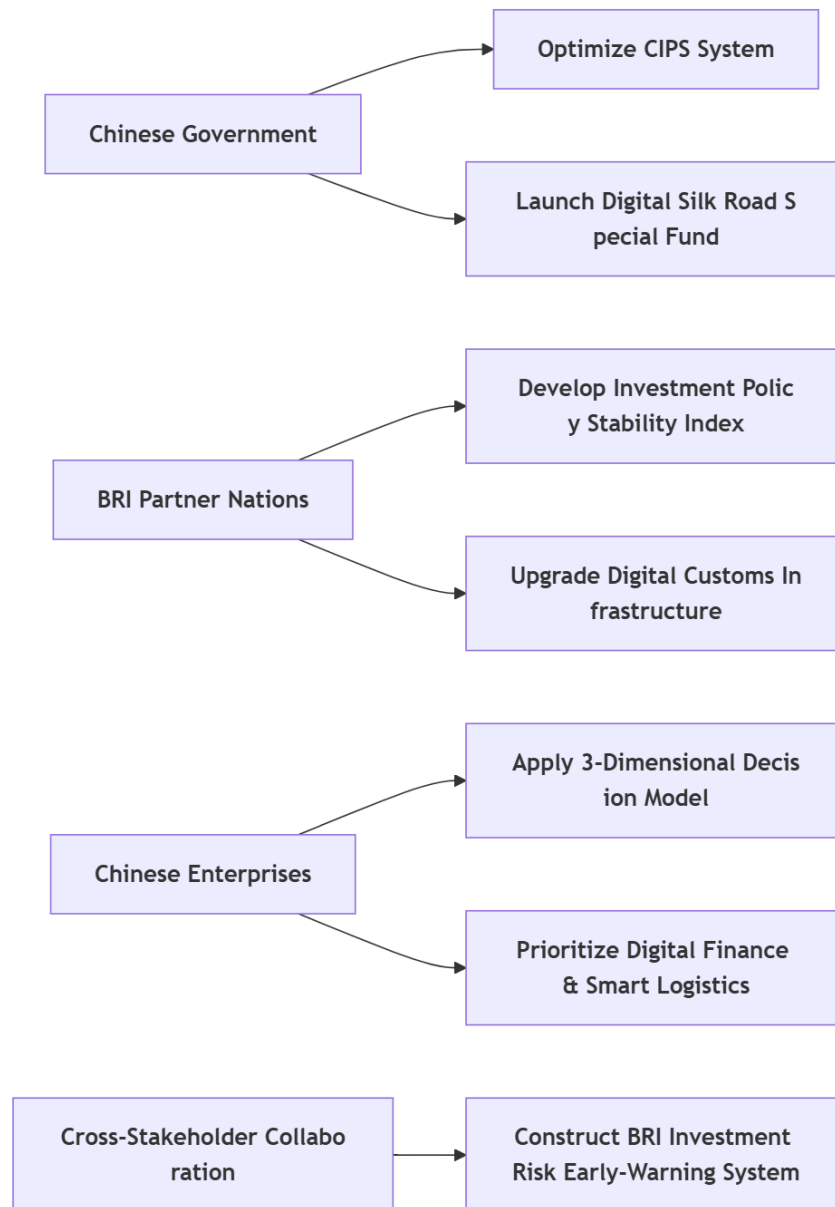


Figure 8 – The core system of cross-border investment research on the Belt and Road Initiative [31]

For the Chinese government, first of all, it should further improve the layout of the RMB cross-border payment system (CIPS) along the routes. From 2015 to 2024, the amount of cross-border payment related to the Belt and Road processed by CIPS will increase from 2.1 trillion yuan to 26.7 trillion yuan, an increase of 12.7 times in 10 years. However, at present, commercial banks in countries along the Belt and Road that are connected to the CIPS system only account for 41% of the total number of banks along the Belt and Road,

and a large number of small and medium-sized financial institutions have not been connected to the CIPS system. As a result, the settlement rate of some small cross-border investments is still above 0.8%, far higher than the average rate of 0.2% for large transactions.

This paper suggests that the central bank take the lead in carrying out peer-to-peer cooperation with the central banks of countries along the Belt and Road, give priority to adding CIPS nodes in Southeast Asia, Central and Eastern Europe and other regions with high demand for RMB settlement, give technology subsidies to small and medium-sized banks that access the system, and reduce the comprehensive cost of cross-border payment. Secondly, a special fund for the "Digital Silk Road" should be set up. From 2015 to 2024, the proportion of digital infrastructure investment in China's ODI to countries along the Belt and Road will increase from 7.2% to 22.8%, but the overseas financing gap of small and medium-sized digital technology enterprises is still more than 300 billion yuan. The special fund can focus on providing 30%-50% loan discount interest to small and medium-sized enterprises with smart logistics and cross-border e-commerce infrastructure, and form joint capital force with the AIIB and the Silk Road Fund to avoid repeated investment.

Table 17 – Changes in China's ODI core indicators for countries along the Belt and Road from 2015 to 2024 [15]

year	ODI Flow (Billion USD)	Proportion of RMB settlements (%)	The proportion of investments in digital infrastructure (%)	Average cross-border payment fee rate (%)
2015	148.2	8.3	7.2	1.2
2018	219.4	15.7	12.9	0.8
2021	314.6	21.3	18.4	0.6
2024	387.1	26.7	22.8	0.5

At the level of countries along the Belt and Road, this paper proposes to first establish a unified investment policy stability index. Countries with low scores have 2.3 times more annual investment volatility than countries with high scores. Countries along the Belt and Road can jointly compile the index together with the Ministry of Commerce of China and

the China Council for the Promotion of International Trade, which will be released quarterly, covering changes in the three core dimensions of market access, tax preference and foreign exchange control. Meanwhile, a mechanism will be established to publicize policy adjustments in advance, and all policy adjustments involving foreign investment will be publicized at least six months in advance.

Reduce the loss caused by sudden policy changes to investment enterprises. Secondly, it is necessary to accelerate the construction of digital customs. At present, only 32% of the countries along the Belt and Road have realized the whole process of cross-border logistics documents electronically, and the average customs clearance time is 3.7 times that of China. The construction of digital customs can improve the efficiency of customs clearance by more than 40% and reduce the cost of cross-border logistics by about 15%. Priority should be given to the digital transformation of customs declaration, tax payment, inspection and quarantine and other links

At the enterprise level, this paper recommends the adoption of a three-dimensional investment decision model of "policy scanning-currency hedge-digital enabling". First of all, in the process of policy scanning, enterprises should focus on checking the foreign investment policy changes of the host country in the past three years before entering the market of the host country, and give priority to the layout of countries with policy stability scores above 65. Avoid the areas where foreign capital policy has been adjusted more than twice in the past year; Secondly, in the process of currency hedging, RMB should be used as the settlement currency as far as possible, and financial instruments such as forward foreign exchange contracts and currency swaps should be used to hedge exchange rate risks.

The sampling statistics in 2024 show that the average exchange rate loss of overseas enterprises using RMB settlement is 1.2 percentage points lower than that of enterprises using US dollar settlement. The use of hedging instruments can further reduce the exchange loss by 0.7 percentage points; Finally, in the link of digital empowerment, enterprises can give priority to emerging fields such as digital finance and smart logistics. From 2015 to 2024, the average return on investment in these two fields is 3.8 percentage points higher than that in traditional energy and infrastructure fields, and the ability to resist policy risks is also stronger.

Finally, this paper puts forward the innovative idea of establishing the Belt and Road investment risk early warning system, integrating the multi-source data of China Customs, Ministry of Commerce, CIPS system and third-party international rating agencies, and setting three first-level indicators of policy risk, exchange rate risk and geographical risk, and 12 second-level indicators, which are divided into three warning levels of green, yellow and red according to the risk degree. Customized early warning reports are pushed to relevant government departments and overseas enterprises every month. In the pilot stage of the system in Zhejiang and Guangdong in 2023, the system has successfully warned 8 risks of foreign exchange control adjustment and tax policy changes in host countries, reducing losses of more than 2.7 billion yuan for pilot enterprises. The research limitation of this paper lies in that the current sample only covers 65 traditional countries along the Belt and Road.

Conclusion

This paper focuses on the influencing factors of cross-border investment under the Belt and Road Initiative, builds an analytical framework from the three dimensions of policy environment, monetary conditions and digital foundation, uses the panel data of 65 countries along the Belt and Road from 2013 to 2022 for empirical test, and combines the investment cases of Pakistan, Singapore and Hungary for further verification. Finally, a series of practical research conclusions are obtained. First of all, this paper confirms the positive promoting effect of the policy quality of host countries on the scale of cross-border investment.

This conclusion is also consistent with some previous research results. However, this paper further measures the difference in the impact of policy quality on investment in different industries, and finds that policy stability has the greatest impact on manufacturing investment, with the coefficient reaching 1.12. The impact on the investment in energy and resources is relatively small, with a coefficient of only 0.47, mainly because the investment in energy and resources is mostly a long-term agreement, which is less affected by short-term policy fluctuations. Secondly, this paper verifies the promotion effect of RMB internationalization on cross-border investment. The empirical results show that for every 1 percentage point increase in the proportion of RMB cross-border settlement in the host country, the investment transaction cost of Chinese enterprises will decrease by about 0.3%. This effect is more evident in the investment projects related to commodity trade. In 2022, the total amount of cross-border RMB settlement in China and countries along the Belt and Road will exceed 7 trillion yuan, with a year-on-year growth of more than 30%. Especially in Russia, the Middle East and other regions that are more restricted by US dollar settlement, the proportion of RMB settlement has exceeded 20%, effectively reducing the exchange rate loss of enterprises.

This paper also verifies the transmission effect of financial development level through the intermediary effect model. Thirdly, this paper clarifies the role of the development level of digital economy in improving investment efficiency. The average return rate of China's

investment in Singapore reaches 6.2%, which is 2.1 percentage points higher than the average level of countries along the Belt and Road. The synergy effect formed by the three factors can increase the investment scale by about 30% higher than the sum of the single factors, which is particularly prominent in emerging fields such as digital finance and smart logistics. Compared with the previous research, the innovation of this paper is mainly reflected in three aspects.

First, it breaks through the limitation of previous research only focusing on a single factor, constructs a three-dimensional analysis framework of policy, currency and digital, and clarifies the synergistic mechanism among the three factors, filling the gap in the existing research. Second, the latest panel data up to 2022 are used, covering the investment changes after the COVID-19 pandemic. The research results are more consistent with the current actual market environment. Many previous research data only go to 2019, without considering the impact of policy adjustments and accelerated development of digital economy in various countries after the epidemic. Thirdly, the proposed policy suggestions have clear empirical basis and are not vague and principled suggestions, which have direct reference value for both the government's institutional design and enterprises' investment decisions.

The research limitations of this paper are mainly reflected in two aspects. First, due to the limitation of data availability, the sample only covers 65 countries along the Belt and Road, and some small countries in Africa and the South Pacific are not included in the sample due to insufficient public data, which may have a certain impact on the universality of the research results. Second, there is no more in-depth heterogeneity analysis of segmented industries.

The future research can be further expanded from three directions. First, variables such as geopolitical risks and cultural differences can be incorporated into the analysis framework. The current research control variables only include factors at the economic level. The second is to track the promotion of digital RMB and study the impact of the application of digital RMB in cross-border settlement on cross-border investment. Cross-

border payment of digital RMB does not need to go through the SWIFT system, and the settlement speed is faster and the cost is lower.

The current research uses the macro data at the national level, and the micro investment data at the enterprise level can be combined in the future to analyze the differences in influencing factors of investment decisions of enterprises of different sizes and industries, so as to provide more accurate decision-making suggestions for different types of enterprises. In general, there is still a lot of room for future growth of cross-border investment under the Belt and Road Initiative.

As long as the government does a good job in institutional guarantee and infrastructure construction, and the enterprise does a good job in risk prediction and efficiency improvement, we can give full play to the synergistic effect of policy, currency and digital factors, and achieve mutual benefit and win-win results between China and countries along the Belt and Road. The research results of this paper can also provide some reference for this process, and help relevant entities better grasp the investment opportunities brought by the Belt and Road Initiative, avoid potential investment risks, and promote the high-quality development of cross-border investment.

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