SYSTEMATIC LITERATURE REVIEW ON HOW CRYPTOCURRENCIES CONTRIBUTE TO CORPORATE FINANCE

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ABSTRACT

In this study, we explore the research published from 2008 to 2021 on how Cryptocurrencies contribute to Corporate Finance. Our results are originated from the content analysis of 7 studies on this topic. These studies mainly follow a quantitative approach. This study's main contribution points out to the fact that in this field of research there are still venues less investigated, and grey areas that need to be clarified, such as the regulation of the ICOs in the investor protection perspective. Our findings show evidence that the relationship between investor and entrepreneur in ICOs are characterized by a particularly large amount of information asymmetry. Moreover, the existence of a systematic moral hazard in signaling is evident. These studies demonstrate a point of view that points towards a severe regulatory vacuum. In that the absence of penalties for sending false signals, a moral hazard in information disclosure may occur. This research could lead to further investigation of the effects that cryptocurrencies have in business worldwide, as well as their needed regulatory framework.

Keywords: Cryptocurrencies, Corporate Finance, ICOs, Business Worldwide.

INTRODUCTION

Currently, there is a growing dematerialization of the currency and there is less and less physical contact in carried out transactions. Trade intensification, along with the scarcity of precious metals and the insecurity in their transport, have determined that the currency should be replaced by paper currency, and later by paper money, in which precious metal equivalence is no longer guaranteed, and finally the fiat currency, whose value rests on the confidence of the agents (Orrell & Chlupatý, 2017). With technological innovation and the internet, the user began to have no physical contact with money. Payments through bank transfers, credit card or Paypal are increasingly frequent, allowing transactions anywhere in the world (Beneki et al., 2019; Orrell & Chlupatý, 2017).

In this context, Nakamoto (2008) published an article explaining the creation and operation of a new currency: a digital currency, Bitcoin. This new type of currency has the particularity of being decentralized and does not require the intermediation of any financial institution. The entire operation and creation of Bitcoin is undertaken only in the digital world.

With the emergence of Bitcoin, the cryptocurrency market was created and other cryptocurrencies, such as Litecoin, Ethereum, Dash, Alcoin, Ripple, among others, were born (Almeida, 2021). The cryptocurrency market is characterized by high volatility and, due to very quick appreciation and depreciation, it has a high speculative value. In this sense, it has gained a

lot of attention from academics, the media, financial industry, as well as governments around the world (Ciaian et al., 2017; Gil-Alana et al., 2020; Wang et al., 2016).

However, several authors consider the cryptocurrency market has largely inefficient (Bariviera, 2017; Urquhart, 2016). Despite being a decentralized and unregulated market, it is also a market characterized by anonymity and susceptible to speculative bubbles, thus being perceived by many investors with a lot of uncertainty (Bariviera, 2017).

Nevertheless, a great deal of progress can be observed in this market. At the beginning of 2019 there were more than 2,520 types of cryptocurrencies in circulation, with a market capitalization of $113 Billion (Gil-Alana et al., 2020). A year later, this market capitalization showed an increase of $38 Billion (Hu et al., 2020). Currently, its market capitalization exceeds $ 1 Trillion (Investing, 2021), and continues to rise. Bitcoin, Ethereum and Ripple capture more than 60% of the total market capitalization (Klein et al., 2018).

In addition, cryptocurrencies are currencies that cannot be controlled by any government, company or authority and enable online payments for anyone anywhere in the world (Atik et al., 2015; Gil-Alana et al., 2020). It should be noted that in the United States of America, Europe and Asia many companies already accept these digital currencies as a means of payment (Nakamura et al., 2017; Stegăroiu, 2018). The first major company that accepted cryptocurrency was the WordPress, an online publishing platform. Today, thousands of companies around the world accept cryptocurrency as a means of payment, among them are Amazon, Bloomberg, Microsoft, PayPal, Subway, Target and Tesla, as well as ATM machines (Adhami et al., 2018a; Coinmap.org, 2021).

In this regard, in 2013, Mastercoin implemented the first ICO (Initial Coin Offering) raising thousands of dollars to create a Bitcoin exchange (Fisch, 2019).

ICOs are a form of alternative funding for companies, especially start-ups, which enable companies to raise money by selling tokens to crowd investors (Adhami et al., 2018a; Fisch, 2019). Unlike an IPO (Initial Public Offering), where investors buy stocks which translate into ownership of that company, in an ICO investors buy cryptocurrency tokens made by and for a specific company (Adhami et al., 2018a; Fisch, 2019). Tokens are cryptographically protected digital asset on a Blockchain, that provide value to investor (Howell et al., 2020; Huang et al., 2020; Li & Mann, 2020). During an ICO there are two types of tokens that investors can buy. The first is a utility token that is meant to be used in goods and services offered by the company that developed that cryptocurrency. The second type of token is a security token, which means that the investor buys in to the company, and is entitled to shares of ownership, dividends, and other benefits (Fisch et al., 2021; Fisch & Momtaz, 2020; Li & Mann, 2020). Thus, ICO investors enable issuer companies an initial funding, which is immediately available and goes directly to the company (Fisch et al., 2021).

Since 2017, the number of ICOs has erupted. The largest ICO until May 2020 raised funds over US $ 1 Billion (Fisch & Momtaz, 2020). Like the cryptocurrency market, the ICO market demonstrates to have high volatility and bubble behavior (Corbet et al., 2017; Drobetz et al., 2019). Thus, this ICO market exhibits more uncertainty and higher risk than the equity market, where IPOs are issued.

However, ICOs are controversy in the sense that they are not regulated, which allows for companies to get large amounts of financing without compliance or intermediation costs (Fisch & Momtaz, 2020; Rui Chen & Chen, 2020), but this lack of regulation also brings more risk of investment that is borne by investors. It also increases the likelihood of misconduct on behalf of some issuing companies (Cumming et al., 2015; Zhao et al., 2020) because tokens often do not

allow legal entitlement and because there is a great potential for fraud (Howell et al., 2020; Lyandres et al., 2018). This risk becomes significantly higher in retail investors as they do not have the knowledge and resources to evaluate companies before investing (Fisch et al., 2021).

These financial choices, from a corporations' perspective, are still relatively new and understudied. Thus, our intended contribution in this article is to provide the most comprehensive and up to date literature review on how cryptocurrency contributes to corporate finance.

This review is structed as follows: In section 2, methodology, we highlight the way this review has been caried out, transparently showing all process in obtaining the final sample of articles and conduct a bibliometric analysis of the sample. Then in section 3, we examine the literature on how cryptocurrency contributes to corporate finance, allocating the articles in two main topics. Lastly, in section 4, we provide some conclusions and indicate future research venues.

METHODOLOGY

Systematic Literature Review (SLR)

A systematic review addresses a specific question, utilizes explicit and transparent methods to perform a thorough literature search and critical appraisal of individual studies, and draws conclusions about what we currently know and do not know about a given question or topic (Briner & Denyer, 2012, p. 112).

According to Briner et al. (2009), SLR reports what is and is not known about the subject in review, meaning that systematic reviews do not provide answers, only point out research on a given subject and order them by a specific topic, drawing conclusions about what exists in literature and what is still to be researched in that subject.

According to (Briner & Denyer, 2012; Petticrew & Roberts, 2008; Piper, 2013; Sampaio & Mancini, 2007; Williams et al., 2020), in order to elaborate a good and effective SLR, its essential to follow several procedural steps. Thus, the elaboration of a plan is crucial in order to prevent eventual liabilities and produce robust and unbiased results (Williams et al., 2020). Figure 1 gives an example of a five-step process of a SLR adapted from (Briner & Denyer, 2012).

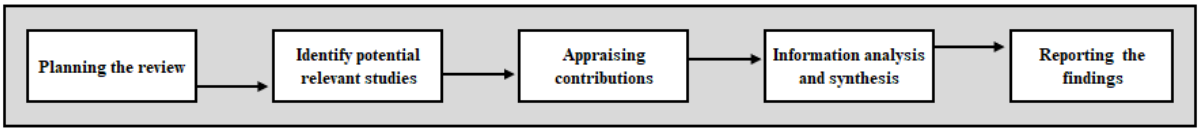

Figure 1
SLR IN FIVE STEPS ADAPTED FROM (BRINER & DENYER, 2012, P. 115)

(Briner et al., 2009; Briner & Denyer, 2012; Higgins & Thomas, 2019; Williams et al., 2020) refer that a set of core principles must be acknowledged when conducting a SLR, namely:

1. Systematic: SLR must be conducted taking into account a system or method that is designed specifically for the review.
2. Transparent: The methodology must be explicitly stated.
3. Replicable: The method must be reported in a detailed way that allows other researchers to repeat and do modifications in the review.
4. Updated: The methodology must be clearly explained in order to allow the research to be updated.
5. Summarize: SLR organize in a structured way the results of the review to summarize the evidence found on a specific subject.

According to (Briner & Denyer, 2012, p. 120)

"Having a protocol also means the review method can be challenged, criticized, and revised or improved in future reviews".

Thus, the protocol is an essential part of SLR, in the sense that it allows for transparency (Higgins & Thomas, 2019; Williams et al., 2020). The protocol used in the present research can be noted in Table 1.

However, the conclusions drawn from systematic literature reviews vary, and it is not uncommon to find that there is less evidence on a specific subject than assumed, meaning that those results can be more inconsistent and less robust than largely believed (Williams et al., 2020).

Table 1
SYSTEMIC REVIEW PROTOCOL
SLR Protocol adapted from (Briner & Denyer, 2012, p. 121; Higgins & Thomas, 2019)

Background motivation	• Growing importance of cryptocurrencies in the economy
Objectives	• How Cryptocurrencies inform themes of corporate finance?
Criteria for considering studies for this review	• Studies that contemplate themes of corporate finance regrading to ICO or Cryptocurrencies • Qualitative and quantitative studies • Exclude literature reviews • Include case studies
Search strategy for identification of studies	• EBSCOhost database • Time period between 2008-2021 • Search terms and keywords -"Cryptocurrency" + "Bitcoin" + "Corporate finance" + "Initial coin offering" • Language restriction - only studies in English • No unpublished data be sought
Eligibility	• The inclusion/exclusion criteria - Themes of Corporate Finance (inclusion)
Data collection	• Only academic journal articles
Assessment of methodological quality	• ABS Ranking
Synthesis	• Aggregation and interpretation

Sample

To conduct this study, we followed a systematic review process. As a starting point we search in EBSCOhost database (Certo et al., 2009; Laplume et al., 2008) since it is one of the most complete sources on Business studies.

EBSCOhost database was searched in for academic journals considering the time frame between 2008 and 2021, considering the keywords "*cryptocurrency*", "*bitcoin*", "*corporate finance*", and "*initial coin offering*". As a result, 300 articles were presented.

In an initial analysis of the articles, only those in which the review keywords were found in their title, abstract, or keywords were considered. Thus, revealing that not all the articles identified in our initial search were useful to conduct this review. Leading to a sample of 189 articles.

To identify more relevant articles an additional criterion was considered. The journal in which the articles were published must be ranked has 4*, 4 or 3 in Academic Journal Guide ABS (Association of Business Schools). Resulting in the elimination of 175 article that did not meet the requirements of this review, leaving a sample of 14 articles. Through a deeper reading of the

articles, it was found that not all articles dealt with corporate finance themes, thus our final sample gathered 7 articles in Figure 2.

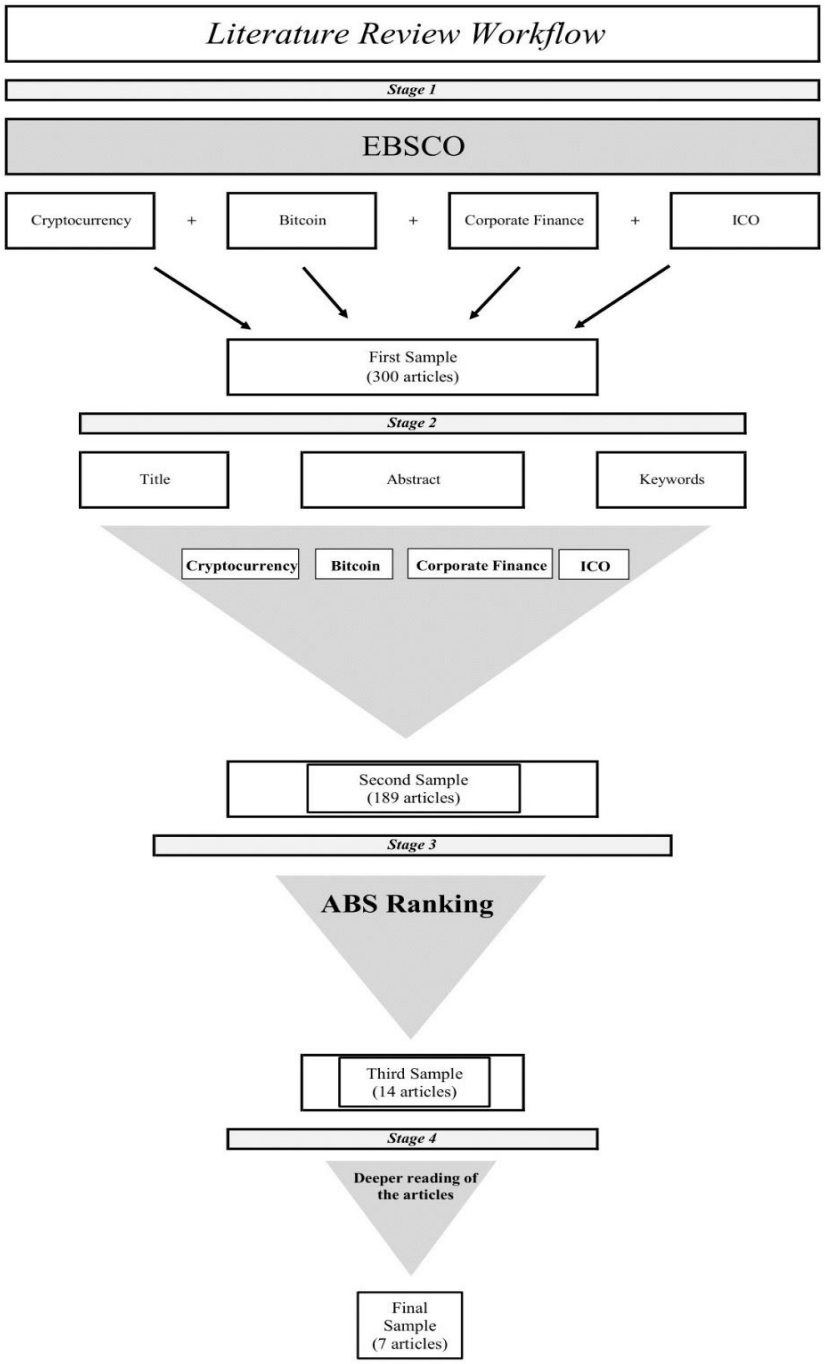

Figure 2
SLR WORKFLOW

Sample Bibliometric Analysis

The article search could only find articles from the years 2019 to 2021. However, the analysis provided by figure 3 highlights that the highest ranked journal in the sample is the Review of Financial Studies with a 4* in the ABS ranking, followed by the Journal of Corporate Finance ranked at 4, both from the research area of finance. The next high ranked journal in the sample is the journal of Business Venturing which belongs to the research area of entrepreneurship and is also ranked at 4. The lowest ranked journal in the sample is the journal Small Business Economics with a 3 in the ABS ranking, also from the research area of entrepreneurship.

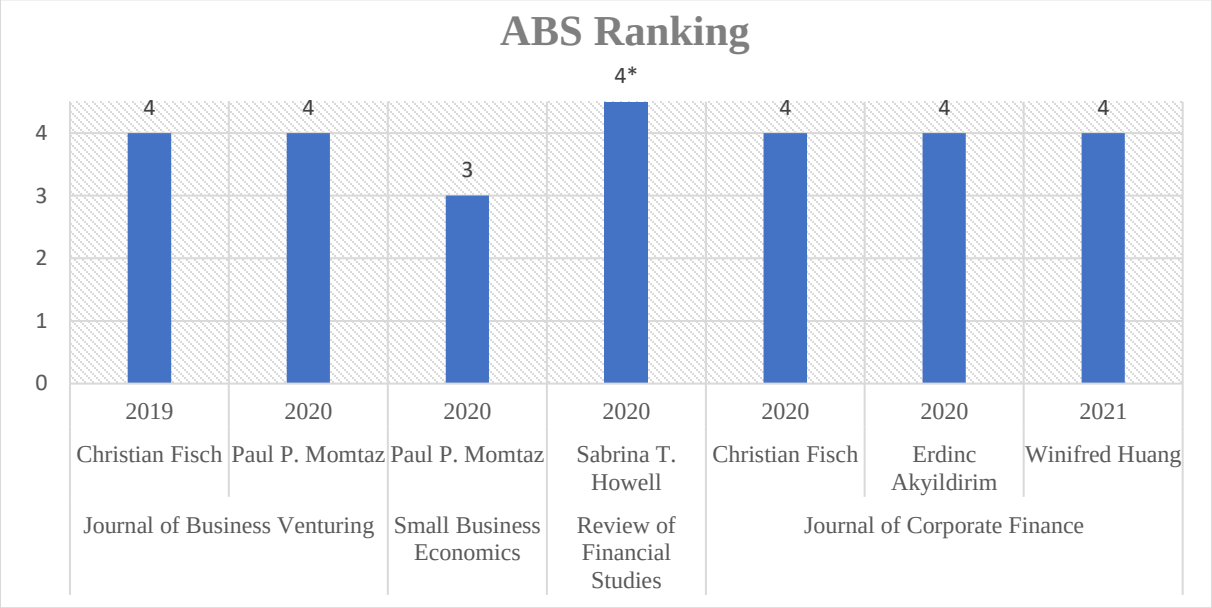

Figure 3
JOURNAL RANKING ANALYSIS *

* In Journal Ranking Analysis, we only mention the articles' first authors.

Also, through the analysis of figure 4 and table 2, it is possible to understand that, from all the articles, the one that is most cited is "*Initial coin offerings (ICOs) to finance new ventures*" from Christian Fisch affiliated with Trier University in Germany. The paper was published in 2019 and represents 56.11% (101 citations) of the samples' overall citation. The second most cited paper is entitled "*Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales*" from Sabrina T. Howell affiliated with New York University, published in 2020, representing 18.33% (33 citations) of the samples' overall citations. In third place we find "*Initial coin offerings, asymmetric information, and loyal CEOs*" from Paul P. Momtaz, who is affiliated with UCLA, also published in 2020, and representing 10% (18 citations) of the samples' overall citation.

Published in 2020, and with a representation of 8.89% (16 citations) of the samples' overall citation, is the article "*Entrepreneurial Finance and Moral Hazard: Evidence from Token Offerings*", also from Paul P. Momtaz. With 3.89% and 2.22% (7 and 4 citations) of the samples' overall citation are the articles entitled "*Institutional investors and post-ICO performance: an empirical analysis of investor returns in initial coin offerings (ICOs)*" from Christian Fisch, and

"*The impact of blockchain related name changes on corporate performance*" from Erdinc Akyildirim, respectively.

The article entitled "Confidence and capital raising" from Winifred Huang, published in 2021, is the least cited article with a sample overall citation of 0.56% (1 citation).

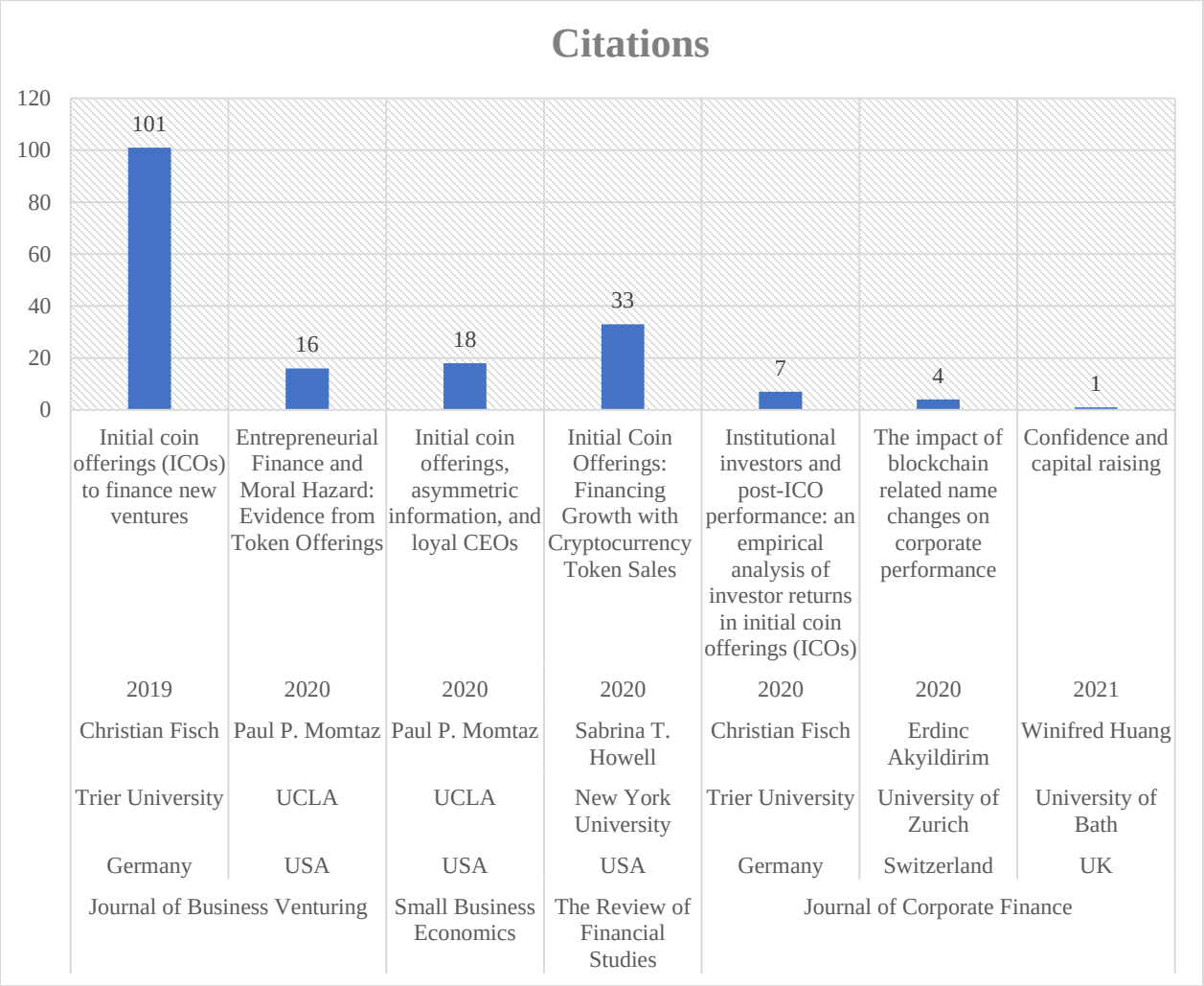

Figure 4
GRAPHICAL CITATIONS ANALYSIS *

* In Graphical Citations Analysis there were only considered the articles first authors.

In this specific sample, and still through the analysis of figure 5 and table 1, is evident that, most represented country in this research is the USA (43.68%), followed by Germany (28.57%). However, considering the most represented institution in the sample we find with 28.57% both the UCLA (USA) and the Trier University (Germany).

Regarding the most cited author we find, with 60% of the samples' overall citation, Christian Fisch, which achieves this weight in our sample with 2 articles. The second most cited author is Paul P. Momtaz with 22.78% of the samples' overall citation, with the contribution of 3 articles. Both the authors have jointly participated in the same research entitled "*Institutional*

investors and post-ICO performance: an empirical analysis of investor returns in initial coin offerings (ICOs)".

The most represented journal in this research is the Journal of Corporate Finance, with a weight of 45.86%, contributing with 3 articles, 2 from 2020 and 1 from 2021.

Table 2
CITATIONS VOLUME ANALYSIS*

Citations	2019	2020	2021	Total
Journal of Business Venturing	100,00%	20,51%	0,00%	65,00%
Germany	100,00%	0,00%	0,00%	56,11%
Trier University	100,00%	0,00%	0,00%	56,11%
Christian Fisch	100,00%	0,00%	0,00%	56,11%
USA	0,00%	20,51%	0,00%	8,89%
UCLA	0,00%	20,51%	0,00%	8,89%
Paul P. Momtaz	0,00%	20,51%	0,00%	8,89%
Small Business Economics	0,00%	23,08%	0,00%	10,00%
USA	0,00%	23,08%	0,00%	10,00%
UCLA	0,00%	23,08%	0,00%	10,00%
Paul P. Momtaz	0,00%	23,08%	0,00%	10,00%
The Review of Financial Studies	0,00%	42,31%	0,00%	18,33%
USA	0,00%	42,31%	0,00%	18,33%
New York University	0,00%	42,31%	0,00%	18,33%
Sabrina T. Howell	0,00%	42,31%	0,00%	18,33%
Journal of Corporate Finance	0,00%	14,10%	100,00%	6,67%
Germany	0,00%	8,97%	0,00%	3,89%
Trier University	0,00%	8,97%	0,00%	3,89%
Christian Fisch	0,00%	8,97%	0,00%	3,89%
Switzerland	0,00%	5,13%	0,00%	2,22%
University of Zurich	0,00%	5,13%	0,00%	2,22%
Erdinc Akyildirim	0,00%	5,13%	0,00%	2,22%
UK	0,00%	0,00%	100,00%	0,56%
University of Bath	0,00%	0,00%	100,00%	0,56%
Winifred Huang	0,00%	0,00%	100,00%	0,56%
Total	100,00%	100,00%	100,00%	100,00%

* In Citations Volume Analysis, we only considered the articles' first authors.

LITERATURE ANALYSIS

In the literature analysis of our sample, we find two main themes related to corporate finance: the first one is the Information Asymmetry, that combined with the limitation to signaling leads to the second one – Moral Hazard (Momtaz, 2020a).

Signaling theory, developed by Spence (1973), argues that, by sending signals to potential investors, high-quality ventures can attract higher amounts of funding.

"*Information asymmetry occurs when one group of participants has better or more timely information than other groups. A signal is an action taken by the more informed that provides credible information to the less informed*" (Copeland et al., 2014, p. 413). On the other hand, when one group of participants have an incentive to engage in a transaction with dubious behavior at the expense of other groups, is when the moral hazard happens (Hurt, 2005).

In the context of cryptocurrency and initial coin offering, the asymmetry of information and the moral hazard are key challenges (Fisch, 2019; Momtaz, 2020b).

Since our literature research does not reveal a great number of articles, they will all be presented, synthesized, and grouped by their corporate finance theme (information asymmetry or moral hazard).

Asymmetric Information

"*Initial Coin Offerings (ICOs) To Finance New Ventures*" (Fisch, 2019). "*What factors determine the amount of funding raised in ICOs?*" is the question that this paper examines, by exploring the role of signaling ventures' technological capabilities in ICOs and introducing the ICOs to the entrepreneurial finance literature. The author retrieved the data from CoinSchedule, and from a multitude of other ICO-tracking sites, such as www.icodrops.com, www.icobench.com, www.coinmarketcap.com, and www.tokenmarket.net. The author obtained every venture's white paper, from the venture's website or from ICO-tracking pages. Resulting in a final sample of 423 ICOs. The methodological approach used by the author was OLS regressions. The author highlights that some basic mechanisms are unique to the ICOs, while others are the same as the ones found in previous research into entrepreneurial finance. In order to attract higher amounts of funding, the author shows that effective signaling on the technological capability is key. Therefore, the announcement of these capabilities minimizes the information asymmetry in this market. The author also underlines that, in the long term, this positive effect may be countered by negative effects, such as imitation. Lastly, Fisch (2019) alerts to the need of policy makers to address fraudulent ICOs (which occurs when a venture team disappears after raising funds).

"*Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales*" (Howell et al., 2020). This paper examines the successful real outcome of ICOs through issuer and ICO characteristics, by tracking companies' failure rate, their operational progress and employment. The authors create a large, unique dataset of ICOs and their characteristics between the years 2017 and 2019. The characteristics are whether the token has utility value, previous venture capital financing, and founder professional background. The data were hand collected from issuer Web sites and white papers, as well as news articles, ICO aggregator and tracker Web sites. LinkedIn, GitHub, Twitter, and Telegram were also used. The final sample was 1.500 ICOs. The methodological approach used by the authors was OLS regressions. It is highlighted the importance of token liquidity access as it has real consequences for the company, and that utility tokens are better to assure more success and higher levels of future employment. Also, it is evidenced through this study that voluntary disclosure, certification, promotion through social media platforms, bonding and code development on GitHub are variables that predict operational success on future ICOs. The study concludes that new models are needed to highlight the singular potential of ICOs in raising the loyalty of a new class of investors. On other hand, it also points that some success factors of ICOs liken classic corporate finance, such as the importance of alternative ways to reach new investors and the need to reduce information asymmetry.

"*The Impact Of Blockchain Related Name Changes On Corporate Performance*" (Akyildirim *et al.*, 2020). The authors examine the relationship between corporate performance and the decision to change corporate identity through the addition of words such as "*blockchain*" and "*cryptocurrency*" in the corporate name. The authors, in the constructions of their sample, specify that a company must be publicly traded with an available stock ticker between the period January 2014 and July 2019. They also focus on the financial performance and investor perceptions of the name changes via a thorough analysis of share price volatility, the contagion of such volatility throughout related sectors, and the transfer of price discovery, to specifically present

evidence of changing investor behavior. The dataset incorporates 82 total announcements made across 13 countries during the selected period. The methodological approach used by the authors was the estimation of abnormal returns (AR), Cumulative abnormal returns (CARs), EGARCH model to measure the volatility effects of corporate cryptocurrency announcements, DCC-EGARCH to measure potential contagion effects, Vector Error Correction Model (VECM) and OLS regressions. The study reveals that these changes in corporate identity, make these companies more volatile. When a name change occurs, it produces a substantial higher return after the announcement day, while a retroactive name change can harm a company's profitability in the short term. Therefore, the name change with crypto association may lead to information asymmetry masking the transparency of such corporations, meaning that regardless of the company's actual intention to use these technologies, investors react positively.

"*Initial Coin Offerings, Asymmetric Information, And Loyal CEOs*" (Momtaz, 2020b). Momtaz examines a proxy for potential agency costs, the CEO loyalty, which is defined in this paper as the number of previous positions a CEO held divided by his or her cumulative job experience in years. The sample considered by the author consists of cryptocurrency projects that conduct their ICOs between August 2015 and June 2018. The data on the ICO projects came from ICObench.com and were matched with price data from coinmarketcap.com. Some data such as CEO information were not provided and was therefore hand collected from social media profiles and websites projects. The total sample consisted of 2131 ICOs, of which, the data used to construct the measure for CEO loyalty was only available on 1518 ICOs. The methodological approach used by the author was the OLS regressions. The author states that the degree of CEO loyalty influences the ICO underpricing as investors are more inclined to invest with a loyal CEO involved, which also has no need to offer more incentives to investors to partake in the ICO. Regardless of that, a fourth of CEOs opt to not disclose information about their employment history. It can also be found that, compared to all other ICOs, (which have to offer a 9% underpricing), the ICOs with higher CEO loyalty scores, have an underprice only by 3%. Overall, Momtaz concludes that asymmetric information which causes agency conflicts, can be mitigated by loyal CEOs as they value good ties with their investors.

"*Institutional Investors And Post-ICO Performance: An Empirical Analysis Of Investor Returns In Initial Coin Offerings (Icos)" (Fisch & Momtaz, 2020)*. This paper examines, in the context of initial coin offerings (ICOs), the role of institutional investors, by assessing the determinants of post-ICO performance, through the perspective of financial investors. The authors retrieved their core data from ICObench, an ICO database that is commonly used due to its wide coverage. They collected all utility-token ICOs that ended between August 2015 and December 2018. They also collected data on institutional investor backing via a list of institutional investors provided by CryptoFundResearch. From CoinMarketCap they retrieve the post-ICO performance data, which is the most established source for aftermarket data in the ICO context. The authors final sample consists of total 565 firms. The methodological approach used by the authors was the buy-and-hold abnormal returns (BHAR). The findings are that institutional investors have a superior selection effect and treatment effect which allows them to overcome information asymmetries in the ICO market and better extract informational rents. This highlights the fact that these investors can realize above market financial returns in ICOs. The authors point that the findings are puzzling, as blockchain technology aims to be decentralized and avoid financial intermediaries. The fact is that disintermediation can lead to market inefficiencies due to moral hazard and information asymmetries.

"*Confidence And Capital Raising*" (Huang, Vismara And Wei, 2021). The authors conduct an experiment to assess the confidence of the management teams of initial coin offerings (ICOs) through the judging of their pictures, to analyze the capacity of the firms to raise external capital. The data is collected on ICO ventures from the ICO listing website Icobench. The final sample of ICOs used in the experiment consists of 515 ICO campaigns between January 2017 and June 2018. Their experiment had a total of 357 participants from mTurk platform. The methodological approach used by the authors was a survey and OLS regressions to assess whether a significant relationship between perceived confidence and the capacity to raise funds exists. The results indicate that pictures can be relevant in signaling confidence and that confidence and the fundraising amounts are positively associated. The authors point out that the ICOs market contains high level of information asymmetry, meaning that to obtain financing a certain form of information may affect its outcome. It is also shown that to obtain funding, the confidence of the management team has real impact, and that is crucial for companies to use visual information to introduce themselves to the public on digital platforms. In conclusion, to help investors making their investment decisions in markets with high information asymmetries such as the ICOs, pictures can serve as an alternative information channel.

Moral Hazard

"*Entrepreneurial Finance And Moral Hazard: Evidence From Token Offerings*" (Momtaz, 2020a). In this study, Momtaz examines the role of token offerings and the moral hazard that it may induce. To obtain the data to conduct the research, the author used the ICObench and supplemented it with hand collected data from several sources such as Coinmarketcap and Crunchbase, social networks such as LinkedIn and Twitter, Github, and projects websites, obtaining a final sample of 495 ICOs. The methodological approach used by the authors were reciprocal hazard rate models (RHRMs) and OLS regressions. This study highlights how token issuers have only one chance to acquire the desired funding and how easy and unexpensive it is to create and spread signals, which motivates exaggeration, as exaggerated projects attract more funding in lesser time. Thus, creating moral hazard in signaling, which inhibits the efficiency of these markets. It is also pointed that investors are unable to identify these exaggerated signals and moral hazard occurrences.

Overall Synthesis

Through the analysis of this papers, it is possible to identify that in most cases the methodology used was the same, OLS regressions, except in one case. Regarding the time frame of the researched studies, almost half the sample has the same time horizon, between the years 2015 and 2018. The study that covered more years was Akyildirim et al. (2020), from 2014 to 2019. The more common used databases were ICObench and Coinmarketcap. The most representative sample has 2131 ICOs, from Momtaz (2020b). Also, regarding reported methods and data collection tools, 14,29% of the studies were surveys, and 85.71% were quantitative.

The conclusions drawn from the analysis of these papers follow the same flow. They all point that the type of corporate financing associated with cryptocurrency and initial coin offering contains a high level of information asymmetry for potential investors, as well as moral hazard.

The research reviewed identifies that the behavior associated with companies' name changes with crypto association may lead to information asymmetry masking the transparency of such corporations. These changes in corporate identity, make these companies more volatile

because investors react positively to them, even when the companies have no intention to incorporate blockchain technology. In this regard, it is evident that a certain form of information may affect the results of the company in obtaining financing or not.

Some success factors of ICOs reflect classic corporate finance themes on the importance of reducing information asymmetry and developing better ways to reach investors and to communicate new and high technological capabilities, as investors assess this information to invest accordingly. It is also shown that the confidence of the management team has real impact in attracting investment, and that is crucial for companies to use visual information to introduce themselves to the public on digital platforms. Additionally, asymmetric information can be mitigated by loyal CEOs as they value good ties with their investors. And as token issuers have only one chance to acquire the desired funding and knowing how easy and unexpensive it is to create and spread signals, exaggeration is motivated because exaggerated projects attract more funding in lesser time. Thus, creating moral hazard in signaling, which inhibits the efficiency of these markets.

Nevertheless, disintermediation is seen as way for companies to get large amounts of funding without compliance or intermediation costs. It also may induce a higher market inefficiency due to moral hazard and information asymmetries.

In future research areas we can identify the need of regulation of ICOs to reduce the information asymmetry, as well as, moral hazard. Through regulation, the investor is more informed and protected. Since fraudulent ICOs, in which the venture team disappears after raising funds, are a problem that policy makers are concerned, good regulation may also discourage malicious ICO issuers. It is also relevant to understand which are the alternative channels of information that can mitigate the asymmetry of information.

CONCLUSION AND FUTURE VENUES

In this study, we developed a systematic review of the evidence in the research published from 2008 to 2021, on the topic of cryptocurrency in the context of corporate finance. In order to add quality to the research, only articles published in journals with high ranking in the ABS Journals ranking were considered. We offer a bibliometric analysis that points that this research topics are recent and still scarce. The most cited papers address the topic of information asymmetry in ICOs, which seems to reveal the relevancy of the problem. The analyzed studies are mainly based on quantitative approach.

Through this study becomes evident that a higher amount of information asymmetry generally leads to a greater need for signaling, and that the relationships between investor and entrepreneur in ICOs are characterized by a particularly large amount of information asymmetry.

At the moment, there are no regulations on this market as policymakers and regulators still consider it a high-risk investment. The absence of regulation and penalties for false signals incentivizes a moral hazard in the disclosure of information. Thus, it is evidenced the need to confine moral hazard in signaling of token offerings, which may come through the form of a supranational organization, as most token ventures are globally operated through digital platforms across all national borders.

This study's main contribution points out to the fact that in this field of research there are still much to be investigated, there are grey areas that need to be clarified, such as the regulation of the ICOs in the investor protection perspective.

Limitations

This study's conclusion result from an analysis of 7 papers, which poses a possible limitation. Therefore, we acknowledge a possible bias in results due to the high-quality criteria predefined. Nevertheless, an extended analysis can complement and confront our findings in the future.

Future Research

Regarding the papers addressed in our study, we suggest proposals for future research based on the identified limitations. This study opens potential avenues of exploration for behavioral finance, and highlights the need to further investigate the asymmetric information and moral hazard in the cryptocurrencies and ICOs contexts.

Many other questions remain to be answered as Adhami et al. (2018b, p.74) asks:

"What are the benefits and threats of collecting money through cryptocurrency blockchains instead of fiat money? Should investors be better protected against the risk of fraud in both primary and secondary markets? More generally, should ICOs be regulated? Why do online contributors seem eager to provide such a significant amount of funds to ICOs? What are the reasons behind the huge token underpricing experienced to date? Do ICOs have the potential to increase the efficiency of new business financing, or do they just represent a new Ponzi scheme?".

Such future research could contribute to fill in the gap of studies on Cryptocurrencies and ICOs, especially on a post-pandemic scenario, since retail investors have become more active.

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