



## Research Article

## The influence of financial features and country characteristics on B2B ICOs' website traffic

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## ABSTRACT

Technology, blockchain, and initial coin offerings (ICOs) have changed the established ways of financing companies and doing business. The changes that affect organizational communications, specifically marketing communications, remain unclear, especially in the context of business-to-business (B2B) organizations. The current trend is for B2B companies to view social media as an optimal way to enhance lasting and valuable relationships with other companies. There is little research on social media marketing strategies by B2B organizations. To fill this gap, this study uses a sample of 57 B2B ICOs completed by December 2019 and qualitative comparative analysis to examine how the combined effect of four conditions related to B2B ICOs (percentage of tokens distributed, amount of funding raised, minimum investment required, and ICO price) and two conditions related to the promoter's country (institutional efficiency and tax haven status) lead to a low Alexa Rank. While the percentage of tokens distributed and the amount of funds raised play a key role in achieving a low Alexa Rank, the minimum investment required seems to play a secondary role. Moreover, the importance of the characteristics of the B2B ICO promoter's country depends on both the presence and the value of the conditions related to financial characteristics.

## 1. Introduction

B2B transactions are based on responsible direct relationships between organizations which can achieve considerable benefits from them if they are driven by motivations oriented to maximize strategic value and minimize transaction cost, avoiding value co-destruction through uncertainty, opportunistic behaviors or technological disruptions (Pathak, Ashok, & Tan, 2020). Interorganizational integration based on blockchain technology in B2B environments must be analyzed quickly to take advantage of the benefits it offers. When properly automated, B2B transactions can be more efficient, interoperable, flexible, visible, and predictive, with smaller investment costs and lower barriers to competition. Thus, smooth information integration through blockchain introduces new valuable elements for the parties involved, developing digital ecosystems capable of creating substantial business opportunities. This process requires the companies involved to carry out a profound digital transformation in their business model, information platforms, connectivity standards, and data transfer model. Innovation is crucial both as a result from interaction between business partners and

as a way to help business partners fit into new or current business networks (Öberg, 2019). Trade practices must be designed in such a way that flows can be transferred electronically "end to end" to ensure interoperability within systems. The number of businesses in the B2B sector that are introducing blockchain as part of their service suite has increased rapidly. Blockchain now offers B2B companies a virtual repository where they can accept deposits, move money, or complete transactions, all with a lower level of regulation, monitoring, and restrictions. In B2B, blockchain improves collaboration, creates supply chain efficiencies, optimizes resolution processes, and achieves more autonomous types of engagement. Blockchain generates new trust architectures (Palfreyman, 2015), and increasing trust, security, and efficiency can help B2B companies compete. Trust is essential to B2B success, and blockchain represents a way to expedite the creation of trusting relationships at a lower cost. The quality, accuracy, utility or accessibility of the information shared in interorganizational systems is also crucial (Hartono, Li, Na, & Simpson, 2010). Although sharing data can be a major concern for many organizations when cooperating with others, data sharing is imperative and blockchain provides an

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alternative approach that can reconcile this conflict (Ying, Jia, & Du, 2018). Only sharing data, information and knowledge companies can follow a real 'learning' orientation (Caseiro & Coelho, 2019).

The possibilities offered by blockchain technology are currently being carefully examined for purposes such as logistics and supply chain management (Tönnissen & Teuteberg, 2020). However, it is an early-stage research domain in terms of both theory and empirical analysis (Frizzo-Barker et al., 2020). Therefore, it is still impossible to know how blockchain technology will continue to change people's conception of life, given its role as a disruptive force with a major impact on business, industry, culture, and sustainability (Hughes et al., 2019). Despite its uncertain implications, more and more B2B businesses are adopting blockchain technology, which is shaping the future of transactions, economies, and procedures.

However, B2B models have been slower than others to adopt new technological approaches, particularly for marketing purposes. The reason might be the lack of knowledge on how to identify the best instruments to achieve the intended marketing goals. Collaborative marketing strategies based on social media have recently begun to be used, and the impact of these strategies on certain outcome measures has been under-analyzed (Malter, Webster, & Ganesan, 2005). Sometimes, B2B companies do not consider the effort worthwhile, and sometimes the measurement of marketing practices is complex because the tools for this measurement have not evolved at the same rate as digital advances (Järvinen, Tollinen, Karjaluo, & Jayawardhena, 2012). However, B2B companies must soon use digital marketing to enhance relationships between parties, reduce costs, provide product-related information, create awareness, enhance the brand, and boost sales. Using different marketing tools, B2B organizations may be able to generate information capable of acting as a powerful signal to convey missing information in the situations of information imbalance (Spence, 1973) that usually arise with this kind of transaction. Undoubtedly, the emergence of online marketplaces can lead B2B companies to transmit effective signals of value for tangible or intangible offerings through different channels to show their expertise, achieve quality, generate sales, or attract new customers. The complexity of the current economic environment justifies B2B organizations' approach of using marketing digitalization, particularly on social media, as a way to achieve their marketing goals. The right choice of social media tools and the appropriate use of these tools can determine the success or failure of B2B transactions.

One novel way of financing B2B transactions is to use open calls on the Internet, for example in the form of initial coin offerings (ICOs), to obtain cryptocurrencies in exchange for digital assets (Adhami & Giudici, 2018). The number of ICOs including B2B operations is substantially lower than other types of ICOs. In addition, very few studies have examined the influence of the characteristics of ICOs on certain outcome measures (Amsden & Schweizer, 2018; Benedetti & Kostovetsky, 2018; Feng, Li, Wong, & Zhang, 2019; Fisch, 2019; Momtaz, 2018), with even fewer considering B2B ICOs. All these studies have used the total funds raised by the ICO, the token tradability when the ICO is finished, or the short-term return on investment (ROI) from investing in the ICO as an outcome variable. None has considered other variables that may be more closely related to marketing purposes. This study is based on the Alexa Rank, a widely used measure of website popularity. Scant research has considered the Alexa Rank as an outcome variable, and no study has examined the Alexa Rank in conjunction with financial explanatory variables. Furthermore, very few studies have used characteristics of the ICO promoter's country (Amsden & Schweizer, 2018; Benedetti & Kostovetsky, 2018; Huang, Meoli, & Vismara, 2019) to analyze their influence on ICO success.

Using qualitative comparative analysis (QCA) and a sample consisting exclusively of B2B ICOs, this study examines how four conditions that are directly related to B2B ICOs and two conditions that relate to the promoter's country affect the Alexa Rank. The method of QCA has already been used in B2B studies (Woodside, 2015; Woodside & Baxter, 2012). It is hoped that the results will help clarify how the combined

effect of these six conditions can lead to a high level of popularity of B2B ICOs' websites. This study contributes meaningfully to advancing knowledge in this area for the following four reasons. First, it considers only B2B ICOs that had completed by December 31, 2019. Second, the outcome of the model is the popularity of the ICO website or the web traffic of the ICO website (in terms of its Alexa Rank). Third, the model includes financial variables related to the ICO (percentage of ICO distributed, minimum contribution required, total funds raised, and ICO price) and variables related to the characteristics of the ICO promoter's country (institutional efficiency and tax haven status). Fourth, the model enables analysis of the combined effect of these six conditions on the outcome.

The paper is structured as follows. Section 2 establishes the theoretical background. Section 3 explains the analysis method and describes the data and instruments used in the study. Section 4 presents the main results. Section 5 discusses the results. Finally, Section 6 presents the conclusions and offers suggestions for future research.

## 2. Literature review

### 2.1. B2B marketing

Technology has changed organizational communications in general, especially marketing communications. The terms used to describe the use of technologies in marketing must be better specified. Researchers have attempted to label different related concepts under the generic term of "digital marketing." This term means much more than merely communication through the Internet (Wymbs, 2011) and refers to "the use of all kinds of digital and social media tools that allow companies to foster interactions with customers" (Järvinen et al., 2012: p 104). ICTs such as artificial intelligence, QR codes, GPS, and big data are helping advance digital marketing activities such as display advertising, affiliate marketing, social media marketing, and mobile marketing (Dwivedi, Kapoor, & Chen, 2015; Kapoor, Dwivedi, & Piercy, 2016; Dwivedi, Rana, & Alryalat, 2017; Shareef, Dwivedi, Kumar, & Kumar, 2017; Shareef, Mukerji, Dwivedi, Rana, & Islam, 2019). This area encompasses a wide range of industrial, intellectual, and social applications that can lead to the replacement of many human tasks and activities (Dwivedi et al., 2021). The combination of traditional and social media has allowed companies to design new communication strategies to reach users from a number of platforms, producing wider ranges of influence. This trend has led to analysis of how specific variables such as benign and malicious envy (Wu & Srite, 2021) can affect social media users' behavior. Undoubtedly, digital marketing has led to new ways of interacting (Hansen, Shneiderman, & Smith, 2010). Thus, consumers are no longer passive observers. Instead, they play an active role (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004) and drive information exchanges among the parties involved in the business relationship (Hanna, Rohm, & Crittenden, 2011), making sense of concepts such as collaborative or mass customization (Peters & Saidin, 2000). Social media are not regarded as a tool for broadcasting one-directional messages from the organization to different audiences but are instead seen as an instrument for attracting users through sustained interactions (Weinberg & Pehlivan, 2011).

It is reasonable to think that B2B marketing strategies are not exactly equal to those designed for B2C models, with differences arising in terms of the goals or the concept of customer satisfaction (Huang & Yu, 2019a). B2B models have generally been slower to adapt to new technological marketing approaches, although investment in B2B digital marketing has been greater than investment in B2C organizations for some time (Barwise & Farley, 2005). The reason is twofold. First, B2B organizations need time to fully understand which instruments best fit their specific marketing purposes. Second, a lack of knowledge and expertise can lead B2B organizations to invest greater efforts (money, time, workforce, etc.) in achieving goals. In the past, all except large B2B companies have preferred one-directional digital channels to other more

collaborative marketing strategies related to social media (Powell, Groves, & Dimos, 2011). The current trend is for B2B organizations to view social media as a support tool to enhance lasting relationships with other companies (Jussila, Kärkkäinen, & Aramo-Immonen, 2014). However, social media strategies for B2C organizations cannot be easily replicated for B2B companies, which find it difficult to identify their digital marketing-mix strategy, especially in terms of social media (Gunawan & Huarng, 2015). Accordingly, B2B companies have not been fully capable of demonstrating the relationship between marketing strategies and outcome measures (Malter et al., 2005) such as ROI (Marshall, Sor, & McKay, 2000). There are two possible explanations. First, digitization has not yet significantly improved the measurement of marketing practices. Second, the measurement of digital marketing may not be considered worthwhile by B2B companies (Järvinen et al., 2012). Therefore, it is crucial to improve knowledge of marketing performance measurement to enhance the opportunities derived from digital marketing strategies.

Social media can offer B2B organizations a way to strengthen and enhance relationships with partners through meaningful interactions (Kho, 2008) or generate leads and move customers along the sales channel (Bodnar & Cohen, 2011). Previous research has shown that social media in B2B digital markets are more related to creating awareness and enhancing brand image than to attempting to drive sales (Kho, 2008). However, social media tools are vital to achieve B2B organizations' business and marketing goals, which, in addition to awareness, include demonstrating expertise, achieving quality service, generating sales, delivering search engine optimization, driving traffic to home or landing pages, attracting new customers, and actively interacting with existing customers. The ultimate aim is to enhance service quality and generate leads, improving at the same time customer engagement (Weinberg & Pehlivan, 2011).

## 2.2. Signaling theory and information asymmetry

Signaling theory explains how gaps in information between parties are filled by sending signals to convey the missing information (Spence, 1973). Signals are observable variables sent by the informed party to the less informed party to disclose necessary information to facilitate the exchange. This theory is hugely important when there is little historical information about the credibility or the quality of a product or a supplier (Kirmani & Rao, 2000) or when there is a need to correct an information imbalance. That is, it is valuable in situations of information asymmetry where various signals are deployed through websites to gain the attention of or cause certain behaviors by current and potential customers. B2B companies use signals to convey the intention and general positioning of market offers and to overcome situations of information asymmetry that habitually arise with B2B transactions. Information asymmetry can mean high risk for the companies involved, leading them to what Akerlof (1970) calls "adverse selection," which depends on whether decision makers can observe or judge the information provided (Pouryousefi & Frooman, 2019). More specifically, signals can be used to communicate abilities, differentiate a company from competitors, improve the quality of relationships with customers and partners (Nguyen, Barrett, & Nguyen, 2014), develop customer focused co-creative offerings (Patterson, 2016), build a firm's reputation (Walsh, Beatty, & Holloway, 2015), or attract funding (Ribeiro-Soriano, Piñeiro-Chousa, & López-Cabarcos, 2020). In sum, signaling provides consistent information to a range of groups that benefit from shared information (Connelly, Certo, Ireland, & Reutzel, 2011) to carry out transactions more easily and encourage future ones, especially if signals are accurate.

The appearance of online marketplaces has allowed B2B companies to transmit effective signals of value for tangible or intangible offerings through different channels, which can enhance customer relationship management (Tian & Wang, 2017), increase customer loyalty (Chen, Huang, & Davison, 2017), improve perceptions of value, quality, and the

propensity to purchase (Gregg & Walczak, 2008), and attract more customer attention (Dadzie, Chelariu, & Winston, 2005). Coherent and true quality service signals enhance B2B relationships because they can help organizations effectively differentiate themselves. Differences in communication channels can influence the effect of signals on the reduction of information asymmetry through the quantity of signals (Schrammel, Koffel, & Tscheligi, 2009), the quality of signals (Brown & Hillegeist, 2007), different interpretations of signals (Sunder, 2003; Venkat, Thompson, & Venkataraman, 2004), and dispersed experiences and limited attention of receivers (Hong & Stein, 2007). The suitability of communication channels should be analyzed by considering the schema of each channel, which may significantly affect information processing (Wicks, 1992) and source credibility. The latter is positively associated with cognitive elaboration (Westerman, Spence, & Van der Heide, 2014), which may significantly affect the acceptance of the message and the opinions of receivers (Hovland & Weiss, 1951). For a signal to be effective, it must be credible, which often results in a cost of generating the signal, including sensible aspects such as the economic "cost of dishonesty" (Piñeiro-Chousa, Vizcaíno-González, & López-Cabarcos, 2016). Furthermore, achieving greater credibility provides the basis for a selection process whereby one party can use the signal to select another party from a long list of signalers (Vismara, 2017).

## 2.3. Social media as a marketing tool in the B2B context

Initially, face-to-face interactions seemed to work best in complex, long-lasting B2B processes, whereas non-personal communication channels such as social media played a supportive role in the achievement of B2B marketing objectives (Singha & Koshyb, 2011). However, the complexity of the current economic environment explains why social media have given B2B organizations a new way to achieve their marketing objectives. One important advantage of social media tools is that they are able to offer similar benefits to the parties involved, although they are perceived as more or less favorable depending on the specific form of communication used. For example, Facebook is useful as a rich means of customer relationship management (Popp, Wilson, Horbel, & Woratschek, 2016), Twitter is useful to communicate brand messages and mine consumer responses in real time (Culotta & Cutler, 2016), Instagram is useful for sharing image-based content (Muñoz & Towner, 2017), YouTube is used for webpage video integration (Indvik, 2011), and LinkedIn is used to connect with clients and develop professional networking ties (Lacoste, 2016). Nevertheless, a better experience for the companies involved is usually driven by the joint use of multiple traditional and social media channels. Criteria such as efficiency, speed, time savings, cost savings, loyalty, satisfaction, and problem sharing can shape the choice of channel, helping B2B companies obtain suggestions to exploit strengths and minimize weaknesses.

Several authors have identified potential tensions between the practice of social media networking and the established academic thinking related to business networks such as sharing versus competing, rapid and transitory relationships versus desirable relationships, immediacy versus strategy, and time versus trust (Quinton & Wilson, 2016). In this context, Granovetter (1983) concept of strong and weak ties makes perfect sense, enabling both of them to establish new digital business relationships. Undoubtedly, social media promote potential relationship opportunities in a B2B context, although until now, the management of different channels has been focused on strategic network development more than promoting communication among people (Arnaboldi & Coget, 2016; Muñoz & Towner, 2017). Furthermore, although B2B firms are able to exploit social media, it is unclear how social media can be integrated or how important they are within marketing channel management (Brennan, Canning, & McDowell, 2011).

Given that the B2B domain is still in its theoretical infancy, despite its rapid growth, further research is needed on social media B2B marketing strategies. In a B2B context, research often focuses on how social media

are used in specific areas (Kaur, 2015; Moser, Tumasjan, & Welpe, 2016) rather than the analysis of the role they play within the overall marketing-mix channel. B2B organizations use social media for dyadic relationship purposes within the sales process (Moore et al., 2013). As a marketing tool, social media provide an understanding of many things in relation to consumer behavior (Kumar & Mirchandani, 2012). However, social media use in B2B marketing is more limited than in other areas, despite its importance. Given the relatively low active use of social media among B2B companies, those that first and best experiment with social media and develop social media-based ways to support B2B transactions could benefit greatly.

#### 2.4. New financing formulas: Initial coin offerings (ICOs)

According to Adhami and Giudici (2018), an ICO is an open call through the Internet to obtain cryptocurrencies in exchange for digital assets, allowing the user to enjoy an exclusive right, reward, or financial claim. An ICO relies on blockchain, a peer-to-peer network technology based on a sophisticated algorithm for cryptocurrency transactions where all users are connected to each other. The central element of an ICO are tokens, which are digital assets represented by new entries that are generated and maintained in a decentralized database. The benefit for users of acquiring tokens varies according to the design of the ICO, the token's nature, and the promoter's intention. For example, token acquisition can be justified by the user's interest in accessing the blockchain network, the interest in using tokens as internal currency within a specific marketplace to obtain rights such as voting rights in future corporate decisions or obtaining dividend-bearing shares, the interest in contributing to the project's development, and the interest in using cryptocurrencies to store value (Adhami, Giudici, & Martinazzi, 2018).

Despite the popularity of ICOs, there are still numerous questions surrounding this new financing formula and, as with other financial innovations such as Internet banking (Kuisma, Laukkanen, & Hiltunen, 2007), there is resistance and suspicion from some consumers. ICOs are not just a new way of raising funds; they are also a way of engaging early stakeholders in building ecosystems (Massey, Dalal, & Dakshinamoorthy, 2017). By engaging different stakeholders from the very beginning, a team-based project can build a strong community to help the development, adoption, and diffusion of the project (Chen, 2018). ICOs can be used by new projects to bypass a rigorous and heavily regulated capital-raising process. The weak or non-existent regulation enables new projects to raise large amounts of funding and avoid the costs of compliance and intermediaries, which, in turn, can increase investment risk (Fisch, 2019). In the current economic context, signals are important in all kinds of operations, and this importance is decisive in ICO projects. Before ICOs, the relationship between signaling theory and probability of success has also had to be clarified for two other public financing methods: crowdfunding and initial public offerings. The debate over signaling in ICO projects is more recent and mainly relates to the underlying blockchain technology (Tapscott & Tapscott, 2016; Wörner, Von Bomhard, Schreier, & Bilgeri, 2016). In fact, in ICO projects, signals can be released by different communication channels that allow the adoption of blockchain technology reflected in open source codes (Fisch, 2019). Other signaling sources include the industry, ICO stage (Adhami et al., 2018), the content of the white paper (Zetzsche, Buckley, Arner, & Barberis, 2017), technical characteristics related to the ICO (Fisch, 2019), the social media channels used (Chanson, Gjoen, Risius, & Wortmann, 2018), and the quality of the promoter's profile (Momtaz, 2018). The main problem is that, although the literature identifies ICO signals, the circumstances in which they work well or poorly and the extent to which they can predict the success of an ICO have not been deeply analyzed. In addition, other signals should also be considered such as the CEO's gender, age, and emotions. For example, previous research has already shown that female and young CEOs' signaling of fear or anger should offer higher financial incentives to

achieve success in an ICO project (Momtaz, 2018).

#### 2.5. ICOs and marketing

The marketing of a project should start almost as early as the project itself. For an ICO project, the main steps include building a professional website, using social media channels, publishing a white paper, and meeting potential investors (Momtaz, 2018). Social media, blogs, web-based communications, and other online channels are important marketing tools with ICOs that allow them not to spend substantial resources on marketing, promotion, or intermediaries. Internet, blockchain, and distributed ledgers have allowed ICOs to attract higher levels of funds raised through massive well-conceived marketing campaigns to signal their quality in all media (Boreiko & Sahdev, 2018). Previous research has tried to analyze the role of blockchain technology as a marketing tool on the success of an ICO. For example, an ICO promoter could decide to use blockchain technology to take advantage of operating in a given market, even if the project actually does not need to use it (Wüst & Gervais, 2018). The information disclosed voluntarily in the ICO white paper is highly regarded when making investment decisions. It is considered investors' main source of information, so its credibility is very important to protect the interests of the parties involved in an ICO. Thus, blockchain technology and the white paper can be understood as real marketing tools in the ICO market (Feng et al., 2019). If ICO promoters fail to report some specific governance attributes such as modifiability, vesting, token supply, or other marketing materials in the white paper, the funds raised by the ICO and its chances of success could both be reduced (Cohney, Hoffman, Sklaroff, & Wishnick, 2019). The disclosure of this information, together with how it is done, can determine the success or failure of an ICO. Similarly, social media activity can also determine the chances of success of an ICO. However, the mere fact of using social media does not guarantee success; instead, it depends on the choice of channel and the way it is used. For instance, the study by Benedetti and Kostovetsky (2018) showed that market sentiment measured through social media activity can affect ICO returns. In fact, they reported that a higher number of Twitter followers leads to a higher market capitalization of the ICO. Howell, Niessner, and Yermack (2018) showed that the number of Twitter followers is positively correlated with five-month abnormal returns, as well as volume and liquidity. Fisch (2019) noted that the existence of a Twitter page in the post-ICO period influences ICO profitability. Along these lines, previous research has also analyzed the frequency of Google searches on ICO returns, showing mixed results. While some authors confirm that an increase in the number of Google searches leads to higher returns for the cryptocurrencies underlying the ICO (Polasik, Piotrowska, Wisniewski, Kotkowski, & Lightfoot, 2015; Sovbetov, 2018), other authors have found that high Google search volumes predict lower future stock returns.

Good performance in specialized financial and non-financial ratings can also act as a powerful signal of ICO quality, helping an ICO achieve success. One of the most important non-financial ICO ratings, which also relates to marketing purposes, is the measure of the popularity of the ICO website. In other words, this measure of popularity is the online attention that investors have paid to the ICO (the so-called Alexa Rank). No studies have examined the influence of the website traffic of an ICO on any success-related outcome, nor are there studies of the influence of certain financial and non-financial variables related to B2B ICOs on the Alexa Rank. More research is needed on this novel topic. Therefore, addressing this issue constitutes the main goal of this study.

#### 2.6. The Alexa Rank and the study propositions

Research on how ICO characteristics can influence ICO success has only recently (Adhami et al., 2018) started considering specific ICO characteristics such as the information included in the white paper (Zetzsche et al., 2017; Fisch, 2019), the total funds raised (Benedetti &

Kostovetsky, 2018), the quality of the ICO team (Amsden & Schweizer, 2018; Howell et al., 2018), the percentage of the ICO distributed (Amsden & Schweizer, 2018; Fisch, 2019), and the existence of certain ICO features such as a pre-sale period, a pre-ICO bonus, a minimum investment requirement, and the observance of the ERC 20 standard (Amsden & Schweizer, 2018; Momtaz, 2018). Most of these papers have used the capital raised, the token tradability when the ICO is finished, or the short-term ROI from investing in the ICO's underlying cryptocurrency to measure ICO success. In this study, the variable is more related to marketing purposes, namely the website traffic of the B2B ICO measured through the Alexa Rank.

Increasing global e-commerce activity has led Internet marketing to become a key factor to guarantee sustainable competitive advantages, and it has become a fundamental driver of industrial productivity through the creation of virtual business communities (Meng & Dong, 2010). In this context, search engine marketing (SEM) and search engine optimization (SEO) have become central tools to improve visibility, optimize website rankings, and increase traffic, and the Alexa Rank is probably the most popular website traffic measurement unit. It centers on website traffic and sites with massive targeted traffic. In situations where financial purposes are the main focus, the Alexa Rank is ideal. The lower the Alexa Rank is, the better it is for a website because it means that the website attracts larger amounts of traffic. A low Alexa Rank means good opportunities for investment, funding, or resale, along with a good image and high website credibility (Thakur, Sangal, & Bindra, 2011). Emerging technologies provide artificial autonomy features that allow intelligent personal assistants (IPAs) to assist users in making decisions and managing the dynamically expanding applications and services on offer (Hu, Lu, Pan, Gong, & Yang, 2021). Undoubtedly, in the context of B2B ICOs, Alexa Rank is valid and perfectly applicable as a proxy of the popularity of an ICO website or the attention received from potential investors.

This study aims to assess the influence of variables related to financial characteristics of a B2B ICO and variables related to the characteristics of the promoter's country on its Alexa Rank. The financial variables used in this study are defined below. The percentage of ICO distributed refers to the percentage of tokens sold by the ICO. This variable offers a strong signal of the unobservable characteristics of the ICO, capable of reducing its uncertainty. From an investor's point of view, a greater percentage of tokens retained by promoters might mean higher levels of entrepreneurial confidence in the ICO (Amsden & Schweizer, 2018). In other words, the willingness of promoters to keep tokens in the company, thereby investing in their own venture, might signal higher quality and commitment (Busenitz, Fiet, & Moesel, 2005; Vismara, 2017) and alignment between promoters, employees (who can be rewarded with tokens), and investors (Fisch, 2019). Amsden and Schweizer (2018) concluded that a higher percentage of tokens distributed is negatively related to ICO success (measured by considering whether the tokens are subsequently listed on an exchange and traded actively). Another important financial variable related to B2B ICOs is the minimum contribution required, which refers to the minimum amount that investors are required to invest if they want to participate in the ICO. Promoters can also use a minimum contribution requirement as a signal of their confidence in the ICO's quality, expressing that they do not need and do not want to depend on smaller contributions (Amsden & Schweizer, 2018). Another important variable is the total amount of funding raised by the ICO, typically used as a dependent variable in previous finance studies (Mollick, 2014). This variable offers a good signal of the confidence an ICO has generated among investors. The mere disclosure of this information by ICO promoters can also express their desire to be transparent to increase investor confidence and boost the potential funds raised by the ICO. The last financial variable is the price of the ICO, which is initially decided arbitrarily by the ICO team. However, once the ICO has completed, the price depends on the supply and demand from investors on unregulated exchanges (Kastelein, 2017). Therefore, depending on the moment, a

high or low ICO price can be a powerful signal of the quality or the opportunity of the ICO, respectively.

Two characteristics of the B2B ICO promoter's country were considered. The first is institutional efficiency, measured as the bank return on assets before taxes ratio. The unregulated nature of ICO transactions, its global scope, and the significance and implications of this variable make it an important variable in determining the ICO's chances of success from a marketing point of view. The second variable related to the characteristics of the B2B ICO promoter's country is its status as a tax haven. Tax havens are usually small countries with small, wealthy populations that are subject to very low or even zero corporate tax rates and opaque laws protecting the identities of firms and investors (Gravelle, 2009). Even the geographical characteristics of tax havens (mainly islands) lead them to have greater "economic openness." The legal origins, political institutions (parliamentary rather than presidential), official language (mainly English), nature of the tax haven territory (mainly dependent and non-sovereign), and governance quality (political stability, no official corruption, government effectiveness, respect for the rule of law, and democracy; Kaufmann, Kraay, & Mastruzzi, 2005) are important differences between tax havens and non-tax havens (Dharmapala & Hines, 2009). Initially, tax havens might be expected to reduce uncertainty and the risk of future regulatory costs for potential investors (Amsden & Schweizer, 2018), and their lower institutional efficiency might be more prone to developing financing instruments such as ICOs (Čihák, Demirgüç-Kunt, Feyen, & Levine, 2012). However, the relationship between this variable and the potential success of an ICO has not been studied in depth.

To date, no study has examined the influence of the percentage of ICO distributed, the minimum contribution required, the total funds raised, the ICO price, the institutional efficiency of the promoter's country and its status as a tax haven on the popularity of the ICO website (Alexa Rank). In addition, this study examines the combined effect of the aforementioned variables on the Alexa Rank. The following propositions are tested:

P1: The presence of variables related to the financial characteristics of B2B ICOs is decisive for B2B ICOs to achieve a high level of website popularity.

P2: The presence of variables related to the characteristics of the promoter's country is not decisive for B2B ICOs to achieve a high level of website popularity.

### 3. Method

Fuzzy-set qualitative comparative analysis (fsQCA) refers to a series of techniques that combine a qualitative approach with a quantitative, variable-based approach (Ragin, 2008; Ragin & Fiss, 2008). This method seeks asymmetrical configurations, which means that the fact that a certain cause leads to a certain outcome does not mean that the presence of the outcome implies the presence of the cause (Ordanini, Parasuraman, & Rubera, 2014). FsQCA is a suitable method when studying causally complex social phenomena that can be articulated as sets and explained in terms of necessity and sufficiency (Woodside, 2016). In addition, this analysis makes it possible to identify specific cases in the sample that verify the specific propositions; so, it is possible to return to the cases and use contextual information not included in the analysis to explain and discuss the findings (Pappas & Woodside, 2021). Previous research has proven the advantages of this methodology over the linear regression methods (Huang & Yu, 2019b).

#### 3.1. Data

Investors can find it complex to evaluate the potential value of an ICO because they cannot conduct exhaustive analysis of the project given the limited and often inaccurate information provided by promoters (An, Hou, & Liu, 2017). There is no complete universal database on ICOs, which makes this research more complicated, especially when

the information sought is specifically about B2B ICOs. This type of study highlights the incompleteness and lack of coherence of the data provided by different databases on ICOs, so a complete and reliable data set must be created to study the phenomenon as scientifically as possible. With the advent of the Internet, investors have started to use information available on multiple websites, which report rates on different metrics such as total funds raised, social media engagement, and the popularity of the ICO website. To conduct this study, a range of databases were consulted to obtain data on all the variables included in the model. A specific data set was created using the manually retrieved data. Data on 67 B2B ICOs that had completed by December 31, 2019, were included in the study data set. To use complete and valuable information, only 52 of these B2B ICOs were chosen. Whenever available, data were obtained from ICObench.com, then supplemented using TrackICO.io, ICOmarks.com, ICOholder.com, Rattintoken.net, CoinLauncher.io, and CoinMarketCap.com. When discrepancies arose between ICObench.com and the other databases, the data provided by ICObench.com were preferred because this database has greater data accuracy (Amsden & Schweizer, 2018). For the other variables in the model, cross-reference analysis was conducted to find data in alternative sources such as those of the World Bank and the European Union. Based on the available knowledge, this study data set appears to be the most complete data set on B2B ICOs.

### 3.2. Instruments

For this study, the variables were as follows:  
Outcome variable:

- *Alexa Rank (ALEXA)*. A reliable measure of the popularity of a B2B ICO website, the Alexa Rank provides a measure of the amount of user traffic on a website relative to others.
- *Conditions:*
- *Institutional efficiency (INSTEFFICIEN)*. The bank return on assets before taxes of the B2B ICO promoter's country.
- *Tax haven (TAXHAV)*. The status of the B2B ICO promoter's country as a tax haven (dummy with value 1 if the country is a tax haven and 0 otherwise).
- *Percentage of ICO distributed (DISTRIBICO)*. The percentage of the tokens distributed among investors during the B2B ICO campaign.
- *Minimum investment (MINIVEST)*. The minimum contribution in USD required for investors to participate in the B2B ICO.
- *Total raised (TOTRAIS)*. Total funds in USD raised during the B2B ICO campaign.
- *ICO price (ICOPRICE)*. The price of the token in USD during the B2B ICO campaign.

Of all the variables considered in this study, *total raised* has the most discrepancies between databases and the most missing values. Therefore, an exhaustive search was performed to obtain accurate data on each B2B ICO. Inconsistencies between the ICO start and ICO end dates, cryptocurrency and fiat currency exchange rates, and the B2B ICO structure are possible causes of these discrepancies. To resolve these issues, the amount raised in USD was used whenever available. If the amount raised was only available in a cryptocurrency, the conversion was calculated using the closing price of that cryptocurrency to USD on the ICO end date. As per Feng et al.'s (2019) approach, if the amount raised could not be found, the amount was set to 0 USD under the assumption that the B2B ICO in question had failed to raise the minimum funding target. The same criterion was applied in the few cases where the percentage of tokens distributed or the minimum investment required were unavailable.

Once it had been confirmed that the data set contained complete data in a comprehensive and accurate format, calibration was performed to transform the data into fuzzy sets. Three anchors were established for calibration: full membership, maximum ambiguity, and full non-membership (Ragin, 2008). The thresholds were set at the 90th, 50th,

and 10th percentiles, respectively (Misangyi & Acharya, 2014).

## 4. Results

The outcome of the model was the Alexa Rank of the B2B ICO. The six conditions are those related to the B2B ICO promoter's country (institutional efficiency and tax haven status) and those related to the financial characteristics of the ICO (percentage of ICO distributed, minimum investment required, total funds raised, and ICO price). Tables 1 and 2 show the results of the analysis of the necessary conditions for the B2B ICOs included in the study sample to achieve a low Alexa Rank.

The results indicate that none of the six conditions on its own leads to a low Alexa Rank. However, the presence of one of the four conditions related to the financial characteristics of the B2B ICOs (DISTRIBICO + MINIVEST + TOTRAIS + ICOPRICE) was found to be quasi-necessary for a low Alexa Rank (consistency value close to .90; Schneider, Schulze-Bentrop, & Paunescu, 2010).

Analysis of sufficient conditions was also conducted to identify causal configurations that lead to the outcome. The following model was studied:

$\sim \text{ALEXA} = f(\text{INSTEFFICIEN}, \text{TAXHAV}, \text{DISTRIBICO}, \text{MINIVEST}, \text{TOTRAIS}, \text{ICOPRICE})$

As per Ragin's recommendations (2008), the intermediate solutions for the absence model are shown (Table 3). The combination of the intermediate and parsimonious solutions was also used to determine the core and peripheral conditions. Six solutions lead to a low Alexa Rank. These solutions explain almost 60 % of the analyzed cases.

## 5. Discussion

This study examines the combined effect of six conditions of B2B ICOs on their website traffic. The results show that, while no individual condition is necessary for a low Alexa Rank, the combination of the conditions related to the financial characteristics of the B2B ICOs is observed to be quasi-necessary for a low Alexa Rank. Thus, the presence of the percentage of tokens distributed, or the minimum investment

**Table 1**  
Analysis of necessary conditions.

| Conditions          | $\sim$ Alexa |          |
|---------------------|--------------|----------|
|                     | Consistency  | Coverage |
| TAXHAV              | 0.136471     | 0.362500 |
| $\sim$ TAXHAV       | 0.863530     | 0.591935 |
| INSTEFFICIEN        | 0.544000     | 0.699758 |
| $\sim$ INSTEFFICIEN | 0.711530     | 0.672598 |
| TOTRAIS             | 0.488941     | 0.639778 |
| $\sim$ TOTRAIS      | 0.643765     | 0.601054 |
| DISTRIBICO          | 0.668706     | 0.656654 |
| $\sim$ DISTRIBICO   | 0.541647     | 0.663018 |
| MINIVEST            | 0.521412     | 0.706182 |
| $\sim$ MINIVEST     | 0.682824     | 0.622480 |
| ICOPRICE            | 0.440471     | 0.550265 |
| $\sim$ ICOPRICE     | 0.761883     | 0.736244 |

Note: ( $\sim$ ) means absence of the condition.

**Table 2**  
Analysis of necessary combinations of conditions.

| Outcome      | Conditions                                                             | Consistency | Coverage |
|--------------|------------------------------------------------------------------------|-------------|----------|
| $\sim$ Alexa | TAXHAV + INSTEFFICIEN                                                  | 0.619765    | 0.591910 |
| $\sim$ Alexa | $\sim$ TAXHAV + $\sim$ INSTEFFICIEN                                    | 0.587294    | 0.745075 |
| $\sim$ Alexa | TOTRAIS + DISTRIBICO + MINIVEST + ICOPRICE                             | 0.876236    | 0.577543 |
| $\sim$ Alexa | $\sim$ TOTRAIS + $\sim$ DISTRIBICO + $\sim$ MINIVEST + $\sim$ ICOPRICE | 0.269647    | 0.847633 |

Note: ( $\sim$ ) means absence of the condition; (+) is the logical operator "OR".

**Table 3**  
Analysis of sufficient conditions.

|                         | ~ALEXA   |          |          |          |          |          |
|-------------------------|----------|----------|----------|----------|----------|----------|
|                         | C1       | C2       | C3       | C4       | C5       | C6       |
| TAXHAV                  | ⊗        | ⊗        | ⊗        |          | ○        | ○        |
| TOTRAIS                 | ○        | ⊗        | ○        | ○        |          | ⊗        |
| DISTRIBICO              | ○        | ○        | ○        | ○        | ⊗        | ○        |
| MINIVEST                | ○        |          |          | ○        | ⊗        | ⊗        |
| INSTEFFICIEN            |          | ○        | ⊗        | ⊗        | ⊗        | ⊗        |
| ICOPRICE                |          | ⊗        | ⊗        | ○        | ⊗        | ⊗        |
| Consistency (incl.)     | 0.80000  | 0.798540 | 0.855623 | 0.884531 | 0.846847 | 0.909774 |
| Raw coverage (cov.r)    | 0.208941 | 0.257412 | 0.264941 | 0.191059 | 0.044235 | 0.056941 |
| Unique coverage (cov.u) | 0.004706 | 0.064941 | 0.062118 | 0.021176 | 0.027294 | 0.040941 |
| Solution coverage       | 0.597177 |          |          |          |          |          |
| Solution consistency    | 0.783817 |          |          |          |          |          |

Note: “○” denotes the presence of the condition, and “⊗” denotes the absence of the condition. Large circles denote core conditions, and small circles denote peripheral conditions (Fiss, 2011). Consistency cutoff = 0.816489. Frequency cutoff = 1.00. Vector of expected directions = (0,1,1,1,0,1) as per Ragin and Sean (2016).

required, or the funds raised, or the price of the B2B ICO is a quasi-necessary condition for high user traffic on the websites of B2B ICOs.

The results also show that combinations of several conditions are sufficient for a low Alexa Rank. The first configuration suggests that B2B ICOs that do not have promoters from tax havens, that raise a large amount of funds, that distribute a high percentage of tokens, and that require a high minimum investment have a low Alexa Rank. The second configuration corresponds to B2B ICOs that do not have promoters from tax havens with high institutional efficiency, distribute a high percentage of tokens, have a low ICO price, and raise a low amount of funds. The third configuration is similar to the previous one, changing only the low level of institutional efficiency of the promoter's country for a high amount of funds raised by the B2B ICO. The fourth configuration suggests that having a high amount of funds raised, a high percentage of tokens distributed, a high minimum investment required, and a high ICO price leads to a low Alexa Rank, even if the B2B ICO promoter's country has low institutional efficiency. The fifth configuration shows that a high amount of funds raised by B2B ICOs with promoters from tax havens leads to a low Alexa Rank, even if the rest of conditions considered in the model have low values. Similarly, the sixth configuration shows that having a high percentage of tokens distributed among the investors of B2B ICOs with promoters from tax havens also leads to a low Alexa Rank, even if the rest of conditions considered in the model have low values.

The results of the analysis of sufficient conditions partly confirm the results of the analysis of necessary conditions because, in all configurations, one or more of the conditions related to the financial characteristics of the B2B ICOs must have a high value to achieve a low Alexa Rank. Considering these characteristics, having a high amount of funds raised and a high percentage of tokens distributed seems to be sufficient to achieve a low Alexa Rank (Configuration 3), also combined with a high minimum investment required (Configuration 1) or adding a high B2B ICO price (Configuration 4). In addition, a high percentage of tokens distributed (Configurations 2 and 6) and a high amount of funds raised (Configuration 5) also seem to be enough to achieve a low Alexa Rank. Regarding the status of the B2B ICO promoter's country as a tax haven and its related institutional efficiency, the results show that these conditions appear in almost all combinations. This finding shows their importance, not so much in themselves, but because of their combined effect with the four financial conditions (Configurations 2, 5, and 6).

### 5.1. Theoretical contributions

Very few studies have explored the relationship between the percentage of tokens distributed by promoters (Amsden & Schweizer, 2018; Benedetti & Kostovetsky, 2018) or the funds raised by ICOs (Benedetti & Kostovetsky, 2018) and different measures of ICO success. To date, no study has examined the relationship between the percentage of tokens

distributed or the amount of funds raised and the ICO's Alexa Rank. This study shows that the percentage of tokens distributed by the promoters of the B2B ICO is a key variable to capture the attention of investors. Thus, the decision of promoters about the percentage of tokens released to investors, along with the method of communicating this information, can clearly influence ICO success, or in this case, investors' attention measured through traffic on the website of the B2B ICO. Therefore, higher percentages of tokens distributed means higher popularity of the ICO website and *vice versa*. The reason may be twofold. First, investors might find these ICOs to be a realistic and accessible investment option. Second, investors might need to share complete information about ICOs they do not fully trust. The study also shows that the amount of funds raised is a key variable to achieve high user traffic on the website of the B2B ICO. One reason is the trustworthy environment created by the disclosure of this information, which can act as a powerful signal of the ICO's appeal. Furthermore, as commented earlier, ICO projects that raise higher amounts of funds tend to be perceived as more valuable, which can lead them to capture greater attention from investors and consequently achieve a low Alexa Rank. The importance of these conditions is justified by their presence in the six configurations, with jointly high values in three of them. Previous research has shown that the nominal ICO price is negatively correlated with potential ICO returns (Benedetti & Kostovetsky, 2018; Fisch, 2019), but no study has explored the relationship between the price of a B2B ICO and its Alexa Rank. The results show that a low ICO price can also capture investors' attention. The reason may also be twofold. First, investors might view low ICO prices as a potential, realistic, and accessible investment option, primarily if this condition is combined with a high percentage of tokens distributed (it appears in three of the six configurations). Second, investors might use social media to share information or to alert other investors to the risks associated with unreliable ICOs. Similarly, few studies have explored the relationship between the establishment of minimum contribution requirements and ICO success outcomes (Amsden & Schweizer, 2018), and no study has considered the influence of this variable on the Alexa Rank of the B2B ICO. The results of this study show that the minimum investment required by promoters seems to play a less important role in attracting investors' attention through the ICO website. The configurations suggest that both high and low minimum investment requirements can lead to a low Alexa Rank. The reason might be that when investors focus on one B2B ICO, their investment decisions depend to a greater extent on conditions that are directly related to the ICO's potential and reliability but depend less on the minimum investment requirement.

The results for the conditions in relation to the B2B ICO promoter's country are also revealing. Few studies have examined the relationships between these conditions and ICO success outcomes (Amsden & Schweizer, 2018; Benedetti & Kostovetsky, 2018), and no study has considered the relationship with the Alexa Rank of B2B ICOs. An initial

conclusion is that the institutional efficiency of the promoter's country or its status as a tax haven do not seem to be necessary conditions to generate traffic on the website of the B2B ICO and, consequently, to produce a low Alexa Rank (Configurations 1, 3, and 4). The second conclusion is that configurations where one of the two key financial conditions of the B2B ICO (percentage of tokens distributed or funds raised) has low values and one of the two conditions related to the promoter's country has high values lead to a low Alexa Rank (Configurations 2, 5, and 6). Therefore, the results of the necessary and sufficient analyses lead to the partial acceptance of P1 and P2.

### 5.2. Implications for practice

Decentralization has altered the paradigms of traditional marketplaces because it is impossible to control every aspect of a trade. This situation is the main reason many organizations do business. B2B organizations have made massive efforts to adapt to the current economic environment, exemplifying a two-sided market in which each side involves networks of participants. The huge connectivity generated around these decentralized marketplaces creates massive opportunities but also major risks. The complexity derives from the fact that in some cases, opportunities and risks can act as two sides of the same coin. B2B clearly seems to have lower transaction costs, but it is less clear that privacy, security, trust, and the like can be fully guaranteed. Technology has also changed the way businesses are financed, although it must be considered a support rather than a replacement (Duan, Edwards, & Dwivedi, 2019). ICOs offer a prime example of this shift. Blockchain enables online open calls for cryptocurrencies in exchange for digital assets. This financing formula has major advantages, but as highlighted earlier, it also involves substantial risks associated with fraud and security vulnerability. Security token offerings can partially resolve these issues. In exchange for losing liquidity and trading possibilities, these security token offerings promote sensible and serious projects with clear and coherent objectives in a more regulated environment. Another important change derived from technological advances has to do with marketing communications. Undoubtedly, social media support the achievement of organizational goals, even for B2B organizations. Digital marketing has offered new ways to drive information exchange between parties, leading to new ways of interacting, making decisions, and offering new products and services (Borges, Laurindo, Spínola, Gonçalves, & Mattos, 2021). Current research on digital and social media marketing can potentially form the basis for numerous strands of future research about different applications, platforms, users, or cultural implications (Dwivedi et al., 2020). The need to explore the intersection of B2B organizations, ICOs, and marketing purposes motivated the current research and constitutes its main focus.

### 5.3. Limitations and future research directions

The biggest limitation of this research relates to the difficulty in implementation because of the lack of accurate, up-to-date data on B2B ICOs. To overcome this difficulty and ensure that the data were accurate, the data set for this study was created manually, and different information repositories were used to gather all the necessary data. Subsequent analysis of data consistency was necessary to avoid discrepancies between the data sources. Although the variables in this study are critical, other important variables should also be considered. For example, future research should consider other variables related to B2B ICOs (team quality, presales, and bonuses), as well as other variables related to the promoter's country (institutional depth and democracy level). It could also be of interest to analyze other outcomes in relation to marketing objectives. In addition, with complete and accurate information, it would be of interest to repeat the study considering different economic sectors to identify differences or similarities between them.

## 6. Conclusion

This paper examines how the Alexa Rank of the website of a B2B ICO (i.e., its popularity) depends on the combined effect of four conditions related to the ICO's financial characteristics and two conditions related to the characteristics of the country promoting the ICO. The results indicate that, although not all financial variables are equally important, one of these variables must be present for a low Alexa Rank. In addition, if one of the two key financial variables (percentage of tokens distributed and total funds raised) is not present or its value is low, the presence of one of the two variables related to the B2B ICO promoter's country is important. The other key conclusions of this study are now outlined. First, social media and network activity provide important information about the success of B2B ICOs. Investors can pay attention to different ratings related to social media activity to make their investment decisions. One of these ratings is the popularity of the B2B ICO website or its website traffic. Correctly managing this website is a task that can capture the attention of B2B ICO promoters as a way to attract investors' attention. The second conclusion is that both the financial characteristics and the characteristics of the B2B ICO promoter's country can alter the Alexa Rank. The third conclusion is that characteristics related to the promoter's country seem to play a secondary role to the financial characteristics of the B2B ICO in leading to a low Alexa Rank.

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