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Original Article

The Evolution of Blockchain-Based Fundraising: A Comparative Analysis of ICOs, IEOs, DAOICOs, and STOs

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Abstract:

Blockchain-driven fundraising mechanisms have significantly altered traditional capital formation by enabling decentralized financial transactions. This study examines the evolution of Initial Coin Offerings (ICOs), Initial Exchange Offerings (IEOs), Decentralized Autonomous Initial Coin Offerings (DAOICOs), and Security Token Offerings (STOs), highlighting their regulatory frameworks, investor protection mechanisms, and fundraising efficiency. ICOs initially disrupted financial markets by facilitating direct investment through utility tokens; however, concerns regarding fraud, speculative volatility, and regulatory ambiguity led to declining market adoption (Catalini & Gans, 2018; Moxoto et al., 2025). IEOs emerged as a structured alternative, utilizing cryptocurrency exchanges to conduct due diligence and enhance investor confidence (Risius et al., 2023). DAOICOs incorporated decentralized governance mechanisms, allowing investors to exercise greater control over fund allocation through smart contract-based voting (Myalo, 2019). Meanwhile, STOs align digital token offerings with conventional securities regulations, attracting institutional investors and mitigating legal risks (Lyandres & Rabetti, 2023). Empirical analyses indicate that blockchain-based fundraising models are undergoing rapid institutionalization, with security-backed tokens gaining prominence due to enhanced compliance measures (Moxoto et al., 2025). The transition from ICOs to STOs underscores a broader financial evolution toward regulatory oversight and investor protection. By synthesizing comparative insights, this study provides an analytical framework for evaluating tokenized investment mechanisms. Future research should investigate the scalability of DAOICOs and STOs across diverse regulatory environments to determine their long-term sustainability and financial viability.

Keywords: Crypto, Launchpad, IEO, ICO

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Introduction:

The emergence of blockchain technology has significantly transformed capital formation, offering decentralized financial structures that challenge traditional fundraising methodologies. Initial Coin Offerings (ICOs), introduced in 2013, pioneered blockchain-based crowdfunding, enabling direct investor participation without reliance on financial intermediaries. However, concerns regarding regulatory ambiguity, project sustainability, and market volatility have underscored systemic risks inherent in ICO fundraising models (Catalini & Gans, 2018; Moxoto et al., 2025). In response to these shortcomings, Initial Exchange Offerings (IEOs) were developed as a more structured alternative, incorporating exchange-based moderation to enhance credibility and investor protection (Risius et al., 2023). Meanwhile, Decentralized Autonomous ICOs (DAOICOs) introduced smart contract-based governance mechanisms to enable greater transparency and fund allocation control for investors (Myalo, 2019). Security Token Offerings (STOs), positioned as the most regulatory-compliant fundraising model, align digital assets with traditional securities frameworks, thereby facilitating institutional adoption and mitigating investment risks (Lyandres & Rabetti, 2023).

This paper undertakes a comparative evaluation of these blockchain-based fundraising models, assessing their viability for startups, investors, and regulators within an evolving financial landscape. Through an analysis of technological frameworks, market adoption trends, and legal compliance structures, this study delineates the critical factors shaping token-based fundraising mechanisms and their potential implications for the broader financial ecosystem.

ICOs primarily operate as crowdfunding mechanisms wherein projects issue utility tokens in exchange for cryptocurrencies, offering speculative investment opportunities and early-stage project support. However, recent trends indicate a shift toward enhanced transparency and regulatory compliance, necessitated by increased scrutiny and investor demand for risk disclosures. IEOs, in contrast, are conducted through cryptocurrency exchanges, introducing security enhancements such as investor verification and fraud prevention measures. The integration of compliance elements has contributed to the rising prominence of IEOs in centralized exchange ecosystems, offering improved due diligence procedures and structured investment safeguards.

STOs, often compared to tokenized versions of traditional Initial Public Offerings (IPOs), facilitate capital formation through security token issuance, ensuring compliance with established financial regulations. Emerging trends suggest that STOs are increasingly integrating advanced blockchain technologies to optimize transparency and asset tokenization, particularly in sectors such as real estate and tangible asset-backed securities. The growing institutional acceptance of STOs underscores their potential for mainstream adoption, positioning them as a transformative force in regulated financial markets.

By synthesizing insights from existing literature and analyzing contemporary trends, this paper aims to provide a comprehensive framework for evaluating blockchain-based fundraising mechanisms, identifying opportunities for future research, and exploring the potential trajectory of tokenized financial instruments.

Literature Review:

The evolving landscape of blockchain-based fundraising mechanisms has garnered significant academic interest, particularly regarding the comparative effectiveness and regulatory implications of Initial Coin Offerings (ICOs), Initial Exchange Offerings (IEOs), and Security Token Offerings (STOs). ICOs initially revolutionized capital formation by enabling decentralized investment; however, they faced substantial challenges related to project sustainability, profitability, and investor security (Myalo & Glukhov, 2019). In response to these limitations, IEOs emerged as a more structured alternative, leveraging cryptocurrency exchanges to conduct due diligence, improve liquidity, and mitigate information asymmetry (Myalo & Glukhov, 2019; Risius et al., 2023). STOs were subsequently introduced to align digital fundraising with securities regulations, offering legal protections and asset-backed tokens designed to appeal to institutional investors (Momtaz, 2021).

Empirical analyses have demonstrated that STOs generally require longer execution timelines and yield higher fundraising amounts relative to ICOs and IEOs; however, their market valuations tend to be lower when controlling for external factors (Momtaz, 2021). Additionally, research highlights that social media-driven sentiment—previously identified as a determinant of ICO success—plays a diminished role in IEO performance due to the oversight of centralized intermediaries (Risius et al., 2023). While these emerging models present significant opportunities for small and medium enterprises and investors, they continue to encounter challenges related to jurisdictional differences, blockchain interoperability, and scalability constraints (Momtaz, 2021).

Initial Coin Offerings (ICOs):

ICOs facilitated a decentralized approach to capital raising, allowing startups to issue utility tokens and amass substantial funding, exceeding $7 billion in 2017 alone (Catalini & Gans, 2018). Despite their initial success, empirical evaluations reveal a high prevalence of speculative volatility, fraudulent activity, and insufficient investor protections, contributing to market instability and diminishing long-term project viability (Moxoto et al., 2025). The absence of regulatory oversight further exacerbated negative investor sentiment, leading to declining adoption rates and heightened failure risks among token issuers (Lyandres & Rabetti, 2023).

Initial Exchange Offerings (IEOs):

IEOs emerged as a structured refinement of ICOs, integrating centralized oversight through cryptocurrency exchanges to improve fundraising integrity. These exchanges perform project evaluations, facilitate token issuance, and ensure post-launch

liquidity, thereby reducing information asymmetry and enhancing investor confidence (Risius et al., 2023). Empirical findings indicate that IEOs demonstrate superior fundraising performance compared to ICOs, particularly when backed by reputable exchanges that conduct extensive due diligence (Vyas et al., 2023).

Decentralized Autonomous ICOs (DAOICOs):

Vitalik Buterin proposed DAOICOs as an innovative evolution in blockchain fundraising, integrating decentralized autonomous organizations (DAOs) with ICO models. This framework enables investors to exercise greater control over fund allocation through smart contract-driven voting mechanisms, theoretically enhancing transparency and accountability (Myalo, 2019). Despite conceptual promise, DAOICOs remain underexplored in empirical contexts, necessitating further investigation into governance structures and scalability challenges (Buterin, 2019).

Security Token Offerings (STOs):

STOs represent a significant shift toward regulatory compliance, transforming traditional securities into tokenized digital assets governed under legal statutes such as the SEC's Howey Test. By incorporating dividend rights, ownership stakes, and structured regulatory safeguards, STOs aim to attract institutional investors and align tokenized assets with established financial instruments (Moxoto et al., 2025). Research indicates that STOs exhibit reduced speculative volatility compared to ICOs, as their valuations are intrinsically linked to underlying asset structures rather than speculative demand (Lyandres & Rabetti, 2023).

This literature review synthesizes the progression of blockchain-based fundraising models, identifying both their transformative potential and persistent challenges. Future studies should further investigate the viability of DAOICOs and assess the scalability of STOs within diverse regulatory environments to determine their long-term impact on financial markets.

Methodology:

This study employs a qualitative comparative methodology, synthesizing peer-reviewed literature, empirical case studies, and industry reports. Our dataset incorporates over 50 academic publications, various blogs spanning 2018–2025, drawn from sources such as SSRN, NBER, and major financial research journals. Analyses focus on technological, regulatory, and financial dimensions of blockchain-enabled fundraising models.

Advantages of IEO over ICO:

The main advantages of using Initial Exchange Offerings (IEOs) over Initial Coin Offerings (ICOs) include:

1. **Lower Risk of Scams**: IEOs are launched on exchanges after a rigorous verification process, which reduces the likelihood of scams as exchanges have reputational risks to manage.
2. **Faster Listing Process**: The listing of new tokens is expedited with IEOs, allowing tokens to become available for trading almost immediately.

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3. **Cost Redistribution**: IEOs can be more cost-effective for projects, as they alleviate some listing costs associated with launching tokens on exchanges.
4. **Higher Speed of Funding**: IEOs can complete fundraising in a matter of minutes or seconds, while ICOs may take days.
5. **Improved Investor Gains**: Tokens in IEOs often have higher initial listing values compared to their primary distribution.
6. **Simplified Investment Process**: Investors only need to create an account on the exchange and fund their balance, making participation straightforward.
7. **Controlled Token Ownership**: Investors do not face "Gas wars" (competition for transaction capacity on the blockchain), as exchanges handle the token distribution.
8. **Access to a Larger User Base**: IEOs benefit from the exchange's existing user base, reducing marketing costs for the project teams.

These advantages position IEOs as a more structured and secure fundraising option compared to ICOs, which are marked by higher volatility and regulatory uncertainty.

Comparative Analysis of Blockchain Fundraising Models:

Feature	ICO	IEO	DAOICO	STO
Definition	Crowdfunding through utility tokens issued on the project's website.	Token sales facilitated by a cryptocurrency exchange without a prior ICO step.	Integration of smart contracts and DAO governance for fund allocation.	Issuance of security tokens backed by real assets, compliant with regulations.
Intermediary	None	Crypto exchange acts as an intermediary.	Smart contract-based voting system.	Regulated issuer/platform ensures compliance.
Regulation	Minimal or absent regulatory oversight.	Exchange-based vetting provides partial regulatory oversight.	Some governance via smart contracts, but regulatory adherence is uncertain.	Strict compliance under securities laws.
Investor Protection	Limited protection due to lack of oversight.	Moderate protection via exchange due diligence.	Increased investor control through voting mechanisms.	High-level protection through legal compliance and security backing.
Fundraising Process	Conducted directly via the project's	Takes place on the exchange's platform.	Funds released based on DAO voting and smart	Operates within a securities-compliant

Feature	ICO	IEO	DAOICO	STO
	website.		contracts.	platform.
Governance Level	Low, with minimal transparency.	Medium, with exchange oversight improving credibility.	Decentralized, allowing partial investor control.	High, ensuring legal security and compliance.
Liquidity & Fees	Medium liquidity; typically no trading fees, fundraising costs are low.	Higher liquidity due to exchange reach; medium fundraising costs but no fiat fees.	Moderate liquidity with decentralized governance; transaction security is uncertain.	Lower liquidity due to regulatory constraints; fundraising costs are medium with legal fees.
Fraud Risk	High, due to scams and unregulated operations.	Moderate, as exchanges perform some due diligence.	Moderate, with smart contract transparency but potential security risks.	Low, as regulations and institutional backing ensure credibility.
Market Adoption	Peaked in 2017–2018 but declining due to risks.	Steady growth since 2019 with strong exchange integration.	Still theoretical and underexplored.	Emerging with an institutional focus and regulatory acceptance.
Key Determinants of Success	Founders' credibility, market timing, and strategy.	Exchange reputation, liquidity, and investor trust.	Transparent governance, decentralized voting, and security of funds.	Regulatory compliance, asset backing, and investor confidence.
Timeline & Speed	Setup may take several months.	Faster than ICOs, often completed in weeks.	Varies depending on project governance structure.	Lengthy legal processes, often taking up to a year to finalize.

Key Findings and Discussion:

- **Investor Confidence**: IEOs and STOs outperform ICOs due to enhanced due diligence and institutional frameworks (Risius et al., 2023; Moxoto et al., 2025).
- **Fundraising Efficiency**: ICOs remain effective in low-regulation settings yet suffer from long-term sustainability concerns (Catalini & Gans, 2018).
- **Market Adoption Patterns**: While IEOs exhibit stable growth, DAOICOs remain theoretical, necessitating further empirical investigation (Myalo, 2019).
- **Regulatory Adaptation**: Policymakers must balance innovation incentives with investor protections, requiring adaptive compliance mechanisms

across jurisdictions (Moxoto et al., 2025).

Conclusion, Limitations, and Future Research:

The evolution of blockchain fundraising models—from ICOs to STOs—illustrates a broader shift toward institutionalization and investor protection. ICOs initially disrupted traditional capital formation by enabling decentralized fundraising, but their susceptibility to fraud, volatility, and regulatory uncertainty led to their decline. IEOs introduced exchange-driven oversight, mitigating risks through due diligence mechanisms, while DAOICOs experimented with decentralized governance structures to improve investor participation. STOs, by adhering to securities regulations, have emerged as the most secure and compliance-driven approach, attracting institutional investors and signaling the financial sector's gradual embrace of blockchain-based fundraising.

Despite these advancements, fundraising success remains contingent on factors such as the issuing country's regulatory environment, founders' expertise, marketing strategies, and investor sentiment. A key limitation of this study is its reliance on a case-based research methodology, which offers valuable theoretical insights but requires further empirical validation using econometric analysis. Future regulatory developments are expected to impose stricter compliance measures on ICOs while refining STO-specific legal frameworks to ensure investor security.

As blockchain technology continues to evolve, innovations such as cross-chain token fundraising and advanced smart contract mechanisms will likely become standard practices, further enhancing transparency and compliance. This research contributes to the FinTech discourse by offering a comparative framework for stakeholders engaged in tokenized financing. Future investigations should assess the feasibility of DAOICOs in real-world implementations and evaluate STO scalability across varied regulatory jurisdictions. Long-term studies examining the financial performance and sustainability of these models will be instrumental in shaping the next phase of blockchain-driven investment mechanisms.

References:

1. Anson, M. (2021). Initial Exchange Offerings: The Next Evolution in Cryptocurrencies. , 23, 110 - 121. https://doi.org/10.3905/jai.2021.1.127.
2. Akbarpour, S. (2019). Blockchain Start-Ups to Venture Out from Venture Capital! Are ICOs Here to Stay?. , 28, 32 - 44. https://doi.org/10.3905/JOI.2019.1.078
3. Benedetti, H., & Kostovetsky, L. (2018). Digital Tulips? Returns to Investors in Initial Coin Offerings. ERPN: Other Entrepreneurship. https://doi.org/10.2139/SSRN.3182169
4. Buterin, V. (2019). Decentralized autonomous organizations: The future of blockchain governance. Ethereum Foundation.
5. Catalini, C., & Gans, J. S. (2018). Initial coin offerings and the value of crypto tokens (No. w24418).

National Bureau of Economic Research. https://doi.org/10.3386/w24418
6. Chen, R., & Chen, K. (2020). A 2020 perspective on "Information asymmetry in initial coin offerings (ICOs): Investigating the effects of multiple channel signals". Electron. Commer. Res. Appl., 40, 100936. https://doi.org/10.1016/j.elerap.2020.100936
7. Fitts, W. (2019). INITIAL COIN OFFERINGS: GETTING RID OF THE VENTURE CAPITALIST. Transactions: The Tennessee Journal of Business Law, 20, 927.
8. Fenu, G., Marchesi, L., Marchesi, M., & Tonelli, R. (2018). The ICO phenomenon and its relationships with ethereum smart contract environment. 2018 International Workshop on Blockchain Oriented Software Engineering (IWBOSE), 26-32. https://doi.org/10.1109/IWBOSE.2018.8327568.
9. Fadlallah, H. (2023). Technical and legal framework of Initial coin offerings. International Review of Law. https://doi.org/10.29117/irl.2023.0261
10. Feng, C., Li, N., Wong, M., & Zhang, M. (2019). Initial Coin Offerings, Blockchain Technology, and White Paper Disclosures. PSN: Technology (Topic). https://doi.org/10.2139/ssrn.3256289.
11. Kondova, G., & Simonella, G. (2019). Blockchain in Startup Financing: ICOs and STOs in Switzerland. International Political Economy: Globalization eJournal. https://doi.org/10.33423/jsis.v14i6.2607.
12. Lyandres, E., & Rabetti, D. (2023). Initial coin offerings: A review. SSRN. https://doi.org/10.2139/ssrn.4534554
13. Tiwari, M., Gepp, A., & Kumar, K. (2019). The future of raising finance - a new opportunity to commit fraud: a review of initial coin offering (ICOs) scams. Crime, Law and Social
14. Moxoto, A. C. A., Soukiazis, E., & Melo, P. (2025). Determinants of success in initial coin offerings: A systematic literature review. Digital Business, 5, 100123. https://doi.org/10.1016/j.digbus.2025.100123
15. Myalo, A. S. (2019). Comparative analysis of ICO, DAOICO, IEO, and STO: Case study. Finance: Theory and Practice, 23(6), 6–25. https://doi.org/10.26794/2587-5671-2019-23-6-6-25
16. Momtaz, P. (2021). Security Tokens. PSN: Technology (Topic). https://doi.org/10.2139/ssrn.3865233.
17. Liebau, D., Lambert, T., & Roosenboom, P. (2020). The nascent primary market of Security Token Offerings. .
18. Wang, J., Bellavitis, C., & DaSilva, C. (2018). An Introduction to Blockchain, Cryptocurrency and Initial Coin Offerings. IO: Productivity. https://doi.org/10.2139/ssrn.3288059
19. https://www.google.com/url?q=http://coincodex.com/stolist/&usg=AOvVaw3BR6JzL_lxVk6oKmROH37b

20. Risius, M., Breidbach, C. F., Chanson, M., von Krannichfeldt, R., & Wortmann, F. (2023). On the performance of blockchain-based token offerings. Electronic Markets, 33, 32. https://doi.org/10.1007/s12525-023-00652-5
21. https://www.google.com/url?q=http://www.coingabbar.com/en/crypto-token-ieo-initial- exchange-offering&usg=AOvVaw2zJeEiXBbsud3_ppoSTtb4
22. https://timesofindia.indiatimes.com/business/india-business/6-best-ieo-crypto-tokens-in-2022/articleshow/93327148.cms
23. https://search.app/wtfauegZx4RAmZbY6
24. https://search.app/Q2cWSrJuWyan8m2C7
25. https://search.app/EXDoPxEsxkiZPeDx6
26. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3447974
27. https://www.globalblockchainsolution.tech/blog/ipo-vs-ico-vs-ieo-vs-sto
28. https://blog.ionixxtech.com/ico-vs-ieo-vs-sto-understanding-the-nuances-in-tokenized-fund-raising/
29. https://static.olymptrade.com/?af_siteid=GA-OTPO-LPL45-07-01hi&affiliate_id=2381754&lref=&lrefch=affiliate&pixel=1&subid1=4e4gn&subid2=
30. https://www.debutinfotech.com/blog/ico-vs-sto-vs-ieo-fundraising-models