Tokenization

When Your House Becomes a Token

Day 10 of 10

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BSc Seminar: Digital Finance

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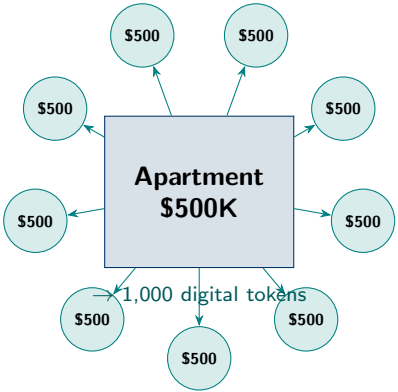
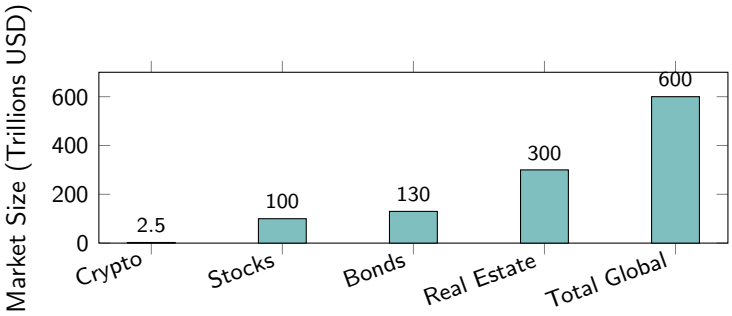
A $500K Apartment Sold in 1,000 Pieces

In 2024, a luxury apartment in Paris was tokenized:

- 1,000 tokens at $500 each
- Monthly rental income distributed on-chain
- $8.33 per token per month
- Tokens traded 24/7 on a secondary market
- Investors from **15 countries**
- None of them ever visited the apartment



The Big Picture: Why Tokenization Matters



Crypto is \$2.5T. The world's assets are **\$600T**.
Tokenization aims to put **all of it** on blockchain.

Today's Agenda

Outline

Tokenization: Turning Real Assets into Digital Tokens

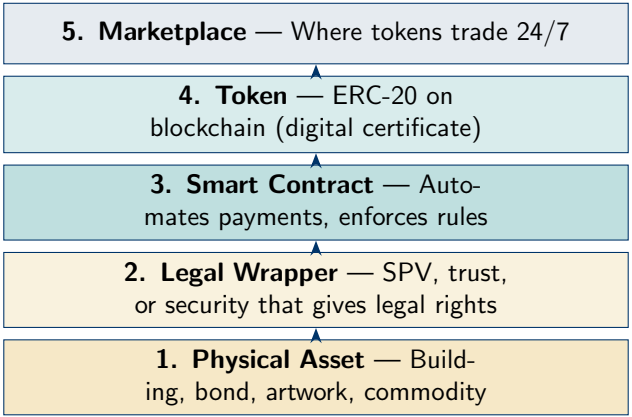
Definition

Tokenization = representing ownership of a real-world asset (building, bond, artwork) as a **digital token on a blockchain**.
The token is a certificate of ownership, backed by a legal structure that gives the holder enforceable rights.

Analogy: Think of it as turning a house into a stock.

- A house is **illiquid**: selling takes months, lawyers, paperwork
- A stock is **liquid**: sell in seconds, 24/7, globally
- Tokenization gives real-world assets stock-like properties: **fractional, tradable, programmable**

The Five Layers of Tokenization



Without the legal wrapper (Layer 2), a token is just a number with no rights. This is what distinguishes a security token from a meme coin.

What Can Be Tokenized?

Asset Class	Example	Tokenized?	Market Size
Government bonds	US Treasuries	✓	\$9B+
Corporate bonds	MediumCorp 5% 3-year	✓	\$2B+
Real estate	Paris apartment	✓	\$500M+
Private credit	SME loans	✓	\$1B+
Art & collectibles	Warhol painting	✓	\$100M+
Commodities	Gold bars	✓	\$1B+
Carbon credits	Verified offsets	✓	\$200M+
Equities	Company shares	Early stage	Small

Almost anything with value can be tokenized. The question is: *should* it be?

Outline

Example 1: Tokenizing a Corporate Bond

Setup

$10M corporate bond, 5% annual coupon, 3-year maturity.
Tokenized into 10,000 tokens at $1,000 each.

1. **Legal:** Create SPV LLC that owns the bond. Tokens represent shares in the SPV.
2. **Smart contract:** ERC-3643 on Ethereum (permissioned, only KYC-verified holders).
3. **Alice buys 50 tokens** for $50,000.
4. **Quarterly coupon:** SPV receives $125K. Smart contract distributes $12.50 per token automatically. Alice receives $625 in USDC.
5. **After 6 months:** Alice sells 20 tokens at $1,015 each (1.5% premium). Profit: $300.
6. **At maturity:** Bond repays principal. Tokens redeemed at $1,000. Tokens burned. SPV dissolved.

Example 2: Tokenizing Real Estate

Setup

Berlin apartment building, $500K value.
1,000 tokens at $500 each. Monthly rent: $4,000.

What investors get:

- Monthly rental distribution:
  $4,000 / 1,000 = $4/token/month
- Annualized yield:
  $48 / $500 = 9.6%
- Secondary market trading 24/7
- No need to manage the property

What's different from a REIT:

- Buy $500 worth (vs. whole REIT share)
- Trade 24/7 (vs. market hours)
- Transparent payments on-chain
- No fund manager taking 1–2% fee
- BUT: thinner liquidity, legal risk

Outline

Benefits of Tokenization

Fractional Ownership
Buy $500 of a $500K building instead of the whole thing

24/7 Trading
No market hours.
Trade at 3 AM Sunday.

Instant Settlement
T+0 (seconds) instead of T+2 (two business days)

Programmability
Coupons paid automatically by smart contracts

Plus: global access (investors from 15 countries), transparency (holdings visible on-chain), composability (use as DeFi collateral).

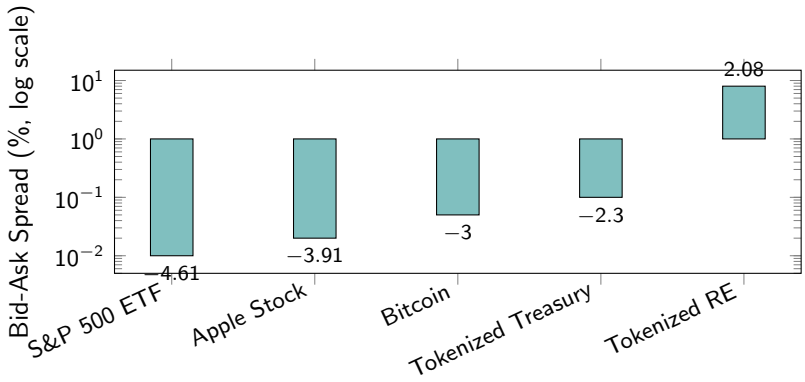
Risks of Tokenization

Risk	What Can Go Wrong	Severity
Liquidity	No buyers when you need to sell	High
Legal	Token rights not enforceable in court	High
Smart contract	Bug in code, funds locked or stolen	Medium
Regulatory	Rules change, token becomes illegal	Medium
Counterparty	SPV manager mismanages asset	Medium
Oracle	Off-chain asset data is wrong	Low

The Big Risk: Liquidity

Tokenization makes assets **tradable** but not automatically **liquid**. Just because you CAN sell a token at 3 AM does not mean anyone is buying at 3 AM.

The Liquidity Gap



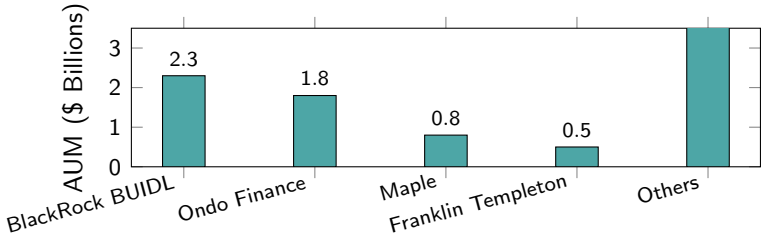
4 orders of magnitude between a liquid stock and tokenized real estate. This gap must shrink for tokenization to succeed.

Outline

Tokenized US Treasuries: The Bridge Between TradFi and DeFi

What It Is

Blockchain tokens representing US government bonds. A fund holds the underlying Treasury; on-chain tokens represent proportional ownership. Holders earn pass-through interest.



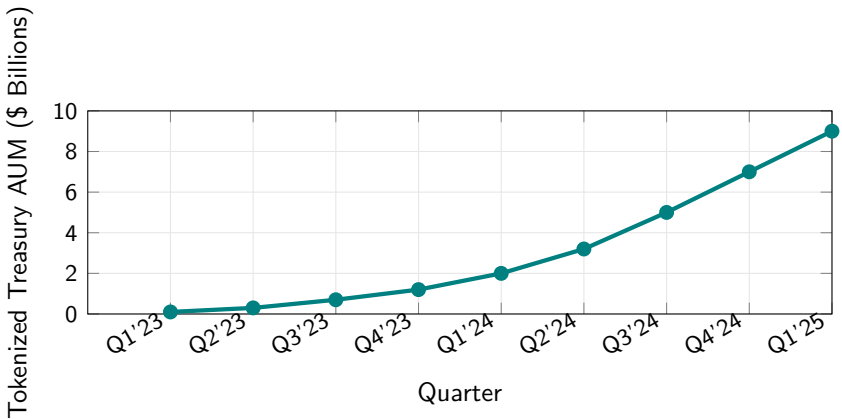
Total: $9B+ in tokenized Treasuries (2025). Near-zero in 2022.

BlackRock BUIDL: How It Works

1. Investor sends \$1M USDC to BlackRock's on-chain portal
2. BlackRock mints 1,000,000 BUIDL tokens (1 BUIDL $\approx$ \$1)
3. Underlying: short-term US T-bills ($<$3 months)
4. Yield: 5.0% annualized (T-bill rate minus $\sim$0.2% fee)
5. Daily accrual: yield reflected in token value
6. Redemption: send BUIDL back, receive USDC instantly (T+0)

	Traditional T-bill	**BUIDL Token**
Settlement	T+1 to T+2	**T+0** (instant)
Trading hours	Market hours	**24/7**
Minimum	\$1M+ (direct)	**\$100K**
DeFi usable	No	**Yes** (collateral on Aave)

Explosive Growth: From Zero to $9 Billion



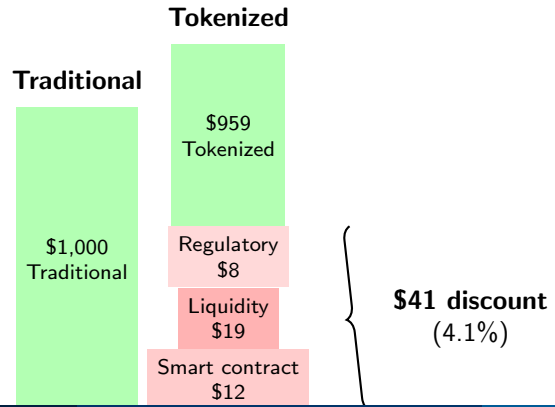
Why now? (1) High interest rates make T-bills attractive. (2) DeFi protocols want "safe" yield-bearing collateral. (3) BlackRock's entry legitimized the space [2].

Outline

Why Tokenized Assets Trade at a Discount

Extra Risks = Extra Discount

A tokenized bond carries the same credit risk as the traditional version **plus** additional risks unique to blockchain.



As the Market Matures, the Discount Shrinks

Risk Premium	Today	Future (mature)
Smart contract risk	0.50%	0.10% (audits, track record)
Liquidity risk	0.75%	0.20% (deeper markets)
Regulatory risk	0.25%	0.05% (clear rules, e.g., MiCA)
Total extra discount	**1.50%**	**0.35%**
Bond price	\$959	\$990

The investment opportunity: if you believe the market will mature, the discount compression from 4.1% to $\sim$1% represents a capital gain opportunity.

Outline

Legal Wrappers: What Gives a Token Legal Meaning?

A Token Without a Legal Wrapper

. . . is like a deed written on a napkin. It might say "you own this building," but good luck enforcing it in court.

Jurisdiction	Framework	Maturity
Switzerland	DLT Act (2021) — most advanced	High
European Union	DLT Pilot Regime (2023) [1]	Medium
United States	Reg D/S/A+ (fragmented)	Medium
Singapore	MAS digital asset framework	Medium
UK	FCA sandbox	Early

Switzerland leads: recognizes uncertificated register securities on blockchain natively in law. The EU's Pilot Regime allows €6B in tokenized securities.

Outline

Exercise: Tokenized vs. Traditional Bond Purchase

Scenario

You want to invest \$50,000 in a 3-year corporate bond (5% coupon).
Compare the two paths:

Cost Item	Traditional	Tokenized
Broker/platform fee	0.50% (\$250)	0.10% (\$50)
Custody fee (annual)	0.25% (\$125/yr)	0.00% (\$0)
Settlement time	T+2 (2 days)	T+0 (instant)
Minimum investment	\$100,000	\$1,000
Selling before maturity	Call broker, days	Click, seconds
Annual coupon distribution	Wire transfer	Auto USDC

Calculate: Over 3 years, how much do you save in total costs? What discount would you require on the tokenized version to account for smart contract risk?

Exercise: Solution

Traditional total cost over 3 years:

- Broker fee: \$250 (one-time)
- Custody: $3 \times \$125 = \$375$
- **Total: \$625** (1.25% of investment)

Tokenized total cost over 3 years:

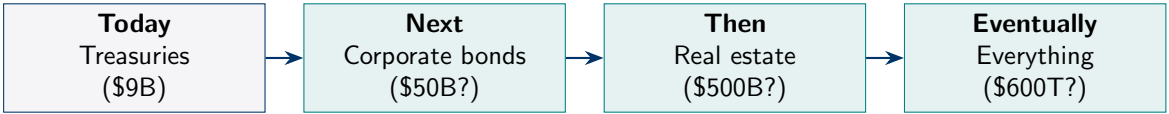
- Platform fee: \$50 (one-time)
- Custody: \$0 (self-custody)
- **Total: \$50** (0.10% of investment)

Savings: \$575 over 3 years (92% cost reduction).

But: if you require a 0.50% smart contract risk premium, that costs $\$50{,}000 \times 0.50\% \times 3 = \$750$, which *exceeds* the savings.
Lesson: Cost savings matter only if blockchain risks are managed.

Outline

The Vision: Everything Tokenized



If tokenization works — if the legal, technical, and liquidity challenges are solved — it is not just digital finance. It is the **future of all finance**. The $600T global asset market becoming programmable, composable, and accessible 24/7.

What Needs to Happen

Technical:

- Better smart contract auditing
- Cross-chain interoperability
- Standardized token formats (ERC-3643)
- Scalable blockchains (ZK-rollups!)

Market:

- More market makers for RWA tokens
- Institutional adoption (BlackRock started)
- Education (this seminar!)

Legal:

- Clear regulatory frameworks globally
- EU DLT Pilot Regime $\rightarrow$ permanent rules
- Cross-border token recognition
- Investor protection standards

Time horizon:

- Treasuries: happening now
- Bonds: 2–3 years
- Real estate: 5–10 years
- Everything: 10–20 years?

Day 10: Key Takeaways

1. **Tokenization** turns illiquid real-world assets into tradable digital tokens on blockchain
2. **Benefits:** fractional ownership, 24/7 trading, instant settlement, automated payments
3. **Risks:** liquidity, legal enforceability, smart contract bugs, regulatory uncertainty
4. The **tokenized Treasury market** ($9B) proves the concept works for high-quality assets with institutional backing
5. **The tokenization discount** reflects real blockchain risks — as these shrink, so does the discount (investment opportunity)

The 10-Day Journey: What We Covered

Days 1–5: Foundations

1. Crypto pricing & volatility
2. DeFi mechanics (AMMs, yield)
3. Blockchain economics (PoW/PoS)
4. AI & machine learning in crypto
5. Risk, regulation, portfolios

Days 6–10: Frontiers

6. DeFi derivatives (perps, Squeeth)
7. AI agents in finance
8. Privacy & zero-knowledge proofs
9. Prediction markets
10. Tokenization & RWAs

You now have a map of the entire digital finance landscape.
The territory is still being explored — and you can be the explorers.

Final Discussion: Where Is Digital Finance Going?

1. Which technology from Days 6–10 will have the biggest impact on traditional finance in the next 5 years?
2. If you were starting a fintech company today, which problem from this seminar would you try to solve?
3. In 2036, will most financial assets be tokenized? Will AI agents manage most portfolios?
4. What is the single most important thing you learned in this seminar?

Thank you for 10 great days. Go build the future.

References I

[1] European Commission. *Regulation (EU) 2022/858 on a Pilot Regime for Market Infrastructures Based on Distributed Ledger Technology*. Tech. rep. Official Journal of the European Union. European Commission, 2022.

[2] OECD. *The Tokenisation of Assets and Potential Implications for Financial Markets*. Tech. rep. Organisation for Economic Co-operation and Development, 2020.