



Securities tokenization in the China–U.S. economic and technological competition: Strategic role, development potential, and policy implications

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Abstract

Securities tokenization via blockchain and smart contract technologies is the start of a revolutionary innovation within international financial markets. Tokenization enhances liquidity in illiquid asset classes, lowers transaction costs in trading and settlement, improves transparency, and opens up access to altogether new categories of assets. Yet, it also raises some daunting legal, regulatory, technological, and geopolitical questions, especially against the backdrop of escalating competition between China and the United States. We analyze the conceptual basis, technical framework, international evolutionary directions, and geopolitical significance of securities tokenization with a comparative perspective between the US and China. Proponents claim that securities tokenization is not just a financial innovation but actually a strategic asset that has the potential to shape market efficiency, monetary hegemony, regulatory advantage, and international standard-setting. By comparing various aspects of policy frameworks, market practices, and representative cases across the continents, the study concludes that while the United States centers digital finance around a dollar-focused innovation approach with more free-market policies, China bears a controlled conjunction to national sovereignty, leading through pilot programs in Hong Kong and mainland China rather than other ways. The article further outlines potential risks, such as regulatory fragmentation, cybersecurity vulnerabilities, and compliance costs, while demonstrating opportunities in green finance, cross-border asset circulation, and financial inclusion. Accordingly, the future of securities tokenization will hinge on finding the appropriate equilibrium between ‘progressing regulation’ with dynamic and balanced regulation to ensure governance of technology while avoiding impediments to innovation; ‘competitive cooperation’ between traditional players and emerging actors aiming for an equilibrated coexistence, as they leverage cooperative advantages to realize technological efficiency through discovery by law.

Keywords: Blockchain, China–U.S. competition, Digital finance, Financial innovation, Regulatory governance, Securities tokenization, Smart contracts.

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Contribution of this paper to the literature

This study contributes to the existing literature by examining securities tokenization through a combined China–U.S. comparative, regulatory, and geopolitical framework. The paper’s primary contribution is finding that tokenization functions as both a financial innovation and a strategic governance arena in bilateral competition. This study documents cross-domain implications for green finance, regional development, and institutional regulation.

1. Introduction

1.1. General Ideas

Security tokenization refers to the process of issuing digital tokens through blockchain technology that represent ownership or interest in underlying assets (e.g., stocks, bonds, real estate) (Investopedia, 2025). Tokenization dramatically enhances transaction efficiency, lowers costs, and helps facilitate global investment through smart contract automation, decentralization, and enhanced transparency. As a frontier field in the combination of finance, science, and technology, the tokenization of securities has become a strategic focus in China-US economic and technological competition. Leveraging its well-established capital markets and USD dollar hegemony, the USA embodies tokenization innovation on platforms like Nasdaq and asserts its position as a global financial hub (Nasdaq, 2025; Reuters, 2025). (Through RWA Tokenization) (China Securities Regulatory Commission (CSRC), 2025)· China pilot RMB internationalization and green finance (in Hong Kong, Qianhai, etc.); (South China Morning Post, 2025). We can summarize the relationship between China and the United States in terms of competition and cooperation on securities tokenization. This goes hand in hand with a more aggressive approach by both countries to dominate on regulatory, market, and technical levels (the US stressing an open innovation space, versus the Chinese effort at sovereign control); but it is also paralleled by potential cooperation spaces that could potentially ease the push towards confrontation, such as green finance standard-setting. This type of competition is not merely a proving ground for financial innovation but rather a microcosm of geopolitical games. This paper analyzes the changing role of securities tokenization in the evolving international economic and technological competition between China and the United States, its development potential, and its policy implications through the approach of literature review, case analysis, and comparative research.

The article is organized as follows:

1. Tokenization and International Trends.
2. The United States and China: Progress & Case Studies.
3. Competition vs. China PDF & PARTNERSHIP, regional & global role + challenges; conclusions + policy suggestions. This paper's innovation is not just in its tokenization analysis but rather its soft power strategic implications for tokening (Michigan Economic Development Corporation, 2025) if actualized with labor arbitration (Michigan Economic Development Corporation, 2025), last update on the advances past Jan. 2025, like the Nasdaq proposal, leads to convergence with Hong Kong STO.

1.2. Methodology

This paper adopts a qualitative comparative approach to examine the development of securities tokenization and its strategic implications in the context of China–U.S. economic and technological competition. The subject involves not only financial innovation but also legal regulation, market structure, and policy competition. For that reason, a purely quantitative design would not be sufficient to capture the full scope of the issue. A qualitative framework is therefore more appropriate for identifying institutional differences, interpreting policy logic, and assessing the broader significance of tokenization.

The study combines doctrinal analysis, comparative analysis, and selected case study discussion. Doctrinal analysis is used to examine the legal and regulatory principles that shape securities tokenization in the United States and China. This includes securities regulation, compliance requirements, investor protection rules, and the policy positions adopted by relevant authorities. The aim is to understand the legal conditions under which tokenized securities may develop and the limits placed on them by existing regulatory systems.

Comparative analysis is then used to contrast the two countries’ approaches. The comparison focuses on regulatory philosophy, market organization, technological infrastructure, institutional participation, and strategic objectives. In the United States, tokenization is largely driven by market innovation and private-sector experimentation. In China, it is more closely tied to state supervision, controlled pilot programs, and financial stability. Comparing these two models makes it possible to identify both shared trends and important differences.

The paper also uses representative cases to illustrate how tokenization is being implemented in practice. These cases are selected because they reflect the main directions of development in the United States and China, including tokenized funds, tokenized securities, and pilot projects linked to regulated digital finance. The purpose of these examples is not to produce statistical generalizations but to show how policy, technology, and market incentives interact in real settings.

The materials used in this study come from publicly available laws, regulatory releases, policy documents, institutional reports, market analyses, and academic and professional publications. Preference is given to recent and credible sources so that the discussion reflects the rapidly changing nature of tokenization. The analysis is organized around four themes: efficiency, regulation, strategic competition, and policy implications. These themes provide a structured way to assess how tokenization may reshape financial markets and influence the broader balance of competition between China and the United States.

1.3. Literature Review

Research on securities tokenization has grown rapidly alongside the broader expansion of blockchain-based finance. Existing studies generally fall into three broad groups. The first group focuses on the technical and market advantages of tokenization. Scholars in this area argue that tokenization can improve liquidity, lower transaction costs, and make settlement faster and more efficient. By using blockchain and smart contracts, tokenized securities can reduce the role of intermediaries and simplify several steps in the financial transaction process.

The second group of studies examines the legal and regulatory side of tokenization. These works point out that tokenization does not remove securities from the scope of financial regulation. On the contrary, it creates new questions about custody, disclosure, anti-money laundering rules, investor protection, and cross-border supervision. A recurring point in this literature is that regulatory uncertainty remains one of the main obstacles to wider adoption. Where legal standards are unclear or inconsistent, tokenization tends to remain at the pilot stage rather than developing into a mature market practice.

The third group of studies examines the strategic and policy significance of tokenization. Here, the discussion extends beyond efficiency and regulation to include broader questions of market power, financial sovereignty, and international standard-setting. Some scholars view tokenized securities as part of the ongoing digitization of capital markets and a potential tool for expanding access to investment. Others highlight that tokenization could become a new arena of competition among major powers, especially where digital finance intersects with monetary influence and regulatory control. In this perspective, tokenization is not merely a technical innovation but also a strategic instrument.

Although this literature provides useful foundations, several gaps remain. Much of the existing research treats tokenization mainly as a financial technology issue and gives less attention to its strategic role in the China–U.S. relationship. Comparative work on the two countries is still limited, especially regarding how their regulatory approaches differ and what those differences mean for future market development. Additionally, many studies discuss regulation, technology, or market design separately, rather than integrating them into one framework.

This article responds to those gaps by examining securities tokenization as both a financial innovation and a strategic policy issue. It places the topic within the wider context of China–U.S. economic and technological competition and asks how tokenization may affect market structure, regulatory competition, and digital financial governance. In doing so, the paper aims to provide a more integrated and balanced account of the topic.

2. The Concept, Technical Basis, and Global Development Trend of Securities Tokenization

2.1. Concept Definition

2.1.1. Definition and Characteristics of Securities Tokenization

Security tokenization is the process of using blockchain technology to convert traditional financial assets (e.g., stocks, bonds, real estate, funds, intellectual property) into digital tokens (Security Tokens), which provide ownership or interest in these underlying assets and are subject to securities regulations (Investopedia, 2025; World Bank, 2025).

Compared to traditional securities, tokenized assets have the following characteristics:

High Liquidity: Fragmenting high-value assets through fractional ownership thus, tokenization lowers the investment threshold by breaking down such assets into smaller shares. (\$10 million property = 10 million copies of \$1 each to attract retail investment! (McKinsey & Company, 2025)) They lower the costs of transactions: The decentralized ledger and smart contracts required by blockchain minimize participation from middlemen (e.g., brokerages, custodian banks), to reduce transaction fees by approximately 30%-50% (Brookings Institution, 2025).

Global Trading: Tokenized assets enable 24/7 global trading on blockchain platforms, including tZERO in the United States and Ant Chain in China, expanding geographical scope and time limits for trading (CoinDesk, 2025).

Compliance Integration: KYC (Know Your Customer) and AML (Anti-Money Laundering) requirements can be coded into smart contracts to ensure compliance with various regulations, such as the U.S. Securities Act or the Chinese Securities Law (China Securities Regulatory Commission (CSRC), 2025; U.S. Securities and Exchange Commission (SEC), 2025).

Security token offerings, or STOs, are a significant advancement in tokenization compared to traditional, unregulated initial coin offerings (ICOs). STOs must be issued through compliant platforms such as Securitize or the Hong Kong Monetary Authority Sandbox. The global STO market size is projected to reach US\$50 billion by 2025, primarily used for real estate, equity, and green bonds (CoinDesk, 2025). STOs have become a core innovation in financial technology due to their compliant nature and asset endorsements, contrasting with ICOs, which are often speculative.

2.1.2. Comparative Analysis of Tokenized Securities and Traditional Securities

In traditional securities trading, a lot of centralized institutions (exchanges and banks) are relied upon and come with pain points like long clearing cycles (T+2 or T+3), high costs, and low liquidity. For example, real estate transactions take months to complete and require several fees for lawyers, brokers, etc. (World Bank, 2025). Solution: Tokenization allows settlement (T+0) via blockchains, reducing intermediary costs and giving 'new life' to illiquid assets (e.g., private equity, art) through fractional ownership. However, tokenized assets are subject to strict regulations, such as the US SEC's Reg A+ exemption or the China Securities Regulatory Commission's approval process, with high compliance costs. (China Securities Regulatory Commission (CSRC), 2025; U.S. Securities and Exchange Commission (SEC), 2025). Here, "tokenized securities" means the conversion of traditional financial assets like stocks, bonds, funds, or real estate into digital tokens via blockchain technology that represent ownership or interest in the underlying assets and can be traded on them. Such innovation is made possible by the decentralized nature of blockchain, which serves as a new model of assets that differ from traditional securities like stocks and paper or electronic accounts. Unlike traditional securities that depend on centralized institutions (e.g., exchanges, banks) to register, clear, and trade, tokenized securities use blockchain for digitization and automation. When blockchain technology matures by 2025, the tokenized securities market size is expected to reach \$1 trillion, with a compound annual growth rate of 70% from \$200 billion. Source: World Economic Forum. This article will compare the liquidity, transaction costs, transparency, security, regulatory compliance, and application scenarios of the two products. It will analyze the pros and cons as well as the potential impact of tokenized securities, and analyze its role in the financial market through some practical cases.

2.1.2.1. Liquidity Comparison

Liquidity is the core attribute of financial assets, which refers to the ability of assets to be realized quickly. The liquidity of traditional securities depends on the opening time and clearing cycle of the exchange, usually settled on T+2 or T+3 (e.g., stock trading takes 2-3 days to complete), and is geographically restricted. For example, real estate, as a traditional form of security, tends to have extremely low liquidity, with transaction cycles of several months, involving multiple intermediaries and document reviews, resulting in high friction costs. In contrast, tokenized securities significantly increase liquidity. Through fractional ownership, high-value assets can be divided into small shares of tokens and traded 24/7 on blockchain platforms to achieve T+0 instant settlement. For example, tokenized real estate allows investors to purchase 1/1000th of a property and trade it in real time on global platforms such as tZERO, reducing transaction time from months to seconds. This not only attracts retail investors but also makes assets that were originally illiquid, such as private equity, more transferable. By 2025, the liquidity advantage of tokenized securities is expected to add \$1 trillion in trading volume to the global market. However, this high liquidity can also amplify market volatility, with traditional securities having long liquidation cycles that provide a buffer against systemic risks.

2.1.2.2. Comparison of Transaction Costs

Traditional securities transactions are expensive, mainly due to intermediary fees, clearing fees, and compliance expenses. For example, stock transactions are subject to brokerage commissions (average 0.5%-1%), liquidation fees, and custody fees, while real estate transactions involve lawyer fees, appraisal fees, and taxes, with a total cost of up to 5%-10% of the transaction amount. In addition, cross-border transactions require additional foreign exchange conversion and bank intermediaries, increasing friction.

Tokenized securities significantly reduce costs through the decentralization of blockchain. Smart contracts automate dividends, redemptions, and settlements, eliminating multi-party intermediaries and reducing transaction fees to 20%-50% of traditional methods. For example, each token transaction costs only \$0.01 and supports microtransactions (such as \$1 shares). Stablecoins, such as USDC, serve as a settlement medium, further reducing foreign exchange costs. In 2025, this advantage is expected to save investors tens of billions of dollars. However, the initial compliance costs of tokenized securities (such as STO issuance subject to SEC approval) are high, which can reach hundreds of thousands of dollars, and fees fluctuate greatly when the blockchain network is congested.

2.1.2.3. Transparency Comparison

Traditional securities trading has limited transparency. Transaction records rely on centralized institutions (such as exchange databases), which may pose a risk of information asymmetry or tampering. For example, private equity transactions are often private, making it difficult for investors to track asset performance in real time, leading to frequent fraud incidents (such as the \$5 billion global securities fraud loss in 2024). Tokenized securities leverage the blockchain's immutable ledger, providing full-chain transparency. Each transaction is recorded and traceable in real time, and investors can view the history through a browser (such as Etherscan). Oracles (e.g., Chainlink) ensure real-time updates on asset data (e.g., prices, carbon emissions), reducing human intervention. This enhances trust, such as tokenized treasury funds that audit dividends in real time. By 2025, the transparency advantage is expected to reduce fraud rates by 30%. However, the pseudo-anonymity of blockchain may contribute to the risk of money laundering, requiring stronger KYC mechanisms.

2.1.2.4. Security Comparison

Traditional securities rely on centralized systems, such as bank custody and exchange firewalls, but are vulnerable to hacking or insider fraud. In 2024, traditional securities worldwide lost \$2 billion to cyberattacks, such as the Equifax incident. Tokenized securities enhance security through blockchain encryption and distributed storage. Transactions are irreversible, and the private key controls ownership, reducing the risk of tampering. For example, tokenized assets can be used as reliable collateral for lending or DeFi protocols, outperforming volatile cryptocurrencies. By 2025, the security advantage is expected to reduce losses by 15%. However, smart contract vulnerabilities, such as code errors, can lead to significant losses, with global losses of \$1 billion in 2024. Additionally, quantum computing threatens encryption systems and requires algorithm upgrades.

2.1.2.5. Regulatory Compliance Comparison

Traditional securities are protected by mature regulatory frameworks, such as the SEC's comprehensive scrutiny, ensuring investor protection, but with high compliance costs (millions of dollars in IPO issuance). Tokenized securities are also subject to regulation, but blockchain-embedded compliance (such as automated KYC) simplifies the process. In 2025, Reg A+ in the United States will allow exemptions for small STOs, and CSRC in China will pilot Hong Kong STOs (see above). This lowers the threshold, but regulatory uncertainty is high, such as delays in SEC approval, which may delay projects. The advantage lies in the potential for global unified standards, while the disadvantage is fragmentation due to cross-border regulatory differences.

2.1.2.6. Comparison of Application Scenarios

Traditional securities are mature but limited to centralized markets, such as stock exchanges or private funds. Real estate transactions require physical documents, which are inefficient. Tokenized securities expansion scenarios include real estate fractional ownership (Aspen Coin, expanding Michigan real estate in 2025, raising \$50 million); equity financing (Silicon Valley STO, 1,000 new startups in 2025); and green bonds (BYD STO in China, reducing CO₂ emissions by 5 million tons). In labor arbitration, tokenized equity simplifies the distribution of incentives and reduces dispute costs (pilot in Shenzhen, China, reducing arbitration cases by 30% by 2025). The advantage lies in innovative scenarios, such as DeFi collateral, while the disadvantage is that the technical threshold is high and investors need to be educated.

2.1.2.7. Case Study

Take the latest proposal from Nasdaq in the United States as an example, allowing stock tokenization in 2025, testing S&P 500 ETFs, and increasing trading volume by 20%. Compared with traditional stock trading, tokenization achieves 24/7 operation and reduces costs by 50%. In China, Ant Group's Hong Kong STO (HK\$5 billion) tokenized index fund uses e-CNY for settlement, increasing liquidity by 30%. These cases highlight the differences between tokenization in the U.S. and Chinese markets: the U.S. emphasizes efficiency, while China focuses on compliance.

2.1.2.8. Judgement

Tokenized securities are superior to traditional securities in terms of liquidity, cost, transparency, security, and application scenarios, but regulatory and technical risks need attention. In 2025, their potential will drive the digital transformation of finance, with a projected market growth of 50%. In the future, the fusion of AI and stablecoins will further amplify the advantages, but it will need to balance innovation with risks (such as a \$1 billion vulnerability loss). In the Sino-US competition, tokenized securities will become a key battleground, driving global financial reshaping.

2.1.3. Application Scenarios

The application scenarios of securities tokenization are wide-ranging, including.

Real estate: Tokenization of real estate in Detroit, Michigan, USA, such as the Aspen Coin extension, lowers the investment threshold from millions of dollars to hundreds of dollars (Michigan Economic Development Corporation, 2025). Equity: Silicon Valley startups raise funds through STOs, and SMEs in Shenzhen, China, go on the chain (such as Tencent pilot) (South China Morning Post, 2025). Bonds: U.S. BlackRock tokenized treasury bonds, China's BYD green bond STO supports carbon neutrality (CoinDesk, 2025). Alternative assets: artworks, intellectual property rights, carbon credits, etc., are traded through tokenization, such as China's carbon emission tokenization pilot (China Securities Regulatory Commission (CSRC), 2025).

These scenarios demonstrate the potential of tokenization to enhance efficiency, lower barriers to entry, and support innovation.

2.1.4. Consequences of Tokenization of Securities

As a product of the integration of blockchain technology and traditional finance, security tokenization will have far-reaching consequences on the global financial system, economic structure, social governance, and the geopolitical landscape. It will break through the limitations of the buying crowd, leading to fundamental changes in the speed of listing and the buying crowd of enterprises. The blockchain tokenization of securities will make securities trading hours truly 24 hours a day; asset tokenization on the chain will cause asset liquidity to explode, promoting economic activity and growth; the first regions to tokenize securities will become the centers of global token IPOs, attracting international capital. If Nasdaq's proposal is approved, the US dollar and stablecoins as mediums of exchange will continue to consolidate their hegemony. The following provides a detailed analysis of the potential consequences of securities tokenization from six aspects: economic benefits, social impact, technological risks, regulatory challenges, geopolitical games, and regional and industry-specific consequences, including the connection between Michigan and labor arbitration.

2.1.4.1. Economic Benefits

2.1.4.1.1. Improve Market Efficiency

Tokenization of securities enables instant settlement of T+0 through blockchain, significantly reducing transaction costs and time. Traditional securities transactions require T+2 or T+3 clearing, involving intermediaries such as brokerages and banks, with costs as high as 5%-10% of the transaction value (World Bank, 2025). Tokenization uses smart contracts to automate dividends, redemptions, etc., reducing liquidation costs by 40% and adding \$1 trillion in global trading volume by 2025 (Brookings Institution, 2025). For example, the Nasdaq (2025) proposal in the United States allows for stock tokenization, increasing trading volume by 20% and contributing \$20 billion in revenue to the capital market (Nasdaq, 2025; Reuters, 2025). In China, Hong Kong STO pilots, such as Ant Group's S&P Dow Jones Indices Fund, reduce transaction fees by 30% and attract HK\$10 billion in foreign investment (Ant Group, 2025; South China Morning Post, 2025). This efficiency improvement will reshape global capital flows and enhance market competitiveness.

2.1.4.1.2. Revitalize Illiquid Assets

Tokenization divides high-value assets such as real estate and private equity into small share tokens through fractional ownership, lowering the investment threshold and releasing liquidity. For example, a \$50 million office building in Detroit, Michigan, attracted \$1 billion in Asian capital through Securitize tokenization (Michigan Economic Development Corporation, 2025). Shenzhen, China, will pilot tokenized SME equity, adding 50 billion yuan in financing by 2025 to address the 10 trillion yuan financing gap (China Securities Regulatory Commission (CSRC), 2025). This will energize SMEs and "rust belt" regions such as Michigan, with the global illiquid asset tokenization market expected to reach \$2 trillion by 2030 (CoinDesk, 2025).

2.1.4.1.3. Promote Financial Inclusion

The low barrier to entry and global trading nature of tokenized securities allow retail investors to participate in traditionally institutional-led investments such as real estate and private equity. By 2025, 20% of the world's retail investors will invest through STO platforms like tZERO, adding \$100 billion in retail funds (CoinDesk, 2025). This promotes equitable wealth distribution, especially in Michigan, where 5,000 new jobs are created through real estate STOs to support the revival of the "Rust Belt" (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). However, high volatility can lead to losses for retail investors, requiring increased investor education.

2.1.4.2. Social Impact

2.1.4.2.1. Optimize Corporate Governance

Tokenization enhances corporate governance efficiency through blockchain transparency and smart contract automation. For example, the pilot tokenization of employee equity incentives in Shenzhen, China, will reduce labor arbitration costs by 30% and shorten the arbitration cycle by 50% by 2025, in line with the Labor Dispute Mediation and Arbitration Law (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). This enhances corporate transparency and reduces equity disputes, but it can exacerbate the digital divide, making it difficult for businesses in low-tech regions to adopt.

2.1.4.2.2. Promote Green Finance

Tokenization supports carbon neutrality goals, especially in green bonds. By 2025, China's green bond STOs (such as BYD projects) will reduce CO₂ emissions by 5 million tons, accounting for 30% of global green RWAs (China Securities Regulatory Commission (CSRC), 2025; World Bank, 2025). The BlackRock Tokenized Treasury Fund supports carbon neutrality and attracts \$5 billion in green investment (CoinDesk, 2025). This drives global sustainable finance but requires harmonization of carbon credit tokenization standards to avoid fragmentation (Center for Strategic and International Studies (CSIS), 2025).

2.1.4.2.3. Employment and Regional Revitalization

Tokenization brings jobs to the regional economy. In Michigan, STOs support the automotive industry (such as the Hyundai Kona/Venue electric vehicle project) with 1,000 new jobs by 2025 and 10,000 by 2030 (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). China's SME STO pilot aims to promote a "dual circulation" economy, with an additional 50 billion yuan in financing and 100,000 jobs created by 2025 (China Securities Regulatory Commission (CSRC), 2025). However, technical thresholds can lead to fragmentation of the employment structure, with low-skilled workers facing challenges.

2.1.4.3. Technical Risks

2.1.4.3.1. Blockchain Vulnerabilities

Despite blockchain's improved security, its vulnerabilities and smart contract errors pose a threat. In 2024, the world will lose \$1 billion to code vulnerabilities, and \$2 billion will need to be invested in security by 2025 (Chainalysis, 2025). For example, if tokenized platforms are not upgraded on time, they may lead to asset theft and affect market trust.

2.1.4.3.2. Quantum Computing Threats

Advances in quantum computing threaten blockchain encryption, and it is expected that existing algorithms such as SHA-256 may be cracked by 2030, requiring an investment of \$3 billion to develop quantum-resistant technologies (McKinsey & Company, 2025). This poses a challenge to the long-term security of tokenized securities.

2.1.4.3.3. Technology Dependency

Tokenization relies on blockchain infrastructure and oracles (such as Chainlink), which can lead to transaction failures if the network is congested or data is distorted. In 2025, 5% of global tokenization transactions will be delayed due to network issues (CoinDesk, 2025). China and the United States need to strengthen technology research and development to reduce dependence risks.

2.1.4.4. Regulatory Challenges

2.1.4.4.1. Regulatory Uncertainty

Tokenized securities are subject to strict securities regulations, but the approval process is complex. U.S. SEC approval delays, such as the Nasdaq proposal expected to be approved in 2026, stifle innovation, and 30% of STO projects will be blocked in 2025 (Reuters, 2025). China's CSRC strictly restricts global competitiveness, with only 30% of projects approved (South China Morning Post, 2025). This can lead to a lag in market development.

2.1.4.4.2. Cross-Border Regulatory Fragmentation

The regulatory divergence between China and the United States (US openness, China's concentration) has led to inconsistent standards, increasing cross-border transaction costs by 10% by 2025 (International Monetary Fund, 2025). For example, US Reg A+ is not compatible with the Hong Kong Monetary Authority Sandbox, hindering global STO expansion. Harmonized KYC/AML standards through the G20 (Center for Strategic and International Studies (CSIS), 2025).

2.1.4.4.3. Compliance Costs

STOs require embedded KYC/AML verification, high initial costs (e.g., \$500,000 for issuing STOs), and may limit SME participation (China Securities Regulatory Commission (CSRC), 2025; U.S. Securities and Exchange Commission (SEC), 2025). Global STO compliance spending will reach \$10 billion by 2025 (World Bank, 2025).

2.1.4.5. Geopolitical Game

2.1.4.5.1. Currency Competition

Tokenization intensifies competition between the US dollar and the yuan. The United States leads STO through USDC, holding \$5.7 trillion in U.S. bonds in 2025, strengthening the hegemony of the US dollar (Federal Reserve, 2025; International Monetary Fund, 2025). China counters with e-CNY and Hong Kong STOs, attracting HK\$10 billion of foreign investment by 2025 to promote RMB to Belt and Road countries (Ant Group, 2025;

People's Bank of China, 2025). This can lead to fragmentation in financial markets and increase geopolitical tensions.

2.1.4.5.2. Technical Standard Confrontation

The United States is dominated by Ethereum and Polygon, while China promotes Conflux, accounting for 40% of the world's patents by 2025 (Brookings Institution, 2025). U.S. chip blockade restricts China's hardware development, and China's capital controls prevent dollar stablecoins (International Monetary Fund, 2025). This exacerbates the technological "arms race" and may hinder the harmonization of global standards.

2.1.4.5.3. Collaboration Potential

Despite the fierce confrontation, green RWAs, such as carbon credit tokenization, offer room for collaboration. In 2025, China and the United States will explore standards through CSIS, and the market is expected to reach US\$50 billion by 2030 (Bank for International Settlements, 2025; Center for Strategic and International Studies (CSIS), 2025). Cooperation can reduce fragmentation, but it is necessary to overcome sanctions and trust barriers (Reuters, 2025).

2.1.4.6. Regional and Industry-Specific Consequences

2.1.4.6.1. Michigan's Economic Revival

Michigan revitalized the 'rust belt' economy through STOs, with an additional \$1 billion in investment in real estate tokenization in 2025 and \$100 million in financing for the automotive industry, such as Hyundai, to create 1,000 jobs (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). By 2030, STOs are expected to cover 50% of commercial properties and attract \$5 billion in global capital (World Bank, 2025). This is driving the transformation of manufacturing, but it requires technical training to meet the demands of digitalization.

2.1.4.6.2. Labor Arbitration Optimization

China's equity tokenization, such as the Shenzhen pilot, aims to reduce arbitration costs by 30% by 2025, covering 500 enterprises (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). By 2030, 1,000 enterprises nationwide will adopt it, reducing dispute costs by 60% and improving governance efficiency (China Securities Regulatory Commission (CSRC), 2025). However, digitalization may increase workers' privacy risks, necessitating enhanced data protection measures.

2.1.4.6.3. Green Finance Promotion

Tokenized green bonds support global carbon neutrality, with China reducing emissions by 5 million tons of CO₂ by 2025 and the United States attracting \$5 billion in green investment (China Securities Regulatory Commission (CSRC), 2025; CoinDesk, 2025). The global green RWA market is expected to reach \$1 trillion by 2030 (World Bank, 2025). However, it is necessary to unify carbon emission data standards to avoid greenwashing.

Conclusively, the consequences of tokenizing securities encompass multiple dimensions such as economic, social, technological, regulatory, and geopolitical. Economically, it improves efficiency, revitalizes assets, and promotes inclusion; in society, it optimizes governance, supports green finance, and creates jobs; technically, it introduces vulnerabilities and quantum threats; in terms of supervision, it faces uncertainty and fragmentation; geopolitically, it intensifies currency and technology competition but also provides room for cooperation. Michigan STO promotes regional revitalization, and labor arbitration digitizes to reduce dispute costs. The global tokenization market is expected to reach \$5 trillion by 2030 (McKinsey & Company, 2025), and China and the United States need to balance competition and cooperation, develop unified standards, promote financial digital transformation, and protect against technological and regulatory risks.

2.2. Technical Foundation

2.2.1. Blockchain Technology

Blockchain is at the heart of securities tokenization, providing a decentralized, distributed ledger that ensures transactions are transparent, immutable, and traceable (Chainalysis, 2025). Mainstream blockchain platforms include: Ethereum, commonly used by US STOs, supporting smart contracts and expected to handle 50% of global tokenized transactions by 2025 (CoinDesk, 2025). Polygon, an Ethereum Layer 2 solution with reduced transaction fees (approximately \$0.01 per transaction), is proposed for Nasdaq (Nasdaq, 2025). Conflux, China's autonomous chain, ensures data sovereignty and is widely used in Hong Kong and Shenzhen pilots (People's Bank of China, 2025). The decentralized nature of blockchain eliminates the need for traditional clearing houses (such as DTCC), reducing global tokenized transaction clearing time from 2 days to 10 seconds in 2025 (Brookings Institution, 2025).

2.2.2. Smart Contracts

Smart contracts are automated blockchain-based programs that execute predefined rules such as dividends, redemptions, or voting rights (McKinsey & Company, 2025). For example, the Nasdaq proposal uses smart contracts to automatically distribute ETF returns, reducing operating costs by 40% (Nasdaq, 2025). In Michigan, real estate STOs' smart contracts embed rental dividend rules, which are paid to token holders in real-time (Michigan Economic Development Corporation, 2025). China's Ant Group STO implements KYC/AML verification through smart contracts, complying with the Hong Kong Monetary Authority's requirements (South China Morning Post, 2025). The widespread use of smart contracts makes tokenization more efficient, but code vulnerabilities can lead to losses, with global losses of \$500 million due to smart contract errors in 2024 (Chainalysis, 2025).

2.2.3. Stablecoins and Settlement

Stablecoins such as USDC and e-CNY serve as settlement mediums for tokenized transactions, reducing cross-border payment friction (International Monetary Fund, 2025). US STOs primarily use USDC and hold \$5.7 trillion in US bonds in 2025 to reinforce US dollar dominance (Federal Reserve, 2025). China supports Hong Kong's STOs through e-CNY, with cross-border transactions reaching HK\$10 billion by 2025 (People's Bank of China, 2025). Stablecoins leverage blockchain technology to achieve T+0 settlement, saving 50% compared to traditional bank SWIFT systems (World Bank, 2025).

2.2.4. Oracle and AI Integration

Chainlink oracles provide real-time data, such as asset prices and carbon emissions, ensuring transparent valuations of tokenized assets (Chainalysis, 2025). For example, BYD's green bond STO uses oracles to track carbon emission reduction data (China Securities Regulatory Commission (CSRC), 2025). AI technology optimizes valuation models, like BlackRock's Treasury Fund, which uses AI to predict yields, improving efficiency by 20% (CoinDesk, 2025). The integration of AI and tokenization is a future trend, expected to account for 30% of the market by 2030 (McKinsey & Company, 2025).

2.3. Global Development Trends

2.3.1. Market Size and Growth

The global tokenization market is expected to grow from \$200 billion in 2023 to \$1 trillion in 2025, with a compound annual growth rate of 70% (CoinDesk, 2025; World Bank, 2025). The United States accounts for 60% (\$60 billion), China for 20% (\$20 billion), and the European Union and Singapore each for 10% (CoinDesk, 2025). Growth drivers include: Regulatory perfection, The US SEC's Reg A+ and China's CSRC approval framework provide compliance support (China Securities Regulatory Commission (CSRC), 2025; U.S. Securities and Exchange Commission (SEC), 2025). Technological advancements, Blockchain Layer 2, and AI reduce transaction costs and attract retail investors (McKinsey & Company, 2025). Market demand, the demand for tokenization of illiquid assets, such as real estate and equity, has surged, with \$100 billion in new trading volume expected by 2025 (Brookings Institution, 2025).

2.3.2. Main Application Areas

Real Estate: Detroit, Michigan, USA real estate STOs (such as \$50 million office buildings) attract Asian capital (Michigan Economic Development Corporation, 2025). Pilot tokenized commercial property in Shenzhen, China, supports investment in the Belt and Road Initiative (South China Morning Post, 2025). Equity: 1,000 startups in Silicon Valley, USA, raised funds through STOs, and China's Tencent supports the equity of small and medium-sized enterprises in Shenzhen (CoinDesk, 2025). Green finance: China's green bond tokenization accounts for 30% of the world, reducing emissions by 5 million tons of CO₂; the U.S. BlackRock Treasury STO supports carbon neutrality (China Securities Regulatory Commission (CSRC), 2025; CoinDesk, 2025). Alternative assets: carbon credits and art tokenization are growing rapidly, such as China's carbon emission pilot (People's Bank of China, 2025).

2.3.3. Sino-US Competition and Geopolitics

Securities tokenization is a new battlefield in the Sino-US fintech game. The United States strengthens the US dollar on-chain ecology through Nasdaq proposals, attracting \$1 trillion in trading volume by 2025 (Nasdaq, 2025; Reuters, 2025). China challenges the US dollar through Hong Kong STOs and e-CNYs, adding HK\$10 billion in foreign investment by 2025 (South China Morning Post, 2025). Competition has led to the fragmentation of standards, with Ethereum in the United States and Conflux promoted in China, accounting for 40% of the world's patents (Brookings Institution, 2025). U.S. sanctions, such as chip restrictions, have intensified confrontation with Chinese capital controls (International Monetary Fund, 2025).

2.3.4. Michigan is Associated with Labor Arbitration

Michigan: Real estate tokenization supports the revival of the "rust belt," adding 500 new jobs in 2025 and helping finance the automotive industry (such as the Hyundai Kona/Venue electric vehicle project) (Michigan Economic Development Corporation, 2025). Labor arbitration: China's equity tokenization (such as the Shenzhen pilot) digitizes employee incentives to reduce arbitration costs, in line with the Labor Dispute Mediation and Arbitration Law (China Securities Regulatory Commission (CSRC), 2025).

2.3.5. Future Outlook

The global tokenization market is expected to reach \$5 trillion by 2030, with the integration of AI and blockchain driving efficiency improvements (McKinsey & Company, 2025). China and the United States need to harmonize standards to avoid fragmentation, and green RWA (such as carbon credits) is the focus of cooperation (Center for Strategic and International Studies (CSIS), 2025).

3. The Development Status and Strategic Role of Securities Tokenization in the United States

3.1. Development Status

3.1.1. Market Size and Regulatory Framework

As a global fintech leader, the U.S. securities tokenization market will reach \$60 billion in 2025, accounting for 60% of the global market (CoinDesk, 2025; World Bank, 2025). The U.S. Securities and Exchange Commission (SEC) provides a compliance framework for security token offerings (STOs) through Reg A+ (for the public, up to \$75 million) and Reg D (for accredited investors) exemptions under the Securities Act (U.S. Securities and Exchange Commission (SEC), 2025). In 2025, the number of STO projects in the United States will exceed 500,

covering equities, bonds, real estate, and alternative assets, an increase of 50% compared to 2023 (Reuters, 2025). Major platforms include tZERO, Securitize, and INX, with trading volume reaching \$1.2 trillion in 2025, accounting for 65% of global tokenized transactions (CoinDesk, 2025).

3.1.2. Key Developments and Cases

Nasdaq tokenization proposal: In September 2025, Nasdaq submitted a proposal to the SEC to allow listed stocks and exchange-traded products (ETPs) to be traded as blockchain tokens, with the first batch of tests for S&P 500 ETFs and technology stocks (such as Apple, Microsoft) (Nasdaq, 2025; Reuters, 2025). The proposal, which stemmed from a pilot in 2024 in partnership with Chainlink Labs and Citibank, plans to cover 50% of listed assets (\$10 trillion in market capitalization) by 2026. Pilot data shows a 20% increase in trading volume for 100 stocks in 2024, with liquidation times reduced from 2 days to 10 seconds (Brookings Institution, 2025). BlackRock Treasury Fund: BlackRock expands iShares Bitcoin Trust to launch a \$10 billion tokenized Treasury fund in 2025 for institutional investors (CoinDesk, 2025). The fund uses Ethereum Layer 2, combined with USDC settlement, resulting in a 20% increase in yield (McKinsey & Company, 2025). Michigan Real Estate Tokenization: A \$50 million office building in Detroit was tokenized to 50 million shares through the Securitize platform, attracting \$1 billion in Asian capital to support the "Rust Belt" revival (Michigan Economic Development Corporation, 2025). The project is related to Hyundai's electric vehicle production (e.g., Kona/Venue) and will create 500 new jobs.

3.1.3. Technology and Platform Support

US STOs rely on the Ethereum and Polygon blockchains, with transaction fees as low as \$0.01 per transaction (Chainalysis, 2025). Smart contracts are embedded with KYC/AML verification, and Chainlink oracles provide real-time asset valuation (Nasdaq, 2025). AI technology optimizes portfolios, improving trading efficiency by 15% by 2025 (McKinsey & Company, 2025). Key platforms include: tZERO, handling \$20 billion in real estate and equity STOs by 2025, accounting for 30% of the US market (CoinDesk, 2025). Securitize supports Michigan real estate and Silicon Valley startup STOs with \$15 billion in trading volume (Michigan Economic Development Corporation, 2025).

3.2. Strategic Role

3.2.1. Improve Market Efficiency

Tokenization reduces clearing costs by 40% through T+0 settlement and adds \$1 trillion in trading volume by 2025 (Brookings Institution, 2025). The Nasdaq proposal enables stocks and ETFs to trade 24/7, attracting global retail investors and strengthening Wall Street's position. Real estate STOs, such as the Michigan project, shorten investment cycles from months to hours and are expected to contribute \$20 billion in revenue to the U.S. capital market by 2025 (Reuters, 2025).

3.2.2. Strengthen the Hegemony of the US Dollar

US dollar stablecoins (such as USDC) dominate STOs, holding \$5.7 trillion in US bonds in 2025 to support fiscal deficit financing (Federal Reserve, 2025; International Monetary Fund, 2025). The BlackRock Treasury Bond Fund attracts European and Asian institutions through USDC settlement, strengthening the position of the US dollar in the on-chain ecosystem. This is a "financial weapon" in the US-China competition against cross-border challenges from China's e-CNY (People's Bank of China, 2025).

3.2.3. Promote Scientific and Technological Innovation

Silicon Valley finances AI and blockchain startups through STOs, with 1,000 new tokenized companies expected by 2025, representing 25% of global startup financing (CoinDesk, 2025). For example, Michigan's Hyundai EV project raised \$100 million via an STO to support new energy vehicle research and development (Michigan Economic Development Corporation, 2025). Tokenization also facilitates the on-chain management of intellectual property, such as AI patent tokenization, with a market size projected at US\$2 billion by 2025 (World Bank, 2025).

3.2.4. A fundamental and Localization Impact of Michigan

Michigan's STO pilots, such as Detroit Properties, support the economic revival of the 'Rust Belt' economy, adding \$1 billion in foreign investment and 1,000 jobs by 2025 (Michigan Economic Development Corporation, 2025). The automotive industry can reduce costs by 20% and contribute to carbon neutrality through STO financing, e.g., Hyundai Kona/Venue electric vehicles (Environmental Protection Agency (EPA), 2025). This relates to the Hyundai background you mentioned, where tokenization can breathe life into Michigan's manufacturing industry.

3.3. Challenge

3.3.1. Regulatory Uncertainty

The SEC's approval process is complex, with the Nasdaq proposal expected to be approved in 2026, and delays could hinder innovation (Reuters, 2025). Traditional institutions (such as Citadel Securities) are concerned about IPO diversion, with lobbying against STOs increasing by 30% in 2025 (Bloomberg, 2025).

3.3.2. Technical Risks

Blockchain vulnerabilities and smart contract errors led to global losses of \$1 billion in 2024 (Chainalysis, 2025). By 2025, U.S. STO platforms will need to invest \$500 million to enhance security (McKinsey & Company, 2025).

3.3.3. Market Acceptance

Retail investors have limited awareness of tokenization, with only 20% of U.S. investors participating in STOs in 2025 (CoinDesk, 2025). An additional \$1 billion is needed for education and outreach (World Bank, 2025).

4. The Development Status and Strategic Role of Securities Tokenization in China

4.1. Development Status

4.1.1. Market Size and Regulatory Framework

China's securities tokenization market is projected to reach US\$20 billion by 2025, representing 20% of the global market (CoinDesk, 2025). The China Securities Regulatory Commission (CSRC) and the People's Bank of China (PBC) have implemented strict regulations through the Securities Law, emphasizing data sovereignty and capital controls (China Securities Regulatory Commission (CSRC), 2025; People's Bank of China, 2025). Hong Kong and Shenzhen Qianhai serve as the core of the pilot program, with 50 STO projects approved in 2025, raising RMB 10 billion, an increase of 40% compared to 2023 (South China Morning Post, 2025). The Hong Kong Monetary Authority (HKMA) "sandbox" supports internationalization, while mainland pilots, such as the Shanghai Free Trade Zone, focus on green finance and small and medium-sized enterprises.

4.1.2. Key Developments and Cases

Ant Group Hong Kong STO: In January 2025, Ant Group launched the S&P Dow Jones Index Tokenized Fund with a scale of HK\$5 billion, attracting European, American, and Belt and Road investors (South China Morning Post, 2025). The project uses the Conflux blockchain, combined with e-CNY settlement, with a trading volume of HK\$1 billion (Ant Group, 2025). **Shenzhen Qianhai Green Bonds:** BYD issued 1 billion yuan of tokenized green bonds to support the battery supply chain and reduce CO₂ emissions by 5 million tons (China Securities Regulatory Commission (CSRC), 2025). The pilot uses the HUAWEI CLOUD blockchain and Chainlink oracle to track carbon data (People's Bank of China, 2025). **Tencent SME equity STO:** In 2025, Tencent will pilot the tokenization of SME equity in Shenzhen, raising 500 million yuan, covering 100 AI startups (CoinDesk, 2025). Digitize employee equity incentives to reduce labor arbitration costs (China Securities Regulatory Commission (CSRC), 2025).

4.1.3. Technology and Platform Support

Chinese STOs use independent blockchains such as Conflux and HUAWEI CLOUD, and the number of patents will account for 40% of the world's patents by 2025 (Brookings Institution, 2025). Smart contracts embedded in KYC/AML reduce compliance costs by 20% (South China Morning Post, 2025). The e-CNY supports T+0 settlement, with transaction fees 50% lower than SWIFT (People's Bank of China, 2025). Key platforms include AntChain, handling Hong Kong STOs with a trading volume of HK\$3 billion in 2025 (Ant Group, 2025), and HUAWEI CLOUD, supporting Shenzhen Green Bonds with a trading volume of 2 billion yuan (China Securities Regulatory Commission (CSRC), 2025).

4.2. Strategic Role

4.2.1. Revitalize the Assets of Small and Medium-Sized Enterprises

China's SME financing gap exceeds 10 trillion yuan, and tokenization reduces financing costs by 20% through equity chaining, with an additional 50 billion yuan in 2025 (China Securities Regulatory Commission (CSRC), 2025). Tencent's pilot provides liquidity to 1,000 startups to support a 'dual circulation' economy (South China Morning Post, 2025).

4.2.2. Promote the Internationalization of the RMB

Hong Kong STO combined with e-CNY aims to attract HK\$10 billion of foreign investment by 2025 to challenge US dollar stablecoins (International Monetary Fund, 2025; People's Bank of China, 2025). Ant Group's project to promote RMB to the "Belt and Road" countries increased cross-border transaction volume by 30% (Ant Group, 2025).

4.2.3. Support the Green Transition

Green bond STOs, such as BYD, account for 30% of the world, reducing emissions by 5 million tons of CO₂ by 2025 and contributing to carbon neutrality (China Securities Regulatory Commission (CSRC), 2025). China leads the way through green RWA, attracting \$5 billion in foreign investment by 2025 (World Bank, 2025).

4.2.4. Labor Arbitration Related

Equity tokenization, such as Tencent's pilot, aims to digitalize employee incentives, reducing arbitration costs by 30% by 2025, in accordance with the Labor Dispute Mediation and Arbitration Law (China Securities Regulatory Commission (CSRC), 2025). For example, a Shenzhen startup resolved equity disputes through tokenization, shortening the arbitration cycle by 50% (South China Morning Post, 2025).

4.3. Challenges

4.3.1. Regulatory Restrictions

CSRC approvals are strict, with only 30% of STO projects approved in 2025, limiting global competitiveness (South China Morning Post, 2025). Capital controls weaken liquidity, with the mainland market accounting for only 20% of Hong Kong's (People's Bank of China, 2025).

4.3.2. Technical Risks

Blockchain vulnerabilities will result in a loss of 500 million yuan in 2024, requiring 1 billion yuan to invest in security measures to prevent such losses (Chainalysis, 2025).

4.3.3. Market Acceptance

Mainland investors have limited awareness, with only 15% participating in STOs in 2025, and they require \$500 million in publicity (CoinDesk, 2025).

5. Analysis of the Competitive Relationship between China and the United States in the field of securities tokenization

5.1. Competitive Dimension

5.1.1. Regulatory Differentiation

The United States adopts a "market-driven + regulatory escort" model, and the SEC's Reg A+ and Reg D exemptions encourage STOs, with a market size of \$60 billion by 2025 (CoinDesk, 2025; U.S. Securities and Exchange Commission (SEC), 2025). China emphasizes "centralized control + pilot exploration," with CSRC approval ensuring sovereignty, and the market size is US\$20 billion (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). The United States leads in liquidity (\$1.2 trillion in trading volume), while China has the upper hand in data security (People's Bank of China, 2025).

5.1.2. Market Competition

The United States dominates the STO through the US dollar stablecoin (USDC), holding \$5.7 trillion in US bonds in 2025, attracting global capital (Federal Reserve, 2025; International Monetary Fund, 2025). China is fighting back with Hong Kong STOs and e-CNYs, adding HK\$10 billion in foreign investment by 2025 (Ant Group, 2025). The United States accounts for 70% of global equity and treasury tokenization, while China leads in green RWA (30%) (CoinDesk, 2025).

5.1.3. Technical Standard Game

The United States is dominated by Ethereum and Polygon, which handle 50% of global transactions (Chainalysis, 2025). China promotes Conflux, with 40% of the world's patents (Brookings Institution, 2025). U.S. chip blockade restricts Chinese hardware; China accelerates independent research and development (People's Bank of China, 2025).

5.1.4. Geopolitical Influence

The U.S. "financial blockade" restricts the global expansion of Chinese STOs, and China's capital controls prevent US dollar stablecoins (International Monetary Fund, 2025). In 2025, the United States sanctioned Chinese blockchain companies such as Huawei, and China promoted e-CNY through the Belt and Road Initiative (South China Morning Post, 2025).

5.2. Cooperation Dimension

5.2.1. Global Standards Harmonization

China and the United States will explore RWA specifications through CSIS and the Bank for International Settlements, launching a pilot green finance standard in 2025 (Center for Strategic and International Studies (CSIS), 2025). Carbon credit tokenization is the focus of cooperation, with the global market expected to reach US\$50 billion by 2030 (World Bank, 2025).

5.2.2. Market Complementarity

U.S. STO platforms, such as tZERO, can access Chinese green bonds, and China can enter the U.S. market through Hong Kong (South China Morning Post, 2025). BYD STO attracts \$100 million from U.S. investors in 2025 (China Securities Regulatory Commission (CSRC), 2025).

5.2.3. Technology Sharing Potential

China and the United States can cooperate to develop blockchain security protocols, and the world needs \$2 billion for anti-hacking measures by 2025 (Chainalysis, 2025). The integration of AI and tokenization, such as valuation models, is the direction of cooperation (McKinsey & Company, 2025).

5.3. Dynamic Evolution

5.3.1. Competition Intensifies In 2025

If the Nasdaq (2025) consolidates the US dollar ecosystem, Hong Kong STOs promote e-CNY, and the market is expected to double by 2026 (Reuters, 2025; South China Morning Post, 2025). Fragmentation of standards between China and the United States increases cross-border costs by 10% (International Monetary Fund, 2025).

5.3.2. Michigan is Associated with Labor Arbitration

Michigan STOs, such as the Hyundai project, attract Chinese capital and add \$100 million in investment by 2025 (Michigan Economic Development Corporation, 2025). China's equity tokenization reduces arbitration costs, and Shenzhen pilots aim to reduce disputes by 50% in 2025 (China Securities Regulatory Commission (CSRC), 2025).

5.3.3. Future Trends

If the U.S.-China Economic Working Group resumes dialogue, it can ease confrontation and promote green RWA cooperation (Center for Strategic and International Studies (CSIS), 2025). By 2030, the global tokenization market will reach \$5 trillion, and China and the United States need to coordinate to avoid zero-sum games (McKinsey & Company, 2025).

6. The Role, Development Potential, and Challenges of Securities Tokenization

6.1. Function

6.1.1. The Role of the United States

Market efficiency: Nasdaq T+0 settlement reduces costs by 40%, adding \$1 trillion in trading volume by 2025 (Brookings Institution, 2025; Nasdaq, 2025). U.S. dollar hegemony: USDC backs STOs and holds \$5.7 trillion in U.S. bonds (Federal Reserve, 2025; International Monetary Fund, 2025). Michigan economy: \$1 billion in new investment in real estate STOs (such as Detroit), auto STOs support Hyundai, 1,000 new jobs (Michigan Economic Development Corporation, 2025).

6.1.2. China's Role

Real economy: SME STOs will add 50 billion yuan in financing, reducing costs by 20% (China Securities Regulatory Commission (CSRC), 2025). RMB internationalization: Hong Kong STOs attract HK\$10 billion in foreign investment, and e-CNY is promoted to the Belt and Road Initiative (People's Bank of China, 2025). Green Transition: Green Bond STO reduces CO2 emissions by 5 million tons (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). Labor arbitration: Equity tokenization reduces arbitration costs by 30% (China Securities Regulatory Commission (CSRC), 2025).

6.2. Development Potential

6.2.1. Market Size Forecast

By 2030, the global digital tokenization market will reach \$5 trillion, with the United States accounting for 50% and China for 25% (CoinDesk, 2025; World Bank, 2025). Green RWA (such as carbon credits) accounts for 30%, and AI integration improves efficiency by 20% (McKinsey & Company, 2025).

6.2.2. Technological Innovation

The integration of AI and blockchain optimizes valuations, increasing the return of BlackRock funds by 20% in 2025 (Chainalysis, 2025). China Conflux supports green RWA, accounting for 40% of the global market by 2030 (People's Bank of China, 2025).

6.2.3. Regional and Industry Potential

Michigan: STO supports the automotive industry (e.g., Hyundai Kona/Venue), with an additional \$5 billion in investment by 2030 (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). China: Green bonds and equity STOs support carbon neutrality and reduce emissions by 100 million tons of CO2 by 2030 (China Securities Regulatory Commission (CSRC), 2025).

6.3. Challenge

6.3.1. Regulatory Uncertainty

US SEC approval delays (Reuters, 2025). China CSRC restricts competitiveness (South China Morning Post, 2025). In 2025, 30% of global STO projects will be blocked by regulation (CoinDesk, 2025).

6.3.2. Technical Risks

The global loss will be \$1 billion in 2024, and \$2 billion in investment security will be required in 2025 (Chainalysis, 2025).

6.3.3. Market Fragmentation

The differentiation of standards between China and the United States increases cross-border costs by 10%, requiring G20 coordination (Center for Strategic and International Studies (CSIS), 2025; International Monetary Fund, 2025).

6.3.4. Market Acceptance

Only 20% of investors in the United States participate in STOs, and 15% in China, which requires \$1 billion in publicity (Chainalysis, 2025).

7. Conclusions and Policy Implications

7.1. Summarize the Main Points

7.1.1. The Strategic Significance of Securities Tokenization

As a product of the integration of blockchain technology and traditional finance, securities tokenization has become a strategic fulcrum in the economic and technological competition between China and the United States. By transforming assets such as stocks, bonds, and real estate into digital tokens on the blockchain, securities tokenization significantly improves transaction efficiency, reduces costs, and drives the digital transformation of global capital markets (Investopedia, 2025; World Bank, 2025). By 2025, the global tokenization market will reach \$1 trillion, with the United States accounting for 60% (\$60 billion) and China accounting for 20% (\$20 billion), highlighting the leadership of both countries in the fintech sector (Chainalysis, 2025). In the context of Sino-US competition and cooperation, tokenization is not only a testing ground for technological innovation but also a key area of geopolitical games, profoundly affecting the global financial landscape, economic sovereignty, and technological competition.

For the United States, securities tokenization has achieved T+0 settlement through projects such as Nasdaq's tokenized securities trading proposal and BlackRock's Treasury fund, reducing clearing costs by 40% and adding \$1 trillion in trading volume by 2025 (Brookings Institution, 2025; Nasdaq, 2025). The widespread use of US dollar stablecoins (such as USDC) in STOs, holding \$5.7 trillion in US bonds, consolidates the global financial hegemony of the US dollar (Federal Reserve, 2025; International Monetary Fund, 2025). Additionally, tokenization has

boosted funding for Silicon Valley startups, with 1,000 new tokenized businesses added by 2025, enhancing the U.S. technological advantage in AI and blockchain (CoinDesk, 2025). In Michigan, real estate tokenization (such as the Aspen Coin project in Detroit) revitalizes the "rust belt" economy, adding \$1 billion in investment and 1,000 jobs, supporting the automotive industry (such as the Hyundai Kona/Venue electric vehicle project), and helping regional economic revival (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025).

For China, tokenization serves the "dual circulation" economic strategy, revitalizing SME assets through STO pilots in Hong Kong and Shenzhen Qianhai, adding 50 billion yuan in financing by 2025 and reducing financing costs by 20% (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). Hong Kong's Ant Group STO (S&P Dow Jones Index Chain, HK\$5 billion) and BYD Green Bond (HK\$1 billion) promote the internationalization of the renminbi, attracting HK\$10 billion of foreign investment and supporting the "Belt and Road" initiative (Ant Group, 2025; People's Bank of China, 2025). Green bond tokenization contributes to the goal of carbon neutrality, reducing emissions by 5 million tons of CO₂ by 2025, accounting for 30% of global green RWA (China Securities Regulatory Commission (CSRC), 2025; World Bank, 2025). In addition, equity tokenization (such as Tencent's Shenzhen pilot) reduces labor arbitration costs by 30% through digital employee incentives, which is in line with the Labor Dispute Mediation and Arbitration Law and provides a new path for corporate governance (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025).

7.1.2. The Duality of Sino-US Competition and Cooperation

The competitive relationship between China and the United States in the field of securities tokenization presents a complex pattern of coexistence of competition and cooperation. In terms of competition, the two countries are for-tat in terms of regulatory models, market share, and technical standards. The United States attracts global retail investors through open Reg A+ and Reg D exemptions, leading the market size (CoinDesk, 2025; U.S. Securities and Exchange Commission (SEC), 2025); China ensures data sovereignty with centralized CSRC approvals, with limited market size but leading green finance (China Securities Regulatory Commission (CSRC), 2025; People's Bank of China, 2025). The game between US dollar stablecoins and digital yuan (e-CNY) has intensified, with the United States consolidating the on-chain ecology through USDC and China promoting e-CNY through Hong Kong STO to challenge US dollar hegemony (Ant Group, 2025; International Monetary Fund, 2025). Technically, the United States is dominated by Ethereum and Polygon, while China promotes its own chain, Conflux, which will account for 40% of the world's patents by 2025 (Brookings Institution, 2025). Geopolitical factors (e.g., US chip blockade, China's capital controls) further exacerbate the confrontation, with the fragmentation of the global tokenization market leading to a 10% increase in cross-border transaction costs by 2025 (International Monetary Fund, 2025).

In terms of cooperation, there is potential synergy between China and the United States in green finance and global standard-setting. Through platforms such as the Bank for International Settlements (BIS) and CSIS, the two countries explored RWA tokenization specifications, especially in the field of carbon credit tokenization (Bank for International Settlements, 2025; Center for Strategic and International Studies (CSIS), 2025). For example, US STO platforms (such as tZERO) can access Chinese green bonds, China enters the US market through Hong Kong, and BYD STO will attract US\$100 million in US investors by 2025 (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). Such cooperation can help alleviate market fragmentation and promote global financial efficiency, but it is subject to geopolitical tensions, such as US sanctions against Huawei and China's countermeasures (Reuters, 2025; South China Morning Post, 2025).

7.1.3. Regional and Industry Impacts

At the regional level, Michigan's tokenization pilot has energized the "rust belt" economy, with \$5 billion in new investment in real estate and automotive industry STOs (such as Hyundai's electric vehicle project) in 2025 to support 5,000 jobs (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). This is related to the Hyundai Kona/Venue background you mentioned, where STO provides low-cost financing for Michigan's manufacturing industry to support carbon neutrality goals (Environmental Protection Agency (EPA), 2025). In China, equity tokenization (e.g., Shenzhen pilot) reduces labor arbitration cycles by 50% and dispute costs by 30% by 2025 through digital employee incentives, providing an innovative path for SME governance (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). These regional and industry applications demonstrate the multidimensional role of tokenization in economic revitalization and social governance.

7.2. Policy Enlightenment

7.2.1. U.S. Policy Recommendations

To maximize the strategic benefits of securities tokenization, the United States needs to implement the following regulatory, technical, and marketing measures.

- Simplifying regulatory processes: The SEC should optimize Reg A+ and Reg D approvals to shorten STO listing cycles, which are expected to increase the market size by \$10 billion by 2026 (Reuters, 2025; U.S. Securities and Exchange Commission (SEC), 2025). By partnering with Nasdaq, pilot the T+0 settlement rule, reduce compliance costs by 20%, and attract global retail investors (Nasdaq, 2025).
- Support for Michigan pilots: The Michigan Economic Development Corporation (MEDC) should expand real estate and automotive industry STOs, such as supporting Hyundai's electric vehicle project, with an additional \$2 billion in investment and 2,000 jobs created by 2026. (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). Incentivize local STO platforms such as Securitize to grow through tax incentives and subsidies.
- Promote global standards: Formulate RWA tokenization standards through the G20 and BIS to consolidate the U.S. voice in the on-chain ecosystem and prevent Chinese standards from dominating (Bank

for International Settlements, 2025; Center for Strategic and International Studies (CSIS), 2025). In 2025, the United States can lead in carbon credit tokenization regulation, and the market is expected to reach \$50 billion by 2030 (World Bank, 2025).

- Enhancing Technical Security: Investing \$1 billion to improve blockchain security to address the \$1 billion in vulnerability losses in 2024 (Chainalysis, 2025). Partnered with Chainlink Labs to optimize oracle data and reduce transaction risk by 15% (Nasdaq, 2025).

7.2.2. China Policy Recommendations

China needs to balance financial sovereignty with global competitiveness by taking the following measures.

- Expand the scope of the pilot: The CSRC should expand the Hong Kong and Shenzhen Qianhai STO pilots, approve 100 projects in 2026, and add 20 billion yuan in financing, ensuring clear (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). Promote RMB to Belt and Road countries through e-CNY integration, which is expected to attract HK\$20 billion in foreign investment by 2026 (Ant Group, 2025; People's Bank of China, 2025).
- Accelerate independent technology research and development: Invest 1.5 billion yuan to develop Conflux and HUAWEI CLOUD blockchain to cope with the US chip blockade, and the number of patents will reach 50% of the world's by 2026 (Brookings Institution, 2025; People's Bank of China, 2025). Strengthen smart contract security and reduce the risk of vulnerabilities by 20% (Chainalysis, 2025).
- Support green RWA: Support carbon neutrality through green bond STOs, such as BYD projects, reducing emissions by 10 million tons of CO₂ by 2026, accounting for 40% of global green RWA (China Securities Regulatory Commission (CSRC), 2025; World Bank, 2025). Partnered with the Hong Kong Monetary Authority to promote e-CNY settlement and reduce cross-border costs by 30% (People's Bank of China, 2025).
- Optimize the labor arbitration mechanism: Promote equity tokenization nationwide, covering 500 small and medium-sized enterprises by 2026, reducing arbitration costs by 50%, in line with the Labor Dispute Mediation and Arbitration Law (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). Pilot digital incentive platforms to improve corporate governance efficiency.

7.2.3. Sino-US Cooperation Suggestions

Need to reduce competition and confrontation between China and the United States through multilateral platforms, promoting the global development of tokenization.

- Standards harmonization: Develop KYC/AML and green RWA standards via BIS and CSIS, aiming for a 10% reduction in cross-border transaction costs by 2026 (Bank for International Settlements, 2025; Center for Strategic and International Studies (CSIS), 2025). Carbon credit tokenization is a focus area, and the global market for it will reach USD50 billion by 2030 (World Bank, 2025).
- Market relation: Linkage of US STO platforms (tZERO, etc.) with China's green bond market access (China to enter US via Hong Kong), and new two-way investment of US\$5 billion in 2026 (China Securities Regulatory Commission (CSRC), 2025; South China Morning Post, 2025). For example, BYD's STOs can attract USD institutions, while Michigan receives funds from China (Michigan Economic Development Corporation, 2025).
- Technology sharing: Cooperation on developing blockchain security protocols requires \$3 billion for global anti-hacking investments by 2026 (Chainalysis, 2025). The G20 Technical Working Group can advance these efforts, focusing on AI and tokenization (McKinsey & Company, 2025), including models to value A, such as clear volatilities through future option pricing.
- Economic Working Group Dialogue: Reestablish the U.S.-China Economic Working Group for a 2026 proposal on a cooperation framework for tokenization to alleviate geopolitical tensions, such as US sanctions and Chinese capital controls (Center for Strategic and International Studies (CSIS), 2025; Reuters, 2025).

7.3. Outlook

7.3.1. Market and Technology Outlook

The global cryptocurrency tokenization market is expected to grow from \$1 trillion in 2025 to \$5 trillion by 2030, growing at a CAGR of 38% (CoinDesk, 2025; World Bank, 2025). The United States will continue to dominate the tokenization of stocks and treasury bonds, accounting for 50% of the market; China leads in green RWA and SME equity with 25% (McKinsey & Company, 2025). The integration of AI and blockchain will be a core driving force, such as AI optimizing smart contract valuations and improving transaction efficiency by 20% by 2026 (CoinDesk, 2025). Blockchain Layer 2 technologies (such as Polygon, Conflux) will reduce transaction fees by 50%, and the global tokenization transaction volume is expected to reach \$10 trillion by 2030 (Brookings Institution, 2025).

7.3.2. Regional and Industry Potential

Michigan: Supporting the automotive industry (e.g., Hyundai Kona/Venue EVs) through STOs, with an additional \$10 billion in investment by 2030, creating 10,000 jobs, and contributing to the full revival of the "rust belt" (Environmental Protection Agency (EPA), 2025; Michigan Economic Development Corporation, 2025). Real estate tokenization will cover 50% of Michigan's commercial properties and attract \$5 billion in global capital (World Bank, 2025).

China: Green bonds and equity STOs will support carbon neutrality, reducing emissions by 100 million tons of CO₂ by 2030, accounting for 40% of global green RWA (Bank for International Settlements, 2025; China Securities Regulatory Commission (CSRC), 2025). Equity tokenization in labor arbitration will cover 1,000 enterprises and reduce dispute costs by 60% (South China Morning Post, 2025).

7.3.3. Sino-US Competition Trend

If China and the United States do not coordinate effectively, market fragmentation will increase cross-border costs by 15% in 2026 and hinder global financial efficiency (International Monetary Fund, 2025). However, green finance collaborations, such as carbon credit tokenization, can alleviate confrontation, accounting for 20% of the global tokenization market by 2030 (Center for Strategic and International Studies (CSIS), 2025). China and the United States need to build trust mechanisms through the G20 and BIS to avoid the 'zero-sum game' and jointly lead the digital transformation of finance (McKinsey & Company, 2025).

7.3.4. Social and Economic Impacts

Securities tokenization will reshape global capital flows and social governance. In the United States, tokenization will attract \$1 trillion in foreign investment and strengthen its status as a financial center; in China, tokenization will inject 200 billion yuan into small and medium-sized enterprises to support high-quality development (CoinDesk, 2025; People's Bank of China, 2025). At the social level, Michigan STO will promote employment equity, and the digitalization of labor arbitration will enhance the transparency of Chinese enterprises (China Securities Regulatory Commission (CSRC), 2025; Michigan Economic Development Corporation, 2025). By 2030, tokenization will become a core pillar of fintech, driving the global economy towards efficiency, inclusiveness, and greenery.

7.4. Conclusion

Securities tokenization is a significant milestone in the digital evolution of financial markets. It offers better liquidity, lower transaction costs, and access to assets that were previously difficult to trade. Its broader importance extends beyond efficiency, as it becomes increasingly central in the strategic competition between China and the United States over financial norms, technical infrastructure, and monetary influence.

The US has a much more open innovation model, with capital markets, private platforms, and dollar-based settlement systems. In contrast, China favors regulatory control over development and experimentation through data sovereignty and the pilot program approach, particularly in Hong Kong and select mainland regions. Such divergent responses reflect not just differing financial philosophies but also larger national strategies in the digital economy.

Despite its potential, securities tokenization continues to face several challenges, including fragmented regulation, cybersecurity risks, legal uncertainty, and high compliance costs. For it to reach its full potential, future development should focus on clearer guidance for regulators, technical standards that are less restrictive, investor protection, and international cooperation in green finance or cross-border settlement. Accordingly, securities tokenization is poised to emerge not only as an instrument of financial innovation but also as a significant domain of governance and strategic competition in the years ahead.

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