

The future of finance: token sales as an innovative mechanism for financing startup

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Summary: This research explores the future of finance through the lens of token sales, delving into the mechanics, benefits, and challenges associated with this groundbreaking method of startup financing. The analysis suggests that Initial Coin Offerings (ICOs), Initial Exchange Offerings (IEOs), and Security Token Offerings (STO) serve as alternatives to the traditional methods of debt and capital funding typically facilitated by Venture Capital (VC) and Private Equity (PE) firms, as well as banks. This shift signifies a departure from conventional financing models, introducing innovative mechanisms that leverage blockchain technology and decentralized principles. Token sales have emerged as a primary source of capital, particularly for blockchain startups, contributing billions of dollars to the blockchain ecosystem.

Keywords: Startup, Token sales, Blockchain, Initial coin offering, Security token offering.

Jel Classification Codes : G24 ; G32 ; O32

I- Introduction :

Traditionally, startups seeking financing navigated the complex terrain of venture capital, angel investors, or initial public offerings (IPOs). The technological advances and decentralization of funding have fostered the development of innovative funding formulas based on which startups raise funds in open online calls to obtain cryptocurrencies in exchange for digital assets. Emergence of blockchain technology and the associated rise of decentralized finance have paved the way for a novel approach to fundraising” token sales”-.

Token sales, typically conducted through Initial Coin Offerings (ICOs), Initial Exchange Offerings (IEOs), or Security Token Offerings (STOs), represent a shift from traditional funding methods, providing startups with an alternative means of securing capital.. As the financial landscape continues to evolve, understanding the dynamics of token sales becomes crucial for both emerging businesses and investors seeking to participate in the next wave of financial innovation.

II- Review of literature:

The studies discussed various aspects of innovative financing mechanisms for startups, particularly focusing on Initial Coin Offerings (ICOs) and other token sales. Romero-Castro, Pérez-Pico, and Ulrich (2022) explored how token offerings could become a flexible financing tool for startups and small enterprises, adaptable to existing regulations. Schückes and Gutmann (2021) delved into the motivations behind startups choosing ICOs, highlighting the role of economic drivers and social identity. They emphasized the need for clear regulation and governance for ICOs. Block et al. (2020) compared crowdfunding and ICOs, noting their differences and the evolving nature of entrepreneurial finance markets. Ante, Sandner, and Fiedler (2018) analyzed ICO success determinants, finding similarities with traditional crowdfunding and venture capital markets in factors like human capital, business model quality, and social media activity. They suggested that ICOs could be a new era of startup financing.

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III-Methods and Materials:

In order to approach the topic with objectivity and rigor, it is imperative to draw upon a comprehensive array of data and statistics pertaining to the initial coin offering (ICO) market. This necessitates a focused analysis of its fundamental characteristics, procedural frameworks, as well as an exploration of its perceived advantages, positioning it as a harbinger of future financial paradigms. Concurrently, a critical examination of its inherent limitations, which have the potential to curtail its prospective utility in financing nascent ventures, is warranted.

Our methodological approach involved an in-depth scrutiny of statistical datasets concerning the distribution of ICOs across various sectors, along with an examination of the numerical metrics encompassing the frequency and magnitude of ICO issuances spanning the years 2019 to 2022. Additionally, a comprehensive exposition and analytical dissection of the ICO landscape were offered, supplemented by a presentation of noteworthy global case studies showcasing successful implementations.

Such a systematic inquiry, underpinned by empirical data and scholarly analysis, is essential for fostering a nuanced understanding of the dynamics and implications of ICOs within the contemporary financial landscape.

IV- Results and discussion :

The first form of token offerings was Initial Coin Offerings (ICOs), which were defined as an open call for funding and an unstructured token sale to a crowd of investors in exchange for capital. Tokens issued in ICOs can represent various characteristics and rights for their holders. For example, asset rights might represent ownership or a claim on a physical good on the blockchain, such as a token issued by the Orocrypt Foundation, which represents ownership of a 30-gram gold bar. Usage rights could represent access to a service, such as Cloud with Me, which provided tokens representing access to distributed cloud services. Labor rights could represent the contribution of work to a decentralized network, such as the token issued by the Emerging Protocol Labs Foundation, which allows service providers to earn the right to perform network work. In none of these cases does the purchased token provide direct control of the startup. Due to regulatory concerns, the majority of ICO-funded startups refrain from issuing shares and securities through token sales. (Schückes & Gutmann, 2021, p. 1031). Recently, however, startups have started to move in this direction by funding themselves with so-called security token offerings (STOs), which can be considered a progress in the evolution of ICOs. Tokens that grant ownership in a startup are called "security tokens", and their purchase through STOs is considered an investment subject to securities laws (Lambert et al., 2021a, p. 302) as they are instruments whose primary function is to act as a financial investment for the holder. Security token offerings include cases where the security token (pre-existing physical assets or legal rights such as bonds or equity shares) is rolled out on the blockchain and cases where new investment opportunities are created in the digital asset ecosystem. The IEO is also a response to the ICO flaws, related to the lack of supervision. As fraud risks worsen in initial coin offerings, especially in light of the limited information about startups, the process of issuing tokens from the startup to the crypto exchange (it is basically an ICO issued on a crypto exchange), was transferred. IEO provides a certain level of due diligence on the token, with the aim of giving a more secure and regulatory compliant token display model for both issuers and investors (Arslanian, 2023, pp. 284–285).

IV.1. Characteristics of ICOs, IEOs and STOs

Definitions suggest that token sales share many features, notably IEOs and STOs are evolutions of ICOs that attempt to improve upon them or fill in their gaps. This fact makes it important to gain a deep understanding of their differences. Table 1 provides a comparative overview of their main features to gain a better understanding of their similitudes and differences

Table (1): Characteristics of ICOs, IEOs and STOs

Characteristics	ICO	IEO	STO
Risk	High	Medium	Low
Controlling authority	None (banned in some jurisdictions)	The regulator if the cryptocurrency exchange is licenced	Regulator (securities laws)
Costs	Low (technical costs, advisory fees, marketing costs and listing fees)	Medium (ICO costs + crypto exchange fees)	High (ICO costs + legal compliance costs)
Platform	Digital (e.g. website of the issuing company)	Cryptocurrency exchange	STO digital platform
Accepted funds	Fiat and/or crypto-assets		
Fees	Advisory and listing fees	Exchanges charge issuers commission	No fees
Speed	Several months	Several weeks	Up to a year

The source: (Lassala & Ribeiro-Navarrete, 2022, p. 133)

Most ICOs offer utility tokens with no underlying asset tying down their value, making them very volatile and insecure for investors. This aspect, coupled with poor regulation, has made them risky investments. While IEO presents a funding model in the cryptocurrency space with moderate risk and some oversight from exchange platforms. In terms of cost, participants may encounter higher expenses due to associated exchange fees. Notably, the entire process is conducted on a cryptocurrency exchange platform, distinguishing it from other fundraising methods. The setup speed is moderately quick (several weeks), facilitated by the involvement of exchange in the process. However, participants should be aware of potential fees, which may be higher compared to ICOs.

A Security Token Offering (STO) is characterized by lower risk attributed to stringent regulatory compliance. However, this comes with higher initial costs due to the necessity for compliance and legal adherence, ensuring a more secure investment environment. STOs are commonly conducted on specialized security token platforms, providing a dedicated space for the issuance and trading of security tokens. The setup process for STOs tends to be more time-consuming because of meticulous regulatory adherence, introducing a longer timeframe for launch. Additionally, participants should be aware of higher fees associated with STOs, covering the costs of legal compliance and the utilization of specialized platforms.

IV.2.Benefits of token sales for startups

Token sales, offer several advantages for startups:

They allow startups to generate buyer competition for their tokens, raising initial funds and facilitating coordination within digital ecosystems(Catalini & Gans, 2018), This approach provides benefits by offering an alternative financing method to equity financing, especially when the platform expects strong cash flows or faces severe financing needs and large agency conflicts (Gryglewicz et al., 2021), Token sales also provide startups with a means to raise early capital and can offer unique properties and uses for their platforms(Conley, 2017). Additionally, token sales offer a new mechanism for financing growth, with benefits including access to liquidity, increased employment, and avoiding enterprise failure (Howell et al, 2020); Furthermore, token sales provide a decentralized form of crowdfunding for startups, allowing them to raise funds without relying on traditional forms of fundraising (Bacina & Kassra, 2017).Haut du formulaire.

IV.3.Token sales Launching Process

IV.3.1.The Building Blocks

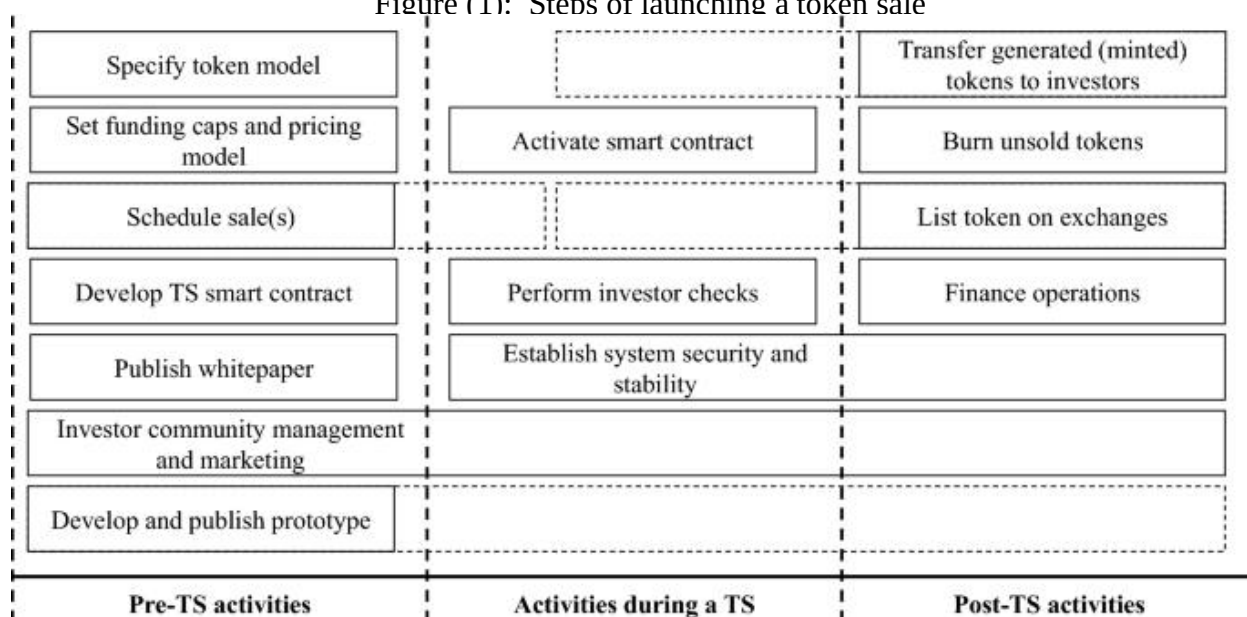
Token sales are built on four fundamental pillars. First, Distributed Ledger Technology (DLT) offers a protocol and structure for recording data in a distributed and secure manner, emphasizing decentralized control and fostering trust between parties. (Soltani et al., 2022, p. 4); Second, Blockchain, a transaction database, consists of a chain of blocks interconnected, with each block containing transaction data that is merged with the previous block and linked to previous

transactions. This creates an immutable record that is difficult to alter or dispute due to its distributed nature (Niranjanamurthy et al., 2019, p. 14745); (Soltani et al., 2022, p. 4). Third, Tokens, crypto-assets used for exchange or investment, are digital representations of private assets recorded on a cryptographically secured DLT, often issued on a blockchain to raise capital for entrepreneurial projects or fund startups (Houben & Snyers, 2020, pp. 17–18).. Finally, Smart Contracts (SC) are digital protocols that execute and enforce contractual terms without intermediaries, reducing transaction costs and increasing efficiency by utilizing blockchain technology (Marchisio, 2022, p. 149). Smart contracts are integral to token sales, managing distributions from the issuing entity to the token holder according to the unique token, and eliminating the need for intermediaries in raising external finance (Fujimoto & Omote, 2022); (Momtaz, 2019).

IV.3.2.Token sale process

Launching a Token sale can be clustered into three main stages based on the most important and typical activities (see figure1).

Figure (1): Steps of launching a token sale



The source: (Conley, 2017b, p. 747)

According to Johann Kranz, Esther Nagel and Youngjin Yo, launching a Token sale can be clustered into three main stages(Kranz et al., 2019, pp. 747–750):

a. Pre-TS stage

In the pre-TS stage, issuers choose a market design and token model that align with their business strategy and investors' interests. Token sales (TSs) often have caps on token supply and specify token value. Unlimited supply can harm token valuation and issuer reputation. Capped TSs set limits on funding, such as soft and hard caps. Once issuers have completed these design options, the issuing entity develops a smart contract that manages funds and tokens during TS. The next step of the process usually involves drafting a white paper describing the project in more detail that can be likened to a business plan. Many exporters partially or fully publish prototype source code on a web-based hosting service (e.g. GitHub). In addition, some offer rewards for detecting errors in the TS smart contract. Token Sales (TS) employ marketing strategies such as 'bounty programs' to incentivize participants. Bounty programs reward individuals with tokens for engaging in promotional activities, including social media campaigns like Twitter posts using the TS's hashtag, blog posts, and other promotional efforts.

b. The TS activation stage

The actual TS starts with the activation of the smart contract. On average, TSs last 41 days, during which issuers oversee marketing, investor relations and support. Token Sale (TS) issuers

commonly require investor registration, a process known as whitelisting. Whitelisting serves the dual purpose of ensuring compliance with regulatory standards, specifically Know-Your-Customer (KYC) and Anti-Money-Laundering (AML) regulations.

In the process of Token Sales (TS), The digital wallets operated by the issuing entity serve as the reception and management hub for transferred currency units and enhance security by necessitating the authentication of transactions with more than one private key, providing an extra layer of protection against potential hacking vulnerabilities.

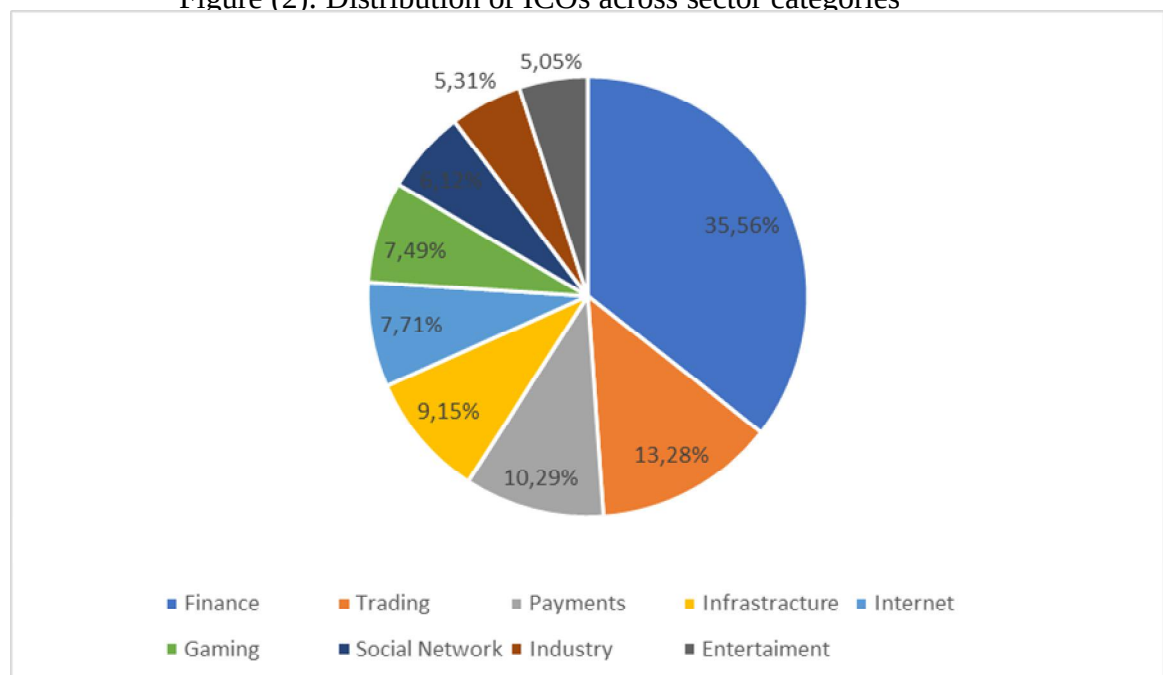
c. The token listing stage

During this phase, the smart contract transfers tokens to the investors' wallets. One significant advantage for token sale (TS) investors, compared to traditional venture capital investments, is the high liquidity of tokens. However, achieving a listing on top-tier exchanges is challenging, as these exchanges prioritize tokens with high trading volumes and often impose substantial listing fees. Utilizing the funds raised and the investor network established through the TS, issuers continue to develop their product or service and integrate the token into their offerings. To finance these efforts, issuers may convert some of the received funds into fiat currencies. Although it is uncommon, issuers might also conduct additional token sales following the initial TS to raise further capital.

IV.4. Overview of the ICO's, IEO's, and STO's Market

a. ICOs Industry sectors

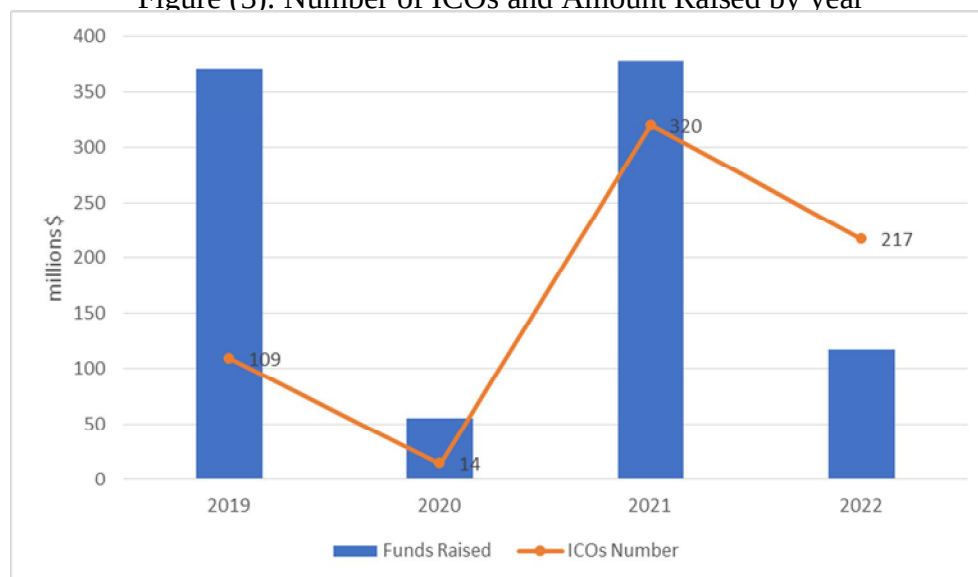
Figure (2): Distribution of ICOs across sector categories



The source: (ICO statistics, <https://www.tokens-economy.com/>)

As shown in Figure 2, the finance and trading sectors together account for an approximate 50% of the total distribution of ICOs to major sectors. ICOs stand out in the financial sector as the largest, with 964 ICOs (35.56%) recorded in this sector. As an example, HackSpace raised \$49.78 million between 19th sep, 2017- 28th apr, 2018. Tadawul comes in second place in other crypto financial services, with 360 ICOs (13.28%). For example, Carat Gold (KBC) raised \$100 million between 15th sep, 2018- 15Apr, 2018.

Figure (3): Number of ICOs and Amount Raised by year



The source: (ICO statistics, <https://www.tokens-economy.com/>)

According to Figure 3, \$370 million was raised from 109 ICOs in 2019. This amount dropped to just \$55.6 million from 14 ICOs in 2020. However, in 2021, it increased to \$378 million raised from 320 ICOs. By 2022, this decreased to \$117 million raised from 217 ICOs. The sharp decline in ICOs can be attributed to challenges such as project failures, scams, and a lack of regulation. Another potential reason for the decrease in the number and volume of ICOs after 2019 is the development of new crowdfunding models (IEO, STO, IDO, TGE), which aim to address some of the key issues associated with ICOs.

b. Overview of the IEO's Market

The decline of initial coin offerings (ICOs) corresponds to the rise of initial exchange offerings (IEOs). Although IEOs were initially introduced in 2017, they gained momentum when Binance Launchpad conducted its first IEO in December 2017. Gifto, a live streaming project, successfully achieved its funding goal of \$30 million in just a few minutes. Soon after, Bread, another IEO hosted on Binance during the same period, raised \$32 million for its project aimed at establishing a secure decentralized bank for users to manage and trade digital assets. It was not until 2019, when the ICO market collapsed, that this novel fundraising method began to capture significant market share. The launch of BitTorrent in January 2019 marked the resurgence of IEOs, which sought to restore investors' trust (Grant, 2019).

Among the most popular and reliable exchanges that incorporate IEO launches for their users are Gate.io, Huobia and Binance, As shown in the table (2).

Table (2): Successful IEO Examples

Name	Platform	Fund raised (M\$)	Current Market Cap (M\$)
GateToken	Gate.io	83	984.55
Akropolis	Huobi	1 st round: 64 2 nd round: 256	- -
Band Protocol	Binance	5.85	224,37

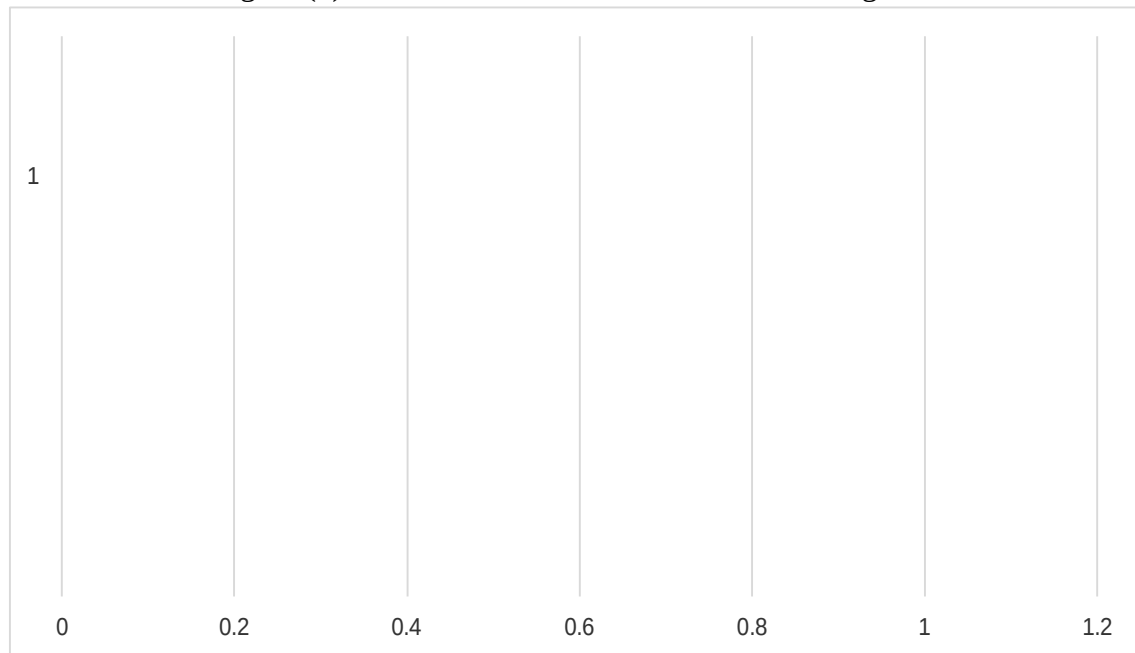
The source: (cryptorank.io, 2023)

As depicted in Table 2, various projects have not only successfully raised significant amounts of funding, but their returns have also proven to be highly lucrative. For instance, GateToken, which raised a record \$83 million for its exchange tokens, currently boasts a return on investment (ROI) exceeding 1,700% (cryptorank.io, 2023). Similarly, is the case of Akropolis, a crypto project, conducted an IEO on Huobi Prime, selling \$AKT tokens in two stages. The first stage raised nearly \$320,000 by selling 64 million \$AKT at \$0.005 per token, while the second stage raised \$2.08 million by selling 256 million \$AKT at \$0.008125 per token. The two-stage release favored institutional investors on Huobi, providing them an opportunity to purchase \$AKT

at a discounted price, potentially benefiting the project's fundraising and support. While this format can be unfair to individual investors, it can also help raise funds and grow support for a new project like Akropolis. On the other hand, Band Protocol conducted an IEO on Binance Launchpad in September 2019, offering \$BAND tokens. Binance distributed lottery tickets to interested investors based on their average \$BNB holdings (Binance's native exchange token), allowing winners to buy up to \$300 worth of \$BAND, which was priced at \$0.473 during the IEO. Non-winning participants could also purchase \$BAND, with the amount proportional to their number of lottery tickets. The IEO raised \$5.85 million and sold 12,368,200 \$BAND tokens.

c. STOs Industry sectors

Figure (4): Distribution of STOs across sector categories



The Source: (6th ICO / STO Report, 2020)

As shown in figure 4, the financial, banking and trade sectors together account for an approximate 55% of the total distribution of STOs to major sectors. STOs stand out in the financial sector as the largest, with 50 ICOs (42.37%) recorded in this sector. One of its most prominent examples Nexo, a platform that offers instant loans with competitive rates. It successfully raised 52.5\$ million during the token sale.

Table (3): Five biggest STOs during the period (2017-2019)

Name	Fund raised (M\$)	Focus	Country
tZERO	134	Trading services for private securities and digital securities on a blockchain	United states
Societe Generale	115	Banking, insurance, finance, and real estate	France
Proxima Media	100	Media Investment, productions	United States, Canada, United Kingdom, France, Germany, Italy, Ireland, India, and Australia
Nexo	52,5	Buying crypto with fiat currencies and token swapping	Switzerland
Lottery.com	47,6	Gaming, sport, and Entertainment	United states

The source: (6th ICO / STO Report, 2020; Lambert et al., 2021b, p. 308)

V- Conclusion:

Token offerings differ from prominent financing instruments such as angel investment and venture capital, and the amounts of funding in them exceed most investment rounds by other financing instruments, especially compared to early-stage rounds. Token offerings also differ from the traditional fundraising as much as blockchain technology transmits its effects and characteristics (transparency, consistency, decentralization, and openness) to this mechanism. These technological features not only impose certain restrictions on who can take advantage of token offerings but may also attract a different group of investors, through raise funds in open online calls to obtain cryptocurrencies in exchange for digital assets, which entitle buyers to an exclusive right, reward, or financial claim. As regulatory frameworks continue to evolve, these alternative funding mechanisms are likely to play an increasingly significant role in the financing of startups landscape in the near future.

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