

The Role of Financial Innovation in How Multinational Corporations Promote International Trade

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Abstract: To overcome trade barriers, enhance capital mobility, and ensure the positive development of international trade for multinational corporations, a multiple case study approach was employed. Through in-depth analysis of Maersk, Siemens, and Alibaba, financial technologies such as blockchain, artificial intelligence, and digital payment systems were systematically examined for their strategic application along with associated risks and challenges. It was found that the strategic deployment of financial innovation significantly reduced transaction costs, strengthened risk management capabilities, and fostered ecosystem-based competitive advantages. Simultaneously, emerging systemic risks including algorithmic opacity, regulatory asymmetry, and ecosystem monopolization were identified. In response, a series of recommendations were proposed, emphasizing the need to strengthen ethical governance of fintech, promote international regulatory coordination, and establish cybersecurity cooperation mechanisms. In conclusion, as a double-edged sword, while financial innovation empowers multinational corporations to push efficiency boundaries and reshape global trade patterns, it also introduces new challenges such as power concentration and governance fragmentation, marking the official entry of global trade governance into a new phase dominated by technological paradigms.

Keywords: Financial Innovation; Multinational Companies (MNCs); International Trade; Risk Management; Competitive Advantage

1. Introduction

Multinational companies (MNCs) are no longer mere economic actors but principal drivers of global trade flows in the 21st-century global economy. Their ability to move unfettered across

borders, mobilize capital flows, and hedge market risk depends increasingly on their adoption of financial innovations. These innovations—ranging from blockchain and AI-based analytics to decentralized finance (DeFi) and cross-border treasury solutions—are not just improvement in operations. They have transformed into strategic tools enabling MNCs to overcome traditional trade barriers, optimize financial flows, and respond rapidly to global shocks.

Global trade is subject to various frictions like exchange rate volatility, divergent regulatory requirements, and inefficient payment mechanisms. Financial innovation provides instruments for the MNCs to navigate these complexities. Blockchain, for instance, enables instantaneous cross-border settlement independent of intermediaries, while AI-based credit scoring enhances trust in international transactions and digital payment enhances the traceability and transparency of transactions. Given the conditions of increasing geopolitical uncertainty, supply chain fragmentation, and growing differences in regulatory requirements across nations, the strategic significance of financial innovation in maintaining comparative advantages in trade has grown substantially ^[1].

Although most studies have acknowledged the role of financial innovation in promoting trade, few have examined how MNCs themselves as adopters and drivers of innovation reshape world finance architecture to promote trade. Through case studies of Maersk, Siemens, and Alibaba, this research investigated MNCs' strategic deployment of financial innovation to facilitate global expansion. It is focused on MNCs not as financial technology consumers but as agents of re-engineering financial infrastructures for global integration.

2. The Application of Financial Innovation in the International Trade of Multinational Corporations - Specific Cases

2.1 Maersk–Blockchain and Trade Transparency

Maersk, located in Copenhagen, Denmark, a global container shipping leader managing critical supply corridors across 130+ nations, historically grappled with manual documentation, prolonged settlements, and fragmented compliance procedures. Recognizing maritime logistics as ripe candidate for technological disruption, Maersk strategically partnered with IBM to pioneer TradeLens—a blockchain solution digitizing trade documentation and enhancing shipment traceability.

TradeLens converts physical trade documents (e.g., bills of lading, customs filings) into digital assets, allowing real-time verification and collaborative access among participants via distributed ledger technology. Financially, this innovation lowers global transaction costs by minimizing documentation redundancies, decreasing fraud exposure, and expediting customs processing.

This is aligned with Transaction Cost Theory [2], which suggests that firms innovate in order to reduce the cost of economic exchange. Blockchain assisted Maersk in reducing the coordination costs between dispersed supply chain stakeholders and regulating authorities. This transformation not only enhanced Maersk's performance but also reconfigured industry-wide trade infrastructure toward integrated global logistics.

2.2 Siemens–AI-driven Algorithms and Funding Liquidity

Siemens, a German industrial, healthcare, and energy multinational operating across 200+ countries, faces foreign exchange volatility, regulatory heterogeneity, and constraints on capital movement. To counteract these challenges, the corporation established a global treasury center consolidating worldwide financial operations under a unified framework. Siemens' Global Treasury Center located in Germany and Singapore optimizes the financial management of its subsidiaries through internal banking structures, FX hedging products, and liquidity projections based on AI-driven algorithms. The centralized approach aligns with the Resource-Based View [3], positioning financial innovation as a strategic intangible resource that enhances organizational capacities. Siemens' treasury overhaul transcends administrative functions to become a core

strategic capability, directly strengthening commercial agility, capital optimization, and worldwide operational adaptability. Operationally, Siemens' treasury framework enhanced supply chain resilience during crises such as COVID-19 lockdowns, when centralized liquidity management enabled capital reallocation to subsidiaries in restricted regions, sustaining commercial operations without reliance on delayed banking support [4].

Mechanisms such as in-house banking units and blockchain settlement enhance international capital fluidity—critical for multinational enterprises in resource-limited environments or functioning within stringent regulatory frameworks. These internal finance architectures grant corporations autonomy over funding while diminishing dependence on regional banking infrastructures. This is particularly relevant in emerging markets, where domestic financial markets are likely to be underdeveloped and trade finance is costly or not available. Siemens' ability to internally finance its subsidiaries is a significant competitive advantage under such conditions. AI and predictive analytics empower firms to perform instantaneous risk evaluation. By forecasting currency fluctuations and detecting documentary fraud, algorithmic finance systems reduce uncertainty, mitigate default exposure, and optimize credit allocation across international markets. These practices share the RBV's focus on firm-specific skills and with the idea that risk-adjusted trade efficiency is a key outcome of financial innovation [5].

2.3 Alibaba – Digital Payment and SME Trade Facilitation

Alibaba Group, the world's largest e-commerce ecosystem, operates cross-border platforms serving millions of enterprises globally—particularly SMEs. Diverging from Maersk and Siemens, Alibaba's approach centers on digital financial inclusion: constructing alternative financial infrastructure for buyers and sellers excluded from conventional banking services. In emerging economies across Asia, Africa, and Latin America, SMEs encounter constraints in trade financing, regulatory hurdles, and currency conversion difficulties that hinder global engagement [6]. Alibaba addresses these through a comprehensive digital finance infrastructure featuring Alipay, Ant Group, and integrated credit assessment and trade protection technologies.

Alibaba's automation-driven solutions reduce human intervention in credit assessment, payment processing, and dispute resolution. Alibaba's model was referred to a paradigm of financial globalization that supported export ability. The innovations also illustrate how the evolution of financial infrastructure could drive trade-led development, particularly in countries where formal banking and trade credit systems remain underdeveloped [7].

2.4 Cross-Case Comparison and Strategic Insights

In the financial innovation practices of multinational corporations' international trade, the matrix (Table 1) corroborates the assertion of Serfati [8] that Maersk, Siemens, and Alibaba systematically demonstrate the synergistic nature of innovation across different dimensions, showing differentiated focus and complementary value across three parallel levels: product, process, and organizational innovation. Specifically, at the product innovation level, Maersk leverages blockchain smart contracts to transform physical documents such as bills of lading into digital assets, addressing information opacity in maritime logistics; Siemens combines artificial intelligence algorithms to create a matrix of financial tools suitable for multinational capital management to cope with exchange rate fluctuations and capital restrictions; while Alibaba uses digital wallets to build alternative financial products to bridge gaps in traditional financial services for SMEs in

emerging markets. At the process innovation level, Maersk promotes the digitalization of trade documents through blockchain's distributed ledger, reducing manual intervention, accelerating customs clearance, and lowering the cost of coordinating global transactions; Siemens integrates global financial processes with centralized capital management operations to achieve rapid capital reallocation during crises and strengthen supply chain resilience; Alibaba simplifies the financial operations of SMEs in cross-border trade through algorithmic credit assessment and digital identity verification (KYC), reducing efficiency loss and errors. At the organizational innovation level, Maersk builds a cross-agency collaboration model based on TradeLens, partnering with IBM to break down corporate boundaries and promote the restructuring of industry-wide trade infrastructure; Siemens establishes a global treasury center to integrate global financial operations with an internal banking structure, enhancing the organization's flexibility in responding to transnational regulations; Alibaba, through platform-fintech integration across SME channels, extends its digital financial capabilities to third parties within the ecosystem, promoting trade development in emerging economies via digital financial inclusion [9]. Collectively, these cases demonstrate that financial innovation has deeply penetrated all aspects of corporate operations, driving the evolution of the global trade paradigm through multi-level, systematic transformations.

Table 1. Innovation Type Matrix, Comparing Maersk, Siemens, and Alibaba across Product, Process, and Organizational Innovations

Innovation Type	Maersk	Siemens	Alibaba
Product innovation	Blockchain smart contracts	Digital wallets, AI credit scoring	Derivative instruments, FX tools
Process innovation	Digitized trade documentation	Centralized treasury operations	Algorithmic credit assessment, digital KYC
Organizational innovation	Inter-agency collaboration via TradeLens	Global treasury center	Platform-fintech integration across SME channels

3. Financial Innovation's Role in Multinational Corporate International Trade

3.1 Financial Innovation Plays a Decisive Role in Reducing Transaction Costs

The core mission of financial innovation is to significantly reduce transaction costs by restructuring processes and trust mechanisms, a point synergistically demonstrated by the practices of Maersk, Siemens, and Alibaba.

Although the three companies operate in different industries, their innovations precisely target the core dimensions of reducing information asymmetry, optimizing resource allocation efficiency, and compressing intermediary links. Maersk's blockchain platform establishes distributed trust, eliminating the reliance on paper documents and multiple intermediaries in international trade, thereby directly cutting verification and negotiation costs. Siemens' in-house bank, through internal process

integration and centralized operations, internalizes previously dispersed and repetitive external financial transactions, dramatically reducing the search, decision-making, and execution costs associated with managing external dealings. Alibaba's ecosystem exemplifies this logic, using big data credit models to reduce the high cost of credit verification in traditional finance to nearly zero. Their success indicates that whether through technology, organizational change, or ecosystem building, modern financial innovation is essentially a systematic optimization of the structure of transaction costs.

Specifically, these three innovations jointly act on the key components of transaction costs, creating a compound effect of "lowering fixed costs, reducing variable costs, and accelerating capital velocity." In terms of lowering fixed costs (such as institutional setup and trust establishment), Maersk's blockchain provides a permanent trust infrastructure for its partners that does not require third-party endorsement, while Siemens' in-house bank avoids the duplicate investment of each subsidiary establishing separate relationships with external banks by creating a permanent internal financial institution. In reducing variable costs (such as per-transaction fees and time), all three cases are particularly prominent: Maersk's platform reduces document processing from days to hours; Siemens simplifies a massive number of external payments into a few net transactions; and Alibaba achieves loan approval and disbursement in seconds. Ultimately, these measures all greatly accelerate the velocity of capital: Maersk speeds up the flow of goods and documents, Siemens optimizes the efficiency of internal fund movement, and Alibaba injects instantly available working capital into SMEs. This increase in speed itself signifies a drastic reduction in the time-based cost per transaction.

In conclusion, the cases of Maersk, Siemens, and Alibaba collectively demonstrate a clear logic: in the digital economy, financial innovation's role in reducing transaction costs is no longer limited to singular technical improvements or fee adjustments. Instead, it achieves a systemic restructuring that simplifies transaction structures, automates trust processes, and enables precise, instantaneous resource matching. Starting from different scenarios—cross-border trade, corporate treasury, and inclusive credit—they all prove, through different paths, that once

the bottlenecks of information and trust are successfully resolved, transaction costs can be reduced by an order of magnitude, thereby unleashing tremendous economic efficiency.

3.2 Financial Innovation Serves as a Key Driver in Shaping Sustainable Competitive Advantage by Building Ecosystem Platforms

Siemens serves as a quintessential example of the Resource-Based View (RBV) in its purest form: its corporate treasury function operates not merely as a support unit but as a strategic, intangible resource that confers a sustainable competitive advantage. This core capability is highly resistant to replication due to the powerful isolating mechanisms of systemic integration, accumulated proprietary expertise, and profound technological maturity. Developed over decades and deeply embedded within the global operations of a industrial behemoth, this treasury system is not a standalone application but the central nervous system for the group's financial flows. The significant time, financial investment, and organizational complexity required to build such an integrated system create a formidable barrier to imitation, making it a resource that is valuable, rare, and imperfectly imitable (VRIO).

Maersk and Alibaba, while also rooted in the principles of the RBV, demonstrate its evolution into a networked, ecosystem-driven paradigm. They began by cultivating formidable internal resources—Maersk with its unrivalled global logistics network and Alibaba with its vast e-commerce data and technological infrastructure. However, their strategic genius lay in projecting these internal capabilities into external platforms. Instead of guarding their innovations as proprietary secrets, they strategically offloaded them to the wider ecosystem. Maersk's TradeLens platform became accessible to customs authorities, ports, and even competing carriers, while Alibaba's financial tools, such as Alipay and its credit scoring systems, were scaled to serve millions of third-party merchants. This strategic shift from hoarding resources to leveraging them transforms the nature of their competitive advantage. By turning internal assets into platform capabilities, Maersk and Alibaba no longer compete solely on the efficiency of their own operations. Instead, they scale their influence by setting the standards and infrastructure for global trade and digital commerce practices. They create ecosystems

whose participants become increasingly dependent on their platforms, thereby locking in their dominance and creating new, network-based barriers to competition. In essence, they have scaled the power of their initial resources by making them the foundational bedrock for entire industries.

In conclusion, all three companies powerfully exemplify the RBV, but through distinct strategic pathways. Siemens exemplifies a deep, internally-focused RBV, where competitive advantage is protected by high barriers to imitation within the firm's boundaries. In contrast, Maersk and Alibaba exemplify a broad, ecosystem-oriented RBV, where advantage is scaled by strategically lowering barriers to access for external partners, thereby making the platform itself the ultimate, defensible resource. Together, they illustrate that in the modern economy, strategic resources can be leveraged not only as defended fortresses but also as open, indispensable hubs that redefine entire ecosystems.

3.3 Financial Innovation Overcomes Traditional Trade Barriers

Financial innovation, through technological empowerment and process re-engineering, directly overcomes traditional trade barriers constituted by information opacity and trust deficits. Distributed ledger technology, exemplified by blockchain, transforms critical trade documents such as bills of lading, letters of credit, and certificates of origin into traceable and immutable digital assets ^[10]. This fundamentally resolves information asymmetry, enabling buyers, sellers, logistics providers, financial institutions, and customs authorities to share a single source of truth in real-time within authorized parameters. This drastically reduces delays and disputes arising from document discrepancies, fraud risks, and repetitive verification. For instance, Maersk's TradeLens platform, by establishing a cross-organizational collaborative network, has cut customs clearance times from several days to a few hours, significantly lowering the transaction costs and uncertainties associated with paper-based documentation and manual checks, thereby creating a digital trust mechanism that operates without intermediary endorsement in complex multi-party transactions.

Beyond trust and information, financial innovation effectively hedges against market and

institutional barriers stemming from exchange rate volatility, financing constraints, and regulatory disparities. Artificial intelligence and big data analytics empower multinational corporations to accurately forecast foreign exchange risks and dynamically adjust hedging strategies, liberating their capital allocation from the constraints of severe market fluctuations. Simultaneously, platform-based Fintech solutions—such as the automated credit assessments powered by transaction data that Alibaba provides for SMEs—break the traditional banking reliance on collateral and financial statements for credit approval ^[11]. This injects the necessary liquidity for micro, small, and medium-sized enterprises, long plagued by financing difficulties, to participate in cross-border trade. This inclusive financial model, embedded within platform ecosystems, not only smoothen cross-border capital flows but also substantially bridges the developmental gap in financial infrastructure across different countries and regions. It curbs the scope for regulatory arbitrage and lays the micro-foundation for building a more resilient, inclusive, and efficient global trade network.

4. Risks and Governance Challenges Remain

4.1 Opacity Obscures the Decision-making Process

While financial innovation generates significant strategic value, it also introduces new systemic vulnerabilities. Among these is the opacity inherent in artificial intelligence used for credit assessment and risk evaluation, which negatively impacts decision-making processes. This lack of transparency makes it difficult to trace or audit the logical basis of algorithmic decisions, preventing managers and regulators from effectively assessing the fairness and rationality of outcomes. Furthermore, opaque models can embed and perpetuate biases present in training data—such as historical discrimination against certain demographic groups—without timely detection or correction. As a result, AI may systematically exclude vulnerable groups from financial services, exacerbating inequities in resource allocation and raising serious ethical and legal concerns.

Moreover, algorithmic opacity undermines human oversight and the capacity for meaningful intervention. When models fail to provide clear explanations for their outputs, it becomes

challenging for staff to question or override automated decisions, leading to an over-reliance on AI and the erosion of manual review mechanisms. This rigidity amplifies the impact of operational failures, particularly during sudden market shifts or when novel risks emerge. From a systemic perspective, the widespread adoption of similar black-box models by multiple institutions creates homogeneity risks—if one key model fails or behaves unpredictably, it could trigger cascading failures across the financial network.

Therefore, the opacity of algorithms not only obscures the reasoning behind decisions and reduces accountability, but also reinforces biases and weakens the system's ability to respond to disruptions. To foster responsible financial innovation, it is essential to enhance the interpretability of AI systems, strengthen regulatory compliance checks, and develop more effective human-AI collaboration frameworks.

4.2 Regulatory Asymmetry Gives Rise to Uncertainty

Another critical challenge is regulatory asymmetry. Divergent legal frameworks across countries, shaped by differing legal traditions, levels of development, and policy objectives, create a fragmented global regulatory landscape for financial innovation. This inconsistency introduces substantial compliance complexities and legal uncertainties for multinational enterprises. Firms operating across jurisdictions must navigate often contradictory rules, significantly raising compliance costs and increasing the operational risk of inadvertent violations. Moreover, regulatory fragmentation can lead to both “regulatory vacuums” and overlapping oversight, encouraging firms to engage in regulatory arbitrage by conducting high-risk activities in lenient jurisdictions. This ambiguity not only raises the likelihood of breaches and penalties but also poses a broader threat to global financial stability.

This regulatory asymmetry further exacerbates moral hazard, particularly in the absence of effective international coordination. When firms exploit jurisdictional differences to engage in aggressive tax avoidance, extractive data monetization, or even market manipulation, clear ethical concerns emerge. For instance, a platform might leverage weak data protection laws in certain jurisdictions to monetize user data without adequate consent or compensation,

or use complex cross-border structures to shift profits to low-tax regions, thereby eroding the tax bases of other countries. While such activities may be technically “legal” under specific local frameworks, they violate principles of fairness and corporate responsibility, ultimately undermining public trust in financial innovation ^[12].

4.3 Ecosystem Monopolization Poses the Risk of Systemic Financial Risk

Furthermore, the “data moats” built by large technology firms (BigTech) through their ecosystems have become a key mechanism hindering fair competition in the financial industry. Specifically, these companies deeply bundle various financial services—such as payments, credit, insurance, and asset management—with core social, e-commerce, or search scenarios via their super-apps. This bundling strategy creates strong user stickiness and cross-business synergies, leading to a high concentration of data, traffic, and user attention. Such ecosystem monopolization poses a dual risk. First, it gives rise to a new form of “too-big-to-fail” problem. When a tech giant's financial services permeate every aspect of socioeconomic life, any risk event (e.g., technical failure, liquidity crisis, or operational risk) may no longer be confined to the company itself. Instead, it could rapidly propagate through its vast user base and interconnected financial system, potentially triggering systemic financial risk. Second, it squeezes the viability of small and medium-sized financial institutions. Traditional banks and Fintech startups struggle to access comparable user behavior data, placing them at a significant disadvantage in targeted marketing, risk pricing, and product innovation. This dynamic may ultimately lead to increasing market concentration, reduced competitive vitality, and a “winner-takes-all” outcome.

The European Union's Digital Markets Act represents a direct regulatory response to these concerns. The legislation identifies such influential tech companies as “gatekeepers” and imposes a series of obligations on them—for instance, requiring their platform services to be interoperable with smaller enterprises and prohibiting the use of data derived from core services to unfairly advantage their other business lines (such as financial services). This legislative move clearly demonstrates that regulators have recognized the threat posed by

data monopolies to financial competition and are beginning to establish a new regulatory framework to safeguard market openness and fairness ^[13].

5. Recommendations and Proposed Measures

5.1 Recommendations to Multinational Corporations

5.1.1 Integrate financial innovation into strategic planning

Financial innovation should be elevated to a core strategic capability rather than treated as peripheral support. Metrics like trade processing speed, cost efficiencies, and currency risk mitigation should be integrated into multinational corporations' global performance metrics. Treasury, risk management, and technology operations require unified strategic alignment to optimize international commerce initiatives ^[14].

5.1.2 Strengthen internal governance of financial technologies

Multinational corporations implementing AI, blockchain, or proprietary banking systems must invest in ethical AI frameworks, transparent decision models, and regulatory compliance mechanisms. For instance, credit assessment algorithms necessitate periodic bias audits, while blockchain applications require cross-border legal validation.

5.1.3 Design innovation ecosystems, not isolated solutions

Multinational enterprises should prioritize interoperable financial systems that connect trade partners, regulatory bodies, and global subsidiaries. Such integration proves critical for streamlining supply chains, customs processing, and multi-jurisdictional tax compliance. Transparent stakeholder engagement further accelerates adoption and system credibility.

5.1.4 Enhance resilience through financial infrastructure

As trade becomes riskier with geopolitical and environmental uncertainties, MNCs must develop resilient financial structures comprising cloud-based treasury systems, cross-border liquidity cushions, and contingency FX hedging facilities to enable seamless operations during crisis situations.

5.2 Policy and Regulation Recommendations

5.2.1 Harmonize digital trade and fintech rules

Regulatory inconsistencies constrain financial

innovation's global impact. International bodies like the WTO, OECD, and UNCTAD must collaborate to establish unified frameworks for digital payments, automated contracts, and AI-driven finance. Regulatory sandboxes offer a balanced approach, fostering innovation while maintaining oversight.

5.2.2 Enhance financial inclusion in global trade
Following Alibaba's model, Fintech can democratize export opportunities for Global South SMEs. Governments should develop digital infrastructure, establish collaborative initiatives, and incentivize multinationals to incorporate inclusive financial tools within their platforms.

5.2.3 Strengthen cybersecurity and data governance regimes

Given financial innovation's transnational scope, regulators must advance unified cybersecurity protocols, data protection measures, and coordinated threat response systems. The expansion of digital identities, AI authentication, and distributed ledgers amplifies cyber risks, necessitating international cooperation.

5.2.4 Monitor corporate financialization risks

Authorities must monitor multinational corporations' financial innovations to prevent regulatory arbitrage, profit shifting, or speculative short-term strategies. Such advancements should support productive commerce rather than divert resources toward high-risk financial activities.

6. Conclusion

This research demonstrates that financial innovation has profoundly reshaped the role and strategic paradigm of MNCs in global trade. Through case studies of Maersk, Siemens, and Alibaba, the paper reveals that financial technologies are no longer merely operational tools but have become core strategic assets enabling MNCs to proactively redesign trade infrastructure, reduce transaction costs, manage systemic risks, and build ecosystem-based competitive advantages. By leveraging innovations such as blockchain, artificial intelligence, and digital payment, these enterprises have effectively overcome traditional trade barriers like information asymmetry, exchange rate volatility, and financing constraints, transforming themselves from traditional market participants into architects of the global trading system.

However, this transformation is accompanied by

significant governance challenges. Risks such as algorithmic black boxes, regulatory arbitrage, and ecosystem monopolization highlight the inherent double-edged nature of financial innovation. Without effective ethical constraints and international coordination, technological innovation could instead exacerbate market fragility and inequality. Therefore, multinational corporations and regulatory agencies must jointly promote a governance framework for responsible innovation, embedding transparency, inclusivity, and resilience throughout the entire lifecycle of financial innovation to ensure it serves a sustainable global trade ecosystem.

The further deepening of global trade will largely depend on whether financial innovation can achieve a balance between efficiency, equity, and stability. Multinational corporations must look beyond short-term profit motives and assume the social responsibilities commensurate with their roles as critical nodes in the trading system. Meanwhile, policymakers need to accelerate the establishment of international rules and collaborative mechanisms adapted to digitalized trade. Only through the concerted efforts of corporations, governments, and international organizations can financial innovation truly become a foundational force driving inclusive, resilient, and sustainable global trade development.

This research, through a systematic analysis of the transformative impact of financial innovation on the trade practices of multinational corporations, provides critical theoretical and practical insights for understanding the evolution of global trade in the 21st century. The findings not only reveal the paradigm shift of multinational corporations from market participants to architects of the trading system but also construct a trinity analytical framework of "technology-strategy-governance," laying a theoretical foundation for subsequent studies. For multinational enterprises, this research offers actionable strategic pathways, guiding them to build ecosystem-based competitive advantages through financial innovation. For trade development, the directions of inclusivity, resilience, and sustainability highlighted in the study provide important references for policymakers to optimize the global trade governance system. Ultimately, this research translates academic insights into actionable guidelines, fostering a virtuous cycle between theoretical depth and practical application in

financial innovation, thereby contributing core ideas to the construction of a new generation of global trade infrastructure.

References

- [1] Ergen T, Kohl S, Braun B. Firm foundations: The statistical footprint of multinational corporations as a problem for political economy. *Competition & Change*, 2023, 27(1): 44-73.
- [2] Laroiya R, Ghosh S, Wang H. Blockchain in cross-border finance: Applications for multinational corporations. *Financial Innovation*, 2020, 6(1), 1–12.
- [3] Williamson O E. The economics of organization: The transaction cost approach. *American journal of sociology*, 1981, 87(3): 548-577.
- [4] Barney J. Firm resources and sustained competitive advantage. *Journal of management*, 1991, 17(1): 99-120
- [5] Scott J M, Hussain J G, Salia S, et al. Entrepreneurial financial resilience and financial innovation in a turbulent era//*Entrepreneurial Financial Resilience and Financial Innovation in a Turbulent Era*. Edward Elgar Publishing, 2023: 1-20.
- [6] Maia J L, Di Serio L C. Financialization and Innovation Management: A Model of Impacts and Evidence from Case Studies in Brazilian Companies. *Journal of Innovation Economics & Management*, 2024, 45(3): 283-322.
- [7] Róžański J, Voytovych N. Financial innovations in international corporations. A global perspective. *Annales Universitatis Mariae Curie-Skłodowska, sectio H–Oeconomia*, 2023, 57(3): 221-239.
- [8] Serfati C. Finance-driven capitalism and the transformation of the multinational enterprise. *Competition & Change*, 2011, 15(2), 91–107.
- [9] World Bank. TradeLens and blockchain in shipping logistics: Global trade case study. Washington, D.C.: World Bank. 2022.
- [10] Habib A, Mia L Bhuiyan M B U. Blockchain and financial regulation: Exploring risks and opportunities. *Journal of Risk and Financial Management*, 2022, 15(7), 297.
- [11] Kim J S. Alibaba, Leading the Fourth Industrial Revolution: FinTech and New Retail Perspectives. *Korea Business Review*, 2020, 24(2): 73-99.

- [12]Zhang M, Jain V, Qian X, et al. The dynamic relationship among technological innovation, international trade, and energy production. *Frontiers in Environmental Science*, 2023, 10: 967138.
- [13]Selivanova N, Borkovska V, Mykytyuk P, et al. Improving Accounting and Management of Settlements with Foreign Suppliers in the Context of Global Digitalization on the Example of Agricultural Enterprise. 2022.
- [14]Kayad A, Sozzi M, Paraforos D S, et al. How many gigabytes per hectare are available in the digital agriculture era? A digitization footprint estimation. *Computers and Electronics in Agriculture*, 2022, 198: 107080.