

L45: Global Regulatory Landscape

Module G: Regulation & Future

Blockchain & Cryptocurrency Course

December 2025

Global Regulation in a Nutshell

- Why do crypto companies incorporate in the Cayman Islands, Dubai, or Switzerland?
- The global race: Some countries compete for blockchain talent while others ban it outright

[COMIC: “Jurisdiction shopping” – A crypto founder stands at a crossroads with signs pointing to different countries: “Cayman Islands: No questions asked”, “Switzerland: Clear rules”, “USA: Lawyers required”, “China: Do not enter”. The founder has a suitcase labeled “Token Inc.”]

[PLACEHOLDER] — The fragmented regulatory landscape creates incentives for jurisdiction shopping

- Understand why governments regulate cryptocurrencies
- Compare regulatory approaches across major jurisdictions
- Analyze the US fragmented regulatory landscape
- Evaluate EU MiCA as comprehensive framework
- Assess enforcement actions and their impact
- Understand the significance of Bitcoin ETF approval

Building on L44: Lab: Security Audit

The Problem: How should governments regulate crypto?

Part 1/4: Global Regulation (Fundamentals)

The Challenge

Without regulation, crypto markets face fraud, money laundering, and systemic risks that erode trust. With regulation, innovation may be stifled by unclear rules and jurisdictional fragmentation. Finding the optimal balance is critical.

Why It Matters

- Regulatory clarity unlocks institutional capital and mainstream adoption
- Fragmentation creates arbitrage opportunities and regulatory evasion
- Overregulation drives innovation offshore; underregulation enables fraud

What We Need

- Risk management and mitigation
- Clear token taxonomies distinguishing securities, commodities, and payment tokens
- Consumer protections without banning permissionless innovation

The Cryptoeconomics Question

Managing systemic and idiosyncratic risks

Today's lesson: How Global Regulation addresses this challenge

Continued

Why Do Governments Want to Regulate Cryptocurrencies?

Regulatory Concerns

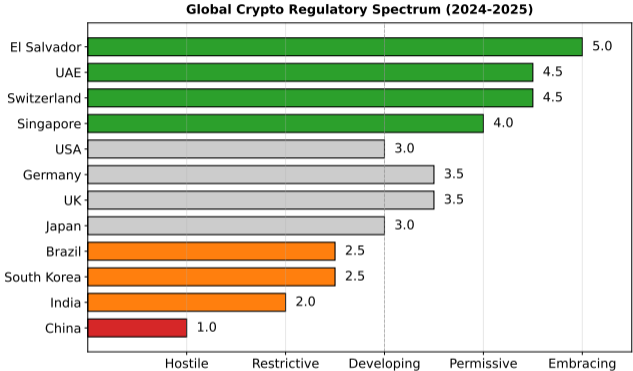
- **Money Laundering:** Anonymous transactions facilitate illicit finance
- **Consumer Protection:** Scams, rug pulls, exchange failures
- **Market Manipulation:** Pump-and-dump, wash trading
- **Tax Evasion:** Unreported capital gains
- **Systemic Risk:** Contagion to traditional finance

Core Tension: Innovation vs consumer protection vs financial stability

Industry Arguments

- **Legitimacy:** Legal certainty attracts institutional capital
- **Innovation:** Clear rules enable compliant products
- **Consumer Trust:** Regulated exchanges reduce fraud
- **Financial Inclusion:** Regulated stablecoins for payments

→ Problem: How should governments regulate crypto? — Why Regulate Cryptocurrencies? Both concerns and arguments reflect the core tension: unregulated crypto enables crime but also financial innovation



Most jurisdictions moving from restrictive toward regulated permissiveness

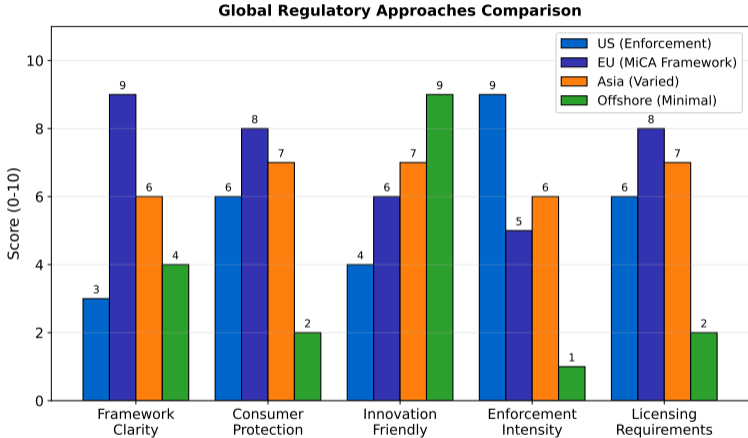
How Do Countries Differ in Crypto Regulation?

Hostile	Restrictive	Permissive
China (2021 ban) Algeria, Bangladesh Nepal, Morocco	India (30% tax) South Korea (strict KYC) Brazil (no DeFi clarity) Russia (payment ban) Turkey (payment ban)	Switzerland (clear framework) Singapore (licensing) UAE (crypto-friendly zones) Portugal (tax-friendly) El Salvador (legal tender)

Trend: Convergence toward licensing regimes with consumer protections

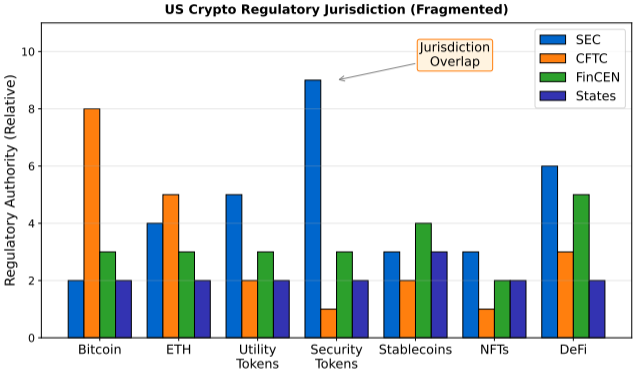
Compare the approaches shown above

Regulatory Approaches by Region



US prioritizes enforcement; EU provides frameworks; Offshore minimizes requirements

United States: Fragmented Jurisdiction



Multiple agencies with overlapping and unclear jurisdiction

Which US Agencies Regulate Crypto?

- **No Unified Framework:** Multiple agencies with overlapping jurisdiction
- **Key Regulators:**
 - **SEC:** Securities regulation (most tokens per Howey Test—a 1946 US Supreme Court test determining if something is a security: investment of money in a common enterprise with expectation of profits from others' efforts)
 - **CFTC:** Commodities (Bitcoin, ETH, derivatives)
 - **FinCEN:** AML/CTF enforcement
 - **OCC:** Banking charters for crypto custody
 - **IRS:** Tax treatment (crypto = property)
 - **State regulators:** Money transmitter licenses (NY BitLicense)
- **Result:** Regulation by enforcement, legal uncertainty

→ *Problem: How should governments regulate crypto? — US Regulatory Agencies Fragmented jurisdiction creates legal uncertainty, driving projects offshore and hindering legitimate innovation*

Who Has Jurisdiction: SEC or CFTC?

SEC Position

- Most tokens are **securities**
- ICOs = unregistered offerings
- Exchanges must register

Howey Test:

- 1 Investment of money
- 2 Common enterprise
- 3 Expectation of profits
- 4 From efforts of others

CFTC Position

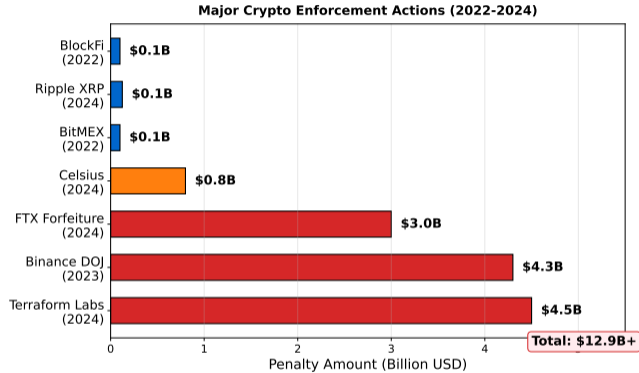
- BTC and ETH are **commodities**
- Jurisdiction over derivatives
- Lighter regulatory approach

Congressional Debate:

- Multiple bills (FIT21, DCCPA)
- Goal: Clarify jurisdiction
- Status: Stalled until 2025

Compare the approaches shown above

Major Enforcement Actions



Regulation by enforcement creates legal uncertainty for industry

What Were the Major Enforcement Actions?

- **Ripple Labs (2020-2024):** SEC sued for \$1.3B unregistered XRP sales
 - Result: Institutional sales = securities, retail sales = not securities
 - Final penalty: \$125M (reduced from \$2B SEC request)
- **Binance (2023):** \$4.3B DOJ settlement, CZ resigned and served prison time
- **Terraform Labs (2024):** \$4.5B penalty for UST/LUNA fraud
- **FTX (2022-2024):** Criminal fraud charges, SBF convicted
- **Pattern:** Enforcement first, rulemaking later

Key point: Ripple Labs (2020-2024)

What is the EU's MiCA Framework?

Overview:

- Comprehensive EU framework
- Approved 2023, full Dec 2024
- 27 EU countries, single regime

Scope:

- CASPs (Crypto Asset Service Providers—exchanges, custodians, and brokers)
- Stablecoin issuers
- NFTs excluded (unless fungible)

Key Requirements:

- CASP authorization + capital
- Market abuse prohibitions
- Consumer protection rules
- Stablecoin reserves

Compare the approaches shown above

Recall Our Problem

How should governments regulate crypto?

What We've Learned So Far

- Regulatory spectrum from hostile (China ban) to permissive (Switzerland), with most jurisdictions converging toward licensing regimes
- US fragmentation: SEC (securities), CFTC (commodities), FinCEN (AML) with overlapping jurisdiction and enforcement-first approach
- No unified framework means companies face regulatory arbitrage incentives and legal uncertainty that stifles compliant innovation

Still to Address

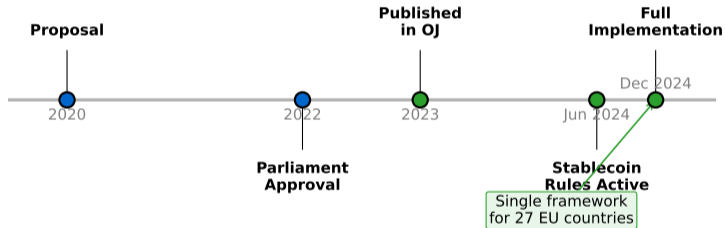
- Bitcoin ETF approval significance, DeFi regulatory challenges, and 2025 US political shift toward pro-crypto policy
- Can enforcement-first regulation transition to clear rulemaking without losing consumer protection?

Think About

- Based on what you've seen, how would *you* solve this problem?
- What trade-offs do you expect?

Pause and reflect: How does what we've learned so far address "How should governments regulate crypto?"?

EU MiCA Regulation Timeline



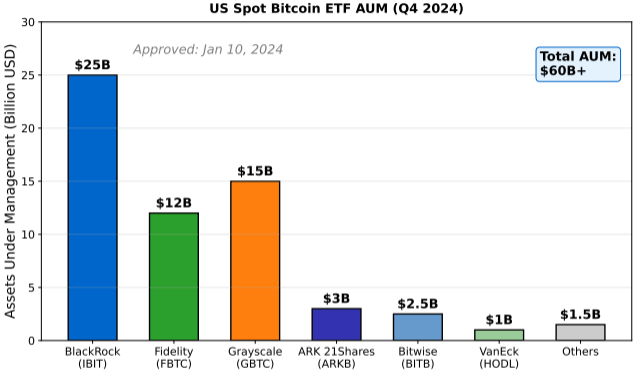
First comprehensive crypto regulation covering entire trading bloc | → Problem: How should governments regulate crypto? — MiCA Implementation Timeline
MiCA provides a template answer: comprehensive ex-ante rules rather than enforcement-first approach

How Does MiCA Regulate Stablecoins?

- **E-Money Tokens (EMTs—stablecoins pegged 1:1 to a single fiat currency):** Pegged to single fiat (USDC, USDT)
 - Issuers must be credit/e-money institutions
 - 1:1 reserve backing in segregated accounts
 - Redemption at par value anytime
- **Asset-Referenced Tokens (ARTs—stablecoins backed by baskets of assets or commodities):** Basket or non-fiat pegged
 - Stricter capital and governance requirements
- **Significant Tokens:** Enhanced EBA oversight
- **Algorithmic Stablecoins:** Effectively banned (post-Terra)
- **Practical Impact:** USDT delisted by major exchanges (Coinbase, Binance) in EU; Circle (USDC) MiCA-compliant (EMI license July 2024)

Key point: E-Money Tokens (EMTs—stablecoins pegged 1:1 to a single fiat currency)

2024 Milestone: Bitcoin ETF Approval



SEC approved 11 spot Bitcoin ETFs on January 10, 2024

Why Was Bitcoin ETF Approval So Important?

- **January 10, 2024:** SEC approves 11 spot Bitcoin ETFs
 - First spot Bitcoin ETFs in US history (after decade of rejections)
 - Issuers: BlackRock (IBIT), Fidelity (FBTC), Grayscale (GBTC)
- **Impact:**
 - \$49B total inflows in 2024 (IBIT: \$37B, FBTC: \$12B); cumulative AUM crossed \$100B in early 2025, surpassing US gold-ETF AUM
 - Institutional access via traditional brokerage accounts
 - Bitcoin legitimized as investable asset class
 - BTC reached new ATH \geq \$100k (December 2024); sustained above \$100k into 2025
- **July 2024:** SEC approves spot Ethereum ETFs (cumulative AUM crossed \$10B in 2025)
- **Significance:** Major shift from SEC's hostile stance, sustained under new 2025 administration

Key point: January 10, 2024

How Do Asian Countries Regulate Crypto?

- **Singapore (MAS):**
 - Payment Services Act licensing
 - Strict AML/CFT, retail protections
- **Hong Kong (SFC):**
 - Mandatory licensing (2023)
 - Positioning as Asian crypto hub post-China ban
- **Japan (FSA):**
 - Early framework (2017), strict custody standards
- **China:** Complete ban (2021) - transactions, mining, exchanges
 - Rationale: Capital controls, CBDC strategy
 - Result: Mining exodus to US, Kazakhstan, Russia

Key point: Singapore (MAS)

What Makes Switzerland Crypto-Friendly?

- **Crypto Valley (Zug):** Global blockchain hub
- **Legal Framework:**
 - DLT Act (2021): Tailored regulation for digital assets
 - Token classification: Payment, Utility, Asset tokens
 - Securities law applies to asset tokens only
- **FINMA Guidance:**
 - Clear licensing categories
 - AML/CFT compliance for exchanges
 - No blanket prohibition on specific activities
- **Advantages:** Regulatory clarity, innovation-friendly, strong rule of law

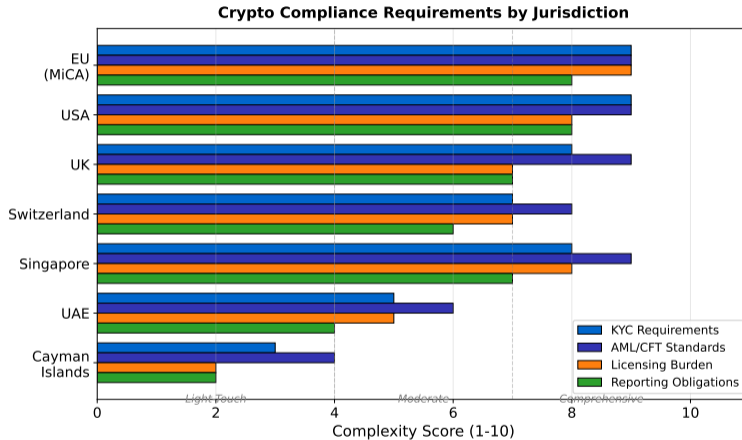
→ *Problem: How should governments regulate crypto? — Switzerland: Crypto Nation Switzerland demonstrates that clear regulatory frameworks attract innovation rather than driving it offshore*

What is the FATF Travel Rule?

- **FATF (Financial Action Task Force, the global anti-money laundering standard-setter) Recommendation 16:** Apply to Virtual Asset Service Providers
- **Requirements:**
 - Collect/transmit customer info for transactions \geq \$1,000
 - Originator and beneficiary details
- **Implementation:**
 - Centralized exchanges: Implemented (Coinbase, Kraken)
 - Cross-border: Technical solutions (TRP, TRUST, Notabene)
 - Self-hosted wallets: Controversial (EU proposed restrictions)
- **Challenge:** DeFi has no intermediary to enforce rules
- **Tension:** KYC requirements conflict with crypto privacy ethos

Key point: FATF (Financial Action Task Force, the global anti-money laundering standard-setter) R...

Compliance Requirements by Jurisdiction



EU/MiCA and US have highest compliance burden; offshore jurisdictions minimal

Why is Regulating DeFi So Difficult?

- **Problem:** Traditional regulation assumes intermediaries
- **DeFi Reality:** Smart contracts, no central operator
- **Key Questions:**
 - Who is liable for smart contract exploits?
 - How to enforce AML without custodian?
 - Are DeFi protocols securities or commodities?
- **Enforcement Actions:**
 - Tornado Cash (2022): Treasury sanctioned mixer protocol
 - Uniswap Labs: SEC Wells Notice (formal notification that the SEC staff intends to recommend enforcement action)
 - Ooki DAO (2022): CFTC sued DAO as legal entity
- **Debate:** Code is speech vs code is conduct

Key point: Problem

How Did the 2024 Election Change Crypto Regulation?

- **2024 Election Impact:**

- Crypto PACs spent \$100M+ on elections
- Pro-crypto candidates elected to Congress

- **New Administration (2025 progress):**

- Trump's Executive Order on Digital Assets (Jan 23, 2025): Strategic Bitcoin Reserve study group + ban on Federal Reserve CBDCs
- SEC Chair Gensler resigned January 20, 2025; Paul Atkins (industry-friendly) confirmed as new SEC Chair April 9, 2025
- SEC dropped multiple major enforcement cases in early 2025 (Coinbase, Robinhood)

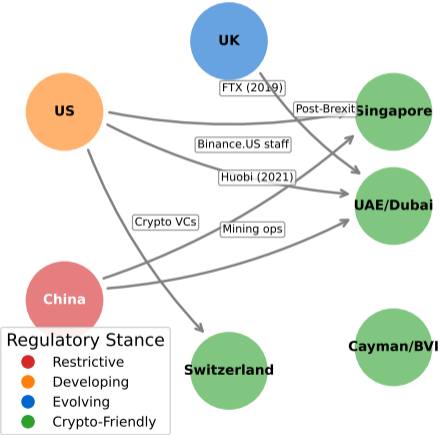
- **Legislative Outlook:**

- FIT21 reintroduced; stablecoin legislation (GENIUS Act) advanced
- CFTC vs SEC jurisdiction clarity expected via combined market-structure bill

- **Shift:** From enforcement to rulemaking approach (sustained 2025)

Key point: 2024 Election Impact

Regulatory Arbitrage: Company Migration Patterns (2019-2024)



Restrictive jurisdictions (US, China) lose companies to crypto-friendly hubs (Singapore, UAE, Switzerland)

What Regulatory Trends Will Shape the Future?

- **Trend 1: Convergence:** Countries adopting similar frameworks (MiCA template)
- **Trend 2: Stablecoin Focus:** Banking-like regulation for systemic stablecoins
- **Trend 3: DeFi Reckoning:** Regulatory clarity (or crackdown) coming
- **Trend 4: CBDC Competition:** Central banks competing with private stablecoins
- **Trend 5: Global Coordination:** FATF, FSB harmonizing standards
- **Trend 6: Licensing Regimes:** Most jurisdictions requiring VASP licenses

- **Uncertainty Remains:** Technology evolves faster than regulation

Key point: Trend 1: Convergence

The Original Problem

How should governments regulate crypto?

How Global Regulation Solves It

- Allow controlled experimentation (Singapore MAS, UK FCA)
- Distinguish security vs utility vs payment tokens (Switzerland DLT Act, MiCA)
- Proportional rules based on systemic significance (MiCA stablecoin tiers)

Remaining Limitations

- Projects relocate to friendly jurisdictions (US to Switzerland/UAE)
- DeFi protocols have no legal entity; sanctions bypass (Tornado Cash forks)
- Industry lobbying shapes rules (crypto PACs \$100M+ in 2024 elections)

Open Questions

- Will global harmonization emerge, or persist as fragmented patchwork?
- Risk: Black swan events, cascading failures (Terra/Luna, FTX)

Global Regulation partially solves "governments regulate crypto" but introduces new trade-offs

Incentive Structure

- Managing systemic and idiosyncratic risks
- Risk-adjusted returns, insurance mechanisms
- Users bear risk for higher returns

Economic Security

- Attack cost must exceed potential gain
- Honest behavior = Nash equilibrium

Cryptoeconomic security: Honest behavior must be the Nash equilibrium

Key Economic Question

Who Pays, Who Earns?

Users bear risk for higher returns

Design Principle

Attack Cost $>$ Potential Gain

Alternatives Considered

- 1 Risk parameters, circuit breakers
- 2 Traditional risk management approaches

Trade-offs Made

- Every design optimizes some properties
- ... at the expense of others

Design Questions

- What would YOU change?
- What's optimized? What's sacrificed?
- Are there other approaches?

Key Insight

No Perfect Solution

All blockchain designs involve trade-offs between decentralization, security, and scalability.

Every design is a trade-off. Understanding alternatives reveals the "why" behind choices.

Failure Modes

Critical Failure Mode

- **What breaks:** Black swan events, cascading failures
- **Why it happens:** Economic incentives misaligned

Root Cause

- Assumption violated
- Incentive structure broken
- External shock

Historical Context

- Multiple real-world failures documented
- Patterns repeating across protocols

Early Warning Signs

- ! Unusual economic behavior
- ! Incentive misalignment
- ! Centralization drift

Prediction: What could cause this to fail? How would you detect it early?

Global Regulation: The Journey

- Companies move headquarters to optimize for regulatory treatment
- The result: A patchwork map of crypto havens and hostile zones

[COMIC: “Regulatory arbitrage map” – A world map shows crypto company headquarters: clusters in Switzerland, Singapore, UAE, Cayman Islands. Arrows show migration patterns from US/EU. Legend: Green = “Welcome!”, Yellow = “Papers please”, Red = “Banned”. A startup on a boat sails between jurisdictions.]

[PLACEHOLDER] — Regulatory arbitrage drives company location decisions until global frameworks converge

Key Takeaways:

- **Global landscape:** Highly fragmented, evolving rapidly
- **US:** Fragmented (SEC vs CFTC), regulation by enforcement
- **EU:** Comprehensive MiCA framework, December 2024 full implementation
- **Asia:** Diverse (Singapore/HK permissive, China ban, Japan conservative)
- **Switzerland:** Clear framework, crypto-friendly (Crypto Valley)
- **Bitcoin ETF (Jan 2024):** Major legitimization milestone
- **Enforcement:** \$13B+ in penalties (2022-2024)
- **Trend:** Convergence toward licensing with consumer protections

Next Lesson: L46 – Swiss FINMA and EU MiCA

Key point: Key Takeaways

- ① How does regulatory fragmentation affect crypto innovation in the US?
- ② Why did the EU choose comprehensive legislation (MiCA) vs enforcement?
- ③ What are the trade-offs of China's complete ban approach?
- ④ Should DeFi protocols be regulated like traditional financial services?
- ⑤ How significant is the Bitcoin ETF approval for mainstream adoption?

Key point: Questions for Reflection

Quiz

Quiz Questions (1–5)

Q1. Which of the following is NOT a primary regulatory concern for cryptocurrencies?

- A) Money laundering and illicit finance
- B) Consumer protection from fraud
- C) Decentralization of governance
- D) Tax evasion and unreported gains

Answer: C – Decentralization is a feature, not a regulatory concern; regulators focus on AML, consumer protection, and tax compliance.

Q2. What is the Howey Test used for in US cryptocurrency regulation?

- A) Determining if Bitcoin is a commodity
- B) Testing exchange security
- C) Determining if a token is a security
- D) Evaluating smart contract code

Answer: C – The Howey Test (investment of money + common enterprise + expectation of profits from others' efforts) determines if a token is a security under SEC jurisdiction.

Q3. Which US regulatory agency has jurisdiction over Bitcoin and Ethereum as commodities?

- A) Securities and Exchange Commission (SEC)
- B) Commodity Futures Trading Commission (CFTC)
- C) Financial Crimes Enforcement Network (FinCEN)
- D) Internal Revenue Service (IRS)

Answer: B – CFTC has jurisdiction over Bitcoin and Ethereum as commodities, while SEC claims most other tokens are securities.

Q4. What was the total penalty amount in the Binance enforcement settlement in 2023?

- A) \$1.3 billion
- B) \$2.5 billion
- C) \$4.3 billion
- D) \$4.5 billion

Answer: C – Binance paid \$4.3B to DOJ in 2023, with CEO CZ resigning and serving prison time.

Q5. When did the SEC approve the first spot Bitcoin ETFs in US history?

- A) November 2023
- B) January 10, 2024
- C) March 2024
- D) July 2024

Answer: B – SEC approved 11 spot Bitcoin ETFs on January 10, 2024, ending a decade of rejections.

Quiz Questions (6–10)

Q6. What does MiCA stand for in the European Union regulatory framework?

- A) Market Infrastructure for Crypto Assets
- B) Markets in Crypto-Assets
- C) Multi-jurisdictional Investment in Crypto Administration
- D) Monetary Integration of Crypto Assets

Answer: B – MiCA is “Markets in Crypto-Assets Regulation,” the EU’s comprehensive framework implemented December 2024.

Q7. Under MiCA, what are E-Money Tokens (EMTs)?

- A) Tokens pegged to baskets of currencies
- B) Algorithmic stablecoins
- C) Tokens pegged to a single fiat currency
- D) NFTs representing digital money

Answer: C – EMTs are stablecoins pegged 1:1 to a single fiat currency (like USDC, USDT), requiring full reserve backing.

Q8. Which stablecoin was delisted by major EU exchanges due to MiCA non-compliance?

- A) USDC
- B) DAI
- C) USDT (Tether)
- D) BUSD (deprecated)

Answer: C – USDT was delisted by Coinbase and Binance in EU due to MiCA non-compliance; Circle’s USDC obtained EMI license in July 2024.

Q9. How much total inflow did Bitcoin ETFs receive in 2024?

- A) \$25 billion
- B) \$37 billion
- C) \$49 billion
- D) \$62 billion

Answer: C – Bitcoin ETFs received \$49B total inflows in 2024 (IBIT: \$37B, FBTC: \$12B).

Q10. Which country implemented a complete ban on crypto transactions, mining, and exchanges in 2021?

- A) India
- B) Russia
- C) China
- D) Turkey

Answer: C – China implemented a complete ban in 2021 to maintain capital controls and support CBDC strategy, causing mining exodus.

Quiz Questions (11–15)

Q11. What is the FATF Travel Rule requirement for Virtual Asset Service Providers?

- A) Verify customer identities for all transactions
- B) Collect/transmit customer info for transactions over \$1,000
- C) Report all transactions to government authorities
- D) Block transactions from sanctioned countries

Answer: B – FATF Recommendation 16 requires VASPs to collect and transmit originator/beneficiary details for transactions \geq \$1,000.

Q12. In the Ripple Labs case, how did the court distinguish institutional vs retail XRP sales?

- A) Institutional sales were securities, retail sales were not
- B) Both were securities
- C) Neither were securities
- D) Only ICO sales were securities

Answer: A – The court ruled institutional sales were securities (Howey Test met) but retail sales on exchanges were not.

Q13. What was the final penalty amount for Ripple Labs after SEC litigation?

- A) \$50 million
- B) \$125 million
- C) \$1.3 billion
- D) \$2 billion

Answer: B – Ripple was fined \$125M, significantly reduced from the SEC's \$2B request.

Q14. Which Swiss city is known as “Crypto Valley” and serves as a global blockchain hub?

- A) Zurich
- B) Geneva
- C) Zug
- D) Basel

Answer: C – Zug is known as Crypto Valley, offering clear regulatory framework via DLT Act (2021) and FINMA guidance.

Q15. What regulatory challenge does DeFi pose that traditional finance regulation assumes?

- A) Too much transparency
- B) High transaction fees
- C) Existence of intermediaries
- D) Slow settlement times

Answer: C – Traditional regulation assumes intermediaries; DeFi operates via smart contracts with no central operator to enforce rules.

Quiz Questions (16–20)

Q16. Which DeFi protocol was sanctioned by the US Treasury in 2022 as a mixer?

- A) Uniswap B) Aave C) Tornado Cash D) Compound

Answer: C – Tornado Cash was sanctioned in 2022 for facilitating money laundering, raising debate about code as speech vs conduct.

Q17. When did MiCA achieve full implementation across the EU?

- A) June 2023 B) December 2023
C) June 2024 D) December 2024

Answer: D – MiCA was approved in 2023 but achieved full implementation in December 2024.

Q18. What is the SEC Chair Gary Gensler's status as of 2025?

- A) Reappointed for second term B) Resigned following 2024 election
C) Promoted to Treasury Secretary D) Still serving as SEC Chair

Answer: B – Gensler resigned after the 2024 election, signaling a shift from enforcement to potential rulemaking approach.

Q19. Which regulatory trend involves countries adopting similar frameworks to MiCA?

- A) Fragmentation B) Convergence C) Decentralization D) Liberalization

Answer: B – Convergence describes the trend of countries adopting similar comprehensive frameworks, often using MiCA as a template.

Q20. What was the total amount of enforcement penalties levied from 2022-2024?

- A) \$5 billion B) \$8 billion C) \$13+ billion D) \$20 billion

Answer: C – Over \$13B in penalties were levied (2022-2024), including Binance \$4.3B, Terraform Labs \$4.5B, and others.