

Research on Risk Identification and Regulation of Binance from a Global Regulatory Perspective

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Abstract: This study systematically analyzes the compliance, technical, market, and legal risks faced by the Binance exchange from a global regulatory perspective. By examining Binance's operational practices in multiple countries and incorporating case studies such as the substantial U.S. settlement and the EU's MiCA regulatory framework, it reveals three core contradictions within the existing regulatory system: the lag of regulatory tool iteration behind technological innovation, inefficiencies in cross-border law enforcement coordination mechanisms, and institutional deficiencies in investor protection. Based on this analysis, the paper proposes a three-dimensional optimization path centered on the unification of global standards, the deepening of regulatory technology, and the institutionalization of transnational coordination, emphasizing the need to balance risk prevention and control with innovation tolerance when constructing a dynamic compliance framework. The research concludes that effective cryptocurrency regulation must seek a dynamic balance between risk governance and innovation incentives, and that establishing a global regulatory coordination mechanism is key to solving the problem of cross-border regulatory arbitrage.

Keywords: Risk Identification; Regulatory Mechanism; Binance; Cryptocurrency Exchange; FinTech Regulation

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1.Introduction

Cryptocurrency exchanges, serving as the core infrastructure for digital asset trading, have positioned risk management and regulatory compliance at the forefront of global financial oversight. Binance, as one of the world's largest cryptocurrency exchanges by trading volume and global reach, presents a critical case study due to its significant market share and operational scale. Since its inception in 2017, Binance has experienced meteoric growth, concurrently facing escalating regulatory scrutiny worldwide. The 2023 settlement with U.S. authorities, involving a substantial financial penalty and the departure of its founder Changpeng Zhao, marked a pivotal moment, signaling a new era of intensified global regulatory focus on the sector. The inherent tension between rapid technological innovation and slower-moving regulatory frameworks is acutely manifested in Binance's cross-border operations, highlighting an urgent need for comprehensive scholarly examination.

2.Global Operations Overview of the Binance Platform

2.1 Development History of Binance

Founded in 2017 by Changpeng Zhao, Binance initially established its headquarters in China before relocating to the Cayman

Islands in response to evolving regulatory environment. The platform demonstrated remarkable user acquisition, growing its base from 2 million to 5 million users within its first six months, swiftly ascending to a leadership position in the global cryptocurrency market. By 2021, Binance had evolved into a comprehensive ecosystem offering a diverse suite of services, including spot and derivatives trading, staking, lending products, and its proprietary stablecoin, Binance USD. Its native token, BNB, achieved a peak market capitalization ranking third among all cryptocurrencies, trailing only Bitcoin and Ethereum.

2.2 Global Layout and Regulatory Response

Binance's operational model is characterized by a decentralized, multi-jurisdictional structure without a single, definitive global headquarters. Following regulatory restrictions in China, the entity strategically shifted its nominal base through various locations, including Hong Kong, Japan, and Malta. This agile, jurisdiction-hopping strategy exemplifies a form of regulatory arbitrage, enabling it to navigate diverse regulatory pressures while simultaneously attracting persistent challenges from national regulators worldwide.

In Asia, Binance encountered warnings from Japan's Financial Services Agency for unregistered operations (2018) and was placed on the investor alert list by Singapore's Monetary Authority (2021). In Western markets, the UK's Financial Conduct Authority prohibited its regulated activities, and multiple U.S. agencies initiated protracted investigations. Regulatory bodies in emerging markets, such as Malaysia's Securities Commission, have also enforced restrictive measures against Binance's local operations.

3. Risk Identification of the Binance Platform from a Global Regulatory Perspective

3.1 Compliance Risks: Cross-border Regulatory Arbitrage and Legal Classification Divergence

A primary source of Binance's compliance risk stems from the profound international divergence in the legal classification of digital assets. Its native BNB token, for instance, has been deemed an unregistered security by the U.S. Securities and Exchange Commission, classified as a virtual commodity in China, and categorized under the broader "crypto-asset" definition within the EU's MiCA framework. This lack of a unified legal characterization subjects Binance to conflicting regulatory obligations across different jurisdictions.

The platform has historically leveraged a structure that decouples its legal registration domicile from its primary operational and market presence. This allowed it to operate in markets like the U.S. through subsidiaries, sometimes without securing requisite licenses, such as the Money Services Business registration from the Financial Crimes Enforcement Network. The 2023 U.S. Department of Justice investigation, which concluded that Binance willfully enabled U.S. users to bypass restrictions, culminating in a record \$4.3 billion penalty for violations including the Bank Secrecy Act, starkly illustrates the vulnerabilities and ultimate unsustainability of this arbitrage-based model.

3.2 Technical Risks: Systemic Vulnerabilities and Deficiencies in Reserve Proofs

Binance's hybrid technical architecture, blending centralized infrastructure with blockchain elements, introduces inherent security vulnerabilities. The platform has suffered several high-profile security breaches, including a 2019 hot wallet compromise leading to significant Bitcoin theft and subsequent incidents involving API vulnerabilities. Concurrently, metrics indicating a decline in transaction processing throughput and increasing user complaint resolution times suggest a growing strain between its technological infrastructure and expanding operational scale.

Regarding user asset safeguarding, while Binance employs a Merkle-tree-based Proof-of-Reserves system, its credibility is undermined by low audit frequency and a self-selected audit partner model. The 2025 de-pegging event of the FDUSD stablecoin raised serious questions, with on-chain analytics suggesting a concerning over-reliance on the platform's own funds within its purported reserves, pointing to potential structural weaknesses in its custody and transparency practices.

3.3 Market Risks: High-Leverage Products and Market Integrity Concerns

Binance's market risk profile is significantly shaped by its offering of extremely high-leverage products—up to 125x—which amplify systemic fragility during periods of volatility. Instances of "cascading liquidations" triggered by coordinated selling from large holders have resulted in substantial losses, particularly for retail investors, underscoring deficiencies in the platform's risk disclosure and investor suitability protocols.

Furthermore, regulatory filings, such as those from the SEC, have alleged that entities closely affiliated with Binance engaged in wash trading to artificially inflate trading volumes and manipulate prices. A perceived lack of robust market surveillance and failure to intervene in markets with highly concentrated token ownership have raised significant concerns about the platform's commitment to market fairness and integrity.

3.4 Legal Risks: Anti-Money Laundering Failures and Cross-Jurisdictional Enforcement Challenges

Binance has faced severe legal repercussions for systemic failures in its Anti-Money Laundering and Counter-Financing of Terrorism controls. U.S. authorities determined that, for years, the platform knowingly processed transactions for entities in sanctioned jurisdictions, leading to a major penalty. Audits under the EU's AML directive also flagged anomalously high customer verification pass rates for high-risk regions, indicating lax Know Your Customer procedures. While Binance has since enhanced its identity verification with advanced biometric checks, challenges remain in effectively monitoring transactions involving anonymous wallet addresses.

Its globally distributed server infrastructure and lack of a clear central headquarters create substantial legal complexity. Cross-border investigations are frequently hampered by jurisdictional conflicts and data sovereignty laws (e.g., clashes between the U.S. CLOUD Act and EU's GDPR), leading to protracted delays and limited access to crucial evidence. This enforcement fragmentation effectively reduces the deterrence power of national regulators.

4. Global Regulatory Status and Core Issues

4.1 Comparative Analysis of Major National Regulatory Approaches

Regulatory responses to Binance have varied significantly across major economies. The United States has pursued a coordinated, multi-agency approach. The SEC has focused on securities law violations, the CFTC on derivatives trading, and the Department of Justice on criminal charges related to money laundering and sanctions violations. The resulting \$4.3 billion settlement is viewed as a watershed moment, establishing a precedent of severe consequences for compliance failures^[4].

The European Union has opted for a preemptive, legislative strategy with the Markets in Crypto-Assets regulation. This comprehensive framework establishes uniform licensing, governance, and consumer protection rules for crypto-asset service providers across the EU, aiming to reduce regulatory arbitrage opportunities within the single market.

Asian regulators demonstrate a spectrum of stances. Singapore maintains a calibrated approach, placing Binance on an alert list while permitting its local subsidiary to pursue licensing. China enforces a comprehensive ban. Japan has progressively integrated crypto exchanges into its regulated financial landscape via amended legislation, whereas countries like Malaysia have opted for outright prohibitions. This diversity reflects differing national priorities in balancing financial innovation with systemic risk control^[9].

4.2 Core Deficiencies in Existing Regulatory Mechanisms

4.2.1 Regulatory Tool Lag

Traditional financial regulatory instruments often prove inadequate for the unique attributes of the crypto market. Prudential requirements like capital adequacy ratios, designed for traditional banks facing credit and liquidity runs, fail to accurately capture the distinct risks of exchanges, such as those related to crypto-asset custody and settlement in a 24/7 market^[5]. The 2025 FDUSD incident highlighted the absence of real-time tools for monitoring the composition and liquidity of exchange reserves.

From a technological standpoint, the rapid evolution of blockchain—its pseudo-anonymity, cross-border nature, and programmability via smart contracts—outpaces the development of corresponding supervisory technologies. Regulators often find themselves conducting forensic analyses after incidents occur, lacking the capability for proactive surveillance and intervention against complex on-chain illicit activities^[7].

4.2.2 Structural Barriers to Cross-border Enforcement

The fundamental mismatch between the borderless operation of global crypto exchanges and the territorially bound nature of national regulators creates significant enforcement gaps. Binance's infrastructure, spread across dozens of countries, complicates jurisdictional claims. As research indicates, the efficacy of cryptocurrency regulation is heavily dependent on the quality of enforcement, which is hampered by these cross-border challenges^[1]. Legal conflicts, such as those between the

U.S. CLOUD Act and EU's GDPR, can stall international investigations for extended periods, as evidenced by a reported 14-month delay in an EU probe into Binance.

The absence of globally harmonized regulatory standards and effective information-sharing protocols further exacerbates the situation. Varying definitions of crypto-assets, divergent licensing regimes, and differing enforcement priorities create a patchwork of oversight, leading to both overlap and voids. The reliance on costly and often inefficient mutual legal assistance treaties (MLATs) or unilateral "long-arm" jurisdiction is insufficient for effectively policing global platforms like Binance^[9]. The well-documented use of cryptocurrencies for money laundering underscores the critical need for enhanced international cooperation^[3].

5. Optimization Strategies for Regulatory Mechanisms

5.1 Establishing Globally Harmonized Regulatory Standards

A pivotal step is championing the development of international regulatory standards through bodies like the International Organization of Securities Commissions (IOSCO). A core objective must be creating a unified taxonomy for crypto-assets. Clear classifications—such as treating platform tokens as digital asset securities and stablecoins as regulated electronic payment instruments—would align oversight with existing financial regulatory pillars (securities regulation, payment systems) and curtail arbitrage fueled by legal ambiguity. Evidence suggests that clear regulatory frameworks contribute significantly to market stability^[2].

Secondly, establishing a coordinated global regulatory sandbox initiative among major economies (e.g., G20) is advisable. Regulatory sandboxes provide controlled environments for testing innovations^[7]. A linked network of such sandboxes could facilitate "test once, comply with many" mechanisms, easing the regulatory burden on firms operating internationally and fostering regulatory learning and standard alignment.

5.2 Deepening the Application of Supervisory Technology (SupTech)

Deploying integrated blockchain analytics platforms is crucial for modernizing oversight. These systems, functioning as "regulatory data lakes," should synthesize multi-source data (on-chain transactions, off-chain intelligence, market data) to enable advanced analytics like address clustering, transaction pattern recognition, and network analysis. Intelligent models for anti-money laundering have demonstrated considerable potential in enhancing detection capabilities^[8]. Such systems can provide real-time alerts for suspicious activities like market manipulation or large-scale money laundering attempts.

Mandating regular, independent smart contract audits for core exchange functions is essential. Game-theoretic analysis suggests that exchanges' compliance incentives are shaped by the cost-benefit calculus of adhering to rules versus violating them^[6]. Audits help identify critical vulnerabilities. Regulators should possess the authority to mandate operational pauses if severe risks, such as insufficient reserves or critical code flaws, are identified.

Implementing a robust investor risk classification and product governance framework is necessary. The novel risks associated with decentralized finance (DeFi) and high-leverage products require tailored responses^[11]. This involves imposing appropriateness tests and knowledge assessments for complex products, alongside mandatory, clear risk disclosures at the point of sale to protect less sophisticated investors.

5.3 Strengthening Transnational Regulatory Cooperation

Creating a standing international coordination group, comprising regulators from key jurisdictions, could significantly improve collaboration. The global nature of cryptocurrency risks demands a coordinated international response^[9]. This group would facilitate regular dialogue, develop minimum global standards, and coordinate joint examinations and enforcement actions, thereby mitigating the inefficiencies caused by jurisdictional conflicts.

The establishment of a global investor compensation fund, financed by levies on exchange transaction revenue, would provide a vital safety net. A comprehensive regulatory approach to crypto-assets must include robust investor protection mechanisms^[10]. This fund would offer redress for losses stemming from exchange insolvency, hackings, or fraudulent activities. A centralized, global complaint portal would streamline the process for aggrieved users. Finally, enhancing regulatory transparency by publishing clear guidance on compliance expectations helps create a predictable operating environment and reduces regulatory uncertainty.

6. Conclusion and Outlook

This research, through a detailed examination of the Binance case, elucidates the multifaceted and inherently global challenge of regulating cryptocurrency exchanges. The trajectory of the industry points towards deeper integration with traditional finance, necessitating regulatory frameworks capable of dynamically balancing financial integrity with technological innovation. The Binance saga underscores that a reactive, enforcement-centric model is insufficient; a more effective paradigm involves holistic, lifecycle governance encompassing stringent ex-ante authorization, real-time SupTech-driven monitoring, and rigorous ex-post accountability. The tripartite strategy of standard harmonization, SupTech integration, and institutionalized cooperation offers a viable pathway towards constructing a resilient regulatory ecosystem. Such an ecosystem must be designed to mitigate systemic risks without stifling the transformative potential of blockchain technology, thereby fostering the sustainable and responsible development of the cryptocurrency industry.

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The authors declare that there is no conflict of interest regarding the publication of this paper.

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