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Initial Coin Offerings, How Do Investors Decide? – A Systematic Literature Review

Completed Research

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Abstract

Initial Coin Offerings (ICOs), are disrupting entrepreneurial financing by encouraging ventures to seek funds via generating and selling blockchain-based tokens to investors. Based on blockchain technology, this investor-investee relationship relies on a peer-to-peer basis and intermediaries are cut out of the funding process. The exclusion of intermediaries with the absence of regulation are causing high information asymmetries resulting in investor risks and increased opportunities for moral hazard and fraud. However, the total funding volume has increased remarkably since the first ICO.

Current literature provides singular contributions on investor decisions to fund ICOs despite the risks, but is lacking an overview on ICO characteristics that influence investors' decision-making. For this reason, the present research provides a systematic literature review, revealing six clusters of ICO characteristics that influence an investor's decision-making process. In addition, the analysis revealed a significant literature gap on ex-ante motives for decisions on initial investments in ICOs.

Keywords

Initial Coin Offerings, Investor Motives, Systematic Literature Review

Introduction

Initial Coin Offerings (ICOs) are a mechanism used by new ventures to sell cryptocurrency tokens as means to crowdfund a business. Interest in ICOs is substantial, with their collective market valuation being equivalent to the 10th most valuable organization or the 32nd ranked GDP in the world (Amsden and Schweizer 2018; Fisch 2018).

ICOs, based on the distributed-ledger-technology have garnered significant attention as means of non-intermediated, entrepreneurial financing. ICOs, also called token sale, allow entrepreneurs to sell a predefined number of newly generated digital tokens to the public in exchange for cryptocurrencies (Kranz et al. 2019a). Similar to Initial Public Offering (IPO) -stocks, a token represents a share in the company, and the money spent for acquisition is considered the funding amount (Yadav 2017). Even though, ICOs have similarities to traditional means of funding, there are significant differences. The fact, that distinguishes ICOs from traditional means of financing the most, is the peer-to-peer relationship between the investor and the venture. Overall, ICOs distinguish themselves by being independent of control and observation of any intermediary like banks, stocks, government and regulation (Hahn and Wons 2018). This situation, not only leads to vast opportunities but also big risks.

Consequently, the lack of intermediaries and regulation results in low transparency that creates the most prominent risk of ICO investments. In addition, participating in a coin offering is achievable without any requirements necessary and is available from very small to very large funding volumes, resulting in a largely heterogeneous group of ICO investors, including criminals (Amsden and Schweizer 2018).

In fact, little regulatory approaches have so far been taken around the globe to counteract this issue. Inconsistent responses from governments on ICOs range from no regulation, case-by-case, favorable or wary regulation to total bans of token sales (e.g. in China, India and Pakistan) (PWC and Crypto Valley 2019b). Many European countries including Germany have published warnings or guidance for investors but have not yet formulated a unified set of rules (BaFin 2018; OECD 2019).

Surprisingly, previous research on this matter has revealed, that investors participating in token sales are not discouraged by the risks present and the missing regulations, which supports the financial progression of ICOs over the recent years (Fisch 2019).

Growing funding volumes despite increasing ICO investment risks, lead to the question of what characteristics investors assess when funding ventures via ICOs?

In order to answer to this question, we conducted a systematic literature review according to the instructions of Webster and Watson (2002). We aimed to not only structure existing literature on ICOs to detect gaps of current knowledge, but to learn more about the characteristics taken into account by ICO investors.

After searching for current academic literature on this topic, we have identified twelve journal entries that were forwarded to the analysis. The analysis of the literature revealed six ICO characteristics of interest to ICO investors, and identified two types of research on ICO investor motives. The first one being motives that are relevant for the decision to invest in ICOs for the first time (*ex-ante* ICO investor motives). The second set of motives (*ex-post* ICO investor motives) determines how an investor decides between different ICO investment offerings. Research on *ex-ante* investment motives was thereby identified as fragmented and is suggested to be subject to further investigations of future research.

With this study, we aim to contribute to research and practice in two ways: First, we are the first to offer a systematic review of existing, peer-reviewed literature on ICOs. We identified that current literature seems to lack insights on *ex-ante* ICO investor motives, a significant research gap. Second, through our research, practitioners gain inside knowledge on what ICO characteristics investors look at before deciding on what ICO to support financially.

Theoretical Foundation

ICOs and Investor Motives

ICOs are defined as a mechanism of entrepreneurial finance close to equity crowdfunding, used to raise money for a business endeavor. In the process, ICOs sell cryptocurrencies or tokens that can be traded on the internet, to obtain profits, products or services (Adhami et al. 2018). A token, represents an equity unit/a share in the company and the money spent for acquisition is considered the funding amount (Yadav 2017). Since the first token sale in 2013, ICOs generated several billion USD and attracted interest from scholars and practitioners around the world (PWC and Crypto Valley 2019b). The conceptual idea as a whole can be compared to crowdfunding (Adhami et al. 2018; Ante et al. 2018; Fisch 2019). Stakeholders of an ICO are entrepreneurs seeking funding on the one hand. On the other hand, there are institutional investors and individual investors financing a promising business idea.

After having purchased the tokens of an ICO, investors generally have two options on how to continue with the use of their tokens. Either, they participate in the new token ecosystem, created by the venture, or they resell the token on a crypto exchange platform. When the investor decides to keep the token (comparable to the idea of equity crowdfunding), the tokens are venture-related and correspond to a unit of value. This allows the investor to either purchase products or services from the ICO issuing entrepreneur or use it as a security, which endows buyers with rights to vote or receive profit distributions (Amsden and Schweizer 2018; Momtaz 2018).

In academic literature, scholars describe the funding process of ICOs as a combination of primary and secondary market mechanisms (Huang et al. 2019). Contrary to traditional IPOs, and similar to crowdfunding in a classical sense, investors buy tokens directly off the issuing entity. Secondary market mechanisms come into play, when the ICO's funding goal has been achieved and tokens are being listed and traded on cryptocurrency exchange platforms (Fisch 2019; Huang et al. 2019). Since ICOs are based on blockchain technology, the majority of ICO applications use smart contracts from existing blockchains

instead of issuing their own. Smart contracts are a combination of computer protocols used to execute pre-defined terms and rules between two parties or more (Nofer et al. 2017). Applying smart contracts stored on a blockchain ensures the validity of financial transactions and facilitates decentralized change of ownership of the generated tokens (Kranz et al. 2019). Therefore, smart contracts facilitate value exchange and make trusted authorities or intermediaries, such as governments, banks or crowdfunding platforms, expendable (OECD 2019).

Previous literature on investor decision-making regarding ICOs is rare, but existing research shows, that because ICOs are using decentralized funding, independent of distrusted intermediaries, investors are motivated to switch from traditional concepts of entrepreneurial financing, such as IPOs, venture capital funding or crowdfunding to blockchain-based token sales (Amsden and Schweizer 2018; Chanson et al. 2018; Fisch et al. 2018). This is not only a source of motivation for investors to engage in ICOs, but it is also the major distinction of ICOs compared to IPOs, venture capital funding or traditional crowdfunding. Further, research on ICOs revealed, that not only appealing to investors ideological motives, but also to their technological and financial motives may loosen an investor's pocketbook (Fisch et al. 2018). Research insights by Amsden and Schweizer (2018), additionally revealed that promoting ICOs on "GitHub" and "Telegram" is positively correlated with ICOs securing funding. Blaseg (2018) found that the timing and amount of media coverage positively affected ICO investments. Collectively, these studies suggest that an effective, well-planned management of characteristics that ICO investors take to decide, can impact a firm's ability to raise revenue.

ICO Investment Risks

The funding process and the relationship between investors and new ventures is decentralized due to the use of distributed ledger technology and smart contracts. This implies that intermediaries such as governments, banks or centralized platforms are not needed for a venture to gather funds via an ICO. This may lead to a reduction of costs during the funding process, since payment agents and other intermediaries are obsolete (Adhami et al. 2018). On the other hand, this form of banking disintermediation is increasing investment risks substantially. Overall, the lack of a trusted and established intermediary may lead to fraud, opportunism or moral hazard behavior (Fisch et al. 2018). In other words, if intermediaries are excluded from the ICO funding process, and therefore from the investor-investee relationship, fraudulent investors cannot be excluded by the intermediary. As a consequence, decentralization not only provides for diverse and more heterogeneous investors, but to the undesired inclusion of non-experienced investors without real financial backing (Chanson et al. 2018; Fisch et al. 2018).

Of all risks connected to ICO investments, this paper focusses on the substantial risk factor of information asymmetry that occurs for ICO investors.

Information Asymmetry

The relationship between investor and investee, especially in the entrepreneurial financing environment, is characterized by information asymmetry (Leland and Pyle 1977). Information asymmetry occurs when the management has internal knowledge about a venture's status, which investors are not aware of. To counteract the risks originating from information asymmetry, venture capitalists and banks, intermediaries in traditional financing procedures, usually perform a thorough due diligence process before raising funds (Chod and Lyandres 2018; Kranz et al. 2019b). As investors of ICOs consist of a mix of individuals, with lacking financial expertise or resources, these individuals are not able to perform a detailed examination of their investment target. In addition, entrepreneurs, launching a token sale, are not yet legally obliged to disclose information (Fisch 2018; U.S. SEC 2019). Leland and Pyle (1977) are amongst many scholars postulating, that legally bound and regulated intermediaries are one relevant approach to provide potential investors with reviewed information.

As consequence of governments and economic unions, e.g. the European Union, not imposing a communal response and consistent regulation to the ICO phenomenon, ICO participants are exposed to various risks due to information asymmetry (OECD 2019).

Lock-Up Periods and Information Asymmetry

Unique to ICO investments is that tokens issued by the initiator entitle the holder to a future share of the company's success, but do not have real-world value at the time of the running ICO campaign (Russo and Kharif 2017). The phenomenon for ICOs is comparable to lock-up periods of IPOs, where the investor is restricted from selling equity shares for a set period of calendar days (Keasler 2001). Lock-up periods have predominantly been studied in the context of contractually agreed lock-up periods of IPOs (Field and Hanka 2001; Garfinkle et al. 2002; Keasler 2001). The difference to ICO lock-up periods is that IPO lock-ups are mostly dated to a fixed period of six months (Garfinkle et al. 2002). ICO lock-ups on the other hand are based on technical specifics of cryptocurrency transactions and do not have a foreseeable end (Yadav 2017). This increases investment risk substantially through growing information asymmetry. Investors have to commit to the business idea, its implementation and lock up their investment for an indeterminate time span.

Concluding, ventures seeking funds via an ICO, based on blockchain-technology are usually highly technological. In addition, the value proposition and business model of these ventures are often still evolving, being supported by not more than a mere idea in 84% of the cases (Ernst & Young 2018), or a minimum viable product still subject to substantial development (Arnold et al. 2019; Fisch 2019). In this, investors are particularly faced with technological uncertainty through lock-up periods, which result in unpredictable investment risks.

Combining uncertainty from the absence of regulation, the absence of trusted intermediaries and lock-up periods, leads to a substantial level of ICO investment risk through information asymmetry. Despite the negative effect that one would expect as the result of such risk factors, ICOs experienced a substantial increase in funding volume over the last years. The total funding volume accumulated by ICOs from 2013 until May 2019, comprised of USD 30.3bn (PWC and Crypto Valley 2019a). The ICO of "EOS" alone (a platform for decentralized applications) has accumulated nearly as much total funding (USD 4.1bn) as the biggest platform of traditional entrepreneurial crowdfunding, "Kickstarter" in total (USD 4.4bn since 2009) (Coindesk 2019; Kickstarter.com 2019; PWC and Crypto Valley 2019a). This leads to the question about what characteristics investors consider when funding ICOs, despite the substantial investment risks?

Method

Key element of this work is a structured literature review conducted in 2019, according to the guidelines of Okoli and Schabram (2010); Vom Brocke et al. (2009) and Webster and Watson (2002). In the focus of this review is the question on what does the literature know about ICO characteristics, that investors assess when deciding on investing despite the risks?

First step of conducting a systematic literature review is to compose a distinct and comprehensive search string (Wolfswinkel et al. 2013). The proposed search string was used to find literature on ICOs, in order to identify characteristics that actively influence ICO investors in their funding decisions. In specific, our search string included the following terms: (1) "initial coin offering", (2) "ICO*", (3) "token sale", (4) "token offering", (5) "coin offering", (6) "token launch", (7) "token generation event", (8) "security token offering", (9) "investor*", (10) "contributor*". The terms were combined using the following syntax: [(1) OR (2) OR (3) OR (4) OR (5) OR (6) OR (7) OR (8)] AND [(9) OR (10)]. Terms (1) to (8) consist of abbreviations or synonyms of initial coin offerings and arose from literature exploring the ICO phenomenon (Adhami et al. 2018; Amsden and Schweizer 2018; Chanson et al. 2018; Fisch 2019; Hahn and Wons 2018; Huang et al. 2019; Kranz et al. 2019b). We specifically looked for the search terms in the titles, abstracts or key words. By including the terms (9) and (10) in the search string, we made sure that literature on other forms of "ICOs" from different fields of research, e.g. healthcare or medicine are excluded.

With the presented search string, we browsed the following databases in order to obtain comprehensive results: "EbscoHost", "ProQuest" and "Science Direct". After the search, in line with the suggestions by Okoli and Schabram (2010) and Wolfswinkel et al. (2013), we applied some exclusion rules on the identified body of literature. These exclusion rules included: First, consideration of peer-reviewed publications to increase scientific relevance and quality (Wolfswinkel et al. 2013). Second, publications older than ten years have been excluded, as the ICO phenomenon is a young phenomenon, especially to academic literature. Third, we limited the search to keywords in the titles, abstracts and keywords of the publications.

After the initial search within the databases, we could identify 38 applicable publications. After applying the exclusion rules, seven articles were identified to be relevant for this literature review. Following the approach by Webster and Watson (2002), we enriched the list of identified publications by examining selected high-quality information systems conference proceedings, i.e. ICIS (International Conference on Information Systems), ECIS (European Conference on Information Systems), HICSS (Hawaii International Conference on System Sciences), AMCIS (Americas Conference on Information Systems), WI (Internationale Tagung Wirtschaftsinformatik) and PACIS (Pacific Asia Conference on Information Systems). This way, one additional relevant article was identified.

By applying the concepts of forward and backward search on already identified literature, we identified four additional publications. Among the additionally found literature from using forward search, we identified two non-peer reviewed working papers, which are highly relevant for this topic. We decided to include the two working papers in our literature review, because scientific literature on ICOs is being published since only a very short period of time. The two working papers present highly relevant work for this literature review, which was the reason for still including them despite the fact, that they have not yet undergone a peer-review process. Nevertheless, we have considered this fact and contributions of this work have been studied with caution. In the end, twelve articles have been forwarded to the analysis (see Table 1.).

Source	Author + Year of Publication	Title
EBSCO / Science Direct	Fisch 2019	“Initial Coin Offerings (ICOs) to Finance New Ventures”
EBSCO / Science Direct	Zhang et al. 2019	“Readability of Token Whitepaper and ICO First-Day Return”
Science Direct	Chen 2019	“Information Asymmetry in Initial Coin Offerings (ICOs): Investigating the Effects of Multiple Channel Signals”
ProQuest	Boreiko and Vidusso 2019	“New Blockchain Intermediaries: Do ICO Rating Websites Do Their Job Well?”
ProQuest	Drobetz et al. 2019	“Investor Sentiment and Initial Coin Offerings”
ProQuest	Giudici and Adhami 2019	“The Impact of Governance Signals on ICO Fundraising Success”
ProQuest	Lahajnar and Rožanec 2018	“Initial Coin Offering (ICO) Evaluation Model”
AISel	Guske and Bendig 2018	“Cutting Out the Noise” Costly vs. Costless Signals in Initial Coin Offerings”
Backward Search	An et al. 2019	“Initial Coin Offerings and Entrepreneurial Finance: The Role of Founders’ Characteristics”
Forward Search	Ante et al. 2018	“Blockchain-Based ICOs: Pure Hype or the Dawn of a New Era of Startup Financing?”
Forward Search	Fisch et al. 2018	“Motives to Invest in Initial Coin Offerings (ICOs)”
Forward Search	Ofir and Sadeh 2019	“ICO vs IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework”

Table 1. Identified Literature

Analytical Results

Webster and Watson (2002) suggest a concept matrix to systematically structure and analyze a body of literature. Our concept matrix allowed us to facilitate a thorough analysis of research articles and distinguish main similarities and dissimilarities regarding the context, theories and methodologies investigated and applied by the researchers on ICO investments.

The analysis of the concept matrix (see Table 2.), categorizing the core literature revealed six different clusters of decision parameters of ICO investors: (1) *ICO characteristics*, refers to the presented idea and business model of the ICO as well as to the financial prospects and characteristics of the tokens the ICO issuer is promising to investors. (2) *ICO communication* refers to all communication and marketing channels used by the token issuing entity to provide potential investors with information, such as whitepapers, disclosure of the source code, all communication activities on social media and the ventures website. (3) *Technology & Product* relates to the characteristics and quality of the ventures product, its value proposition, the technological capabilities and the current development-status. (4) *Team characteristics* relate to the composition of the founding team or individual characteristics of the founders, such as international publicity, previous experience, educational background or experiences in leadership and management (5) *Intermediaries* relate to third parties examining, evaluating and also ranking current ICOs and therefore, interacting with potential investors via their own websites or social media channels. Examples of such intermediaries in traditional means of financing are: Banks, stocks, crowdfunding websites etc.. (6) *Others* refers to motives or influences identified that cannot be classified in the mentioned clusters.

An additional finding of the analysis is that Fisch et al. (2018) are until today, the only set of authors that analyzed investor motives that lead to the intention of a first-time investment in ICOs. Other scholars like Drobetz et al. (2019), Ofir and Sadeh (2019), Giudici and Adhami (2019), Zhang et al. (2019) applied the concepts of investor sentiment, governance theory and readability, analyzing the motives that are used by investors to decide between ICO offerings after they have already made their decision to invest in ICOs.

Thus, the preceding decision to invest in ICOs has already been made and investors are debating whether to favor one ICO over the other. This separates the found literature into two different groups: First, the research of Fisch et al. (2018) investigating drivers and reasons why people are interested in blockchain-based entrepreneurial financing in general and why they are participating and investing in ICOs. The second group is evaluating drivers and reasons why people, who are already convinced by the idea of ICOs, prefer one token sale to another.

On a general note, eleven out of twelve articles used the concept of signaling theory to investigate the influence of ICO characteristics on investor decisions. In addition, scholars refer to alternative entrepreneurial financing methods, such as IPOs, crowdfunding or venture capital funding, to spill over knowledge on the topic of ICOs.

Author	ICO investment motive	ICO characteristics	ICO communication	Technology & Product	Team characteristics	Intermediaries	Others
An et al. (2019)	ex-post				X		
Ante et al. (2018)	ex-post	X	X		X		
Boreiko and Vidusso (2019)	ex-post					X	
Chen (2019)	ex-post		X	X			

Drobetz et al. (2019)	ex-post		X				
Fisch et al. (2018)	ex-ante	X		X			X
Fisch (2019)	ex-post			X			
Giudici and Adhami (2019)	ex-post				X		
Guske and Bendig (2018)	ex-post						X
Lahajnar and Rožanec (2018)	ex-post	X	X	X	X		X
Ofir and Sadeh (2019)	ex-post		X			X	
Zhang et al. (2019)	ex-post		X				

Table 2. Concept matrix – Clusters of ICO characteristics influencing investor decisions

Discussion

The findings of this literature review are twofold. First, we revealed six clusters of ICO characteristics that define ICO investor decisions. Second, we identified a significant literature gap on the motives that influence non-experienced investors to make a first-time contribution to an ICO.

Amongst the six ICO characteristics defining investor decision-making, communication and social media marketing of an ICO appear to be the most important factors. When investors have already decided to invest in ICOs and are in need of trust building, and risk reducing factors to decide between ICOs available, social media communication plays the most important role. In support of An et al. (2019), postulating that the presence of a “Telegram” account leads to higher funding volumes, it can be inferred that proximity to the founders via social media leads to a reduction of information asymmetry and creates trust for potential future investors. Drobetz et al. (2019), further underline the importance of social media and the success of ICOs, explained by the crypto-related investor sentiment theory. The authors state, that social media, rather than traditional channels of information are the main source of investor sentiment that entrepreneurs exploit heavily (Drobetz et al. 2019). Chen (2019) extends the positive effects of social media communication to having positive influence on the perceptions of trustworthiness of companies.

Besides social media communication, decentralization and the absence of intermediaries in ICO investments was revealed to be another important aspect supporting ICO investor decisions. Boreiko and Vidusso (2019) examined the absence of intermediaries such as banks, stocks or governments and its influence on ICO success. Missing intermediaries results in reduced costs and increased asset liquidity of ICOs compared to IPOs (Kranz et al. 2019b). However, the rise of new and unconventional intermediaries, such as rating websites or social media channels, and their increasing influence on potential investors is conspicuous. Therefore, Boreiko and Vidusso (2019) investigated the presence of 51 different listing websites in September 2017 and their influence on ICO success. Findings confirmed that token sales listed on such websites are raising more funds. The same finding as Ofir and Sadeh (2019) revealed, postulating that investors are not rationally deciding when choosing specific ICOs to invest in. Investors rather choose non-rational cues such as positive signals and Information that is easy to digest to experience trust and perceptions of reduced information asymmetry.

Summarized, the six clusters identified by our literature review, resemble ways of sending positive signals to investors. Though, scholars today seem to agree on social media communication and missing

intermediaries, having the largest impact on the decision-making process of potential ICO investors. In conclusion, founders are advised to be aware of the influence mechanisms of positive signals of social media communication especially. To be considered, besides social media, scholars also agree on a positive influence of the ICOs' whitepaper as one additional source ventures may use to influence perceptions of investors (An et al. 2019; Barraza 2019; Fisch 2018; Ofir and Sadeh 2019; Zhang et al. 2019).

Our second finding revealed the literature gap on ex-ante investment decisions of ICO investors. By ex-ante investment decisions, we mean individuals that have not yet decided whether to invest in an ICO or not. In other words, non-experienced ICO investors. The only research, that could be found for this category was conducted by Fisch et al. (2018), exploring motives of why investors initially choose to invest and participate in ICO token sales. The authors are suggesting that investors are taking part in ICOs due to ideological motives and are profoundly convinced of the blockchain technology to have a positive impact on society and the economy. Furthermore, they argue that technological and financial interests are motives of ICO investment decisions of non-experienced users. Fisch et al. (2018) even argue, that a profound technological background is a necessary condition for being able to successfully navigate through the highly technological environment of ICOs and to be able to assess an ICO's quality. Lastly, Fisch et al. (2018) reveal that investors are encouraged by financial prospects but also by idealistic motives of token sales being a trendsetting, future-oriented investment opportunity due to its deregulated nature. After all, it has to be considered, that the publication by Fisch et al. (2018) has not yet been peer reviewed, but was published on the "Social Science Research Network" (SSRN).

Implications, Limitations and Future Research

Literature about ICOs in general is just starting to grasp this phenomenon. For this reason, the twelve articles found by applying a systematic literature review have been published within the last two years. Most scholars are building their investigations and theories on other entrepreneurial financing methods, such as IPOs, venture capital or crowdfunding, in order to find parallels and further develop concepts of this topic. Scholars so far, mainly applied signaling theory or the concept of investor sentiment to investigate the influence on investor decisions. Similar to comparable research in the field of crowdfunding and investor motives (Bretschneider et al. 2014; Hoegen et al. 2018).

The findings of this research on ICO characteristics that influence investor decision-making, can be clustered in six different groups: (1) *ICO characteristics*, (2) *ICO communication*, (3) *Technology & Product*, (4) *Team characteristics*, (5) *Intermediaries* and (6) *Others*. A clear distinction, which of these clusters will be the most important and are influencing ICO investor decisions to the greatest extent is not yet observable. However, we revealed disintermediation and ICO communication, amongst others to be of high importance to ICO investors today.

Interestingly, current existing ICO research can be divided into two groups: First, into research about ex-post motives, e.g. research on investors that are already convinced of the idea of blockchain based token sales and the question of what motivates investors to choose one ICO over the other. On the other hand, ex-ante motives e.g. why non-experienced investors decide to initially invest in an ICO, despite the presence of very high risks and a lack of regulation.

Research about ex-post motives is growing notable attention. Fisch (2019), Guske and Bendig (2018) and Chen (2019) published peer-reviewed studies in highly ranked journals. Whereas until today, ex-ante motives have not been published in high-ranked journals. The only mentionable publication found was composed by Fisch et al. (2018), yet the authors themselves raise attention to the strong limitations of their findings. They aimed to provide an initial approach on ex-ante ICO investor motives, but the topic should continue to be subject to further investigation.

With the conducted literature review, we could therefore identify a significant research gap in the field of ICO investor motives, in particular on ex-ante motives of non-experienced investors. The topic, with its fast progression in terms of blockchain technology application development, and great uncertainty of the regulatory and legal instances, offers great possibilities for interesting future research agendas in the field of information systems. Up to now, it is unknown whether and how regulation will influence founders and investors in the field of ICOs. Nevertheless, ICOs are on the verge to disrupting traditional entrepreneurial financing methods and offer opportunities and risks for all parties involved.

This literature review has been conducted to the best of the author's abilities. Nevertheless, this work is facing various limitations: First, many scholars still use the approach of measuring the impact of ICO characteristics on investor decision-making by using the proxy of ICO success, respectively the amount of funds raised. This approach leaves space for improvements, keeping in mind that issuers usually set limits on the maximum funds they want to raise, so called soft or hard caps (Kranz et al. 2019). Zhang et al. (2019) for example, found an interesting alternative approach of using first-day-return as proxy for ICO success and to map investor motives. We believe that scholars should take this into account when measuring ICO success.

Second, Fisch et al. (2018) are emphasizing that investors cannot be narrowed down to an average participant and that investor motives are very heterogeneous. The heterogeneity makes it difficult to identify a generalizable set of ICO characteristics, influencing the decision-making process of investors.

Third and most importantly, due to the scarcity of reliable research concerning ICO characteristics influencing investor decision-making, the body of literature for this analysis was relatively small. Therefore, we aim to further expand the list of publications for this literature review, as the number of contributions on ICO investor motives is expected to grow substantially over the years to come. We particularly hope to find more research insights on ex-ante ICO investor motives in the future.

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