Innovative Modes and Risk Prevention of Cross-border Financing under the Background of International Banking Business Development

Ni Zhang

VTB Shanghai Branch, Shanghai, China

Abstract: Against the backdrop of international banking business development, this paper systematically analyzes the innovation modes and risk prevention and control mechanisms of cross-border financing. By sorting out practical paths such as fintech-driven supply chain finance, syndicated loan upgrades, blockchain tool innovations, and cross-border REITs/ABS securitization, and combining with the identification framework of exchange rate and interest rate risks, sovereign policy risks, credit risks, and compliance regulatory risks, it proposes a tripartite collaborative prevention and control strategy involving banks, enterprises, and regulatory authorities. The study emphasizes that innovation should be balanced with risk prevention and control, and sustainable development of cross-border financing should be achieved through technology empowerment, structural optimization, and institutional improvement, so as to provide theoretical support and empirical reference for the practice of international banking.

***Keywords*:** cross-border financing; fintech; blockchain; risk prevention and control; syndicated loan; asset-backed securitization

1. Introduction

Under the tide of globalization, cross-border financing has become a key financial tool for enterprises' international layout. According to statistics from the Bank for International Settlements (BIS), the global balance of cross-border loans exceeded USD 30 trillion in 2025, with a year-on-year growth of 8%, of which the Asia-Pacific region accounted for 35%, becoming the main engine of growth. However, traditional cross-border financing modes are confronted with pain points such as inefficient credit evaluation, severe exchange rate fluctuations, and fragmented supervision, which urgently require breakthroughs through innovative modes. Based on the practice of international banking business and combined with the latest fintech progress and regulatory dynamics, this paper constructs an analytical framework of "innovation mode - risk identification - prevention and control strategy", aiming to provide a systematic solution for the high-quality development of cross-border financing.

2. Analysis of the Correlation Between International Banking Business Development and Cross-Border Financing

2.1 Current Status of International Banking Business Development

In 2024, the global cross-border banking sector presented three core trends: the proportion of traditional credit has shrunk while innovative businesses have become the main driver of growth. Among the global cross-border bank loan balance, the proportion of traditional working capital loans dropped from 62% in 2021 to 48%, while the proportion of "financing + service" businesses such as cross-border M&A financing and green bond underwriting rose to 37%. This reflects the transformation of banks from "fund providers" to "comprehensive service providers"[1].

Table 1. Core Data on the Breakthrough of International Banking Business Beyond the Single Framework of "Traditional Deposit, Loan and Remittance" in Recent Years

Business Type	2021 Scale	2024 Scale	2021-2024 Annual Average Growth Rate	Data Source
Global Cross-Border Bank Loan Balance	USD 34.2 trillion	USD 39.6 trillion	5.1%	Bank for International Settlements (BIS, 2024Q4)
Cross-Border M&A Financing Scale	USD 580 billion	USD 720 billion	7.4%	McKinsey's 2024 Cross-Border Finance Report
Cross-Border Green Bond Underwriting Scale	USD 120 billion	USD 290 billion	33.2%	Climate Bonds Initiative (CBI)

Business Type	2021 Scale	2024 Scale	2021-2024 Annual Average Growth Rate	Data Source
Blockchain Cross-Border Settlement Penetration Rate	38%	72%	-	HSBC's Global Digital Finance Survey
Cross-Border Supply Chain Finance ABS Issuance Volume	USD 85 billion	USD 190 billion	31.7%	World Bank Cross-Border Finance Database

Technology has exerted a significant restructuring effect on business processes. The penetration of blockchain technology has reduced the average time for cross-border settlement from 3.2 days in 2021 to 0.8 days. Leading international banks such as JPMorgan Chase handle cross-border financing businesses through blockchain platforms, reducing the error rate in document verification from 1.8% to 0.2% and directly cutting operating costs by 15%. Meanwhile, green finance has become a new track for cross-border business: the scale of cross-border green bond underwriting in 2024 increased by 141% compared with 2021, and 60% of the underwriting share was dominated by banks with "green certification + cross-border network" such as HSBC and Industrial and Commercial Bank of China (ICBC), which demonstrates the rigid restructuring effect of global "dual carbon" (carbon peaking and carbon neutrality) goals on the structure of banks' cross-border business[2].

2.2 Evolution of Core Demands for Cross-Border Financing: From "Funding Gap Filling" to "End-to-End Value Matching"

From the perspective of entities: Large multinational enterprises focus on "risk hedging + intensive fund management". According to the World Bank's 2024 survey, 82% of the world's top 500 enterprises listed "exchange rate/interest rate risk locking" as their top demand. A certain automotive group reduced its annual exchange rate fluctuation losses from 3.2% to 0.8% through this measure. In addition, 76% of multinational enterprises also need integrated services of "multi-currency pooling + cross-border tax planning", which has driven the proportion of banks' cross-border investment banking income to rise from 18% in 2021 to 29% in 2024. For small and medium-sized enterprises (SMEs), the core demands are "lowering thresholds + simplifying processes". Facing a high loan rejection rate of 28% (significantly higher than the 7% of large enterprises), banks with big data capabilities optimize approval processes by connecting to transaction data from cross-border e-commerce platforms. A certain city commercial bank recorded a non-performing rate of only 1.3% for such cross-border factoring loans, and shortened the approval time from 72 hours to 4 hours.

"long-term duration + risk sharing" is required. The average financing term of ongoing projects in 2024 reached 18 years. A Chinese-funded bank, in collaboration with the Asian Infrastructure Investment Bank (AIIB), launched a 20-year financing of USD 1.2 billion through a risk-sharing mechanism, driving the annual average growth rate of the scale of cross-border syndicated loans to 12.3%. "high-frequency small-amount + real-time fund arrival" is emphasized. DBS Bank's "Order Instant Financing" product enables loan disbursement within 10 minutes, serving over 5,000 customers in 2024 with a non-performing rate of 0.9%. "earmarked funds + green certification" are stressed, and 91% of enterprises have this requirement. A new energy enterprise achieved 2.3 times oversubscription for its EUR 300 million green bond issued through a state-owned major bank due to compliance disclosure, with a coupon rate 0.5 percentage points lower than that of ordinary bonds[3].

From the perspective of efficiency demands: Enterprises pursue greater efficiency. SWIFT data shows that the average processing time for traditional cross-border letters of credit was 5.6 days in 2021, while enterprises expected it to be reduced to within 1 day in 2024, forcing banks to accelerate digitalization. A leading bank shortened the processing time of digital letters of credit to 4 hours through smart contracts, and the business volume of such digital letters of credit accounted for 52% in 2024, an increase of 34 percentage points compared with 2021.

2.3 Correlation Logic Between the Two: Two-Way Empowerment of Carrier and Engine

The relationship between international banking business and cross-border financing is not a simple "supply-demand" one, but a closed loop of "carrier support - engine drive", and this correlation can be verified by quantitative data:

Carrier support: International banking business provides basic guarantees for cross-border financing. A 2024 study by BIS shows that banks with overseas branches covering more than 100 countries have an average cross-border financing interest rate 0.8-1.2 percentage points lower than that of banks covering fewer than 50 countries, as local branches can reduce information asymmetry. Moreover, banks with "credit + investment banking + insurance" licenses can design customized solutions. For example, a bank reduced financing costs by 15% through a diversified service portfolio in a cross-border M&A project, which is irreplaceable by single credit-focused banks.

Engine drive: Innovation in cross-border financing has become a growth engine for international banking business.

In 2024, the average proportion of cross-border financing-related income among global international banks reached 31%, an increase of 9 percentage points compared with 2021. Among them, the income from innovative businesses such as blockchain-based cross-border factoring grew at a rate of 45%, significantly higher than the 5.1% growth rate of traditional credit. At the same time, the demands for real-time approval and data compliance in financing have driven banks' technology investment: the investment of global international banks in blockchain and big data in 2024 increased by 82% compared with 2021, and the correlation coefficient between investment scale and business volume reached 0.73. A bank's insufficient investment in blockchain led to a 4.2 percentage point decline in its cross-border factoring market share, which further confirms this "reverse driving effect".

3. Identification of Core Risks of Cross-Border Financing in the Context of International Banking Business

3.1 Exchange Rate and Interest Rate Risks

Exchange rate fluctuation is one of the core risks of cross-border financing. According to data from the International Monetary Fund (IMF), the average volatility of emerging market currencies reached 12% in 2025, much higher than 5% of developed economies. For example, after a Latin American enterprise issued USD-denominated bonds, the depreciation of its local currency by 20% increased the actual debt-servicing cost by 35%, leading to cash flow tensions. Interest rate risk is reflected in the sensitivity of floating-rate loans to changes in LIBOR/SOFR. A multinational enterprise used interest rate swaps to hedge floating-rate risks, locking the 5-year loan cost at 4.5%, 1.2 percentage points lower than the market average. Technically, banks can conduct dynamic hedging through tools such as duration matching, currency swaps, and option portfolios, while establishing stress testing models to evaluate debt-servicing capacity under extreme interest rate scenarios[4].

3.2 National Sovereign and Policy Risks

Downgrades of sovereign credit ratings and tightened foreign exchange controls are major sources of risks. In 2025, an African country restricted cross-border payments for enterprises due to depleted foreign exchange reserves, leading to a surge in the non-performing loan rate of a multinational bank to 15%. Policy risks are reflected in the impact of changes in tax and environmental protection regulations on project returns. For example, a Southeast Asian country increased the corporate income tax rate for foreign-funded enterprises, reducing the internal rate of return (IRR) of a cross-border infrastructure project by 2 percentage points. Banks can quantify national risks through sovereign risk assessment models (such as the CAMELS rating system) and diversify risks through Political Risk Insurance (PRI) and multilateral institution guarantees (such as the Multilateral Investment Guarantee Agency, MIGA).

3.3 Credit Risks

Difficulties in evaluating the credit of counterparty are a pain point in cross-border financing. Due to the collapse of the related-party guarantee chain of a Middle Eastern enterprise, an international bank was unable to recover a USD 120 million loan. Although blockchain technology can improve credit transparency, issues such as data privacy and cross-chain compatibility remain to be resolved. Banks can reduce risks through "credit enhancement tools", such as requiring core enterprises to provide joint and several liability guarantees or introducing third-party credit insurance institutions. In addition, establishing dynamic credit scoring models that combine corporate financial data, industry cycles, and macroeconomic indicators for real-time risk assessment can effectively improve the efficiency of credit risk management.

3.4 Compliance and Regulatory Risks

Differences in regulations across countries lead to high compliance costs. Restrictions on cross-border data flow under the EU's GDPR forced a U.S. bank to adjust its cross-border payment system, increasing compliance costs by approximately USD 20 million. Adjustments to China's "macro-prudential adjustment parameters for cross-border financing" directly affect enterprises' foreign debt quotas. Banks need to establish a global compliance management system, including appointing regional compliance officers, conducting regular compliance training, and introducing Regulatory Technology (RegTech) tools. For example, an international bank adopted an AI-driven compliance monitoring system to screen transaction abnormalities in real time and automatically generate compliance reports, significantly reducing manual review costs and error rates.

4. Risk Prevention and Control Strategies for Cross-Border Financing in the Context of International Banking Business

4.1 From the Perspective of International Banks

Take an international bank as an example: its front-office business department uses an AI-driven customer profiling system to conduct 360-degree credit evaluations of counterparty entities, monitoring corporate financial indicators, industry cycles, and regional risks in real time. The middle-office risk management department applies stress testing models to simulate changes in capital adequacy ratios under extreme scenarios such as exchange rate fluctuations and interest rate hikes, ensuring controllable risk exposure. The back-office audit department leverages blockchain evidence storage technology to conduct tamper-proof traceability and verification of the entire transaction process, forming a closed-loop management system of "evaluation - monitoring - auditing". This system has reduced the non-performing loan ratio of a multinational banking group from 1.8% in 2020 to 1.2% in 2025, and shortened the risk incident response time to less than 4 hours.

In addition to blockchain and AI, banks are exploring cutting-edge applications of quantum computing in derivative pricing and risk prediction. A European bank, in collaboration with a quantum computing company, has developed a "quantum risk engine" that can calculate portfolio risks under 10,000-level variables in real time. Compared with traditional models, this engine achieves 40% higher accuracy and 100 times greater computing efficiency. Meanwhile, banks use "Regulatory Technology (RegTech)" platforms to automatically connect to regulations such as the EU GDPR and China's cross-border data flow rules, enabling dynamic updates and automatic implementation of compliance requirements, which has reduced compliance costs by 30%.

4.2 From the Perspective of Multinational Enterprises

Enterprises can adopt strategies such as "local currency + foreign currency" combined financing, "long-term + short-term" maturity matching, and "fixed + floating" interest rate hedging. For instance, a Chinese manufacturing enterprise issued dual-currency bonds (Panda Bonds + US Dollar Bonds): it used local currency financing to reduce exchange rate risks while meeting overseas investment needs with US Dollar Bonds. A European energy enterprise adopted a hybrid loan structure of "5-year fixed interest rate + 3-year floating interest rate" to hedge against interest rate fluctuation risks.

Enterprises can use derivatives such as currency swaps, interest rate swaps, and options to build hedging portfolios. A Southeast Asian logistics enterprise locked the cost of its US Dollar loans at 4.5% (1.2 percentage points lower than the market average) through a combination of "currency swaps + forward contracts". A Latin American mining enterprise used "gold options" to hedge against commodity price fluctuation risks, ensuring stable cash flow.

Enterprises need to establish a three-tier compliance structure: "Global Compliance Officer - Regional Compliance Manager - Local Compliance Specialist", conduct regular cross-border business compliance training, and introduce AI-based compliance monitoring systems to screen for abnormal transactions in real time. For example, a multinational retail enterprise used a RegTech platform to automatically connect to national Anti-Money Laundering (AML) and Counter-Terrorist Financing (CFT) regulations, realizing automated verification of transaction compliance and reducing compliance costs by 25%.

4.3 From the Perspective of Regulatory Authorities

Taking China's adjustment of the "cross-border financing macro-prudential adjustment parameter" as an example, regulatory authorities allow high-quality enterprises to exceed foreign debt quota limits by dynamically adjusting the parameter, while strengthening in-process and ex-post supervision to ensure that funds flow into the real economy. The EU has regulated cross-border data flow through the Digital Services Act (DSA), requiring banks to establish a "Data Protection Officer" system to ensure customer data security[5].

Through bilateral regulatory agreements, coordination among multilateral institutions (e.g., IMF, AIIB), and cross-border regulatory sandboxes, mutual recognition and coordination of regulatory rules are achieved. For example, China and Singapore signed the Memorandum of Understanding on Cross-Border Financial Cooperation, realizing mutual recognition of regulatory rules in areas such as cross-border financing and payment settlement. The AIIB launched a "green cross-border financing regulatory sandbox", allowing member countries to test the compliance of innovative products such as green bonds and sustainable loans within the sandbox.

Regulatory authorities encourage banks to adopt technologies such as AI, big data, and blockchain to improve compliance efficiency. For instance, the US SEC launched the "RegTech Accelerator" program to support banks in developing automated compliance tools; the People's Bank of China (PBOC) established a "RegTech Laboratory" to test the compliance application of blockchain in cross-border payments and trade finance, promoting the transformation of regulatory models from "manual

review" to "intelligent monitoring".

5. Conclusion

Innovation and risk prevention and control of cross-border financing are the dual drivers of high-quality development of international banking. In the future, it is necessary to further deepen the application of fintech, improve the cross-border regulatory collaboration mechanism, and promote the evolution of cross-border financing towards "intelligent, green, and compliant" directions. Specifically, banks should increase technological investment to improve risk quantification capabilities; enterprises should optimize financing structures to enhance risk resistance capabilities; regulatory authorities should improve the regulatory framework to strengthen international cooperation. Through tripartite collaboration, the balance between innovation and risk can be effectively achieved, injecting new impetus into global trade and investment and contributing to the construction of a new pattern of an open world economy.

References

[1] Benincasa E.Climate policy and cross-border lending: evidence from the syndicated loan market[J].Economic and Political Studies, 2021, 9(4):463-476.

[2] Gurara D, Presbitero A, Sarmiento M.Borrowing costs and the role of multilateral development banks: Evidence from cross-border syndicated bank lending[J].Andrea Presbitero, 2020(263):102090.1-102090.18.

[3] Ruckin C.Merck borrows US$10.5bn to finance Organon buyout[J].International financing review: IFR, 2021(13):23-29.

[4] Beyhaghi M, Dai R, Saunders A,et al.International Lending: The Role of Lender's Home Country[J].Journal of Money, Credit & Banking (Blackwell), 2021, 53(6):1373-1416.

[5] Rollow R H.Three Essays on Macro-Finance, Banking, and Monetary Policy[D].American University. 2022.

Author Bio

Ni Zhang (February 1987), Female, Han ethnicity, Zhoushan City, Zhejiang Province, Master's degree; Affiliation: VTB Bank Shanghai Branch; Research Focus: Cross-border banking and financial strategy research.