Decentralized Finance (DeFi)

A Five-Minute Overview

BSc Blockchain Course

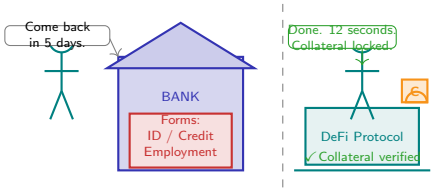
Why Would You Lend Money to a Stranger Without Asking Their Name?

Traditional lending requires you to prove who you are before you can borrow a cent. Banks check your identity, employment history, and credit score. This process takes days and excludes billions of people worldwide who lack formal documentation. **What the bank requires before approving a loan:**

- **Identity verification** – passport, national ID, address proof
- **Employment check** – payslips, tax returns, employer reference
- **Credit history** – a score that took years to build (or destroy)

DeFi replaces the credit check with collateral: deposit assets worth more than you borrow, and the protocol lends instantly – no name required. **The**

DeFi approach: Deposit collateral → smart contract checks ratio → borrow instantly, 24/7.



The collateral IS the credit score.

DeFi removes identity from lending by substituting collateral for trust: over-collateralised loans are self-enforcing – if the collateral falls below the required ratio, the protocol liquidates it automatically.

Source: Aave Protocol Documentation (2023). aave.com/docs; Compound Finance (2023). compound.finance/docs

What Makes DeFi Different from Your Banking App?

Four types of financial service – four different trust models:

Property	Traditional Banking	Fintech App	CeFi Exchange	DeFi Protocol
Identity Required	Yes	Yes	Yes (KYC)	**None**
Operating Hours	Business hours	24/7 app	24/7	**24/7**
Custody	Bank holds funds	Company holds	Exchange holds	**User holds**
Fees Set By	Regulator/bank	Company	Exchange	**Algorithm**
Permissionless	No	No	No	**Yes**

Pattern to notice:

Read across each row from left to right. Only in the DeFi column do all five properties simultaneously favour the user. Every other column requires trusting a company or regulator to honour its promises. DeFi replaces that trust with an open-source smart contract auditable by anyone.

The key question each model answers:

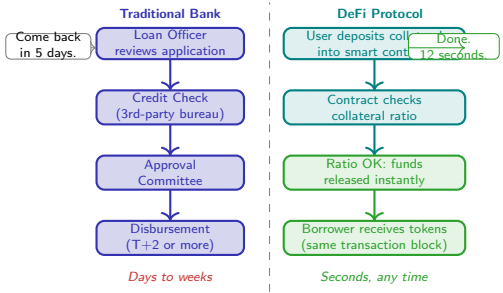
- **Traditional Bank:** "Do you have a credit history?"
  You qualify if the institution approves you.
- **Fintech App:** "Have you installed our app?"
  You are a customer of a regulated company.
- **CeFi Exchange:** "Have you passed KYC?"
  You trust them not to misuse your funds (see: FTX, 2022).
- **DeFi Protocol:** "Do you have a wallet?"
  You interact directly with a contract. No approval. No custody risk.

DeFi is the only column where "None" and "User" are features, not gaps.

DeFi is not a faster bank – it is a different kind of institution: one governed by code, open to anyone with an internet connection, and incapable of freezing your account on instructions from a regulator.

Source: Schär, F. (2021). "Decentralized Finance: On Blockchain- and Smart Contract-based Financial Markets." Federal Reserve Bank of St. Louis Review, 103(2), 153–174.

How Can a Smart Contract Replace a Bank's Entire Lending Department?



Why smart contracts can replace whole departments: A bank's lending department exists to answer one question: "Will this borrower repay?" It employs dozens of people to gather evidence, assess risk, and make that judgment. A DeFi smart contract sidesteps the question entirely. Instead of asking "Will they repay?" it asks "Is there enough collateral locked in this contract right now?" The answer is always verifiable on-chain – no human judgment required. **Three automatic guarantees:**

- Collateral is locked until the loan is repaid
- If collateral value drops below threshold, the contract liquidates automatically
- Rules apply identically to every borrower – no exceptions, no favouritism

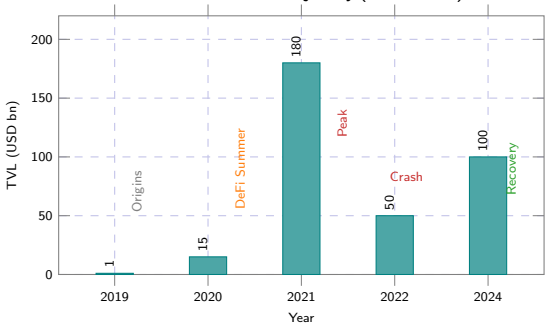
The code is the loan officer, the credit bureau, the approval committee, and the disbursement department – all in one.

Smart contracts enforce lending rules without human discretion: every borrower faces identical conditions, every outcome is recorded on a public ledger, and no employee can be bribed to override the process.

Source: Aave (2023). "How Aave Works." docs.aave.com; MakerDAO (2023). "The Maker Protocol." docs.makerdao.com

How Did DeFi Grow from One Million to One Hundred Billion Dollars in Three Years?

DeFi Total Value Locked – illustrative trajectory (USD billions):



Illustrative values based on DeFi Pulse and DefiLlama historical data.

What drove each phase:

- **2019 – Origins ($1B):**
  MakerDAO and Compound established the core primitives: collateralised lending and algorithmic interest rates. Niche audience of developers and crypto-natives.
- **2020 – DeFi Summer ($15B):**
  Yield farming launched on Compound. Users earned token rewards for depositing. Capital flooded in chasing high returns. Uniswap launched automated market making.
- **2021 – Peak ($180B):**
  Bull market + new chains (BSC, Polygon) multiplied TVL. Retail speculation amplified growth far beyond sustainable fundamentals.
- **2022–2024 – Crash and Recovery:**
  Terra/Luna collapse ($40B wiped in days) triggered a sector-wide correction. Recovery was slower, more institutional, and more risk-aware.

TVL (Total Value Locked) measures how much capital users have deposited into DeFi protocols – it is the sector's equivalent of assets under management, but fully transparent and verifiable on-chain.

Source: Illustrative trend based on DefiLlama (defillama.com) historical TVL data and Chainalysis DeFi Crime Report 2023.

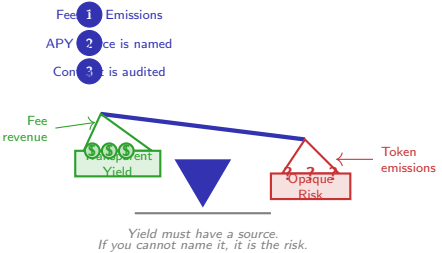
Three Rules That Separate Real DeFi Yield from Unsustainable Promises

Before committing capital to any DeFi protocol, apply these three rules in order: **Rule 1: Real yield comes from fees, not token emissions.**

A protocol earns fees when users swap, borrow, or trade. Those fees are genuine revenue. Token emissions are newly minted tokens handed to depositors – they dilute existing holders and cannot sustain high yields once the token price falls. **Rule 2: If the APY exceeds 100%, ask where the money comes from.**

Every percentage point of yield must be paid by someone. Yields above 100% annually require either extremely high protocol revenue or continuous inflation of the reward token. When token emissions slow, those yields collapse. **Rule 3: "Not your keys, not your coins" applies to DeFi too.**

Self-custody removes exchange risk, but smart contract risk replaces it. Audit reports, time-locked upgrades, and bug-bounty programmes are the DeFi equivalent of a bank's balance-sheet audit. *If a protocol passes all three tests, the yield has a defensible source. If it fails any one – caution.*



The three rules are a checklist, not a guarantee: even audited, fee-generating protocols can be exploited. DeFi transfers risk from institutions to code – and code can have bugs.

Source: DeFi Safety (defisafety.com) Protocol Review Methodology; Rekt News (rekt.news) Post-Mortem Database 2020–2024.