

# Reassessing Fairness in Digital Financial Services: A Legal Analysis of The FTX Collapse and Global Consumer Protection Standards

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**Abstract:** *This study analyzes fairness as a normative legal principle in digital financial services, particularly within AI- and blockchain-based ecosystems. Using a normative juridical approach, it examines information asymmetry and its impact on consumer protection. The findings show that digital finance, while enhancing efficiency and inclusion, intensifies asymmetry due to algorithmic complexity, opaque governance, and cross-border operations, weakening consumer protection. The FTX collapse illustrates systemic failures in transparency, accountability, and fair treatment, including misuse of funds and inadequate disclosure, violating principles of informed consent and justice. The study argues that technological advancement does not reduce legal responsibility but demands stronger regulatory frameworks. Normatively, fairness is positioned as an enforceable legal standard integrating transparency, accountability, and consumer protection.*

**Keywords:** *Consumer Protection, Digital Financial Service, FTX*

## Introduction

The rapid evolution of digital finance, encompassing cryptocurrencies, digital assets, Decentralized Finance (DeFi), and app-based investment services, has introduced profound changes to the global financial landscape. (Du et al., 2024) While these innovations offer substantial opportunities for enhanced financial inclusion, improved transactional efficiency, and broader access to financial products, they simultaneously present complex risks concerning consumer protection, transparency, and legal certainty. (Meng, 2025) A critical challenge within this emerging digital financial ecosystem is the pervasive issue of information asymmetry between service providers and users, often exacerbated by the technical complexities inherent in digital products, asset storage mechanisms, and the potential for algorithmic manipulation. This asymmetry directly undermines the principle of fairness, a cornerstone of modern consumer protection, which ideally encompasses information transparency, equal treatment, accountability of service providers, and protection against misleading practices.

Despite its potential to expand financial inclusion and efficiency, digital financial services also introduce significant legal risks for consumers, particularly due to information

asymmetry and technologically mediated decision-making.(Chang, 2022) Consumers often lack adequate understanding of complex digital products, opaque platform governance, and automated decision systems that influence investment outcomes, pricing, and risk exposure. This imbalance of information and control places consumers in a structurally vulnerable position, raising fundamental questions regarding fairness, transparency, and informed consent within digital financial transactions. From a legal perspective, these conditions challenge the adequacy of existing consumer protection frameworks that were primarily designed for traditional, intermediary-based financial systems.(Bogina et al., 2022)

The challenge of ensuring fairness in digital financial services is further intensified by the increasing reliance on algorithmic systems and platform-based governance structures that operate across jurisdictions. Decision-making processes embedded in digital platforms may lack transparency, accountability, and clear attribution of legal responsibility, particularly in decentralized or hybrid financial models. As a result, consumers may face unequal treatment, limited access to remedies, and difficulties in enforcing their rights when disputes arise. These developments highlight the need to reconceptualize fairness not merely as an ethical aspiration, but as a normative legal principle capable of guiding regulatory design, platform accountability, and consumer protection in technology-driven financial ecosystems.(Soldatos, n.d.)

In this study, fairness is conceptualized as an overarching normative legal principle that requires transparency, accountability, equal treatment, and procedural protection within digital financial systems. Transparency and accountability are therefore treated not as synonymous concepts, but as operational components of legal fairness.(Zhou, 2024)

## Methodology

This study employs a normative juridical method to examine fairness, accountability, transparency, and consumer protection within digital financial systems. The research applies conceptual, statutory, and comparative approaches to analyze legal issues arising from blockchain-based platforms, algorithmic governance, artificial intelligence, and digital financial services.(Kulkarani et al., 2024)

The conceptual approach is used to distinguish fairness from related concepts, including transparency, accountability, and justice, within digital financial governance. The statutory approach examines legal instruments, consumer protection regulations, and disclosure obligations governing digital financial activities. The comparative approach evaluates regulatory responses concerning platform liability, cross-border enforcement, and digital financial accountability across jurisdictions.(Arora et al., 2025)

The collapse of FTX is analyzed as a paradigmatic case because it reflects structural problems in digital finance, including opaque governance, misuse of consumer funds, inadequate disclosure, and cross-border regulatory fragmentation. The study utilizes primary and secondary legal materials, including statutes, regulatory frameworks, legal journals, and academic literature, which are analyzed qualitatively.(Contracting & Selection, n.d.).

## Result and Discussion

### Definition and Scope of Digital Finance

Fairness in digital financial services is conceptualized as a normative legal principle that requires transparency, accountability, equal treatment, and procedural protection for consumers. In this study, fairness is not positioned as a concept identical to transparency, accountability, or justice, but rather as a broader legal principle that integrates these elements into the legal relationship between digital service providers and consumers. Transparency functions as an obligation to disclose information, accountability relates to legal responsibility for consumer losses, while justice refers to the proportional distribution of rights and obligations. Thus, fairness is understood as a normative standard that determines operational legitimacy and legal compliance in the digital financial ecosystem (Okatan, 2023).

Digital finance is defined as the provision of financial services through digital technologies, including payments, lending, investments, and insurance. Its scope is limited by technological infrastructure, regulatory jurisdiction, and service delivery modalities. Legal consequences are determined by the legal framework governing data privacy, consumer protection, and the validity of cross-border transactions. Regulatory oversight is carried out through national financial authorities and international standard-setting bodies. The allocation of responsibilities is determined through contractual provisions, platform governance rules, and applicable civil or criminal laws (Business et al., 2025).

The legal framework governing digital finance must address multiple dimensions of risk and liability. Consumer protection gaps remain prominent due to lagging legal norms and inadequate disclosure requirements. Platform monopolies and unfair competition practices present additional legal challenges that existing antitrust frameworks struggle to effectively address. The cross-border nature of digital financial activities further complicates jurisdictional authority, as traditional territorial principles prove inadequate in cyberspace. Countries are increasingly relying on impact-based jurisdiction to enforce regulatory control over digital financial operations (Of et al., 2024).

The legal ramifications of digital finance extend beyond traditional regulatory realms into the emerging area of civil liability. Digital financial institutions face potential legal liability for inadequate risk management, misuse of consumer funds, and weak disclosure practices within platform-based financial ecosystems. The increasing reliance on algorithmic governance, automated decision-making, and cross-border digital transactions further complicates the attribution of legal responsibility when consumer losses occur. In many cases, consumers possess limited access to material information regarding platform governance, asset custody mechanisms, liquidity conditions, and internal financial operations. This imbalance creates structural information asymmetry between digital service providers and consumers, thereby weakening informed consent and limiting the ability of consumers to assess financial risks rationally. Consequently, failures in transparency, accountability, and disclosure may constitute procedural unfairness and undermine consumer protection principles within digital financial services. The collapse of FTX illustrates how opaque governance structures, undisclosed affiliated transactions, and misuse of consumer assets can generate systemic legal vulnerability for consumers and

violate the normative principle of fairness in digital financial ecosystems. (Yang & Lee, 2024).

### **Information Asymmetry in Digital Financial Services**

Information asymmetry in digital financial services is characterized by unequal access to material facts between providers and users. Critical data regarding algorithmic decision-making is frequently withheld from consumers. Platform operators possess comprehensive behavioral analytics that remain inaccessible to service recipients. This knowledge imbalance systematically disadvantages individuals in contractual negotiations and dispute resolution (Arvhiari, 2023).

Consumer vulnerability is exacerbated by opaque terms of service and automated processes. Complex fee structures are deliberately obscured through layered disclosure mechanisms. Risk assessments incorporating alternative data sources lack transparency and contestability. Financial literacy gaps prevent meaningful comprehension of embedded contractual obligations. Vulnerable populations face disproportionate exposure to predatory design patterns and dark patterns (Mardjono & Setyawan, 2025).

Accountability mechanisms in digital finance remain inadequately developed across most jurisdictions. Algorithmic governance systems operate without sufficient human oversight or audit trails. Platform operators evade responsibility through jurisdictional arbitrage and liability-limiting clauses. Regulatory frameworks fail to establish clear standards for explainable artificial intelligence in credit scoring. Third-party data processors further fragment accountability chains through subcontracting arrangements (Han & Id, 2023).

Liability allocation in digital financial platforms demonstrates significant structural deficiencies. Consumers bear a disproportionate burden of proof in disputes involving automated decisions. Platform terms routinely disclaim liability for algorithmic errors and system malfunctions. Cross-border operations complicate enforcement through conflicting legal regimes and forum selection clauses. Existing tort law principles prove insufficient for addressing distributed harm from systemic platform failures (Muralidhar & Lakkanna, 2024).

The cross-border nature of digital financial activities fundamentally complicates jurisdictional authority. Traditional territorial principles prove insufficient in cyberspace where transactions span multiple legal domains. States increasingly rely on effects-based jurisdiction to assert regulatory control over digital operations. This creates overlapping and sometimes contradictory compliance obligations for global platforms. Consumers receive inconsistent protection levels depending on their geographic location and applicable law (Nimbalkar et al., 2025).

Systemic implications emerge when information asymmetries aggregate across interconnected digital platforms. Microprudential risks accumulate into macroprudential threats through correlated algorithmic behaviors. The integration of digital finance with the real economy creates new channels for systemic risk transmission. Technological solutions alone cannot resolve fundamental information asymmetries without robust legal frameworks. Automated compliance systems enable enhanced monitoring but may

reinforce power imbalances. Algorithmic governance raises new legal questions regarding accountability and due process. The European Union's approach demonstrates balanced regulatory philosophy promoting innovation while safeguarding stability. Continuous adaptation of regulatory approaches is required to address emerging risks effectively (Oyebode, 2024).

### **The Principle of Fairness in Digital Financial Services**

Information transparency is crucial for establishing fairness within digital financial services (DFS), necessitating that service providers clearly, accurately, and comprehensibly disclose product risks to consumers. This includes proportional and non-misleading presentations of information concerning digital asset volatility, fund storage mechanisms, fee structures, and potential losses. The presence of ambiguity or concealed operational information exacerbates information asymmetry, posing significant risks to consumers.

Fair treatment, a cornerstone of fairness in DFS, faces substantial challenges, particularly from algorithmic systems that may perpetuate bias or digital discrimination. Algorithms, when trained on skewed historical datasets, can inadvertently reproduce or amplify structural inequities, thereby disadvantaging specific user groups. This concern is heightened in contexts such as credit scoring, loan approvals, fraud detection, and risk assessments, where AI systems influence critical financial decisions.

Accountability presents a significant challenge within decentralized digital financial ecosystems, especially in Decentralized Finance (DeFi) systems, which operate without traditional intermediaries. The absence of a central authority complicates the assignment of responsibility in cases of system failures, consumer losses, or fraudulent activities, thereby undermining legal protection mechanisms and creating uncertainty for users. DeFi, while promising enhanced efficiency and transparency through blockchain technology, also introduces novel risks such as smart contract vulnerabilities, oracle risks, and governance risks, all of which complicate accountability.

Safeguarding against deceptive practices is an essential aspect of upholding fairness principles in the digital financial sector. The pronounced volatility of digital assets, such as cryptocurrencies and tokens, is frequently misunderstood by consumers, particularly retail investors. Without sufficient risk awareness, extreme price fluctuations can result in substantial financial losses.

The integration of artificial intelligence (AI) into financial services has intensified concerns regarding bias, transparency, and accountability. Digital platforms, increasingly functioning as public service spaces, demand that algorithmic ethics specifically fairness, accountability, and transparency (FAT) receive heightened attention. Trust in AI-driven services is significantly influenced by these ethical considerations, with transparency playing a heuristic role in user experience and adoption.

Mitigating algorithmic bias involves a multi-faceted approach encompassing bias detection, fairness management, and explainability management. Bias detection includes auditing and discrimination discovery, while fairness management spans pre-processing, in-processing, and post-processing techniques aimed at reducing bias in data and algorithmic operations. Explainability management, which focuses on making algorithmic

decision-making processes understandable, is crucial for fostering trust and ensuring responsible AI deployment.

The landscape of algorithmic fairness also necessitates considering the long-term impacts and larger-scale improvements, moving beyond immediate prediction and decision-making to address potential effects from external data dynamics. Ethical AI frameworks are vital for regulatory governance in financial technologies, emphasizing fairness, accountability, and consumer protection. Responsible machine learning datasets, for instance, are characterized by a confluence of fairness (diversity and reliability), privacy (sensitive details), and regulatory compliance (data protection).

The development of trustworthy AI systems requires comprehensive evaluation across auditability, traceability, reproducibility, fairness, privacy, human value, safety, autonomy, sustainability, robustness, generalization, performance, explainability, and transparency.

The absence of transparent mechanisms to explain or audit algorithmic decisions has generated skepticism and highlights the need for a shift from solely focusing on predictive accuracy to incorporating ethical considerations. Human-in-the-Loop (HITL) AI mechanisms are proposed as a strategy to enhance transparency, interpretability, and accountability in AI systems, particularly in critical sectors like financial fraud detection. Algorithmic transparency is also identified as a critical concept in modern cybersecurity, built upon pillars of explainability, accountability, bias mitigation, and auditability.(Wang, 2023)

In conclusion, ensuring fairness, transparency, and accountability in digital financial services is an intricate challenge, amplified by the increasing adoption of AI and the emergence of decentralized financial ecosystems. Addressing these issues requires robust regulatory frameworks, advanced algorithmic design focused on bias mitigation and explainability, and comprehensive consumer protection measures.

## LEGAL ANALYSIS OF THE FTX CASE

The collapse of FTX in 2022 was one of the biggest failures in the history of digital financial services and marked a global turning point in the discourse on digital consumer protection. FTX operated as a centralized crypto exchange offering asset custody, crypto derivatives trading, and digital-based investment products to millions of consumers across jurisdictions. In practice, FTX served not only as a trading infrastructure provider but also as a manager of consumer funds, placing it in a fiduciary position that demands high standards of prudence and fairness.

Legally, FTX exists in a global regulatory gray area. Despite its cross-border operations, its corporate structure is spread across multiple jurisdictions with varying levels of oversight. This creates regulatory loopholes that allow for unchecked consumer fund management practices, thereby reducing legal protections for users(Tarhini, 2021).

### 1. Violation of the Principle of Fairness in the FTX Case

One of the most fundamental violations in the FTX case was a failure to provide transparency to consumers. FTX failed to clearly disclose that consumer funds were

diverted and used by an affiliated entity, Alameda Research, for speculative trading purposes. This practice created extreme information asymmetry, with FTX management having full knowledge of the internal financial situation, while consumers transacted under the assumption that their funds were held securely and segregated.

From a consumer protection law perspective, this condition is contrary to the principle of informed consent and duty of disclosure, which requires financial service providers to disclose material information that could influence consumer decisions. The failure to disclose risks and conflicts of interest in the FTX case directly undermines the principle of procedural fairness (Practitioner, 2025).

## 2. Unfair Treatment of Consumers

FTX also violates the principle of equal treatment (fair treatment). In bankruptcy practice, it was revealed that there was a disparity in treatment between retail consumers and internal entities, with some internal parties having privileged access to liquidity and information prior to the platform's collapse. This created distributive injustice, as the greatest losses were borne by retail consumers, who had the weakest bargaining position (Weingärtner et al., 2023).

Furthermore, FTX's internal system design allows for high-risk financial decisions to be made without adequate control mechanisms. When digital platforms utilize algorithmic systems and technological infrastructure to manage consumer funds, failure to ensure systemic fairness can lead to structural exploitation of users.

## 3. Accountability Failure in the Digital Ecosystem

The FTX case highlights serious accountability issues in digital financial services. The lack of a clear separation of functions between customer fund management and internal trading activities demonstrates weak corporate governance (corporate governance). In a legal context, this raises the question of who should be held responsible: the founders, management, system developers, or affiliated entities.

Furthermore, even though FTX is not a pure DeFi platform, this case demonstrates that the logic of "code is law" and reliance on digital systems cannot replace the principle of legal accountability. When failures occur, consumers lack an effective mechanism to demand accountability across jurisdictions, thereby weakening legal protections. (Chauhan, 2025)

## Conclusion

This study positions fairness as a normative legal principle governing accountability, transparency, and consumer protection within digital financial services. Digital financial systems intensify information asymmetry through algorithmic opacity, weak disclosure practices, and cross-border governance fragmentation. These conditions weaken informed consent, procedural fairness, and consumers' ability to assess financial risks rationally. The collapse of FTX demonstrates structural failures in digital financial governance, particularly regarding misuse of consumer funds, opaque platform management, and inadequate disclosure mechanisms. The study concludes that technological innovation does not eliminate legal responsibility but instead requires stronger regulatory oversight and

enforceable consumer protection standards. Future digital financial regulation must therefore integrate fairness, accountability, transparency, and procedural safeguards within platform governance and technological design.

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