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Blockchain Technology-Based Crowdfunding Systems

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Abstract

Technological developments can be effective in every sector, in every subject, as well as in crowdfunding with innovations such as blockchain and bitcoin. While it is important to benefit from funding sources for entrepreneurs, those with investment projects, etc., it is much more important for those who are in a more disadvantaged position to be able to benefit from new and accessible funding sources for their funding needs. Classic crowdfunding can partially provide a solution to these needs. However, classical crowdfunding has some disadvantages as well as other fund alternatives. By taking advantage of the unique opportunities offered by blockchain technology, crowdfunding can come to a much more advantageous position. Blockchain technology-based crowdfunding, which has some features such as being more trustworthy, more understandable, and more open, has emerged from the combination of blockchain technology and crowdfunding. Blockchain technology-based crowdfunding can attract both those in need of funds (e.g., entrepreneurs, investment projects) and those who supply funds (e.g., stakeholders, donors, investors) with the advantages it offers to the processes. Researches and examinations are important in attracting interest and demand in blockchain technology-based crowdfunding and in continuing the technological and structural developments in blockchain-based crowdfunding. This study, it is aimed to examine blockchain technology-based crowdfunding in light of studies in the literature. In this context, blockchain and crowdfunding are discussed in detail in this study. It is thought that this study can provide helpful information to both researchers and those who are considering taking part in the blockchain technology-based crowdfunding process.

Keywords: Blockchain, Crowdfunding, Investment

Blockchain Teknolojisi Tabanli Kitle Fonlama Sistemleri

Özet

Teknolojik gelişmeler her sektörde, her konuda etkili olabildiği gibi sunduğu blockchain, bitcoin gibi yenilikler ile de kitle fonlamasında etkili olabilmektedir. Girişimciler, yatırım projesi olanlar vb. için fon kaynaklarından yararlanabilmek önemli olmakla birlikte, fon sağlayabilme açısından daha dezavantajlı pozisyonda olanlar için fon ihtiyaçlarına yönelik yeni ve erişebilir fon kaynaklarından yararlanabilmenin çok daha fazla önem arz ettiği açıktır. Bu ihtiyaca kısmen klasik kitle fonlaması çözüm sağlayabilmektedir. Ama klasik kitle fonlamasının da, diğer fon alternatiflerinde olduğu gibi bazı dezavantajlı yanları bulunmaktadır. Blockchain teknolojisinin kendine has sunduğu imkânlardan yararlanılması ile kitle fonlaması çok daha avantajlı bir konuma gelebilmektedir. Blockchain teknolojisi ile kitle fonlaması birleşiminden daha fazla güven duyulabilen, daha anlaşılır, daha açık olan gibi bazı özellikler taşıyan blockchain teknoloji tabanlı kitle fonlaması ortaya çıkmıştır. Blockchain teknoloji tabanlı kitle fonlaması, süreçlere sunduğu avantajlar ile gerek fon ihtiyacı olanları (örn. girişimci, yatırım projesi olanlar) gerekse de fon arz edenleri (örn. paydaş, bağışçı, yatırımcı) kendine çekebilmektedir. Blokchain teknoloji tabanlı kitle fonlamasına ilginin, talebin çekilebilmesinde ve blockchain tabanlı kitle fonlamasına yönelik teknolojik, yapısal geliştirmelerin devam edebilmesinde yapılan ve yapılacak araştırmalar, incelemeler önem arz etmektedir. Bu çalışmada, blockchain teknoloji tabanlı kitle fonlamasının literatürdeki çalışmalar ışığında incelenmesi amaçlanmıştır. Bu kapsamda blockchain ve kitle fonlaması bu çalışma da ayrıntılı olarak ele alınmıştır. Bu çalışmanın gerek araştırmacılar gerekse de blockchain teknoloji tabanlı kitle fonlaması sürecinde yer almayı düşünenlere yardımcı bilgi sunulabileceği düşünülmektedir.

Anahtar Kelimeler: Blockchain, Kitle Fonlaması, Yatırım

Introduction

Crowdfunding is a new-generation investment and funding system used to finance a variety of new ventures, allowing individual founders of for-profit, social projects, or cultural to solicit funds from large numbers of individuals, often in exchange for equity capital or future products. Today, crowdfunding is becoming more and more popular because it is perceived as a tool by which entrepreneurs and startups can develop their businesses with reduced risk (Kim and Hall, 2020). The new digital age platform is changing activities all over the world. Transactions will be recorded and collected in the ledger during the approval process. Everything done with the help of blockchain has a digital record. Therefore, it should be noted that there is digital proof of every transaction, assignment, transaction, and payment. Every record connected to an individual can be tracked because it has a digital signature that can be recognized, recorded, verified, and shared when necessary. At the same time, these features allow businesses or individuals to run their businesses more professionally and with increased efficiency. It also can permanently record transactions between two or more groups (Upadhyay et al. 2021: 272). Blockchain is important in storing information on a computer network rather than on a single server. Blockchain is important in detecting fraud cases and plays an important role in eliminating errors. Blockchain makes the system more secure. Thus, entrepreneurs and investors have the opportunity to carry out their transactions on this platform, that is, on the crowdfunding platform, more safely and effectively. This study, it is aimed to examine blockchain technology-based crowdfunding in light of studies in the literature.

Crowdfunding

Crowdfunding is relatively affordable and makes it accessible for startups and small and medium-sized businesses to secure capital, maximize promotion, get feedback, and minimize risk using large groups of funders. Crowdfunding refers to a way of making money through collaborative efforts that primarily use a large group of people through crowdfunding platforms, social media, and digital ledger (blockchain) to leverage these networks for better exposure and reach. Especially, crowdfunding has the potential to provide economic benefits by attracting money and attention to overlooked issues, and by improving access to income generation, while promoting social inclusion (Kim et al. 2020: 244). Crowdfunding is defined as online community activities conducted to secure donations, sponsorships, and investment commitments from non-specialist members of the general public (Moon and Hwang 2018). In general, crowdfunding can be interpreted as a fundraising mechanism to support a community in a social network with the same interests or a program or project based on the motivation, trust, and mental attitude of the community, where the business is carried out through online activities (Sidiq et al. 2021: 196).

Today, with the change and development of technology day by day, crowdfunding is experiencing increasing growth. It is becoming popular with entrepreneurs as crowdfunding websites such as Kickstarter and Indiegogo are developing and gaining momentum day by day. “All or nothing” where funding rules are used is very important in some crowdfunding environments. Crowdfunding has an important place, especially in raising funds by project creators. Technology acts as an important bridge in crowdfunding and makes the job of investors investing in the project easier (Zhang and Chen 2019: 12).

Crowdfunding, which is a fundraising system, provides many advantages in reaching investors. With crowdfunding, the process becomes more effective and efficient by collecting funds from a wide variety of individuals. Mass investment can be used to finance projects and social enterprises. Crowdfunding is also known as social crowdfunding. Social crowdfunding platforms provide funds to

individuals and social enterprises that develop solutions to social problems but cannot access traditional financing channels such as banks or mutual funds (Nguyen et al. 2021). Crowdfunding has many benefits for both fundraisers and investors. Some of these benefits are as follows (Adhikary et al. 2018: 2-3):

- **Presentation:** Thanks to the fundraising event, a crowdfunding campaign is created. The crowdfunding campaign must be easy-to-understand for the other party.
- **Access**: A crowdfunding platform can easily provide access to thousands of accredited investors via the digital platform. Therefore, access is widened, making interaction and information sharing easier.
- **Validation of Concept:** The crowdfunding platform provides the opportunity for business improvement by reaching the masses. Improvement is achieved in the business thanks to the returns from the investors. In addition, the investor can have information on any subject by examining the job offer.
- **Efficiency:** Crowdfunding is effective in organizing one's business. An entrepreneur can reach all potential investors through crowdfunding. In this way, the entrepreneur uses time more effectively and efficiently. As a result, relations with investors are strengthened.
- **Public Relations (PR) and Marketing**: The fundraiser maintains it from start to finish through digital platforms such as social media, e-mail newsletters, and other online platforms. Thus, it can easily share and promote its campaign by reaching investors via the digital platform. During this process, healthy relations continue between the fundraiser and the investors.

The use of technology in the growth of crowdfunding makes the fundraising process easier. The growth of crowdfunding as a fundraising technology comes out as some creators better reach their markets. Lower transaction costs can reduce fundraising costs among existing contributors, impacting massive margins, which helps in the viability of previously marginal projects while providing creators with better "market research" data than the performance of crowdfunding campaigns (Lazzaro and Noonan 2021:591). Crowdfunding makes it possible for those with limited access to traditional sources of financial support, such as venture capitalists or banks, to obtain the financial resources necessary to sustain their projects. Through online transactions, crowdfunding also provides a new way for people with disposable income to give to others and "invest" in projects that might not be possible without their financial support (Jaziri and Miralam, 2019: 354). Many people, including micro investors and business angels, have the opportunity to invest through crowdfunding. That's why crowdfunding has great potential. With crowdfunding, investors make a significant contribution to the development of the economy by investing a small amount of money. The security of crowdfunding is an important element that should not be overlooked. Therefore, increasing security through blockchain encourages investors to crowdfunding platforms (Polishchuk et al. 2019: 313-314).

Blockchain

Blockchain technology uses blockchain data structures to store data and validate (Fan et al. 2021: 442-443). Blockchain does not allow any modification of the information contained in the block. Once the information is recorded, some random blocks will not change until more than half of the nodes in the blockchain, or 51 percent, approve. Thus, it is a mutual and immutable record and the data in it is decentralized and visible for all to see. There are generally two types of blockchains. These are; public blockchain and private blockchain. The public blockchain is a public network. In this network, anyone can download the rules and read, write, or join the network, making the network

decentralized. On the other hand, private blockchain allows organizations to use distributed ledger technology without making the data public (Yadav and Sarasvathi 2020: 192-193).

The blockchain network consists of digitally interconnected data units called blocks. Generally, each block consists of three elements. Blockchain provides both transparency and security. One of the most important features of blockchain technology is that the entry of every transaction (success/failure) is reflected in the ledger of every node in the blockchain network. Blockchain is immutable, meaning that it is almost impossible to change the input of this transaction. Hence, it cannot be changed after any transaction is made, which reveals that blockchain technology is a secure method (Desabathina et al. 2022: 1644). Each block in the blockchain contains data, a unique hash number, and the hash of the previous block. In this respect, the hash is similar to a fingerprint and cannot be changed (Tillberg 2019: 14). The advantages of using blockchain technologies include the ability to operate at low cost and high efficiency. As mentioned earlier, the integrity of the blockchain data can also be trusted because once it is in the ledger, it can no longer be tampered with (Saadat et al. 2019a: 410).

Security is the most important concept in technology. Miners and users are two other important aspects of the blockchain. First of all, without miners and good mining algorithms, there would be no technology called the blockchain. Secondly, the developed technology needs users who benefit from the possibilities offered by the technology. Therefore, it is necessary to appeal to different users and different needs to make blockchain a sustainable technology. Blockchain is an incorruptible distributed ledger. In addition, a blockchain is a blockchain that acts as a permanent database containing information that cannot be dated or tampered with. Blockchain is used for the safe and secure transfer of money, property, contracts, etc., without the need for third-party intermediaries. Each block contains all the information and data about a transaction. Three main features of blockchain technology; are scalability, decentralization, and security (Sri et al. 2020: 128-129):

Since the data in the blockchain is transparent, investors have the opportunity to examine the data in the block in a way that corresponds to the originality of the project (Saadat et al. 2019b: 58). Blockchain technology can alleviate the problems faced by traditional banking and crowdfunding. For example, fundraisers can issue smart contracts that guarantee their shares, or perhaps pledge contributions will be returned if funding goals are not met. Therefore, crowdfunding shareholders and project initiators can securely register their rights at a low cost (Muneeza et al. 2018: 88).

Conclusion

This study was conducted to examine blockchain technology-based crowdfunding systems in light of studies in the literature. Blockchain technology-based crowdfunding has achieved a remarkable position among fund alternatives with the advantages it offers. In blockchain technology-based crowdfunding, a platform with many features such as trustworthy, transparent, independent, easy to transact, decentralized, and cost-effective, where all transactions can be recorded in the digital ledger and containing smart contracts, can be created between fund requesters and fund suppliers (Benila et al., 2019, p. 19; Hassija et al., 2020; Malve et al., 2022, p. 371). These opportunities offered by the blockchain technology infrastructure to crowdfunding enable those involved in the funding process to perform their transactions under more suitable platform conditions. With these advantages provided by the use of blockchain technology infrastructure, it can be understood that

crowdfunding can differ positively from other fund alternatives and be in an advantageous position in terms of demand.

According to Statista (2022) data, while the transaction value in crowdfunding is expected to be “US 1,13 billion”, it is estimated to be “US 1,29 billion” in 2027. Considering that the demand for crowdfunding is expected to continue to increase in the future, it can be predicted that it may be among the important alternatives in funding. Here, it is important to maintain and develop all the advantages, especially reliability, and transparency, among the advantages obtained in crowdfunding with blockchain technology. It can be predicted that negative impressions such as loss of confidence may occur due to possible technical problems and some problems such as deficits towards the blockchain technology-based crowdfunding platform may result in the inability to benefit from the potential of this funding alternative enough and the inability to obtain a good position among the fund alternatives.

In this study, the subject of blockchain technology-based crowdfunding systems has been examined in light of the studies in the literature. In other studies, blockchain technology-based crowdfunding systems can be investigated within the scope of quantitative research, as well as a comparison of blockchain technology-based crowdfunding systems and other alternative funding systems. It is anticipated that this study will provide helpful information to researchers and those who are considering taking part in the blockchain technology-based crowdfunding process.

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