



Reconnecting Capital with the Real Economy:

Real Estate Tokenization and the New Architecture of Financial Systems

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ABSTRACT

Real estate has always been important for stimulating economic growth, protecting wealth, and providing a promising long-term investment. However, purchasing real estate directly is too costly, and traditional financing methods are heavily dependent on bank loans. Slow process, low liquidity, and limited investor access are also challenging the industry. Volatile economic conditions, high inflation and interest rates, and rising construction and financing costs are also increasing the pressure on the real estate sector, especially in emerging countries like Türkiye. While global financial systems are being reshaped and blockchain-based tokenization emerges as a new model in capital markets, real estate financing is also being radically transformed. In this context, this paper discusses real estate tokenization as a new financial approach that uses blockchain technology to represent property rights in digital form and enables investors to make investments in a more digital, decentralized, and fractional way. The paper sets out a strategic roadmap for Turkish real-asset tokenization and offers sustainable policy recommendations.

Atıf için / Please cite as:

Sümer, L., & Akgiray, V. (2026). Reconnecting Capital with the Real Economy: Real Estate Tokenization and the New Architecture of Financial Systems. In CARF White Paper Series (Vol. 2026, Number 03 - EN). Center for Applied Research in Finance (CARF).

<https://doi.org/10.5281/zenodo.20747038>

1. Real Estate Tokenization in the Context of Global Financial Transformation

Real estate has long been at the center of the economic system. Real estate serves both as an investment tool and an economic activity that stimulates growth. However, the structural limitations of conventional real estate financing models, especially when combined with the global risks of the current financial and economic system, put pressure on the need to seek alternative sustainable financial architectures. Hence, the developments in digital financial technologies and blockchain-based systems bring new possibilities for investment, ownership, financing, and transfer of real assets through tokenization.

Real Estate as Economic and Financial Infrastructure

Historically, real estate has never been just a physical asset class. Rather, it has served as a fundamental instrument of economic organization, a vehicle for wealth preservation, and a cornerstone of long-term capital formation.

Beyond its direct role in the economy, real estate has become essential to modern financial systems. Mechanisms such as mortgage markets, institutional investment funds, pension fund allocations, securitization structures, and publicly traded real estate instruments have transformed physical properties into core components of global capital markets. Consequently, the sector no longer functions merely as a store of wealth or a source of economic output. It also serves as a critical vehicle for financial intermediation, liquidity generation, and long-term investment allocation. In this light, real estate must be understood as both an economic and societal infrastructure — one that bridges human settlement, commercial activity, and capital flows. When properly managed, it contributes meaningfully to financial stability, economic resilience, and sustainable development over time.

Structural Problems in Housing and Real Estate Finance

Despite its economic importance, the real estate sector continues to suffer from structural flaws. High transaction costs, illiquidity, limited accessibility, fragmented ownership structures, lengthy settlement processes, valuation inadequacies, and high dependence on traditional banking systems constrain the efficient allocation of capital within the real estate ecosystem. These challenges become even more visible during periods of high inflation, rising interest rates, financial volatility, and constrained access to long-term financing.

Over the past few decades, the world has undergone significant changes, and so has the financial world. The demise of the Bretton-Woods agreement, the weakening power of the United States Dollar (USD), the rise of China and its hegemony over economies of many countries, the ongoing armed conflicts, conventional, trade, and energy wars, the impacts

of the climate change, the level of high debts reached, the expanding inequality of the income level and wealth, uncertainties in stock and even in commodity markets, including gold and silver prices, the rising importance in digital currencies, the use of artificial intelligence (AI) almost in all aspects of life are all the signs of these radical changes (Piketty, 2013; Akgiray, 2019; Brunnhuber, 2021; Sümer, 2023).

None of those who signed the Bretton Woods Agreement in 1944 will likely witness these fundamental changes, which are also shifting investment behavior and choices. Amid uncertainty, people tend to protect their wealth by investing in gold, but recent sharp price swings have also shaken its status. The rise in housing prices during and after Coronavirus Disease (COVID-19) was a great hedge against inflation for many investors, but the level of the housing prices reached, alongside the difficulties in accessing housing financing due to high interest rates, made it almost impossible for many potential homebuyers to make their dream of owning a house come true. This situation created a housing affordability problem for both emerging and developed economies, with homeownership rates declining (Trading Economics, 2026).

Policymakers aim to resolve this ongoing issue by using temporary solutions such as low-interest financing support, land allocation, tax incentives and exemptions, mandatory social housing production, rental housing schemes, rent support programs, public-private partnerships (PPPs), housing cooperatives, vacant housing taxes, and shared ownership models. While some policies are more sustainable and have achieved partial success, most have provided only temporary solutions, largely because the mortgage system relies heavily on the banking industry (Hepşen & Sümer, 2025).

To break this deadlock and save the housing sector from the Penrose Stairs, some sustainable alternative financing models that put the real estate capital markets and pension system at the heart of housing finance have been developed. Among these alternatives, financing through real estate investment funds (REIFs), real estate investment trusts (REITs), real estate certificates, and combined ecosystems of these instruments open a new path for sustainable housing financing. Adding another “P-People” to the PPP model and introducing the 4P (public-private-people partnership) model are noteworthy, as they direct people's savings across different savings accounts, including pension funds, into a sustainable housing financing solution (Sümer, 2024).

Digital Financial Transformation and Tokenization

The global financial system is being digitally transformed. Blockchain technology, digital assets, stablecoins, tokenized securities, and distributed ledger systems are restructuring the payment models, capital markets, and investment management. Within this transition, tokenization, which refers to the digital representation of ownership rights, economic interests, or contractual claims associated with physical or financial assets through a blockchain-based system, has emerged as one of the most significant innovations.

REITs, REIFs, and real estate certificates traded on stock markets make real estate more liquid and cashable through securitization. The digitalization of these shares and certificates takes not just the housing sector but the entire real estate industry to another level: real estate tokenization.

To understand tokenization, it is essential to draw a clear distinction between tokenization, securitization, and digitization. While securitization converts asset cash flows into tradable financial instruments, digitization transforms processes and records into digital formats, whereas tokenization creates blockchain-native, programmable representations of ownership and economic rights (Wandmacher & Wegmann, 2020).

In real estate, tokenization allows physical assets to be broken down into digital units that can be easily transferred or traded. These units may represent different forms of economic interest, such as ownership shares, income rights, debt interests, or usage entitlements. By enabling fractional ownership and making transactions more transparent, automated, and efficient, tokenization has the potential to increase market accessibility, improve liquidity, streamline operations, and support more efficient capital raising in the real estate sector.

Tokenized real estate may also contribute to the modernization of capital markets, the mobilization of domestic savings, the expansion of participation finance ecosystems, the development of alternative housing finance mechanisms, and the integration of real assets into next-generation digital financial infrastructure, as shown in Figure 1. In addition, tokenization may support broader economic objectives, including urban transformation financing, infrastructure development, financial inclusion, and cross-border investment integration.

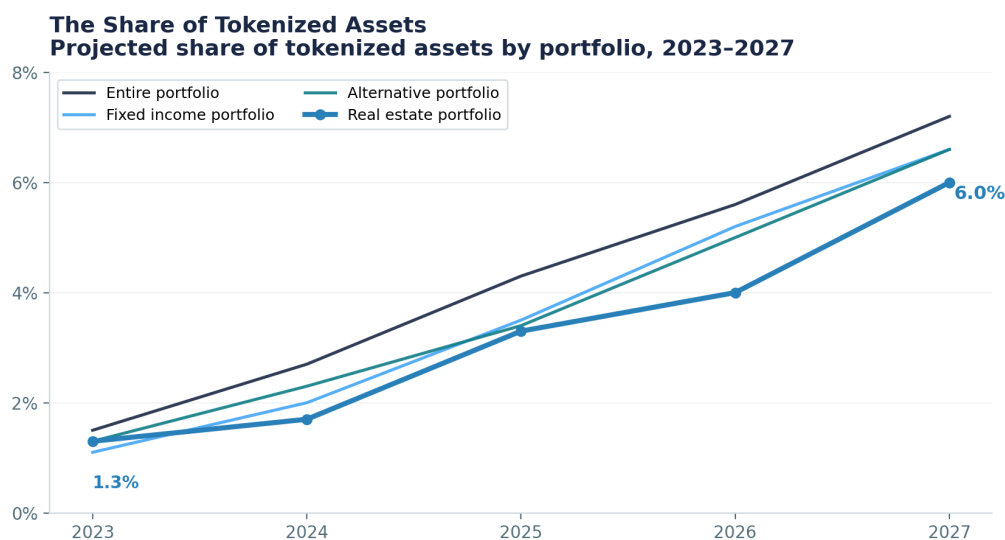


Figure 1. The Benefits of Real Estate Tokenization.

However, real estate tokenization faces substantial legal, regulatory, operational, technological, and macro-financial challenges, including investor rights, securities classification, custody arrangements, digital identity systems, cybersecurity, stablecoin-based settlement infrastructure, monetary implications, and cross-border issues. As a result, the success of tokenization depends on technological innovation, the establishment of robust legal frameworks, institutional coordination, practical oversight, and a trusted market infrastructure.

Countries are increasingly competing to position themselves as regional hubs for digital assets, tokenized securities, and blockchain-based financial services. Financial centers such as Dubai, Singapore, Switzerland, and Hong Kong are actively developing regulatory frameworks and institutional ecosystems to attract digital capital and tokenized investment activity. Türkiye, with its strong centralized land registry system, dynamic real estate and construction sector, expanding fintech capabilities, growing participation in financial services, and strategic connectivity to Europe, the Middle East, Central Asia, and Africa, also has significant advantages in this area.

Accordingly, real estate tokenization should represent a structural evolution in financial infrastructure, capital markets, and real asset investment systems. With appropriate regulation, institutional architecture, and strategic coordination, tokenized real estate ecosystems may become an important component of Türkiye's long-term digital economic transition and regional financial competitiveness.

This paper examines the financial, legal, technological, and institutional dimensions of real estate tokenization and evaluates its potential implications for capital markets, housing finance, investment structures, and digital financial infrastructure. Furthermore, the study proposes a road map and a strategic framework for developing a regulated, sustainable, and internationally competitive tokenized real estate ecosystem in Türkiye.

2. Limitations of Traditional Real Estate Finance

Traditional real estate financing, which mainly relies on bank loans and mortgages, faces several important challenges. These include high upfront capital requirements, lengthy approval procedures, and strict lending standards that often favor low-risk borrowers.

For many investors, entering the real estate market can be difficult because conventional financing typically requires substantial down payments, additional closing costs, and, in some cases, prepayment penalties. As illustrated in Figure 2, real estate is already considered a relatively illiquid asset, and traditional loan structures can further restrict liquidity by locking in capital for extended periods. Consequently, investors may find it challenging to convert property holdings into cash quickly without incurring financial losses.

In addition, banks often apply rigid credit assessment criteria, leading to the rejection of borrowers with lower credit scores or higher debt-to-income ratios, even when the underlying property has strong profit potential. Another major drawback is the slow loan approval process, which can place investors at a disadvantage in highly competitive and rapidly changing real estate markets (Bansal & Bhattacharya, 2025).

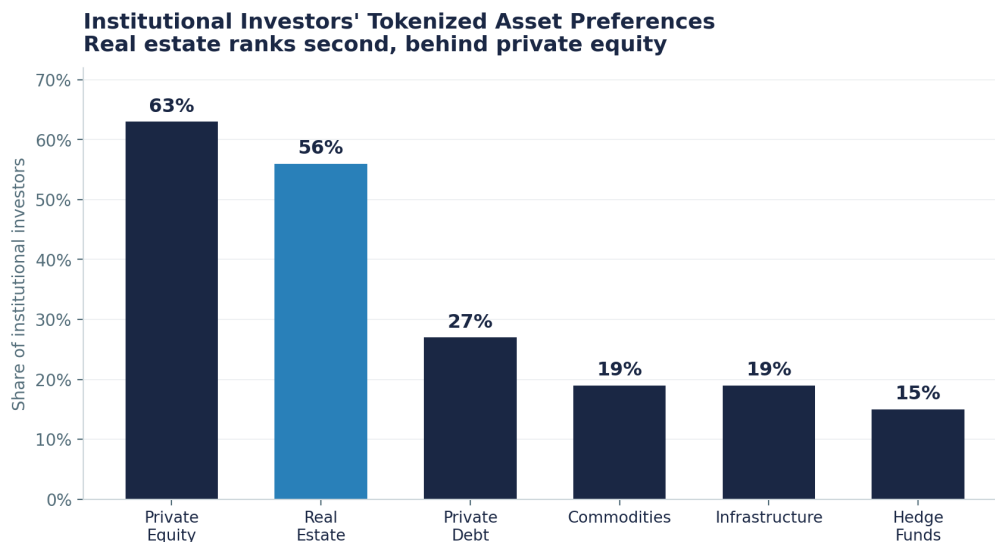


Figure 2. Limitations of Traditional Real Estate Finance.

Banks are often reluctant to offer tailored financing solutions for unconventional or complex real estate projects, including specialized developments, highly leveraged investments, or properties lacking sufficient pre-sales. In addition, borrowers are exposed to interest rate fluctuations, which can negatively impact cash flow and reduce investment returns, particularly during periods of economic instability.

Traditional financing also involves considerable transaction costs, such as appraisal expenses, title insurance, and legal fees, all of which increase the overall cost of investment.

Real estate tokenization is considered to address the limitations and flaws of traditional real estate financing.

3. What is Real Estate Tokenization?

Tokenization is the process of creating a digital version of an asset on a blockchain. It can be used for different types of investments, including bonds, stocks, tangible assets such as art and real estate, and intangible assets such as identity and data (Sümer, 2024). Tokenization is rapidly gaining momentum in the financial services sector. The global tokenized real estate market is projected to grow to as much as USD 3 trillion by 2030, accounting for 15% of all real estate assets under management. While the sector is still

emerging in 2025, property owners are steadily increasing their investment in tokenization technologies, supported by strong investor interest in tokenized offerings (Zayats et al., 2026). As shown in Figure 3, investors suggest they could allocate 7%-9% of their portfolios to tokenized assets by 2027 (Nagayach & Swertvaeger, 2025). Seeing this potential, several major financial institutions are making substantial investments in the field and introducing new products to the market.

Real estate tokenization refers to turning the value of a physical property into digital tokens on a blockchain. In this process, a property's value is divided into smaller portions, with smart contracts handling and automating the system. These portions are then converted into tokens that investors can buy either individually or together. Each token represents a small share of ownership in that property, allowing people to invest in real estate without needing large amounts of capital. By using blockchain technology, real estate can benefit from improved liquidity, shared ownership, greater transparency, increased flexibility, faster transactions, and stronger security. As shown in Figure 4, the share of tokenized assets in real estate portfolios is projected to rise from 1.3% in 2023 to around 6.0% by 2027 and beyond, highlighting growing confidence in the potential of tokenized real estate investments (Nagayach & Swertvaeger, 2025).

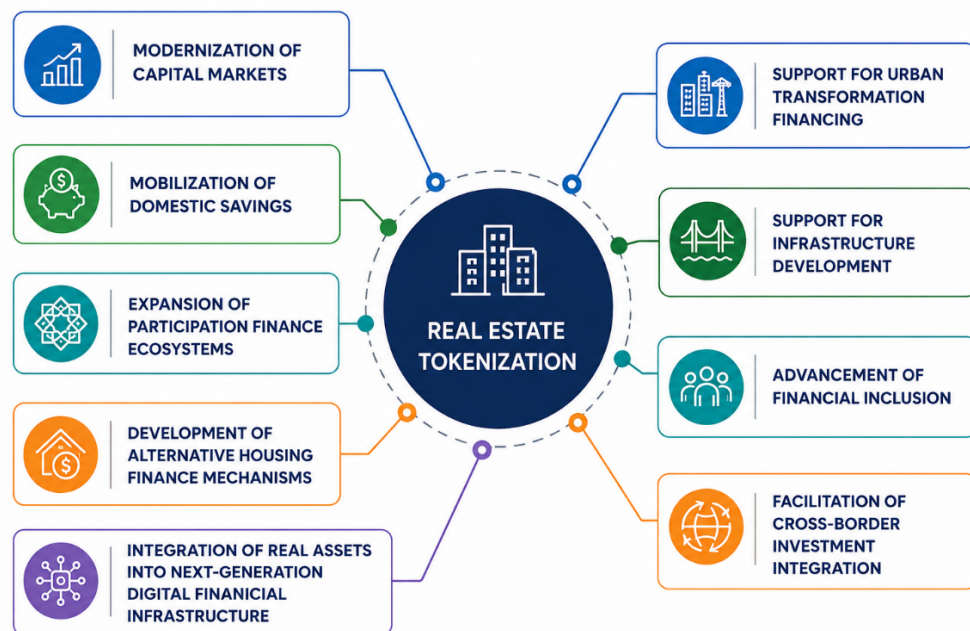


Figure 3. The Share of Tokenized Assets. Source: Nagayach & Swertvaeger (2025).

In addition, 56% of institutional investors consider real estate their second-most-preferred tokenized asset class, closely behind private equity.

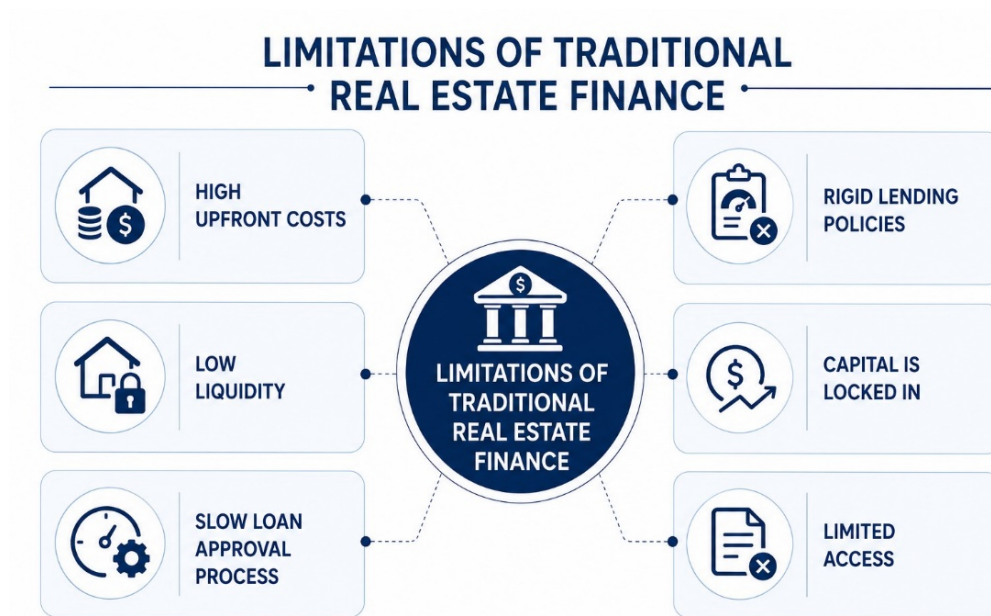


Figure 4. Institutional Investors' Tokenized Asset Preferences. Source: Nagayach & Swertvaeger (2025).

4. How Do Real Estate Tokens Differ from Traditional Real Estate Capital Market Instruments?

Real estate tokenization differs from traditional property investment mainly in how ownership is organized, shared, and traded, rather than in the underlying property asset itself.

Aspect	Traditional Real Estate	Turkish REITs (GYO)	Turkish REIFs (GYF)	Real Estate Certificates	Tokenized Real Estate
Minimum investment	High (direct purchase)	Low (public shares)	Moderate (fund participation threshold)	Very low to low	Very low to moderate
Ownership form	Direct title ownership	Shares in a listed REIT company	Participation units in a real estate investment fund	Certificates linked to a development project	Direct, indirect, or beneficial economic interest in property/SPV
Typical asset exposure	Single property	Diversified income-producing real estate portfolios	Institutional or thematic real estate portfolios	Specific housing or development projects	Single assets, portfolios, debt instruments, or revenue-sharing structures
Liquidity	Very low	High (exchange traded on Borsa İstanbul)	Low to medium (fund redemption dependent)	High (exchange traded on Borsa İstanbul)	Dependent on regulated secondary markets and trading venue availability
Investor access	Local or regional	Broad retail and institutional access	Mostly qualified/professional investors	Broad retail access	Potentially global, but usually restricted by securities, KYC/AML, and jurisdictional rules

Aspect	Traditional Real Estate	Turkish REITs (GYO)	Turkish REIFs (GYF)	Real Estate Certificates	Tokenized Real Estate
Regulatory framework	Property & corporate law	Capital Markets Board of Türkiye securities regulation	SPK fund regulation	SPK project-based capital markets regulation	Securities law, digital asset regulation, property law, and potentially ESMA / MiCA-adjacent frameworks
Banking dependency	Standard	Standard	Standard to high	Standard	Medium to high, depending on fiat on/off ramps, custody, and compliance architecture
Transfer speed	Slow	Fast (stock market settlement)	Medium	Medium	Technically near-instant on-chain, but practically dependent on compliance
Income model	Rental income/appreciation	Dividends + NAV appreciation	Rental income + NAV appreciation	Project completion gains or conversion rights	Rental distributions, yield-sharing, dividends, debt yield, or appreciation rights
Transparency	Low to medium	High due to public disclosure obligations	Medium	Medium to high	Potentially high on-chain, but legal/off-chain structures may reduce visibility
Secondary market	Informal and illiquid	Active public market	Limited secondary transfers	Limited but possible if exchange-traded	Emerging regulated digital exchanges and ATS platforms; liquidity still limited in practice
Custody model	Land registry title	Brokerage and central securities custody	Fund custodian structure	Brokerage custody	Self-custody, qualified digital custodians, or hybrid nominee structures
Technology dependency	Low	Low	Low to moderate	Moderate	Very high
Retail investor suitability	Low due to capital intensity	High	Moderate to low	High	Potentially high but operationally complex
Main advantage	Full control of the asset	Liquidity + regulated diversification	Professional fund management	Affordable access to projects	Fractionalization + programmability
Main limitation	Illiquidity and concentration risk	Market volatility	Limited liquidity and investor eligibility	Project-specific risk	Regulatory uncertainty and market depth limitations

Table 1. Comparison of Real Estate Tokens with REIFs, REITs, and Real Estate Certificates.

Tokenized real estate assets are technology-dependent and require low investment sizes, representing both direct and indirect economic interests in properties (Capital Markets Board, 2014). Table 1 shows the key aspects of traditional real estate investments, REITs, REIFs, real estate certificates, and tokenized real estate.

5. How Real Estate Tokenization Works

Real estate tokenization goes beyond merely converting property ownership into a digital format. It involves the coordinated integration of legal frameworks, regulatory compliance, financial infrastructure, blockchain technology, and governance mechanisms to establish digital investment structures that are both transferable and legally enforceable (OECD, 2020; Howell et al., 2020; FATF, 2021; Zetzsche et al., 2020).

Step 1: Asset Structuring

The real estate asset is first transferred into a special purpose vehicle (SPV) or comparable holding structure. Investors do not directly own the property itself; instead, they obtain rights connected to the entity that holds the asset.

Step 2: Legal Qualification of the Offering

Before tokens are created, the legal status of the offering must be assessed under the applicable regulatory framework. Depending on how the project is structured, the tokens may qualify as securities or investment contracts, especially when investor returns depend on the issuer's managerial efforts.

Step 3: Token Issuance and Compliance Design

Tokens are then issued as digital representations of specific investor rights rather than direct ownership of the physical property. Compliance mechanisms such as transfer restrictions, investor eligibility checks, and reporting requirements are integrated into the token framework.

Step 4: Investor Onboarding (KYC/AML)

A compliance onboarding process is established to satisfy anti-money laundering and financial crime obligations. This typically includes identity verification, source-of-funds assessments, and jurisdictional screening for all investors, regardless of whether investments are made using fiat currency or crypto assets.

Step 5: Banking Setup and Operational Readiness

Establishing banking relationships and payment infrastructure is often the most time-consuming and uncertain phase. In many projects, operational readiness depends more heavily on banking approval than on the completion of legal or technical work.

Step 6: Ongoing Management and Secondary Transfers

Once operational, the SPV will continue to manage the property in accordance with standard real estate practices. Secondary trading of tokens is generally subject to regulatory constraints and depends on compliant trading venues rather than blockchain technology alone.

In real estate tokenization projects, regulatory compliance and banking integration are usually the primary factors determining execution speed. Technology implementation is not the main constraint.

6. Regulatory Mechanisms and International Case Studies by Jurisdiction

By early 2026, real estate tokenization had evolved beyond experimental pilot projects and entered more structured regulatory environments. Nevertheless, regulatory

approaches continue to vary considerably across jurisdictions. Although regulators generally distinguish between property law, which governs ownership rights, and financial regulation, which oversees issuance, trading, custody, and investment services, the level of legal certainty and practical market adoption differs from one region to another. The following section combines an analysis of regulatory frameworks with leading case studies to demonstrate how tokenized real estate is currently regulated and implemented in practice.

European Union (EU)

In the European Union, tokenized real estate is generally assessed under existing securities legislation, while crypto-asset activities such as issuance, custody, and trading are regulated under the Markets in Crypto-Assets Regulation (MiCA, Regulation (EU) 2023/1114). Although MiCA does not directly regulate property ownership, it provides a harmonized legal framework for crypto-asset service providers operating across EU member states. At the same time, national regulatory authorities remain responsible for determining whether a particular tokenized real estate arrangement should be classified as a transferable security under their domestic legal systems.

United States

In the United States, tokenized real estate is evaluated according to its economic substance rather than its technological structure. When investor returns primarily rely on third-party efforts, these offerings are generally examined under the investment contract principles governing digital assets, as reflected in the SEC's regulatory framework. This classification has important implications for disclosure requirements, resale limitations, and the involvement of licensed intermediaries in the offering and trading process.

RealT — Fractional residential tokenization (United States)

One of the earliest practical examples of fractional real estate tokenization is RealT, a US-based platform that allows investors to acquire blockchain-based fractional interests in residential rental properties. Through legally structured special purpose vehicles, investors obtain tokenized economic rights linked to rental income and potential property appreciation. The platform relies on smart contracts to manage ownership records and distribute rental income, while also enabling participation with relatively low minimum investment amounts (Swinkels, 2023; RealT.co, 2026).

The RealT model illustrates how tokenization can broaden access to real estate investment and support fractional participation in income-generating properties. At the same time, it highlights several important regulatory and operational issues, including securities law compliance, secondary market liquidity, investor accreditation requirements, taxation, and cross-border participation challenges.

Switzerland

Switzerland has become one of the leading jurisdictions for blockchain-based financial infrastructure and tokenized securities regulation. Its distributed ledger technology (DLT) framework provides legal recognition for blockchain-based financial instruments and digital securities trading systems. Switzerland follows a technology-neutral regulatory approach, assessing tokenized real estate under existing financial market legislation, including securities laws and collective investment regulations, based on the specific rights attached to the token. The Swiss regulator classifies tokens according to their economic function rather than the technology used.

BrickMark — Tokenized commercial real estate (Switzerland)

The Swiss initiative BrickMark has demonstrated how tokenized structures can be integrated into commercial real estate transactions. In a notable example, tokenized digital assets were incorporated into the acquisition structure of a high-value commercial property in Zurich. Switzerland's regulatory model demonstrates the importance of combining legal certainty, institutional-grade custody solutions, and regulated financial market infrastructure to support the development of tokenized real-asset ecosystems (BrickMark.net, 2026).

The Swiss experience also shows how tokenization is gradually evolving from an experimental fintech concept into a more institutionally integrated component of modern capital markets.

Dubai

In Dubai, tokenized real estate projects operating within the virtual asset framework are supervised by the Virtual Assets Regulatory Authority (VARA). Regulatory obligations, licensing requirements, and compliance standards depend on the specific activity being conducted, such as issuance, brokerage, or custody services, rather than the underlying real estate asset itself. However, property ownership and land registration continue to remain under the authority of separate real estate regulators.

Singapore

Singapore applies a functional, risk-based regulatory framework in which tokenized real estate is assessed by its economic characteristics rather than its technological design. The Monetary Authority of Singapore (MAS) oversees these activities under the Securities and Futures Act (SFA) and, where relevant, the Payment Services Act (PSA). Depending on their structure, tokenized real estate arrangements may be regulated as securities or collective investment schemes. MAS also supports innovation through regulatory sandboxes and guidance on digital token offerings, while maintaining standards for anti-money laundering (AML), investor protection, and market integrity (MAS, 2020).

Singapore has increasingly positioned itself as a global center for tokenized finance through sandbox-driven initiatives involving blockchain-based bonds, settlement systems, and real-asset tokenization. These initiatives prioritize interoperability, institutional

participation, and regulatory coordination, strengthening Singapore's role as a hub for scalable tokenized capital market infrastructure.

JPMorgan Kinexys — Institutional tokenization infrastructure

Large financial institutions have also begun integrating tokenization infrastructure into traditional capital markets. JPMorgan Kinexys has developed blockchain-based settlement and tokenization systems designed for institutional finance, digital collateral management, and tokenized asset transfers (JP Morgan, 2026).

Although not limited to real estate, these initiatives are important because they demonstrate that major financial institutions increasingly view tokenization as part of the future infrastructure of capital markets rather than merely a speculative crypto-related activity. Institutional involvement also strengthens the credibility of tokenized asset markets and accelerates discussions surrounding custody, compliance, interoperability, and regulated settlement systems.

Key Lessons from International Experience

International case studies demonstrate that successful tokenized real estate ecosystems require far more than blockchain technology alone. Sustainable market development depends on several interconnected factors, including legally enforceable ownership rights, regulatory clarity, institutional-grade custody infrastructure, banking integration, reliable settlement systems, investor protection mechanisms, and functional secondary markets.

The experiences of jurisdictions such as Switzerland, Singapore, Dubai, and the United States further suggest that countries aiming to become regional centers for tokenized finance must adopt comprehensive ecosystem strategies that combine regulation, capital market development, technological infrastructure, and institutional coordination. In this broader context, the global development of tokenized real estate reflects a wider transformation of financial infrastructure, where digital technologies, real assets, and capital market modernization increasingly converge into a new generation of investment architecture.

Jurisdiction	Regulatory Approach	Key Legal / Regulatory Basis	Treatment of Tokenized Real Estate	Institutional / Market Implementation (Case Evidence)	Key Feature / Insight
European Union (EU)	Dual-layer: EU-wide crypto-asset regulation + national securities classification	MiCA Regulation (EU) 2023/1114; ESMA guidance; national securities laws	Classified under existing securities regimes depending on structure; MiCA governs service providers, not property rights	Emerging fintech pilots; no standardized EU-wide real estate tokenization model yet	Regulatory harmonization at the service level, but fragmented asset classification across member states
United States	Substance-over-form approach based on investment-contract analysis	SEC “Howey Test” (SEC v. W.J. Howey Co., 1946); Securities Act of 1933; SEC digital asset guidance	Typically treated as securities when profit depends on managerial effort	RealT (SPV-based fractional real estate tokens with rental income via smart contracts)	High regulatory scrutiny; strong investor protection, but limited secondary liquidity

Jurisdiction	Regulatory Approach	Key Legal / Regulatory Basis	Treatment of Tokenized Real Estate	Institutional / Market Implementation (Case Evidence)	Key Feature / Insight
Switzerland	Technology-neutral classification based on the economic function of tokens	FINMA ICO Guidelines (2018); Swiss DLT Act (2021); FMIA	Tokens classified as securities, payment, or utility depending on the rights conveyed	BrickMark (tokenized commercial real estate transactions in Zurich)	High legal certainty and institutional-grade infrastructure enabling regulated tokenized markets
Singapore	Functional, risk-based regulatory framework integrated into capital markets law	Securities and Futures Act (SFA); Payment Services Act (PSA); MAS digital token guidelines	Treated as securities or collective investment schemes if investment-based	MAS regulatory sandbox; tokenized bonds and real-asset pilots	Strong regulatory innovation environment supporting institutional-scale experimentation
Dubai (UAE)	Dedicated virtual asset regime + separate real estate governance	Dubai Law No. 4 of 2022; VARA rulebooks; land registration laws	Token issuance regulated separately from property ownership and registration	VARA-licensed virtual asset projects exploring fractional real estate investment	Strategic positioning as a global digital asset and real estate investment hub
Global Institutional Layer	Infrastructure-led regulation shaping market standards	Internal frameworks (e.g., banking compliance, settlement systems)	Tokenization treated as financial infrastructure rather than a standalone asset class	JPMorgan Kinexys (blockchain settlement, collateral, and tokenization infrastructure)	Institutional adoption drives the legitimacy and scalability of tokenized capital markets

Table 2. Comparison of Key Features for Tokenized Real Estate.

7. Strategic Framework Suggestion for Real Estate Tokenization in Türkiye

While real estate investment remains out of reach for many individuals due to high costs, tokenization creates opportunities for fractional ownership, allowing smaller investors to participate in property markets. In doing so, it can improve financial inclusion, direct household savings toward productive assets, and broaden participation in investment markets. Tokenization may also help address the long-standing liquidity problem in real estate by supporting secondary market development, lowering exit barriers, increasing investment flexibility, and improving price discovery.

The heavy reliance of housing finance on traditional bank lending creates additional structural challenges. During periods of high interest rates, bank-centered financing reduces housing affordability and limits developers' access to capital (Sümer, 2024). Tokenization has the potential to establish a more direct connection between housing production and alternative sources of long-term financing, including pension funds, participation finance institutions, sovereign wealth funds, real estate investment funds, international investors, and individual savers.

For this reason, establishing a sustainable and well-regulated tokenized real estate market requires a comprehensive strategic framework. The thirteen policy recommendations below set out that framework.

Policy 1 — Legal Definition of Real Estate Tokens

Under the coordination of the Capital Markets Board of Türkiye (SPK), the Land Registry and Cadastre Directorate, and the Banking Regulation and Supervision Agency (BDDK):

- “Real estate tokens” shall be legally defined.
- Security tokens and utility tokens shall be distinguished clearly.
- A land-registry-linked digital asset structure shall be established.
- The legal nature of token ownership (ownership rights, revenue participation, or rental rights) shall be clarified.

A new section titled “Tokenized Real Assets” shall be added to the Turkish Capital Markets Law.

Policy 2 — SPK-Licensed Tokenization Platforms

To prevent unauthorized and unregulated structures:

- Tokenization platforms shall be licensed.
- Minimum capital requirements shall be introduced.
- Custody obligations shall be established.
- Independent audit requirements shall be enforced.

A “Digital Real Estate Marketplace License” is to be created.

Policy 3 — Blockchain System Integrated with the Land Registry

Türkiye has a strong centralized land registry system, a major advantage for real estate tokenization. In that context:

- Land registry records shall be synchronized with token records.
- A digital identity shall be created for every tokenized asset.
- Blockchain records shall serve as an official verification mechanism.

Instead of a fully decentralized structure, a hybrid state-supported blockchain architecture shall be adopted. This approach may balance regulation, transparency, security, and government oversight.

Policy 4 — Hybrid Capital-Market Instruments + Tokenization Model

The Turkish real estate capital market has been growing over the last decade. Tokenization shall be integrated with real estate investment funds, real estate certificates, and real estate investment trust shares.

For instance, a “Tokenized REIF” model may help institutional supervision, professional management, SPK oversight, accessibility for small investors, and secondary market liquidity.

Policy 5 — Integration of Pension Funds

Private pension funds are critical for long-term housing finance. Pension funds shall be permitted or even mandated to allocate a certain percentage of their assets to tokenized real estate; long-term, rental-income-based token models shall be encouraged; and pension funds shall support social housing projects. By integrating pension funds into the tokenized real estate world, savings may flow into the real economy.

Policy 6 — Participation Finance-Compatible Token Structures

One of Türkiye's strategically important areas is interest-free finance. In that perspective:

- Sukuk-like tokenized structures shall be developed.
- Revenue-sharing models shall be encouraged.
- Partnership-based structures shall be preferred over Murabaha-type financing.
- Sharia-compliant digital asset standards shall be established.

This may help Türkiye become a regional hub for Islamic fintech and real asset tokenization.

Policy 7 — Housing Tokenization

According to TurkStat (2026), yearly housing sales exceeded 1.6 million units. Both developers and potential homebuyers need access to financing. The structural limitations of bank-centered housing finance highlight the need for alternative capital-market-based financing mechanisms capable of mobilizing long-term domestic and international savings.

Tokenization shall be used for both social and affordable housing projects as well as luxury housing projects, and shall support low- and middle-income groups, young households, first-time homebuyers, and earthquake-affected regions. Government-supported social housing token models shall be established — citizens can invest through small fractional shares, accumulate tokens over time to gain housing rights, and “rent-to-own” models may be developed. Diminishing partnership, an Islamic financing model, can also be integrated into tokenized housing solutions.

Policy 8 — Tokenization as an Urban Transformation Financing Mechanism

Türkiye is an earthquake-prone region, and millions of units, especially in Istanbul, need to be urgently reinforced or rebuilt. Under current banking-centered financing models, mobilizing large amounts of capital for urban transformation is structurally difficult, creating a strategic rationale for tokenized real estate structures that can channel institutional and retail savings into long-term urban transformation projects. It is recommended that:

- Urban transformation funds shall be created.
- Tokenized urban regeneration pools shall be established.
- Local communities shall participate directly in projects.
- Municipalities shall establish digital investment platforms.
- Project real estate investment funds shall make urban transformation financing more practical.

This may increase local participation, lower financing costs, reduce speculative pressure, and gain broad acceptance within society.

Policy 9 — National Real Estate Data Platform

Reliable tokenization requires a standardized data infrastructure. Establishing a national digital real estate database, standardizing valuation methodologies, making rental and sales data more transparent, and implementing AI-supported valuation systems will digitally transform the system.

Policy 10 — Digital Identity and Investor Security

Before investing or trading, platforms must verify identities and check that funds are not coming from illegal activities; KYC/AML infrastructure shall be mandatory. Digital wallet standards shall be established, defining minimum safety features, backup procedures, and private key storage. Cybersecurity certification shall be introduced — exchanges and financial apps must pass an independent security test to demonstrate protection against hacking and data leaks. Finally, smart contract auditing shall be compulsory: before a smart contract goes live, an independent expert must check it for bugs, loopholes, or cheating mechanisms.

Policy 11 — Tax Incentives

To support the early-stage development of the token market: reduced transaction fees for tokenized real estate, tax incentives for long-term investors, incentives for social housing tokens, and a five-year regulatory sandbox framework shall be implemented.

Policy 12 — Regulatory Sandbox Mechanism

A controlled testing environment is necessary for fintech innovation. The SPK, Central Bank of the Republic of Türkiye (TCMB), and BDDK shall jointly establish a “Real Estate Financial Technologies Sandbox Program”. Within this framework, tokenization systems, digital title-deed infrastructure, smart contracts, and rental income tokens can be tested.

Policy 13 — Cross-Border Token Passporting

To realize the promise of global capital access, Türkiye should negotiate bilateral token-recognition agreements: with the EU for mutual recognition of tokenized real estate as transferable securities (subject to national discretion); with the Gulf Cooperation Council (GCC) for Sharia-compliant token certification through AAOIFI; and with the Turkic Republics for a common digital asset framework through the Organization of Turkic States.

The SPK shall establish a “Token Passport Office” to certify that Turkish tokenized real estate offerings comply with foreign regulatory requirements, thereby reducing duplicative compliance burdens.

8. Risks and Limitations of Real Estate Tokenization and Protection Mechanisms

Despite its potential benefits, real estate tokenization introduces significant legal, operational, and market-related risks that must be carefully addressed during the structuring phase.

Regulatory classification risk: Tokens may be categorized differently depending on the rights they provide, affecting disclosure obligations, licensing requirements, and trading restrictions across jurisdictions.

Dependence on banking and payment systems: Fiat payment channels, custody banking relationships, and payment processors remain essential components of tokenized ecosystems. Disruptions in these systems may negatively affect issuance, trading, or redemption activities.

Liquidity limitations: Secondary markets for tokenized real estate remain relatively fragmented and underdeveloped, potentially limiting investors' ability to exit positions efficiently.

Contractual nature of investor rights: In many jurisdictions, token holders possess contractual economic rights rather than direct legal ownership of the underlying property, which may create legal uncertainties during insolvency or enforcement proceedings.

Complex implementation processes: Tokenization requires coordination among legal structures, regulatory compliance systems, smart contracts, custody solutions, and technical standards, increasing setup complexity and operational costs.

Speculation risk: Excessive financialization of real estate markets may increase speculative activity. Mechanisms such as leverage restrictions, transaction limits, and short-term trading taxes may therefore become necessary.

Systemic financial risk: The integration of real estate and crypto ecosystems may introduce broader financial vulnerabilities, making reserve audits, capital adequacy requirements, and banking integration increasingly important.

Consumer protection concerns: Small investors require robust safeguards, including risk-scoring systems, suitability assessments, transparent disclosures, portfolio visibility, and liquidity warnings.

9. Conclusion

Throughout history, the relationship between people, land, and capital has shaped the foundations of economic and social development. Real estate has long represented more than physical property; it has served as a source of production, social stability, wealth preservation, and intergenerational prosperity. Yet the traditional financial structures that support real estate increasingly struggle to meet the demands of a rapidly changing world.

Rising housing costs, declining affordability, widening inequality in access to capital, urbanization pressures, climate risks, and the need for large-scale infrastructure and urban transformation have exposed the structural limitations of bank-centered financial systems. In countries such as Türkiye, where demographic pressures, housing demand, and earthquake-related urban transformation challenges intersect simultaneously, the search for sustainable financing solutions has become increasingly urgent.

At the same time, the global financial system is experiencing a historic transformation driven by blockchain technology, digital assets, distributed financial infrastructure, and tokenized investment models. Within this broader transformation, real estate tokenization represents not simply a technological development, but the emergence of a new financial architecture capable of reconnecting savings with productive real assets and broader societal needs.

The importance of tokenization extends beyond digitizing ownership or improving liquidity. Its broader potential lies in democratizing access to investment, mobilizing long-term domestic and international savings, expanding participation in capital markets, and directing financial resources toward housing, infrastructure, urban regeneration, and sustainable development. In this respect, tokenization may help rebuild the weakened relationship between financial systems and the real economy.

Nevertheless, technology alone cannot solve structural economic challenges. The long-term success of tokenized real estate markets depends on strong legal foundations, transparent regulatory systems, reliable institutions, secure technological infrastructure, and effective investor protection mechanisms. Achieving sustainable transformation requires close coordination among regulators, public institutions, technology providers, financial markets, and society as a whole.

For Türkiye, this transformation also represents a strategic opportunity. The country's dynamic real estate sector, centralized land registry infrastructure, growing fintech ecosystem, expanding participation finance expertise, and strategic geographic position provide important structural advantages for the development of a competitive tokenized real estate market. With comprehensive regulation, institutional coordination, and a long-term strategic vision, Türkiye could emerge as one of the leading regional centers for digital real-asset finance.

Ultimately, the future significance of real estate tokenization should not be evaluated solely through the lens of technological innovation or speculative finance. Its true value lies in its potential to support a more inclusive, accessible, transparent, and resilient financial system that serves broader economic and social objectives. In an era increasingly defined by the search for sustainable development, financial resilience, and equitable access to capital, tokenized real estate may become a mechanism through which finance reconnects with productive investment, human needs, and long-term societal value creation.

References

- Akgiray, V. (2019). *Good Finance: Why We Need a New Concept of Finance*. Bristol University Press. ISBN 978-1-5292-0000-3.
- Bansal, D., & Bhattacharya, N. (2025). Traditional Finance vs. Decentralized Finance. In *Decentralized Finance and the End of Traditional Banking* (eds J. Verma, A. Singh & Gagandeep), ch. 3.
<https://doi.org/10.1002/9781394271801.ch3>
- BrickMark.net (2026). *Next Generation Real Estate Investments*.
<https://brickmark.net/>
- Brunnhuber, S. (2021). *Financing Our Future: Unveiling a Parallel Digital Currency System to Fund the SDGs and the Common Good*. Palgrave Macmillan Cham.
<https://doi.org/10.1007/978-3-030-64826-8>
- Capital Markets Board. (2014). *Gayrimenkul Yatırım Fonlarına İlişkin Esaslar Tebliği* [Regulation on the principles regarding real estate investment funds].
<https://spk.gov.tr/duyurular/basin-duyurulari/2013/gayrimenkul-yatirim-fonlari-iliskinesaslar-tebliği>
- Dubai Law No. 4 of 2022 Regulating Virtual Assets in the Emirate of Dubai.
- FATF (2021). *Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers*. FATF, Paris.
<https://www.fatf-gafi.org/publications/fatfrecommendations/documents/Updated-Guidance-RBA-VA-VASP.html>
- Gofaizen & Sherle (2026). *Real Estate Tokenization*.
<https://gofaizen-sherle.com/rwa-tokenization/real-estate>
- Hepşen, A., & Sümer, L. (2025). *Decent Housing for the Poor in the OIC (Organization of Islamic Countries)*.
<https://ebook.comcec.org/Kutuphane/lcerik/6d3a1aa6-a58e-4b73-ba19-9351c7a89c23.pdf>
- Howell, S. T., Niessner, M., & Yermack, D. (2020). Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales. *Review of Financial Studies*, 33(9), 3925–3974.
- JP Morgan (2026). *The New Physics of Finance: Payments that adapt. Assets that move. Settlement at the speed of opportunity*.
<https://www.jpmorgan.com/kinexys/index>
- Monetary Authority of Singapore (MAS). (2020). *A Guide to Digital Token Offerings*. Singapore.
<https://www.mas.gov.sg/-/media/mas/sectors/guidance/guide-to-digital-token-offerings-26-may-2020.pdf>
- Nagayach, M., & Swertvaeger, R. (2025). *Real Estate Tokenization: A New Era for Property Investment and Luxembourg's Strategic Role*. EY.
https://www.ey.com/en_lu/insights/real-estate-hospitality-construction/real-estate-tokenization-a-new-era-for-property-investment-and-luxembourg-s-strategic-role
- OECD (2020). *The Tokenisation of Assets and Potential Implications for Financial Markets*. OECD Blockchain Policy Series.
<https://www.oecd.org/finance/The-Tokenisation-of-Assets-and-Potential-Implications-for-Financial-Markets.htm>
- Piketty, T. (2013). *Capital in the Twenty-First Century*. Harvard University Press.
- RealT.co (2026). *Fractional and Frictionless Real Estate Investing*.
<https://realt.co/>
- Regulation (EU) 2023/1114 of the European Parliament and of the Council on Markets in Crypto-Assets (MiCA). *Official Journal of the European Union*, 2023.
- Sümer, L. (2024). *The Global Housing Crisis: A Sustainable New Home Financing Model*. Palgrave Macmillan Cham. ISBN 978-3-031-72603-3.
- Sümer, L. (2023). *The World Economic and Financial System: A Paradigm Change Offering a Sustainable Approach*. Palgrave Macmillan Cham.

<https://doi.org/10.1007/978-3-031-27530-2>

Swiss Financial Market Supervisory Authority (FINMA). (2018). *Guidelines for Enquiries Regarding the Regulatory Framework for Initial Coin Offerings (ICOs)*.

<https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/>

Swinkels, L. (2023). Empirical evidence on the ownership and liquidity of real estate tokens. *Financial Innovation*, 9, 45.

<https://doi.org/10.1186/s40854-022-00427-5>

Trading Economics (2026). *Home Ownership Rate*.

<https://tradingeconomics.com/country-list/home-ownership-rate>

TurkStat (2026). *House Sales Statistics*.

<https://veriportali.tuik.gov.tr/en/press/58350>

U.S. Securities and Exchange Commission (SEC). (2019). *Framework for “Investment Contract” Analysis of Digital Assets*.

<https://www.sec.gov/files/dlt-framework.pdf>

Wandmacher, R., & Wegmann, N. (2020). Tokenization and Securitization — A Comparison with Reference to Distributed Ledger Technology. In Y. Thorhauer & C. Kexel (eds), *Facetten der Digitalisierung*. Springer Gabler.

https://doi.org/10.1007/978-3-658-29870-8_8

Zayats, M., Soupel, V., & Dubovik, S. (2026). *Tokenization to Redefine Investing in Real Estate, But Regulators May Curb Market Growth*.

<https://www.scnsoft.com/investment/tokenization-to-redefine-investing-in-real-estate>

Zetzsche, D. A., Arner, D. W., & Buckley, R. P. (2020). Decentralized Finance. *Journal of Financial Regulation*, 6(2), 172–203.

<https://doi.org/10.1093/jfr/fjaa010>