



By: ICMA Research and Publications Department

# Global Tokenization Trends and Pathways for Pakistan’s Capital Markets

## Preamble

The ICMA Research and Publications Department considers that strengthening and modernizing financial markets increasingly requires reforms supported by advanced and emerging technologies. In this regard, tokenization, which refers to the digital representation of real-world assets on blockchain networks, is becoming an important development in capital markets. It allows assets to be divided into smaller shares, improves liquidity, speeds up settlement processes, and enables more investors to participate in the market thereby expanding market access and supporting broader financial inclusion.

By using blockchain technology and smart contracts, tokenized assets can be issued, traded, and settled securely with less dependence on traditional intermediaries. This helps address common market problems such as slow settlement, high transaction costs, limited transparency, and restricted market access and also enhances efficiency, traceability, and investor confidence in financial transactions.

Many global financial centers and stock exchanges are developing digital securities systems, and emerging economies are also exploring this technology. In Pakistan, initiatives such as the potential tokenization of sovereign debt and possible integration with the Pakistan Stock Exchange (PSX) show efforts to modernize financial markets, improve transparency, and increase investor confidence in addition to creating new opportunities for capital market development and digital finance innovation. Research suggests that blockchain-based settlement systems can significantly reduce transaction costs and shorten settlement times thereby strengthening the reliability and transparency of financial market infrastructure.

## Global Tokenization Market Outlook

The global tokenization market was valued at USD 3.95 billion in 2025 and is projected to grow from USD 4.7 billion in 2026 to USD 15.9 billion by 2034, at a CAGR of 16.40%. North America accounted for the largest market

share of 34.9% in 2025. This growth is mainly driven by increasing digitalization and the rising use of digital payment systems, which require robust protection of sensitive data. Technological advancements have also enabled organizations to implement effective and scalable data security solutions.

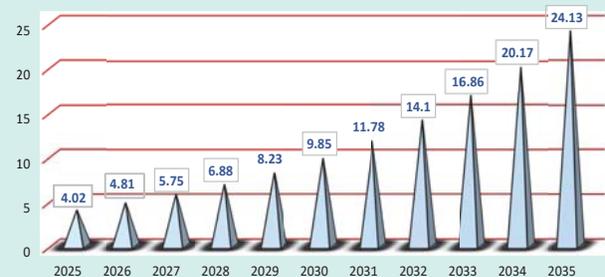
The COVID-19 pandemic accelerated digital transformation as businesses adopted online systems to maintain operations. This shift substantially increased the volume of digital transactions, boosting demand for tokenization to secure sensitive consumer information. Additionally, the rise of cashless payments and online commerce has further reinforced market growth.

A key market trend is the growing demand for secure payment gateways due to increasing cyber threats and data breaches. Tokenization helps replace sensitive information with unique digital tokens, reducing the risk of fraud and unauthorized access. Industries such as banking, retail, healthcare, and insurance are increasingly adopting tokenization to safeguard digital payments and comply with data protection regulations.

The rapid expansion of tokenized financial infrastructure reflects the growing adoption across banking, capital markets, and digital asset platforms. This indicates a clear shift toward more secure and efficient digital financial ecosystems globally.

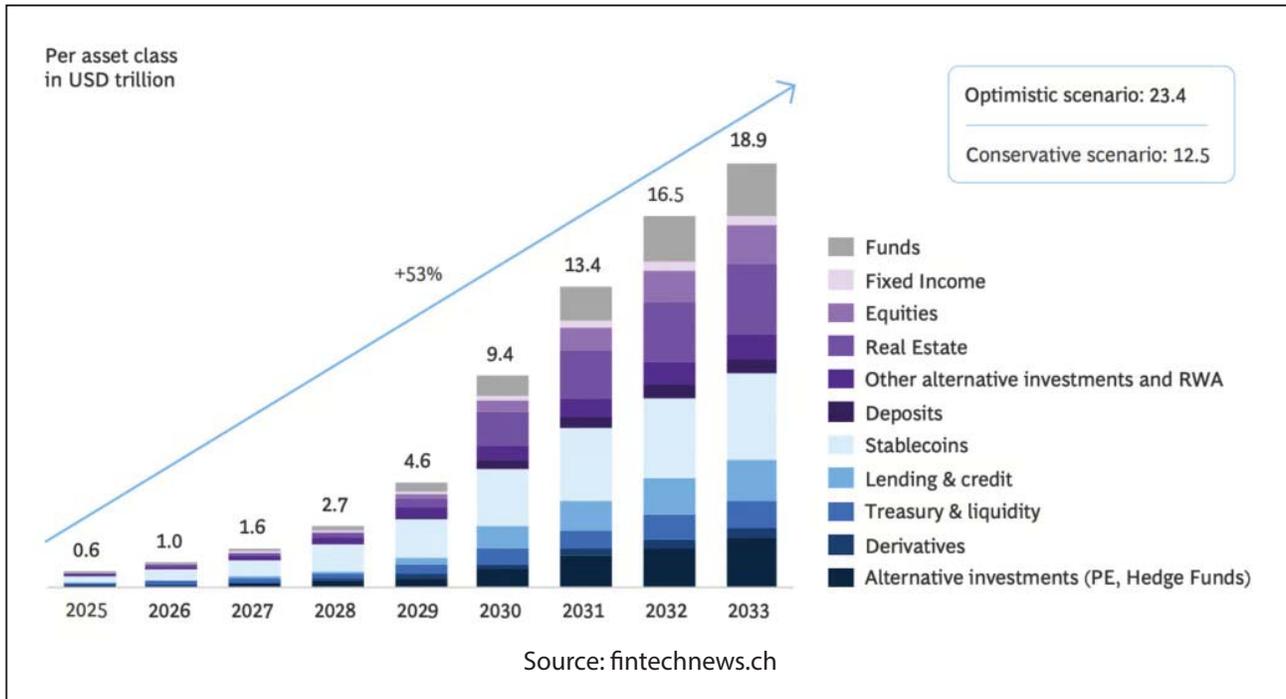
The figure 1 illustrates the strong expected growth trajectory of the tokenization industry as financial institutions increasingly integrate blockchain technology into capital market infrastructure.

Figure 1: Tokenization Market Size (in USD billion)



Source: Precedence Research

Figure 2: Estimated Growth in Tokenization Per Asset Class (in USD trillion)



contributors to this growth include stablecoins, deposits, treasury instruments, equities, real estate, and alternative investments, reflecting broader institutional adoption and evolving regulatory frameworks supporting blockchain-based financial infrastructure.

This trend signals a structural shift toward digitally native capital markets, where blockchain infrastructure increasingly complements and enhances traditional financial institutions.

## Global Tokenization Adoption

### 1) USA: Market Leader

U.S. is a major player in asset tokenization, accounting for 34.8% of cryptocurrency products launched in 2023. Historically, industry growth was constrained by regulatory hurdles, but approval of Bitcoin ETF in early 2024 marked a key breakthrough. Legislative efforts, such as Lummis-Gillibrand Stablecoin Bill, aim to provide clear

## Tokenization in Capital Markets: Benefits vs. Risks

| Benefits of Tokenization  | Challenges and Risks   |
|---|--|
| <b>Increased Liquidity:</b> Unlocks liquidity for illiquid assets through fractional ownership, lowers investment thresholds, and expands trading activity. | <b>Regulatory Uncertainty:</b> Ambiguous rules and potential investor misunderstandings may inhibit issuance and trading; tokenized instruments may not provide full shareholder rights. |
| <b>Broader Investor Access:</b> Enables small and retail investors to participate in equities, bonds, and other assets, supporting financial inclusion.     | <b>Liquidity Fragmentation:</b> Assets spread across multiple platforms and blockchains may reduce overall liquidity.  |
| <b>Faster Settlement:</b> Blockchain shortens settlement times, reduces counterparty risk, and improves capital turnover and market resilience.             | <b>Infrastructure Risks:</b> Technology and custody systems must be secure to prevent hacks, smart contract failures, and custodial errors.  |
| <b>Transparency &amp; Compliance:</b> Immutable records enhance transparency; smart contracts automate KYC/AML compliance, reducing errors and friction.    | <b>Legal &amp; Operational Challenges:</b> Integrating tokenized assets with existing legal frameworks and cross-border operations can be complex.                                       |

rules for stablecoins, which represent most tokenized assets, potentially simplifying issuance and banking interactions. Political shifts, including 2024 presidential election, may further ease regulations and accelerate market development. Institutional players are actively involved, with projects like BlackRock's BUIDL fund and Franklin Templeton's Benji initiative, particularly focusing on tokenized treasury bonds and large-scale digital asset adoption.

## 2) Switzerland: Legal & Institutional Hub

Switzerland's DLT Act recognizes tokenized securities as legally enforceable, with oversight by FINMA, making country a leading hub for blockchain-based finance. Notable activity includes Societe Generale's €100 million tokenized bond on SDX platform. While regulatory framework is mature, operational requirements, such as registration agreements, must be carefully managed. Switzerland is ideal for institutional-grade tokenization projects seeking legal certainty and access to European market under well-established regulatory system.

## 3) Singapore: Regulatory Pioneer

Singapore is considered a pioneer in regulated asset tokenization. Monetary Authority of Singapore (MAS) oversees tokenized real-world assets under Securities and Futures Act, treating them as securities when representing assets such as equity, debt, or investment funds. Tokenization platforms in capital markets must obtain licenses under Capital Markets Services (CMS) and Recognized Market Operator (RMO) frameworks. Key initiatives include Project Guardian, testing tokenized bonds and funds, Global Layer 1 (GL1), developing digital asset infrastructure standards, and BLOOM, enabling real-time cross-border settlement of tokenized assets. Institutional adoption is increasing, with UBS and Standard Chartered introducing tokenized investment funds. Singapore provides clear regulatory framework and strong financial infrastructure, making it an attractive hub for institutions exploring tokenized capital markets.

## 4) Hong Kong: Tokenized Finance

Hong Kong regulates tokenized securities under Securities and Futures Ordinance, with Securities and Futures Commission (SFC) overseeing compliance. City has introduced a tokenized green bond framework and supports security token offerings (STOs) through sandbox regime. Key initiatives include issuance of Hong Kong's first tokenized green bond in 2023 (around USD 100 million) and second issuance in 2024 worth HK\$6 billion, as well as approval for tokenized securities by Guotai Junan International. Hong Kong is ideal for issuers targeting mainland China and pan-Asian capital, combining common-law system with strong fintech

support, though participants must stay updated on regulatory changes.

## 5) UAE: Sandbox Innovation

UAE has positioned itself as a crypto-friendly and regulated hub for digital assets through Virtual Asset Regulatory Authority (VARA) and initiatives in Dubai International Financial Centre (DIFC). VARA provides a comprehensive legal framework for digital assets, including tokenized securities. Key initiatives include Dubai Land Department Real Estate Tokenization Pilot (2025), which tokenizes property titles on blockchain, and Digital Asset Oasis in ADGM and DIFC, supporting blockchain firms and new regulatory standards. UAE has also seen large-scale market activity, such as a \$3 billion real estate tokenization deal involving MAG, MultiBank, and MAVryk. Country is well-suited for real estate tokenization projects targeting Middle Eastern investors, offering regulatory flexibility and sandbox support, although legal enforceability and cross-border recognition are still evolving.

## Tokenization in Pakistan: Early Initiatives

### Current Status and Future Outlook of Tokenization on PSX

Pakistan is actively building a comprehensive and legally backed digital asset ecosystem, which forms the foundation for future tokenization initiatives that could eventually intersect with the Pakistan Stock Exchange (PSX). In early 2026, Pakistan's parliament passed the Virtual Assets Act 2026, formally establishing the Pakistan Virtual Assets Regulatory Authority (PVARA) as a permanent regulator empowered to license, supervise, and enforce compliance for virtual asset service providers (VASPs) such as exchanges, custodians, and token issuers. This law also imposes penalties for unlicensed crypto activity and aligns Pakistan's digital asset regulation with global standards.

Under this evolving regulatory framework, Pakistan signed a Memorandum of Understanding (MoU) with Binance to explore blockchain-based tokenization of up to USD 2 billion in sovereign and real-world assets, including government bonds, treasury bills, and commodity reserves — with the aim of enhancing liquidity, transparency, and international participation in state-backed asset markets.

PVARA has also granted No Objection Certificates (NOCs) to global exchanges such as Binance and HTX, enabling them to initiate registration and compliance steps under the regulatory regime (though full operational licenses are still pending).

## Key Dimensions and Outlook

| Dimension                         | Current Status   | Future Outlook & Potential Impact   |
|-----------------------------------|--|---|
| <b>Regulatory Framework</b>       | Virtual Assets Act 2026 passed; PVARA established as statutory regulator | Provides legal foundation for tokenized asset markets and compliance mechanisms that could support integration with PSX |
| <b>Tokenization Initiatives</b>   | MoU with Binance to explore tokenizing USD 2 billion in sovereign assets | Could enable token-based instruments such as bonds, T-bills, and commodities to integrate with regulated markets        |
| <b>Exchange Licensing</b>         | NOCs issued to Binance & HTX; full licenses pending                      | Licensed digital asset platforms may support tokenized trading infrastructure under supervision                         |
| <b>PSX Integration Status</b>     | No tokenized securities listed/traded on PSX yet                         | Could align with PSX systems once frameworks and custody/settlement interoperability are established                    |
| <b>Market Participation</b>       | Growing interest in blockchain and digital finance adoption nationally   | May broaden retail and global investor participation across traditional and digital financial products                  |
| <b>Liquidity &amp; Innovation</b> | Regulatory setup evolving; sandbox testing underway                      | Could enable fractional ownership, 24/7 secondary markets, and improved liquidity for previously illiquid assets        |

At present, PSX does not directly trade tokenized securities, but the regulatory progress, sandbox testing environment, and strategic engagements with international digital asset firms lay the groundwork for potential future integration of tokenized products with

mainstream capital markets. If tokenization frameworks and PSX rules align in the future, this may broaden investor access, enhance liquidity for traditionally illiquid assets, support new product innovation, and attract global capital.

## ICMA Action Plan: Strengthening PSX through Tokenization

| Sr. | Step  | Global Inspiration                    | ICMA Proposed Actions for PSX   |
|-----|---|---------------------------------------|---|
| 1   | <b>24/7 Tokenized Trading</b>                               | <b>U.S. (NYSE/ICE treasury bonds)</b> | <ul style="list-style-type: none"> <li>Develop a tokenized trading layer alongside PSX regular hours for continuous trading.</li> <li>Support near-instant settlement and secure digital custody for tokenized PSX instruments to attract local and global investors.</li> </ul>  |
| 2   | <b>Interoperable Settlement &amp; Market Infrastructure</b> | <b>LSEG, Singapore (BLOOM)</b>        | <ul style="list-style-type: none"> <li>Create a blockchain-based settlement layer linking tokenized securities with PSX clearing systems (CDC/NCCPL).</li> <li>Ensure compatibility with national financial infrastructure so institutional investors view tokenization as an extension, not replacement, of existing processes.</li> </ul> |
| 3   | <b>Fractional Ownership &amp; Expanded Market Access</b>    | <b>Hong Kong, U.S.</b>                | <ul style="list-style-type: none"> <li>Offer fractional tokenized versions of major PSX equities, government bonds, and funds.</li> <li>Target overseas Pakistanis and global retail investors by making tokenized fractions easily tradable and accessible internationally.</li> </ul>   |
| 4   | <b>Align with National Tokenization Initiatives</b>         | <b>UAE, Singapore</b>                 | <ul style="list-style-type: none"> <li>Coordinate PSX strategy with national tokenization pilots under PVARA regulatory sandbox, starting with sovereign bonds and T-bills.</li> <li>Use pilot insights to design tokenized investment products for PSX, including listed securities and new digital instruments.</li> </ul>                |
| 5   | <b>Legal Certainty &amp; Regulatory Support</b>             | <b>Switzerland, Singapore</b>         | <ul style="list-style-type: none"> <li>Strengthen legal definitions and investor protections for tokenized securities under Pakistan law, ensuring enforceable ownership and custody rights.</li> <li>Provide PVARA -approved standards supporting blockchain records and compliance under SEC and SBP oversight.</li> </ul>                |

### Key Benefits for PSX from Tokenization

| Benefit                                    | Impact on PSX  |
|--|--|
| <b>Enhanced Liquidity</b>                  | Faster, continuous trading and fractional ownership open markets to more participants. |
| <b>Broader Investor Base</b>               | Retail and overseas Pakistanis can invest easily in tokenized securities.              |
| <b>Lower Costs &amp; Faster Settlement</b> | Blockchain reduces intermediaries and settlement times.                                |
| <b>Global Market Access</b>                | Tokenized assets can be traded globally, attracting foreign capital.                   |
| <b>Transparency &amp; Security</b>         | Immutable blockchain ledger builds trust and supports regulatory oversight.            |

### Conclusion

Tokenization is emerging as a powerful tool to modernize capital markets. It enables fractional ownership, faster settlement, improved liquidity, and wider access for investors through blockchain and smart contracts. Global examples show its potential. The UAE has piloted real world asset tokenization through regulated sandboxes. Hong Kong has issued tokenized green bonds and advanced security token offerings. Singapore provides clear licensing rules for institutional tokenized securities. Switzerland ensures strong legal enforceability for digital assets. In the United States, recent regulatory changes are encouraging broader institutional adoption and more efficient market practices.

In Pakistan, the Virtual Assets Act 2026 and the establishment of the Pakistan Virtual Assets Regulatory Authority, PVARA, provide a legal framework for digital assets. The government has signed a Memorandum of Understanding with Binance to explore tokenizing up to two billion US dollars of sovereign and real-world assets including government bonds, treasury bills, and commodity reserves. This initiative aims to improve liquidity, transparency, and attract global investors.

By building on these developments and adopting global best practices such as piloting tokenized securities,

enabling interoperable settlement systems, offering fractional token instruments, and aligning PSX strategy with national digital asset projects, Pakistan can strengthen market liquidity, expand participation among local and overseas investors, and increase transparency. Tokenization is poised to play a central role in modernizing the Pakistan Stock Exchange and creating a stronger, digital-ready financial system.

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