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Crowd's contagion and decentralised finance funding

Yacine Belghitar[a], Johannes Gartner[b] and Andrea Moro[c]

[a]School of Management, Cranfield University; [b]Delft University of Technology (TU Delft); [c]CIRCLE - Lund University, Lund, Sweden

ABSTRACT

We examine how coverage by mainstream media affects start-ups in raising funds through decentralised finance (DeFi). Building on contagion theory, we propose the concept of *crowd contagion*, arguing that the coverage by a reputable international financial newspaper can rapidly spread interest among investors. Using data from a highly reputable newspaper, we find that such coverage is positively associated with the likelihood that innovative, high-tech start-ups reach their funding goals. We suggest that this happens because the coverage by a reputable international financial newspaper helps raise awareness about a new asset class and builds legitimacy. Our results are robust against reverse causality and omitted variable bias. We discuss implications for research, practitioners and policy making.

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1. Introduction

Information asymmetry presents a significant challenge for investors, particularly in early-stage or high-risk ventures, where reliable information is scarce and difficult to verify (Colombo et al. 2022; Cumming and Johan 2017). In traditional financial markets, intermediaries such as venture capitalists, analysts, and underwriters mitigate these risks by conducting due diligence and providing credible signals of quality (Belghitar and Dixon 2012). In decentralised finance (DeFi), and especially in Initial Coin Offerings (ICOs), such mechanisms are largely absent: underwriters are very uncommon, there are no standardised disclosure practices, and no robust regulatory oversight. Moreover, the technological complexity of blockchain protocols and smart contracts further compounds informational opacity (Benedetti and Kostovetsky 2021; Chen 2019; Moro and Wang 2020). Consequently, in the absence of traditional intermediaries, investors operating in these markets must depend on alternative signals to evaluate project credibility. We claim that coverage by a reputable international financial newspaper can function as a key informal signal by increasing the visibility of emerging investment opportunities and shaping investor perceptions regarding their credibility and relevance (Fang and Peress 2009; Tetlock 2007). Although reputable media may increase the visibility of emerging investment opportunities and shape perceptions regarding their legitimacy, exposure to information alone may not be sufficient to alter investor behaviour. Particularly in uncertain environments such as ICO markets, behavioural responses often require repeated exposure and reinforcement. This raises the question of how media narratives spread among investors and become sufficiently influential to affect participation decisions, a question that contagion theory is well-suited to address.

Traditionally, research on the role of information dissemination has leveraged models of biological contagion and infectious diseases (Granovetter 1985, p. 19, 1985). Nonetheless, the spread of information across social networks presents complexities that far exceed those of viral or bacterial transmissions due to the pivotal role played by the nature of interpersonal connections. Thus, Granovetter (1985) explains that information contagion depends on the strength of the link among people, arguing that weak links play a major role, while Centola (2011; 2018) identifies a critical distinction between mere contagion and the consequent behaviour modification.

CONTACT Johannes Gartner J.Gartner@tudelft.nl

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He explains that new information swiftly influences actions when the effort involved is much reduced, while contagion reinforcement is needed to alter behaviour when the behavioural change implies effort.

Our work, by drawing from sociological insights and the past work by Granovetter and Centola, introduces the new concept of crowd contagion that we define as 'repeated exposure to widely disseminated and credible information that may increase awareness of novel investment opportunities, reinforce perceptions of legitimacy, and eventually influence investor participation.' We argue that crowd contagion may be a factor that influences investors in their decisions to invest in high-risk start-ups and thus in start-ups' ability to secure access to the funds they need. Crowd contagion, shaped by the dissemination by reputable newspapers, can amplify or undermine confidence in investment ventures well across the borders of the country where the start-up is headquartered (Barber and Odean, 2008). This influence may be especially pronounced in contexts of decentralised finance (DeFi), a democratising form of investment that opens a direct relation between the investor and the object of the investment, irrespective of the location of the actors, and offers the possibility for small-scale non-professional investors to invest in small and innovative high-tech start-ups, as in the case of the different forms of crowdfunding (Belleflamme, Lambert, and Schwienbacher, 2014; Civardi, Moro, and Winborg 2024; Cumming and Hornuf 2022; Lukkarinen et al. 2016; Mollick 2014). We examine whether patterns of media coverage consistent with a contagion framework are associated with fundraising outcomes in ICO markets at the time of writing, the most recent form of DeFi for start-ups, and a context where uncertainty and unreliable information are particularly high (Moro, Fink, and Kautonen, 2014; Van Caneghem and Van Campenhout 2012).

In ICOs, investors buy tokens which either grant them a share in the enterprise (security token) or access to specific services offered by the venture (utility token) (Adhami and Giudici 2019; Adhami, Giudici, and Martinazzi 2018; Colombo et al. 2022). ICOs share similarities with Initial Public Offerings (IPOs) as, unlike equity crowdfunding, the tokens from ICOs can be traded on secondary crypto asset markets (Cook, Kieschnick, and Van Ness 2006; Fisch et al. 2021; Kajtazi and Moro 2019). However, ICOs entail greater investment risk compared to IPOs due to inherent uncertainties around the projects, their potential outcomes, and the fundraising mechanisms involved (Benedetti and Kostovetsky 2021; Momtaz 2021; Moro and Wang 2020; Shrestha et al. 2021): unlike IPOs, which are subject to stringent regulatory scrutiny by stock market authorities, ICOs operate under minimal regulatory oversight (Collomb, De Filippi, and Sok 2019), lacking the disclosure level typically facilitated by investment banks' underwriting services (Belghitar and Dixon 2012).

We assert that the relevance of crowd contagion is heightened in the context of DeFi and, more specifically, in ICOs due to the innovative nature, the uncertainty, and the lack of reliable information necessary for investors to assess investment quality (Moro, Fink, and Kautonen 2014; Van Caneghem and Van Campenhout 2012). In this context, the spreading of reputable information may act as a visibility and legitimising signal (Suchman 1995; Suddaby, Bitektine, and Haack 2016). We propose that information disseminated by trusted and reliable newspapers can 'infect' investors (Axelrod 1997; Centola 2008; Centola and Macy 2007; Granovetter 1985, 2005), though, given the high level of uncertainty involved, repeated exposure is needed to influence investment decisions (Centola 2008, 2011, 2018; Centola and Macy 2007). Once the investor has been made aware of the asset class (first exposure), additional exposure to reputable news helps to legitimise (when the sentiment is positive) DeFi investment and reassures potential investors, so that it mitigates the perceived risks associated with it (Frydrych et al. 2014; Granovetter 2017; Kibler et al. 2015). However, we argue that increased news exposure does not yield linear benefits, suggesting a potential negative impact of excessive coverage.

Our analysis relies on an extensive sample of 1,576 ICOs spanning from 2016 to 2021. The data suggest that both the number of articles (a proxy for awareness) and the sentiment embedded in media coverage (a proxy for legitimisation) are positively associated with the likelihood of reaching the soft-cap. Moreover, our findings evidence a non-linear relationship where excessive news exposure can diminish interest by counteracting its legitimising effect. The economic impact is significant: the publication of articles boosts the success probability from 0.4 to as much as 0.9 and up to 0.7 concerning net sentiment. We further examine the impact of accumulated coverage by a reputable international financial newspaper before token sales to understand its long-term effects, finding significant influence on the probability of successfully securing funding. Our results remain robust across alternative specifications and a range of tests designed to mitigate concerns related to reverse causality, simultaneity, and omitted variables.

Our work contributes to the finance and technology literature in several ways. First, to the best of our knowledge, it is among the first studies to examine the role of traditional, reputable financial media in shaping fundraising outcomes in decentralised finance (DeFi). While prior research has predominantly focused on social media and digital communication channels, we investigate whether coverage by a leading international financial newspaper is associated with the success of ICOs. Second, our study contributes to the growing literature on ICOs and DeFi by highlighting the potential importance of ecosystem-level media signals. Unlike project-specific information, the media measures employed in this study capture broader coverage of ICOs as an asset class. This allows us to examine whether media visibility and sentiment surrounding the ICO phenomenon are associated with investor participation in individual token offerings. In doing so, we shift attention from firm-level communication to the broader informational environment within which investment decisions are made. Third, we contribute to the literature on information diffusion and contagion by applying insights from complex contagion theory to entrepreneurial finance. We argue that repeated exposure to credible media narratives may influence investor behaviour by increasing awareness of a novel investment category and reinforcing perceptions of its legitimacy. Consistent with this perspective, we find that both the volume of coverage and its sentiment are associated with ICO fundraising outcomes. Our findings also suggest that these relationships are non-linear, indicating that the effects of media exposure may weaken beyond moderate levels of coverage. Finally, our work contributes to the literature on technological innovation and financial intermediation by highlighting the continuing relevance of traditional financial media in highly digital and globally dispersed markets. Despite the prominence of online communities and social media in DeFi ecosystems, our findings suggest that reputable international financial newspapers may continue to serve as important sources of visibility and interpretive signals for emerging financial innovations. Given the inherently cross-border nature of ICO markets, this role appears particularly relevant in helping diffuse information and shape perceptions across geographically dispersed investor communities.

Our findings also suggest that policymakers across different financial systems should acknowledge the role of financial journalism in bridging information gaps and shaping investor behaviour at an international level. Strengthening disclosure requirements for ICOs and promoting media transparency on a cross-border basis can enhance market stability and investor protection. Additionally, financial literacy initiatives should be adapted to different regional contexts to equip investors with the tools to critically evaluate media narratives and avoid crowd-driven speculation.

This manuscript is structured as follows: Section 2 reviews previous research and introduces our theoretical framework and hypotheses. Section 3 details our data and methodology. Section 4 presents descriptive statistics, followed by results and additional tests in Section 5. Section 6 discusses the implications of our findings, whereas Section 7 provides concluding remarks.

2. Literature review

2.1. Information asymmetry and media signaling

Information asymmetry affects investment decisions, particularly in early-stage or high-risk ventures (Colombo et al. 2022; Cumming and Johan 2017). For traditional start-ups and small businesses, financial intermediaries and investors, such as venture capitalists, business angels, underwriters, etc., exploit due diligence and signalling to reduce it (Belghitar and Dixon 2012), but this is not the case with decentralised finance (DeFi).

In the case of DeFi and in the case of Initial Coin Offerings (ICOs), a form of blockchain-based crowdfunding that allows firms to raise capital directly from investors by issuing cryptographic tokens (Adhami, Giudici, and Martinazzi 2018; Fisch 2019), the absence of such intermediaries creates major issues in investment assessment. Issuers are typically early-stage ventures with unproven business models and minimal operational history (Fisch 2019; Fisch et al. 2021), which issue tokens where the investor either becomes a 'shareholder' (equity token), or gains access to the services provided by the start-up (utility token) or can use the token as a payment tool. Unlike traditional financing, ICOs provide global and rapid access to liquidity (Cong, Li, and Wang 2021). ICO markets, however, are characterised by severe uncertainty and information asymmetry. Projects are typically early-stage, disclosures are voluntary, and regulatory frameworks remain fragmented (Fisch et al. 2021; Philippi, Schuhmacher, and Bastian 2021; Thewissen et al. 2022). Typically, a project team releases a white paper

outlining the business model, technical design, and intended use of funds before selling cryptographic tokens to investors. Unlike conventional equity crowdfunding (Civardi, Moro, and Winborg 2024; Cumming and Hornuf 2022), ICOs offer near-instant global reach and lower entry barriers for investors. In addition, they may offer access to secondary market liquidity (Cong, Li, and Wang 2021), given that tokens are often listed on cryptocurrency exchanges shortly after issuance, enabling immediate trading and introducing speculative incentives that can stimulate investor participation (Adhami and Guegan 2020; Hu, Parlour, and Rajan 2019; Kajtazi and Moro 2019). This liquidity distinguishes ICOs from traditional private equity and venture capital funding, where capital is typically locked in for extended periods, as well as traditional equity crowdfunding.

Empirical research has begun to identify key factors influencing ICO success, looking at which signals are used by investors to make investment decisions. Project-level characteristics, such as the quality of the white paper, the existence of a prototype or working product, the credibility of the founding team, and transparent token allocation mechanisms, are positively associated with fundraising outcomes (Adhami and Giudici 2019; Colombo et al. 2022; Fisch 2019; Gartner and Moro 2024a, 2024b; Howell, Niessner, and Yermack 2020). External endorsements, including backing by prominent advisors or previous venture capital support, also function as legitimacy signals in an otherwise opaque environment (Fisch and Momtaz 2020). Moreover, the timing of the ICO and prevailing market sentiment, often shaped by broader trends in the crypto ecosystem, can significantly impact capital raised (Bellavitis, Fisch, and Wiklund 2021; Moro, Radić, and Truong 2024). Nevertheless, investors in ICOs face a pronounced information deficit, which may make them heavily reliant on ecosystem-level signals, particularly from mainstream financial media and other high-credibility sources (Engelberg and Parsons 2011; Fisch et al. 2021).

Media may cover ICOs as an asset class or individual ICO projects. However, before evaluating the merits of a specific ICO, potential investors must form beliefs about whether ICOs constitute a legitimate and attractive investment category. Consequently, broad media narratives about ICOs may influence participation decisions by shaping perceptions of the asset class itself, independently of project-specific information. We focus on general media coverage, viewing it as an ecosystem-level signal that may influence investor awareness and legitimisation of ICOs as a financing and investment mechanism. More specifically, media coverage disseminated by reputable outlets may influence investor behaviour through two complementary mechanisms. First, by providing information about a novel asset class and explaining its characteristics, media coverage can increase investor awareness of ICOs and bring them into investors' consideration sets. In markets characterised by limited disclosure and high uncertainty, simply becoming aware of an investment opportunity is an important prerequisite for participation. Second, media coverage may shape how investors interpret and evaluate that opportunity. Beyond transmitting information, news reports provide interpretive cues that influence perceptions of credibility, appropriateness, and risk. In this sense, media may contribute to the legitimisation of a new asset class (Fang and Peress 2009; Suddaby and Greenwood 2005; Tetlock 2007) by shaping investor perceptions (Barber and Odean 2008; Bhattacharjee and Singh 2017; Dougal et al. 2012; Frydrych et al. 2014). Positive coverage may strengthen confidence in ICOs and reinforce their perceived credibility, whereas negative coverage may heighten concerns regarding opacity, risk, or speculative behaviour, thereby discouraging participation.

Consequently, coverage by a reputable international financial newspaper (Suchman 1995) may influence investment decisions not only by increasing the visibility of ICOs but also by shaping the way investors assess their attractiveness and legitimacy. In retail-driven environments such as DeFi, credible media can therefore function as an informal governance mechanism and complement traditional information channels by providing both visibility and interpretive signals about firms and markets (Peress 2014).

2.2. Media and behavioural perspectives

Behavioural finance suggests that investors are not fully rational but rely on heuristics, emotions, and cognitive shortcuts, particularly under conditions of uncertainty. The decision to invest first requires awareness of an opportunity; however, subsequent investment choices are also influenced by how that opportunity is framed and interpreted. In this regard, the sentiment embedded in media coverage may affect investor mood, beliefs, and risk perceptions (Baker and Wurgler 2007; Tetlock 2007).

Prospect theory (Kahneman, Slovic, and Tversky 1982) suggests that investors weigh losses more heavily than equivalent gains, implying that negative information may exert a disproportionate influence on decision-making. Accordingly, the tone of media coverage can shape perceptions of the risk-return trade-off associated with ICOs. Statman (2019) and regulatory focus theory (Higgins 2000; Higgins and Pinelli 2020) further suggest that investors differ in how they respond to positive and negative framing, leading to heterogeneous reactions to media sentiment.

Past empirical research supports the argument showing the role of media in shaping financial market outcomes. Tetlock (2007) finds that pessimistic language in the news is associated with downward pressure on stock prices. Similarly, Dougal et al. (2012) show that journalist coverage influences trading behaviour and returns, while Engelberg and Parsons (2011) provide evidence that local coverage by a reputable international financial newspaper affects trading volume. These findings highlight the role of media in shaping investor attention and interpretation, particularly among retail investors.

Overall, coverage by a reputable international financial newspaper is not only a source of information but also a broader interpretive signal that shapes investor behaviour under uncertainty. But how does the exposure to news and its sentiment affect the investment decision?

2.3. Information diffusion and crowd dynamics

Information diffusion in social systems has frequently been conceptualised as a contagion process (Granovetter 1985, 2005). Whereas biological contagion implies that a single exposure may be sufficient to generate transmission, behavioural contagion often requires reinforcement from multiple exposures and sources. Centola (2008, 2011, 2018) refers to this phenomenon as complex contagion, arguing that behavioural adoption under uncertainty is more likely when individuals are repeatedly exposed to similar messages.

This perspective is particularly relevant in the context of ICOs. Investing in a novel and weakly regulated asset class involves high uncertainty and risk. Consequently, investors may not alter their behaviour after a single exposure to information. Instead, repeated exposure to credible narratives may gradually shape perceptions and increase willingness to participate (or reinforce the decision not to invest when the news is not positive/convincing). Social learning and herding theories (Banerjee 1992; Bikhchandani and Sharma 2001; Ellison and Fudenberg 1993) similarly suggest that individuals may update beliefs based on observed signals and external cues.

Drawing on complex contagion theory, we argue that repeated exposure to media narratives provides a plausible mechanism through which media coverage may influence investor perceptions and behaviour. First, repeated exposure to media narratives (complex contagion in terms of 'quantity of exposure') may increase familiarity with ICOs, making the investor 'aware' of the asset class. Second, repeated exposure to the net sentiment of the news (complex contagion in terms of 'quality of the exposure') strengthens perceptions about whether ICOs represent a legitimate investment opportunity. In this sense, contagion does not refer to the direct transmission of investment behaviour, but to the diffusion and reinforcement of beliefs and perceptions that influence investor decisions.

Because awareness and legitimacy are difficult to observe directly in archival data, we rely on observable characteristics of coverage by a reputable international financial newspaper as proxies for these underlying constructs. Specifically, we interpret the volume of coverage by a reputable international financial newspaper (quantity of exposure) as a proxy for investor awareness and media sentiment (quality of exposure) as a proxy for legitimisation. Under a contagion perspective, repeated exposure to coverage by a reputable international financial newspaper increases the likelihood that these perceptions become sufficiently reinforced to influence investment behaviour. In this context, repeated exposure to media narratives may act as a reinforcing informational environment that increases familiarity and confidence towards ICOs. Thus, we consider complex contagion as the interpretive background for understanding how repeated exposure may matter in uncertain markets.

2.4. Determinants of ICO success and hypotheses development

Coverage by a reputable international financial newspaper may influence ICO outcomes through complementary interpretations of awareness and legitimisation. Although these constructs are conceptually distinct in the literature, they are closely intertwined in practice and are not separately identified in this study.

The availability of reliable, general information, such as coverage in prominent business journals, can play a crucial role in shaping investor perceptions and influencing a firm's ability to raise capital. For such news to meaningfully affect investor behaviour, however, reinforcement through multiple exposures is essential (Centola 2018; Centola and Macy 2007). Initial coverage helps raise awareness of ICOs as a potential investment, but because awareness cannot be directly observed in our setting, we use the number of articles published about ICOs as a proxy for awareness. In addition, subsequent, consistent reporting may serve to validate and legitimise the ICO. When the coverage by a reputable international financial newspaper conveys a positive sentiment, it may boost the perceived credibility of the ICO and encourage investment (Suddaby and Greenwood 2005; Suddaby, Bitektine, and Haack 2016), but because legitimisation cannot be directly observed in our setting, we use the net sentiment of articles published about ICOs as a proxy for legitimisation. These processes are conceptually related and may jointly shape investor participation in uncertain investment environments. Thus, we hypothesise:

H1a: There is a positive relationship between the number of articles published about ICOs during the ICO period in a reliable business newspaper and the probability of ICOs reaching the soft-cap.

H1b: There is a positive relationship between the sentiment of articles published about ICOs during the ICO period in a reliable business newspaper and the probability of ICOs reaching the soft-cap.

The influence of news on investors' decisions does not depend only on the exposure to the news during the ICO sale. Indeed, investors rely not only on the general information available during the ICO but also on relevant news disseminated before the specific token sale. Indeed, consistent messaging validates or discredits information over time, reinforcing investor beliefs (Jennings et al. 2013; Suddaby, Bitektine, and Haack 2016). Therefore, an investor's likelihood of committing funds and the consequent firm's ability to achieve its soft-cap may also depend on the cumulative stock of previously circulated news and its associated sentiment. Consequently, we present the following hypotheses:

H2a: There is a positive relationship between the cumulative number of articles published about ICOs in a reliable business newspaper and the probability of ICOs reaching the soft-cap.

H2b: There is a positive relationship between the cumulative sentiment of articles published about ICOs in a reliable business newspaper and the probability of ICOs reaching the soft-cap.

The preceding arguments underscore the importance of reinforcement from both the volume of media coverage and the intensity of positive sentiment regarding ICOs. However, excessive information can lead to a fatigue effect, discouraging action among investors (Moro, Radić, and Truong 2024), also because it can suggest hidden misbehaviour such as Ponzi schemes or pump and dump strategies that aim at fooling the investor. When coverage becomes overwhelming, investors may feel pressured or grow sceptical, particularly if the news promotes a single, overly positive narrative (e.g. portraying ICOs exclusively as high-return opportunities). As a result, the relationship between high-quality news and investor behaviour is likely non-monotonic: while moderate reinforcement increases investor interest, its effect may diminish, and even reverse, at higher levels of exposure. This suggests that sustained engagement depends on striking an optimal balance in both the quantity and sentiment of media coverage to avoid backlash and support positive perceptions of ICOs. Thus, we hypothesise:

H3a: There is a non-monotonic (inverted U-shaped) relationship between the number of articles published about ICOs in a reliable business newspaper and the probability of an ICO reaching the soft-cap.

H3b: There is a non-monotonic (inverted U-shaped) relationship between the sentiment of articles published about ICOs in a reliable business newspaper and the probability of an ICO reaching the soft-cap.

The framework we proposed is represented in Figure 1

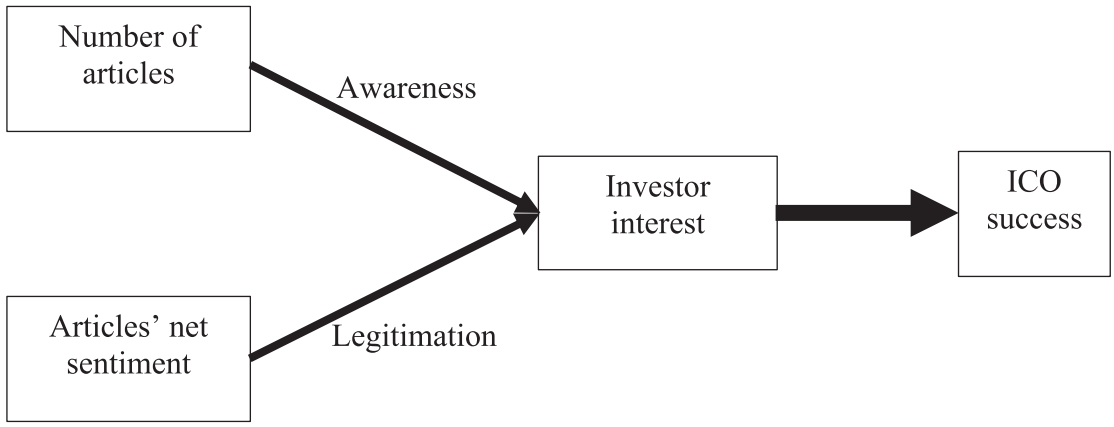


Figure 1. Dependent variable: dummy success in securing funds.

3. Data and methodology

3.1. Data

Our research relies on a near-census dataset of Initial Coin Offerings (ICOs) assembled through a systematic data collection process. Because ICOs leave extensive digital traces regardless of their success or subsequent survival, it is possible to construct a dataset that captures a substantial share of the population of ICOs launched during the period under investigation. The data collection process was designed to minimise selection bias by including both successful and unsuccessful projects.

Following a systematic identification procedure, we collected information from multiple online sources, including ICO databases, rating platforms, industry websites, web archives, and social media records. This process resulted in a comprehensive dataset covering ICO characteristics, fundraising outcomes, team attributes, social media activity, and other project-level information. Additional details regarding the data collection procedure and source selection are reported in Appendix A.

To measure media attention, we collected all articles related to ICOs published in the Financial Times between 2017 and 2021. The Financial Times was selected because it represents a highly reputable international financial news source with a broad global readership and consistent editorial standards. Given the international nature of ICO markets, the newspaper provides an appropriate representation of reliable financial media coverage directed at a geographically dispersed investor audience. All articles were manually verified to ensure that references to 'ICO' corresponded to Initial Coin Offerings rather than other uses of the acronym. We subsequently constructed measures of media visibility based on article volume and measures of media sentiment using text-analysis techniques. A detailed description of the media data collection and sentiment analysis procedures is provided in Appendix A.

3.2. Methodology

Given that our dependent variable is a dummy (reaching soft-cap), we estimate our regressions using probit regression with robust standard errors to deal with potential heteroskedasticity issues. We estimate the model by including the number of articles and the net sentiment separately to avoid collinearity issues arising from the correlation between the two independent variables. To explore non-monotonicity, we estimate the model by also including the square values of our independent variables. Moreover, we investigate the economic impact of the relationships by estimating the marginal effects and producing plots for the entire spectrum of the values of the independent variables.

Our specifications may suffer from endogeneity in the form of reverse causality or simultaneity (the amount of news and its sentiment can be the result of how successful securing funds is, since the popularity of a financing

tool can attract interest from the media, affecting both the number of articles and their sentiment). To address these issues, we re-estimate the specifications by using the lagged number of articles and lagged news sentiment. Moreover, we cannot rule out that our model suffers from endogeneity because we are omitting a variable that affects both news (the number of articles and their sentiment) and reaching the soft cap, so that the relationship shown by our original specifications is, in fact, spurious. To deal with such an issue, we re-estimated our model by instrumenting the independent variables with Google searches on a general topic not related to the ICO realm following Moro, Radić, and Truong (2024). We posit that a general topic can distract newspaper interest in covering ICOs, so that there is a negative relationship between our instrument and the independent variables. We use Google searches on Brexit. We argue that this variable is plausibly unrelated to ICO fundraising outcomes except through its influence on media attention, making it a potentially valid instrument. This point is also supported by the additional endogeneity test we perform (detailed information later).

3.3. Dependent variables, independent variables, and controls

The analysis focuses on whether the venture can reach its soft-cap or not. Thus, we use a dummy for the dependent variable with a value of 1 in case the soft-cap is reached and 0 otherwise.

Our independent variables (number of articles and net sentiment) are built using the Financial Times. The Financial Times is selected because it represents one of the world's most influential and reputable financial newspapers, combining high editorial standards with extensive international reach. This choice is particularly appropriate in the context of ICOs, where both issuers and investors frequently operate across national boundaries, and English serves as the dominant language of communication. Unlike nationally oriented newspapers, the Financial Times targets a global readership of investors, financial professionals, policymakers, and business leaders, making it well-suited to capture information disseminated to the international audience participating in ICO markets. Moreover, the Financial Times is not only a source of financial news but also provides extensive analytical coverage and in-depth commentary on emerging financial and technological developments. This feature is especially relevant for ICOs, which are characterised by high uncertainty, technological complexity, and limited availability of standardised information. While other prominent financial newspapers, such as the Wall Street Journal, devote substantial attention to reporting financial events, the Financial Times is particularly recognised for its detailed analysis and interpretation of market developments. Consequently, coverage in the Financial Times may provide not only visibility but also evaluative and interpretive signals regarding the ICO phenomenon.

We include a set of controls, both venture-specific and context-specific. Among the venture-specific controls, we used dummies that identify the industry in which the ICO operates (Crypto, Fintech, Consulting, Entertaining, Health, and Social), whether the venture implements a KYC (know your customer) or an MVP (minimal viable product), restrictions on its ICO sales, offers of bonuses, and whether it maintains a whitelist. All these variables signal quality and, thus, are expected to impact the amount raised. We also include the type of currency accepted since greater flexibility in accepting currencies may make the investment simpler and, thus, may result in a greater probability of reaching the soft-cap. To account for contextual factors, we include dummies for the area where the ICO is incorporated (split between EU, Europe non-EU, North America, Central America and the Caribbean, South America, Pacific Basin, and Asia– Africa). We also include information about ICOs' social media community (Twitter and Telegram followers) as we measure the intensity of visits to ICOs' websites. Finally, we include information about the leading team (e.g., experience and competencies of the CEO, CTO, and CFO).

4. Descriptive statistics

Table 1 reports the descriptive statistics of the dataset used (overall 1,576 ICOs).

Around 40% of the firms in the sample reach the soft cap and, thus, are considered successful in raising the funds needed. The split at the geographical level suggests a larger number of firms from the European Union (22%) followed by non-European Union firms (15%). This group includes token sales associated with firms registered in the UK and the countries of the European Economic Area not belonging to the EU. The area with

Table 1. Descriptive statistics.

Variable	Obs.	Mean	Std. Dev	Min	Max
Dummy success	1,576	0.3975	0.4895	0	1
European Union	1,576	0.2213	0.4152	0	1
Non-European Union	1,576	0.1515	0.3586	0	1
North America	1,576	0.1060	0.3079	0	1
Central America and Caribbean	1,576	0.0532	0.2245	0	1
South America	1,576	0.0111	0.1047	0	1
Pacific Basin	1,576	0.0369	0.1887	0	1
Asia	1,576	0.0480	0.2139	0	1
Bitcoin	1,576	0.3687	0.4825	0	1
Fiat money	1,576	0.1533	0.3603	0	1
ICO with Whitelist	1,576	0.2933	0.4554	0	1
Restriction in ICO sale	1,576	0.4392	0.4964	0	1
ICO is implementing Know Your Customer	1,576	0.4762	0.4995	0	1
ICO is implementing a Minimum Viable Product	1,576	0.2390	0.4266	0	1
ICO offering bonus	1,576	0.3816	0.4859	0	1
Natural Log of ICO Hits on Name	1,576	7.2175	3.4151	0	18.6438
Natural Log of ICO Hits on URL	1,576	5.9409	3.0258	0	21.0308
Natural Log of ICO Telegram followers	1,576	6.9709	2.0485	1.0986	11.5129
Natural Log of ICO Twitter followers	1,576	1.1914	0.9566	0.0020	5.6337
CEO management skills (log)	1,576	1.3424	1.8138	0	6.3279
CEO's entrepreneurial skills (log)	1,576	0.5333	1.3229	0	5.2933
CFO management skills (log)	1,576	0.2545	0.9027	0	5.6021
CFO Finance skills (log)	1,576	0.1908	0.8186	0	5.6904
CTO management skills (log)	1,576	0.6227	1.3160	0	6.1527
CTO technology skills (log)	1,576	1.1247	1.7542	0	6.2066
Number of members of the team	1,576	10.3746	5.8492	1	20
CEO experience	1,576	1199.0040	1412.0530	0	16102
CTO experience	1,576	672.8829	1203.9240	0	15553
CFO experience	1,576	268.9642	896.6983	0	14064
Number of FT articles on ICOs	1,576	19.0196	17.5410	0	125
Net FT articles sentiment – lag 0	1,576	80.9501	68.8916	−4	414

the smallest proportion of firms is the Pacific Basin (3.4%). Around 37% of the firms offer the possibility to pay with cryptos, and 15% of the firms limit the payment to fiat money (typically USD, GBP, and to a minor extent GBP). A good number of firms implement KYC or are subject to some regional restrictions on the sale of the token (47% and 43%). Firms also tend to interact with the community of people interested in the project they pursue via Telegram and Twitter (up to almost 100,000 Telegram followers), and all of them have a website that is quite intensively visited (on average 1,400 visits). The average dimension of the team is 10 people, and the CEO appears to be the person with the longest average experience in such a leading role (an average of 1,200 days).

We do not report the correlation table because of space. However, the Pearson correlation coefficient of Financial Times articles with the dummy success is 0.196 and is significant. In the case of net sentiment, the coefficient is slightly lower (0.142) and is also highly significant. Other variables that are highly correlated to the dummy success are those related to social media (e.g., Telegram is 0.224, Twitter is 0.246), searches using firms' names (0.249), and team size (0.215). All the other covariates have correlations below those of the two independent variables, suggesting a first support for our hypothesis: the correlation between the dependent variable and our two independent variables is quite high and significant, particularly when compared to other variables included in the analysis. By inspecting the Pearson correlation coefficient among the covariates, there are high correlations among variables that identify the geographic area and among those that look at some characteristics of the ICO (e.g., between Geographic restriction and the implementation of white papers). These correlations suggest that it is important to check for possible collinearity issues even if they are related to additional controls. Since the analysis and the regression are estimated on a smaller dataset, we check whether there is any issue related to the selection bias by comparing the probability of success as well as the team size and the amount obtained from the cases included in the regressions and those that have been excluded because of missing observations in other variables included in the regressions. The two samples are not statistically different.

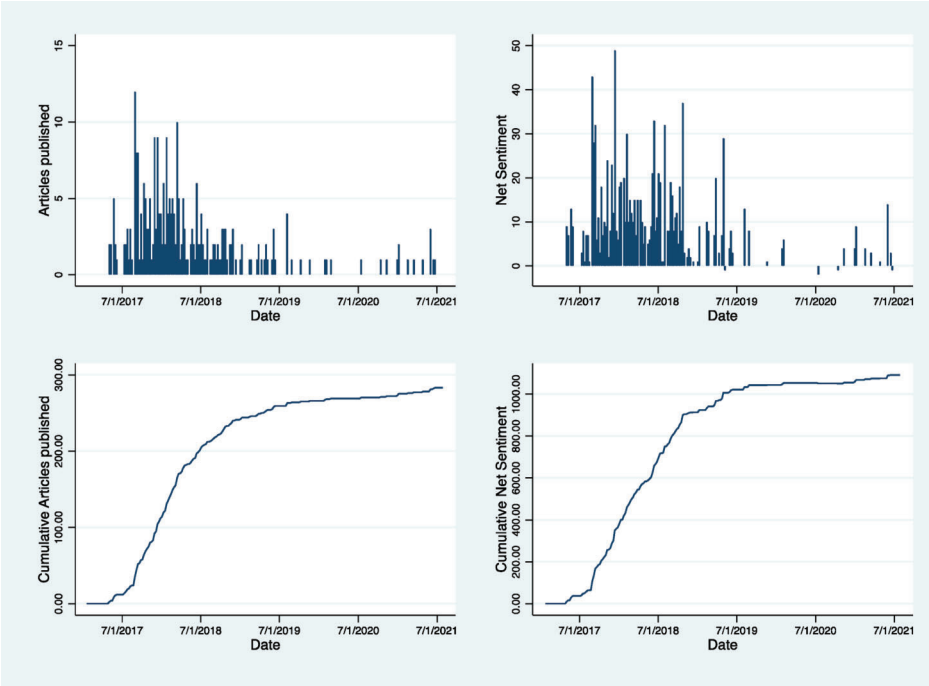


Figure 2. Number of articles and Net sentiment through time.

Figure 1 reports the number of articles and the net sentiment through time by date and the cumulated values.

The graphs show a similar pattern between the number of articles and net sentiment. More interestingly, they show a first period until mid-2019 when there is quite an intense conversation about ICO, followed by a second period when the discussion reduces. There may be a possible alternative explanation for the evolution. It can be argued that in late 2019 and particularly the beginning of 2020, COVID-19 became a wildly discussed topic that, in some way, constrained the conversation on ICOs. It could also be that after an initial period, the Financial Times' interest in this new asset class decreased. However, any reason for the decrease in the intensity of the conversation on ICOs in The Financial Times is beyond the scope of the present research and does not affect the results obtained Figure 2).

5. Results

The results are reported in different tables. Table 2 reports the regression, including the controls only. Then, from Table 3 onwards, we present the regressions on the independent variables. For the reason of space, we do not report the controls that are, nevertheless, included in the estimation process. The inclusion of the independent variables does not generate any major change in the significance level of the controls.

The regression based on 1,576 observations is highly significant ($P < 0.000$) with a pseudo-R^2 of 0.121. It suggests that geographic location does not have a major role in securing success in obtaining funds. Only non-EU and North American variables are marginally significant. The possibility of paying using fiat money reduces the probability of being successful as well as the implicit constraints linked to implementing a whitelist (that implies extra activities/disclosure of more sensitive information for the investors) or the KYC (that entails extra work for the firm but also additional requests for information to the investor). At the same time, offering a bonus increases the possibility of securing funds. More interesting is the role of social media variables: the navigating activity on the firm's website, as well as the dimension of the community of Telegram and Twitter (now X) followers, increases the probability of securing funds. The characteristics of the leading team (skills and experience) do not have any effect on securing funds.

Table 2. Controls. Dependent variable: Dummy Success in securing funds.

	VARIABLES	1 Controls
Geographic Region	European Union	0.0037
		(0.092)
	Non-European Union	−0.1780*
		(0.103)
	North America	−0.2243*
		(0.123)
	Central America and Caribbean	−0.2029
		(0.144)
	South America	−0.1847
		(0.346)
	Pacific Basin	−0.2114
		(0.181)
	Asia	0.0681
		(0.155)
Currency	Bitcoin accepted	0.1166
		(0.075)
	ICO is offering payment in fiat money	−0.1967**
		(0.096)
Firm	ICO with Whitelist	−0.1848**
		(0.080)
	Restriction in ICO sale	0.0560
		(0.089)
	ICO implementing Know Your Customer	−0.2191**
		(0.099)
	ICO implementing Minimum Viable Product	0.0694
		(0.078)
	ICO offering bonus	0.3371***
		(0.070)
Social Media	Natural Log of ICO Hits on Name	0.0117
		(0.010)
	Natural Log of ICO Hits on URL	0.0863***
		(0.012)
	Natural Log of ICO Telegram followers	0.0658***
		(0.020)
	Natural Log of ICO Twitter followers	0.1757***
		(0.042)
Team Skills	CEO management skills (log)	−0.0231
		(0.020)
	CEO entrepreneurial skills (log)	−0.0303
		(0.028)
	CFO management skills (log)	0.0183
		(0.045)
	CFO Finance skills (log)	0.0474
		(0.050)
	CTO management skills (log)	−0.0041
		(0.029)
	CTO technology skills (log)	0.0025
		(0.022)
	Number of members of the team	0.0364***
		(0.007)
Team Experience	CEO experience	0.0000
		(0.000)
	CTO experience	−0.0000
		(0.000)
	CFO experience	−0.0001*
		(0.000)
	Constant	−1.6774***
		(0.177)
	Observations	1,576

(*continued*).

Table 2. Continued.

VARIABLES	1 Controls
P	0.0000
r2_*p*	0.121
N	1576

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Robust standard errors in parentheses. Controls: Geographic location (whether the firm is headquartered in the EU, Europe non-EU, North America, Central America, South America, Pacific Basin, or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP, if the firm offers a bonus); Social media visibility (website hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of members of the team), experience (CEO, CTO, and CFO experience in days).

Table 3. Basic regression: dependent variable: dummy success in securing funds.

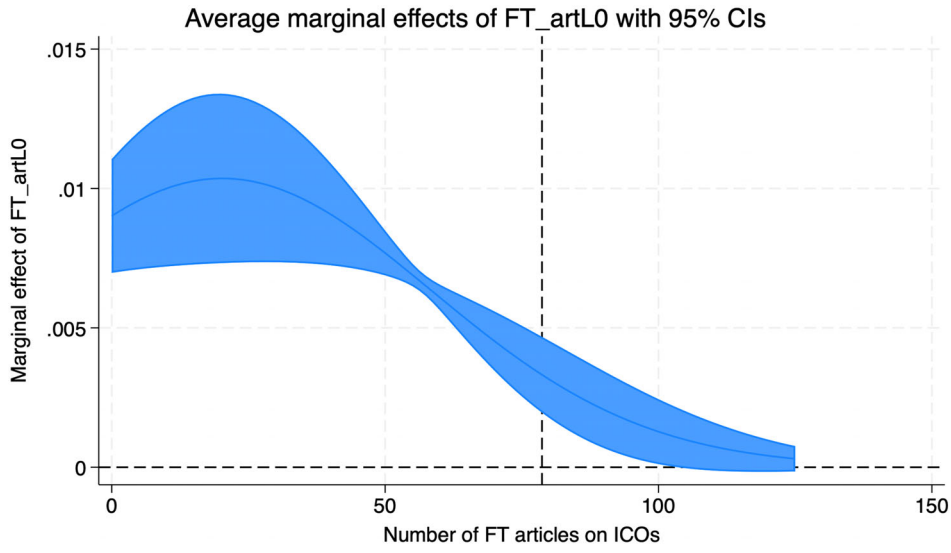
VARIABLES	1 FT articles	2 Net sentiment	3 Non-linearity of FT articles	4 Non-linearity Sentiment
Number of FT articles on ICOs	0.0170***		0.0305***	
	(0.002)		(0.005)	
Net FT articles' sentiment		0.0026***		0.0063***
		(0.001)		(0.001)
Square of the FT articles on ICOs			−0.0002***	
			(0.000)	
Square of the Net Sentiment				−0.0000***
				(0.000)
Constant	−2.0879***	−1.9106***	−2.2306***	−2.0629***
	(0.189)	(0.184)	(0.195)	(0.192)
Geographic Region	Yes	Yes	Yes	Yes
Currency	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes
Social Media	Yes	Yes	Yes	Yes
Team Skills	Yes	Yes	Yes	Yes
Team Experience	Yes	Yes	Yes	Yes
Observations	1,576	1,576	1,576	1,576
P	0.0000	0.0000	0.0000	0.0000
r2_p	0.149	0.133	0.154	0.137
N	1576	1576	1576	1576

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

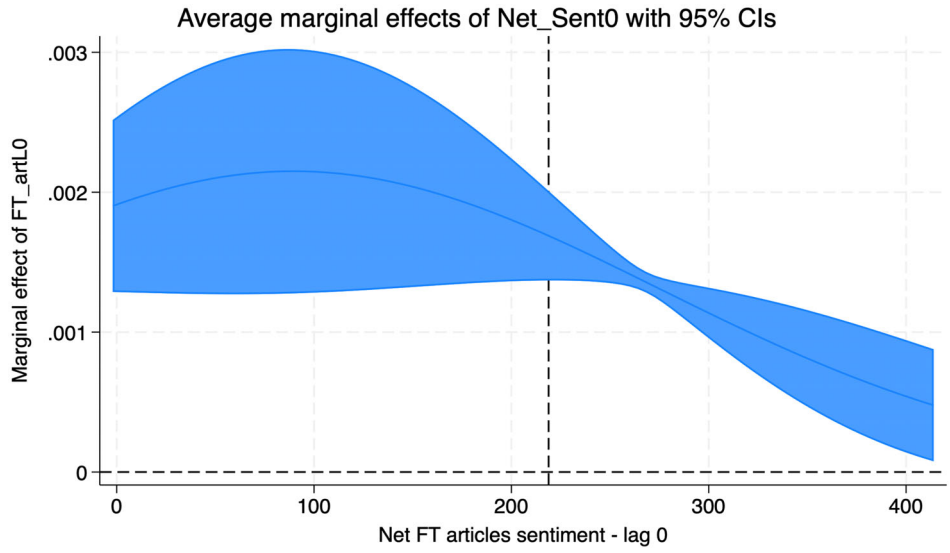
Robust standard errors in parentheses. Controls: Geographic location (whether the firm is headquartered in the EU, Europe non-EU, North America, Central America, South America, Pacific Basin, or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP, if the firm offers a bonus); Social media visibility (website hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: number of articles on FT, the net sentiment of articles on FT, the square of the number of articles on FT, the square of the net sentiment of articles on FT.

Table 3 reports the regression, including the independent variables.

The regressions do not suffer from collinearity (VIF values well below the thresholds), and the inclusion of the dependent variables improves the model's McFadden's R^2 from 0.121 to –0.149 (in the case of Financial Times number of articles) and 0.133 (in the case of net sentiment). More importantly, in line with the first evidence we obtained by looking at the correlation coefficients, both the number of articles and the sentiment are positively and significantly related to the success in securing funds (columns 1 and 2): the reliable and general information spread by Financial Times positively influences investment decisions of investors so that, in turn, firms are more likely to successfully close the sale of their tokens.



(a)



(b)

Figure 3. A. Turning points number of articles. B. Turning points sentiment.

An excess of information may negatively impact individuals. To test for the non-monotonicity of the relationship between the independent variables and the success, we retest the model by including the square of the original variable. In both regressions (3 and 4), the original variables are significant and positive, while their squares are significant but negatively related to success in securing funds. This suggests contagion has an inverted U shape: news increases the probability of success by influencing the investors, but too intense conversations (too many articles or too high positive sentiment) have a negative effect, decreasing the interest and adversely affecting the probability of success.

Because the interpretation of non-linear effects depends critically on the location of the turning point, we calculate the values implied by the estimated quadratic specifications and present them graphically in Figure 3A

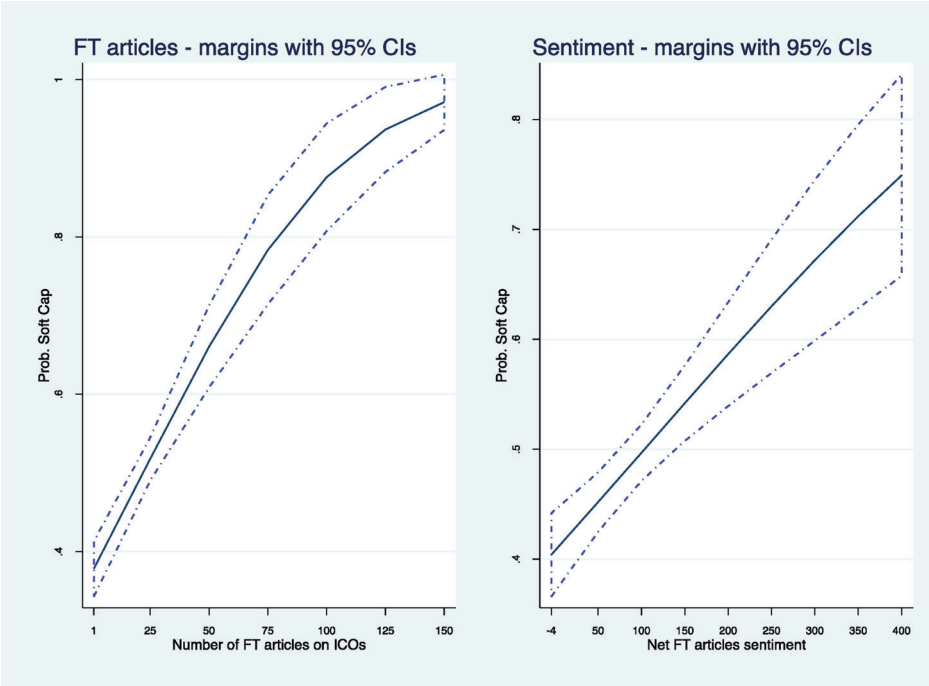


Figure 4. Marginal effects for number of articles and net sentiment.

and 3B. The estimated turning points fall within the observed support of the data, indicating that the estimated inverted U-shaped relationships are not driven by extrapolation beyond the sample range. The figures also report confidence intervals around the predicted probabilities, allowing an assessment of the uncertainty surrounding the estimated turning points.

The discussed results focus on the significance of the relationship. However, it is interesting to explore the economic effect of the independent variables on securing funds and their evolution. Thus, we estimate the marginal effects of different levels of the independent variable on the probability of success. Figure 4 reports the evolution of marginal effects on the probability of success in securing funds for different levels of the number of articles and net sentiment through the entire spectrum of the values (i.e. from the lowest to the highest value of the spectrum).

In the case of the number of articles, the probability of success moves from 0.377 for those firms that enjoy the cover of only one article during the sale of the token to 0.971 for those with a cover of 150 articles during the token sale. Interestingly, the probability increases as the number of articles increases, but it happens with a decreasing effect for a larger number of articles (supporting a non-monotonic economic effect of the crowd contagion). In the case of the net sentiment, the range goes from 0.403 (firms with a net sentiment of −4) to 0.749 (firms with a net sentiment of 400). The economic impact of the increase in the net sentiment has a more linear relationship with the probability of the firm securing funds. All in all, the evidence suggests that the economic effect of contagion is slightly different when it comes to the number of articles and their sentiment.

So far, we have looked at the Financial Times' number of published articles/net sentiment during the period of the token sale without considering what happened before. As discussed above, the intensity of the news before the token sale period can facilitate the role of the news during the sale: following the logic of the crowd contagion, if a subject has already been exposed to the topic, additional information is more likely to influence their behaviour. To explore this aspect, we estimate our original regressions by looking at three subsamples according to the quartiles so that each subsample includes only those token sales that had a cumulated number of article/net sentiment up to the upper limit of the quartile. The results are reported in Table 4.

Table 4. Regressions by Quartile.

VARIABLES	1 First Quartile – Articles	2 Second Quartile – articles	3 Third Quartile – articles	4 First Quartile – the net sentiment	5 Second Quartile – the net sentiment	6 Third Quartile – the net sentiment
Number of FT articles on ICOs	0.0015	0.0130***	0.0146***			
	(0.004)	(0.003)	(0.003)			
Net FT articles sentiment – lag 0				0.0012	0.0025***	0.0019***
				(0.001)	(0.001)	(0.001)
Constant	−1.9211***	−2.0458***	−2.0244***	−1.8356***	−1.9049***	−1.8201***
	(0.458)	(0.272)	(0.217)	(0.359)	(0.264)	(0.212)
Geographic Region	Yes	Yes	Yes	Yes	Yes	Yes
Currency	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes	Yes	Yes
Social Media	Yes	Yes	Yes	Yes	Yes	Yes
Team Skills	Yes	Yes	Yes	Yes	Yes	Yes
Team Experience	Yes	Yes	Yes	Yes	Yes	Yes
Observations	323	767	1,196	458	767	1,196
p	$1.19e-10$	0.0000	0.0000	0.0000	0.0000	0.0000
r2_p	0.305	0.187	0.157	0.265	0.175	0.141
N	323	767	1196	458	767	1196

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Robust standard errors in parentheses. Dependent variable: Dummy Success in securing funds. Controls: Geographic location (whether the firm is headquartered in EU, Europe non-EU, North America, Central America, South America, Pacific Basin or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP if the firm offers a bonus); Social media visibility (websites hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of the members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: number of articles on FT, and the net sentiment of articles on FT.

In the case of regression, including token sales with little exposure before the sale (i.e., including only the first quartile), both the number of Financial Times articles and their net sentiment are not significant. They turn out to be significant in those regressions that include token sales with greater exposure. The result suggests the importance of previous contagion in influencing investor decisions to invest, and thus the ability of the firm to reach the soft-cap; to be effective, the contagion during the token sale also builds on a previous contagion, so that the articles/sentiment can affect investors' behaviour by reinforcing messages that are already available to the potential buyer.

The ICO phenomenon faced a first stage of increasing token offers (till mid-2019) that implied increasing competition among firms to secure the support of investors, followed by a period of decreasing token offers. It can be interesting to explore whether the role of news contagion changed according to the competition that tokens' sales faced: maybe news and their sentiment could have had a more relevant role during a period of harsher competition. To explore this aspect, we split our dataset into two subsamples according to whether the token sales were in a growing sale period or a decreasing sale period. The results are reported in Table 5.

Interestingly, the regressions show no difference in the role of news/sentiment according to different time windows. In both periods, the contagion linked to the number of articles and their net sentiment is positive and significant. This is also supported by the analysis of the marginal effects of the two periods (Figure 5).

However, in the case of the number of articles, only for a very low number of published articles during the token sale, their role is significantly greater during the period with a growing number of token sales. In other words, coverage by a reputable international financial newspaper is more important during increasing competition than when competition is decreasing. The same pattern can be spotted in the case of net sentiment, but in this instance, the different marginal effects are greater. The impact of sentiment was significantly larger during the period of an increasing number of token sales. Only for higher levels of net sentiment is the difference not significant anymore (at the 95% level). All in all, it can be concluded that crowd contagion is more important during periods when there is an increase in the tokens on sale (and possibly greater competition) and when there is a relatively small amount of exposure to the news. This result is in line with the results about the non-monotonicity of the role of the news.

Table 5. Regressions by sub-periods.

VARIABLES	1 Growing Sub-Period	2 Decreasing Sub-Period	3 Growing Sub-Period	4 Decreasing Sub-Period
Number of FT articles on ICOs	0.0159***	0.0142***		
	−0.005	−0.003		
Net FT articles' sentiments			0.0021***	0.0022**
			−0.001	−0.001
Constant	−2.6218***	−1.9511***	−1.7601***	−2.5577***
	−0.328	−0.242	−0.236	−0.324
Geographic Region	Yes	Yes	Yes	Yes
Currency	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes
Social Media	Yes	Yes	Yes	Yes
Team Skills	Yes	Yes	Yes	Yes
Team Experience	Yes	Yes	Yes	Yes
Observations	636	940	940	636
p	0.0000	0.0000	0.0000	0.0000
r2_p	0.193	0.167	0.151	0.189
N	636	940	940	636

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses.

Dependent variable: Dummy success in securing funds. Controls: Geographic location (whether the firm is headquartered in EU, Europe non-EU, North America, Central America, South America, Pacific Basin or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP if the firm offers a bonus); Social media visibility (websites hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of the members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: number of articles on FT, the net sentiment of articles on FT.

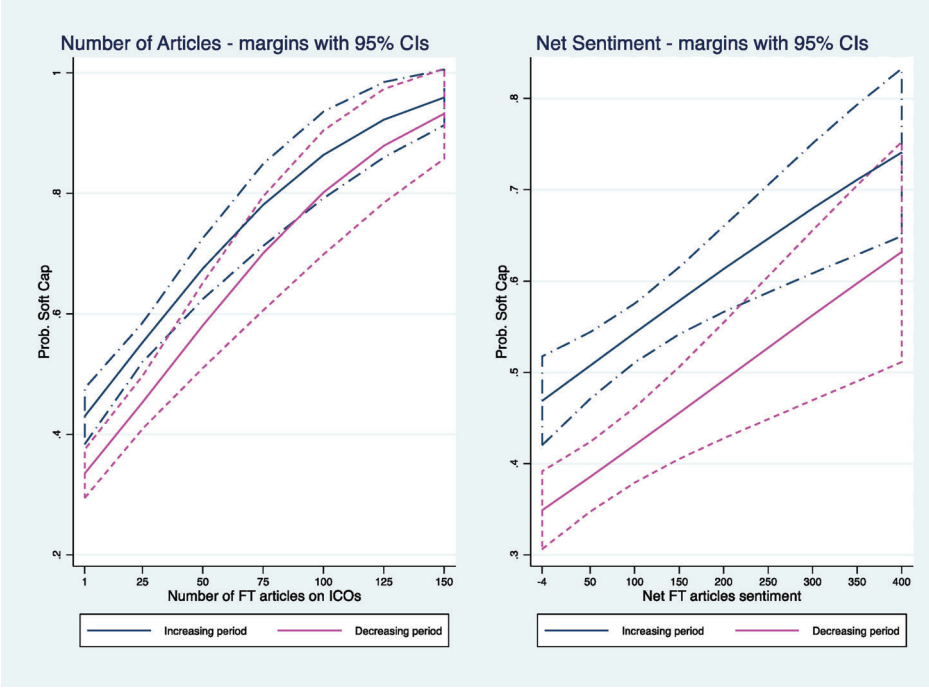


Figure 5. Marginal effects for number of articles and net sentiment in sub-periods.

Table 6. Regression with lagged dependent variables.

VARIABLES	(1) Reverse causality article	(2) Reverse causality article	(3) Reverse causality sentiment	(4) Reverse causality sentiment
Number of FT articles – lag one week	0.0173***			
	(0.002)			
Number of FT articles – lag two weeks		0.0171***		
		(0.002)		
Net FT articles' sentiment – lag one week			0.0029***	
			(0.001)	
Net FT articles sentiment – lag two weeks				0.0029***
				(0.001)
Constant	−2.0985***	−2.0917***	−1.9372***	−1.9329***
	(0.189)	(0.189)	(0.185)	(0.185)
Geographic Region	Yes	Yes	Yes	Yes
Currency	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes
Social Media	Yes	Yes	Yes	Yes
Team Skills	Yes	Yes	Yes	Yes
Team Experience	Yes	Yes	Yes	Yes
Observations	1,576	1,576	1,576	1,576
p	0.0000	0.0000	0.0000	0.0000
r2_p	0.152	0.152	0.136	0.136
N	1576	1576	1576	1576

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Robust standard errors in parentheses.

Dependent variable: Dummy Success in securing funds. Controls: Geographic location (whether the firm is headquartered in the EU, Europe non-EU, North America, Central America, South America, Pacific Basin, or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP if the firm offers a bonus); Social media visibility (websites hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of the members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: number of articles on FT lag 7 days, number of articles on FT lag 14 days, net sentiment of articles on FT 7 days, days net sentiment of articles on FT 14 days.

Finally, we performed an additional analysis. We re-estimate the regressions in subgroups by year. Thus, we estimate the regression including only the ICOs launched before 31st December 2017, then those between 1st January 2018 and 31st December 2018, and so on. Interestingly, in all the subsamples, the variables 'number of articles' and 'net sentiment' remain significant, suggesting that there is no change in the role of the Financial Times' cover of the phenomenon through time.

5.1. Robustness test

We also performed a set of robustness tests. First, we explore the possibility that our analysis suffers from reverse causality or simultaneity: we cannot rule out that the popularity of the sales of the token can generate interest in the press and increase press coverage. If this is the case, the probability that a token sale is successful may affect the amount of news (and its sentiment). Thus, we estimate the original model using lagged independent variables at one week and two weeks. The results are reported in Table 6.

Reassuringly, the results remain unchanged. We also test alternative lags (e.g. 30 and 60 days) to explore possible longer reverse effects (results not reported here but available on request). However, the results remain as in the original model: lagged variables remain significant and positively related to the probability of success.

Secondly, we estimate our basic models by using the logs of the independent variables. This allows us to smooth any effect of outliers and the fact that (as suggested by the regressions with the square of the values) the relationship is non-monotonic (results reported in Table 7). Reassuringly, they are in line with those obtained in the original model.

Finally, we cannot exclude the possibility that our model suffers from endogeneity because of omitted variables. To check for this, we instrument the number of articles variable using the intensity of Google Search on Brexit worldwide in a way similar to Moro, Radić, and Truong (2024). We argue that greater interest in alternative

Table 7. Regression with the natural logarithm.

VARIABLES	Log FT articles	Logs Sentiment
Natural logarithm of the number of FT articles	0.3091***	
	(0.040)	
Natural logarithm of net FT articles sentiment		0.1980***
		(0.038)
Constant	−2.5542***	−2.4810***
	(0.218)	(0.249)
Geographic Region	Yes	Yes
Currency	Yes	Yes
Firm	Yes	Yes
Social Media	Yes	Yes
Team Skills	Yes	Yes
Team Experience	Yes	Yes
Observations	1,549	1,537
p	0.0000	0.0000
r2_p	0.152	0.133
N	1549	1537

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Robust standard errors in parentheses. Dependent variable: Dummy Success in securing funds. Controls: Geographic location (whether the firm is headquartered in the EU, Europe non-EU, North America, Central America, South America, Pacific Basin, or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP, if the firm offers a bonus); Social media visibility (websites hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of the members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: natural logarithm of the number of articles on FT, natural logarithm of the net sentiment of articles on FT.

topics influences the number of articles published on a specific topic. In our case, the ongoing discussion about Brexit may adversely affect the space Financial Times allocates to ICOs and token sales, suggesting there should be a significant negative relationship between Brexit Google searches (i.e. general interest in Brexit) and Financial Times articles on ICOs. At the same time, there is no reason for searches on Brexit to influence investors' decisions to invest in ICOs and, therefore, the probability that a firm is successful in securing funds. In other words, from a logical point of view, Brexit's Google searches should pass the exclusion criterion test. The examination of the correlations between the dependent variable (success in reaching the soft-cap), the independent variables (number of Financial Times articles and their net sentiment), and the Google Trend index on Brexit support our argument: the dummy catching the success of a firm in securing funds has a very low correlation with the instrument (−0.074) while Financial Times articles and the net sentiment correlation with Brexit is −0.333 and −0.290 respectively and highly significant. The results of the instrumented regressions are reported in Table 8.

The instrument is, as expected, negatively and significantly related to the dependent variables. The F test on the first step (i.e. the F value of the instrumenting regression) suggests that the regression is highly significant ($p < .000$). In the second regression (the instrumented one), the estimated number of Financial Times articles as well as the estimated net sentiment remain significant, suggesting that our results remain robust to a range of tests designed to mitigate concerns regarding endogeneity.

First, we check the validity of the proposed instrumented regressions. Given that the reduced form for the endogenous explanatory variable is linear, we used the diagnostics available in the linear case by estimating the linear version of the model. This allows us to test for under- and over-identification and weak identification. For the regression looking at the number of articles, the Anderson Canonical test (136.826) allows us to reject the hypothesis of under-identification, and the Sargan statistic suggests that we do not suffer from overidentification. In addition, the weak identification test (146.979) is well above the Stock-Yogo weak test critical value at 10%, suggesting a very low probability that the instrument is weak. In the case of the regression looking at the net sentiment, the Anderson Canonical test (129.659) allows us to reject the hypothesis of under-identification, and

Table 8. Instrumented regressions.

	1 Articles IV probit 2 steps	2 Articles IV probit 2 steps	3 Sentiment IV probit 2 steps	4 Sentiment IV probit 2 steps
Number of FT articles on ICOs	0.0183***			
	(0.007)			
Net FT articles' sentiment			0.0045***	
			(0.002)	
Average Brexit Searches (Instrument)		−0.4294***		−1.7063***
		(0.035)		(0.144)
Constant	−2.1158***	27.0922***	−2.0537***	105.1878***
	(0.232)	(2.070)	(0.211)	(8.472)
Geographic Region	Yes	Yes	Yes	Yes
Currency	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes
Social Media	Yes	Yes	Yes	Yes
Team Skills	Yes	Yes	Yes	Yes
Team Experience	Yes	Yes	Yes	Yes
Observations	1,576	1,576	1,576	1,576
p	0.0000	0.0000	0.0000	0.0000
N	1576	1576	1576	1576

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Robust standard errors in parentheses. Dependent variable: Dummy Success in securing funds. Controls: Geographic location (whether the firm is headquartered in EU, Europe non-EU, North America, Central America, South America, Pacific Basin or Asia); Currency accepted (bitcoin, fiat money); Firm's characteristics (if the firm implements a white list, if the firm implements KYC, if the firm has restrictions on the sale of the token, if the firm implements an MVP if the firm offers a bonus); Social media visibility (websites hits by name and by URL, Twitter, and Telegram followers); team skills (CEO managerial and entrepreneurial skills, CTO managerial and technical skills, CFO managerial and finance skills, number of the members of the team), experience (CEO, CTO, and CFO experience in days). Independent variables: number of articles, number of articles on the FT. Instrument: Average Brexit Google trend searches

the Sargan statistic suggests that we do not suffer from over-identification. Again, the weak identification test (138.593) is well above the Stock-Yogo weak test critical value at 10%, suggesting a very low probability that the instrument is a weak one.

In addition, we perform an outcome placebo test. We examine whether our instrument predicts predetermined project characteristics. Specifically, we regress CEO experience on Brexit-related Google search intensity. Since CEO experience is fixed prior to the ICO campaign, it should not be affected by contemporaneous media attention shocks. Consistent with this expectation, we find no statistically significant relationship, supporting the validity of our exclusion restriction.

We also made attempts by using alternative instruments. First, we used the change in the searches about Brexit instead of the average number of searches (possibly the change in the number of searches better catches the evolution of the interest in the topic). In addition, we used searches (average and change in number of searches) on alternative keywords, namely, Trump and Covid. All the alternative instruments do not appear to be as good as the Brexit one: they have a lower correlation with the independent variables and are less able to explain the variance of the number of articles/net sentiment (first step regression with lower R^2). However, the results we obtained using the alternative instrument are qualitatively identical to those obtained by using the Brexit variable.

6. Discussion

Our findings suggest that coverage by a reputable international financial newspaper is associated with ICO fundraising outcomes. Whereas prior research has largely focused on social media and digital channels, our results indicate that highly reputable traditional financial media may also play an important role in shaping investor responses to emerging financial innovations. Specifically, both the volume of coverage and the net sentiment embedded in that coverage are positively associated with the likelihood of an ICO reaching its soft-cap target. The marginal effects further indicate that these relationships are economically meaningful, with

predicted probabilities of success varying substantially across the observed range of article volume and net sentiment. However, given the observational nature of the data, these findings should be interpreted as evidence of association rather than definitive proof of causality.

Drawing on our theoretical framework, these findings are consistent with the idea that reputable financial media contribute to the diffusion and reinforcement of beliefs about ICOs as an emerging asset class. Rather than focusing on firm-specific information, the media measures employed in this study capture broader narratives surrounding the ICO phenomenon. This distinction is important because ICO investors, particularly during the early stages of market development, often faced substantial uncertainty regarding the viability and legitimacy of the asset class itself. In such a context, coverage by internationally recognised financial newspapers may have increased the visibility of ICOs and have contributed to shaping perceptions of their credibility and relevance.

The positive association between article volume and ICO success is consistent with the interpretation that repeated exposure to media narratives may have increased awareness of ICOs among potential investors. Importantly, awareness is not directly observed in our study since we use the number of articles as a proxy for this underlying construct. The results, therefore, suggest that broader media visibility may have been associated with greater investor engagement in ICO markets. This interpretation appears particularly relevant in the early years of the phenomenon, when ICOs remained largely unfamiliar to mainstream investors and received limited attention outside specialised technology and cryptocurrency communities.

Similarly, the positive association between media sentiment and fundraising success is consistent with the interpretation that favourable coverage may have contributed to the legitimisation of ICOs as an investment category. In our analysis, the legitimisation is not directly measured but is proxied by the net sentiment of media coverage. A net positive reporting by a highly reputable financial newspaper may have signalled that ICOs represented a phenomenon worthy of attention by the broader investment community, thereby reinforcing perceptions of credibility and attractiveness. From a contagion perspective, repeated exposure to favourable narratives may have strengthened these perceptions over time.

Our results highlight the importance of ecosystem-level signals over and above project-specific information explored by past research. The Financial Times articles examined in this study did not focus on individual token offerings but on the ICO phenomenon more broadly. Consequently, the results suggest that investor behaviour may be influenced not only by information about a particular project but also by broader narratives regarding the legitimacy, relevance, and future potential of an emerging asset class. This interpretation is consistent with the notion that participation decisions in highly uncertain markets are shaped by both project-level and ecosystem-level signals.

The analysis also reveals evidence of a non-linear relationship between media exposure and fundraising outcomes. The estimated turning points and associated marginal-effect plots suggest that the positive association between media coverage and ICO success weakens beyond moderate levels of exposure. While the results are consistent with theories of information fatigue, scepticism, or diminishing marginal reinforcement, they should be interpreted with caution. The evidence does not allow us to identify the precise behavioural mechanism underlying the decline. Nevertheless, the findings suggest that increasing media attention may not generate proportionally larger effects indefinitely and that excessive exposure may eventually be associated with weaker investor responses.

Taken together, the results are broadly consistent with the view that reputable financial media may influence participation in emerging financial markets by increasing visibility and reinforcing favourable perceptions of a novel asset class. Rather than demonstrating a direct causal effect of media coverage, the study provides evidence that media visibility and sentiment are systematically associated with fundraising outcomes in ICO markets and that these relationships are compatible with the awareness and legitimisation mechanisms proposed by the contagion framework.

For international investors operating in the high-risk, high-uncertainty environment of ICOs, our findings indicate that coverage by a reputable international financial newspaper may serve as a quality signal in decentralised finance. Investors should carefully assess the content and tone of media narratives, distinguishing between substantive reporting and overly promotional material. Reputable global news sources can act as a validation mechanism that mitigates information asymmetry and flags potentially fraudulent ventures (Barnes 2019; Tiwari, Gepp, and Kumar 2020). In contrast, limited reputable coverage may suggest weak credibility, while

excessively positive media attention could signal unrealistic expectations. Tracking media narratives over time can help investors distinguish between sustained legitimacy and temporary hype.

These insights carry important implications for regulators. Given that many ICO investors reside in jurisdictions different from the project originators, cross-border risks are particularly relevant. Policymakers should consider supporting independent financial journalism that promotes investigative reporting and counters misleading or promotional content. Regulatory frameworks could also be strengthened to enhance disclosure requirements for ICO issuers, ensuring that investors have access to verified, standardised information beyond what is available through coverage by a reputable international financial newspaper. By fostering a transparent and well-informed investment environment, policymakers can support innovation in DeFi while reducing the risks of misinformation, market manipulation, and investor harm.

A final important consideration when interpreting our findings is needed: the sample period we consider predates the implementation of the European Union's Markets in Crypto-Assets (MiCA) regulation. This implies that during the period examined, ICO markets operated in an environment characterised by limited disclosure requirements and substantial regulatory uncertainty. Under such conditions, awareness and legitimisation signals provided by reputable financial media may have played a particularly important role in shaping investor behaviour. MiCA introduces mandatory white-paper disclosures, conduct requirements, and investor protection provisions that may reduce information asymmetries and increase the availability of formal information. Consequently, the relative importance of media-based awareness and legitimisation mechanisms may differ in a post-MiCA environment. Whether regulatory disclosure requirements substitute for, complement, or reinforce the role of financial media remains an open empirical question and represents a promising avenue for future research.

7. Conclusion

DeFi in general and ICOs in particular are a very recent phenomenon, but have already attracted a lot of interest. So far, research has focused attention on the characteristics of the project (i.e. MVP, KYC, etc.), the characteristics of the team (experience, education, etc.), as well as how the firm disseminates information digitally (i.e. through white papers, social media, etc.). The common theme behind these different research areas is information asymmetry and how investors may overcome it by accessing information that allows them to make informed decisions.

Our research expands upon past work on DeFi by looking at the role of news disseminated by traditional, highly reputable newspapers on crowd investors' decisions and the consequent ability of highly technological start-ups to secure funds via an ICO. We find an intriguing link between this way of disseminating information and the ability of highly innovative start-ups to secure funds. In detail, we find that both the number of articles about ICOs and their net sentiment are positively associated with the ability of high-technology start-ups to secure the minimum amount of funds (soft-cap) they target. The additional analysis we perform points out that such an effect is robust and that it also has an important economic impact (marginal effect analysis shows an increase in the probability of success up to 90%).

Our findings suggest reliable news outlets play a multifaceted role in the digital landscape by disseminating the message and reinforcing it through repetition. The findings are consistent with the interpretation that reliable news may contribute to awareness and legitimisation during the early stages of the phenomenon. This suggests that traditional media may support individuals in embracing innovative investment tools and in making investment decisions. Therefore, we argue that traditional reliable media continues to play a significant role in shaping the interaction between financial innovations and technological advancements by disseminating information and influencing market sentiment.

Our work contributes to both the finance and technology literature. First, to the best of our knowledge, it is among the first studies to examine the role of traditional, reputable financial media in the context of decentralised finance fundraising. While prior research has predominantly focused on project-level signals, white papers, social media activity, and team characteristics, our study highlights the potential importance of broader media narratives surrounding ICOs as an emerging asset class. Second, our findings contribute to the growing literature on ICOs and entrepreneurial finance by showing that media visibility and media sentiment are

systematically associated with fundraising outcomes. By focusing on general coverage of the ICO phenomenon rather than on individual projects, we shift attention from firm-level communication to the wider informational environment within which investment decisions are made. This perspective suggests that investor participation in highly uncertain markets may be influenced not only by project-specific information but also by ecosystem-level signals regarding the relevance and credibility of a novel asset class. Third, we contribute to the literature on information diffusion and complex contagion by applying insights from sociological theories of behavioural reinforcement to entrepreneurial finance. Our findings are consistent with the idea that repeated exposure to credible media narratives may contribute to awareness and legitimisation processes in emerging markets. While awareness and legitimisation are not directly observed, the positive associations identified for article volume and media sentiment are compatible with these interpretations. Furthermore, the evidence of non-linear relationships suggests that increasing media exposure may not generate proportionally stronger responses indefinitely, highlighting the importance of considering diminishing marginal effects in studies of information diffusion. Finally, our findings highlight the continuing relevance of traditional financial media in highly digital and globally dispersed markets. Despite the prominence of social media and online communities within DeFi ecosystems, reputable international financial newspapers may continue to provide important visibility and interpretive signals regarding emerging financial innovations. Given the inherently cross-border nature of ICO markets, this role appears particularly relevant in facilitating the diffusion of information and shaping perceptions among geographically dispersed investor communities.

Our work suffers from some shortcomings that can open up further research areas. Even if we rely on a large sample, it could be interesting to replicate our analysis with different samples to check for the robustness of our results. This also suggests that it could be interesting to replicate the analysis at the industry and area levels. We control for both aspects, but it can be attractive to explore at a deeper level any differences that news can have at different levels. Moreover, due to space constraints, we limit our analysis to the number of articles and the net sentiment. Future research can explore the role of the different content/themes in the articles and their impact on the investors' decisions and, then, on the ability of firms to secure funds. An additional area of analysis is the comparison of the role of general news in the context of ICOs and traditional investment to explore any differences that general news and analysis can have on different asset classes. Finally, although the empirical analyses are designed to mitigate several endogeneity concerns, the observational nature of the data implies that the reported relationships should be interpreted as robust associations rather than as definitive causal effects. Future research could employ alternative identification strategies, such as natural experiments, restricted control function approaches, or additional instrumental variable designs, to strengthen causal inference and further investigate how media visibility and media sentiment influence awareness, legitimisation, and participation in emerging financial markets. Another limitation concerns the construction of the dependent variable, which is based on reported soft-cap attainment rather than on a complete on-chain reconstruction of fundraising inflows. While blockchain data can, in principle, be used to validate ICO fundraising outcomes, such validation was feasible only for a subset of ICOs launched between 2016 and 2021. During this time, many projects used Ethereum wallets or crowdsale contracts, but documentation was often incomplete, fundraising structures were heterogeneous, and private presales were common. Moreover, the soft cap itself was typically not encoded on-chain but announced in a whitepaper, website, or ICO database. Accordingly, the dependent variable should be interpreted as reported soft-cap success rather than as uniformly on-chain-validated soft-cap attainment, and some degree of measurement error may remain. Future research could address this limitation by constructing ICO samples in which fundraising wallets, crowdsale contracts, contribution windows, and accepted currencies are systematically identified and linked to reported soft-cap thresholds. Such data would allow scholars to distinguish reported soft-cap success from on-chain-validated fundraising outcomes and to assess the extent of measurement error in existing ICO datasets.

Notwithstanding the quoted limitations, our research, by exploring an area previously neglected, namely the role of general news in the context of firms financing their activities by issuing a token, expands our past knowledge of the role of high-quality news and analysis in the venture/investor relationship.

Author contributions

CRediT: **Yacine Belghitar:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing; **Johannes Gartner:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing; **Andrea Moro:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing

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No potential conflict of interest was reported by the author(s).

Notes on contributors

Andrea Moro is a Full Professor of Entrepreneurial Finance at CIRCLE (Sweden). He was previously a full professor of entrepreneurial finance at Cranfield University, UK. He also worked at the University of Leicester (UK) and The Open University (UK). He received his PhD in Entrepreneurial Finance from Lancaster University (UK) and has been a visiting professor at various institutions, including the Ca' Foscari University - Venice (Italy), WU Vienna and Changsha University of Science and Technology (China). His current research focuses on small-business access to finance with a particular focus on the soft determinants of access to bank financing (mainly trust) as well as startups' decisions to exploit innovative sources of finance (Initial Coin Offerings (ICO), Crowdfunding, etc.). He is also interested in small firms' capital structure modelling and optimisation. He publishes widely and holds senior editorial roles in leading journals in entrepreneurship.

Johannes Gartner is an Assistant Professor at Delft University of Technology in the Netherlands and conducts research in Technology Management. He holds a PhD in Social and Economic Sciences, a Diploma in Computer Science, and an MA in Business and Information Security Management. His research has been published in leading journals such as Technological Forecasting and Social Change, Technovation, Journal of Business Research, and Journal of Business Ethics.

Professor Yacine Belghitar is a Professor of Corporate Finance and Head of the Finance and Accounting Group at Cranfield University. Yacine's research lies at the intersection of finance, small business, and corporate strategic decision-making. His work on managerial compensation and risk-taking has been funded by the ESRC, the UK's leading social science funding body. He is an active contributor to national and international academic conferences. His research has been widely published in leading international journals.

Data availability statement

Data available on request from the authors.

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Appendix A

Data collection

Scholars conducting empirical examinations of nascent enterprises frequently grapple with methodological challenges, including survival bias (Gudmundsson and Lechner 2013) and retrospective bias, also known as hindsight bias (Cassar and Craig 2009). The former refers to the issue that archival records primarily document ventures that have achieved success (Strang and Aldrich 2002), thereby potentially skewing analyses towards a limited scope of business development. The latter bias pertains to the inaccuracies in recollections of failed business founders, often leading to misrepresentations of the conditions that precipitated their business failures (Dimov 2007). Moreover, census data that would ideally offer a comprehensive overview of new venture creation is scarcely accessible for scholarly research, thereby placing constraints on the accuracy of new venture analysis. Given this difficulty, it becomes crucial for researchers to choose samples that embody the target population and employ statistical methodologies to mitigate the effects of selection bias (Winship and Mare 1992). This methodological rigour is essential to uphold the integrity of empirical studies examining new venture creation, facilitating a more accurate understanding of the phenomenon.

However, under certain conditions, the procurement of near-census data becomes a feasible endeavour, particularly when the sample framework is considerably compact, allowing for comprehensive observation of a particular phenomenon (Flint, Woodruff, and Gardial 2002). This is distinctly applicable in the case of ICOs, owing to their finite number and the indelible digital trails they leave behind, irrespective of their success or brevity of existence. Consequently, data acquisition and analysis for ICOs promises to yield greater accuracy in comparison to other economic sectors.

This research relies on near-census data, employing a modified methodology as delineated by Tranfield, Denyer, and Smart (2003), to systematically pinpoint and assess pertinent data sources. This widely adopted approach, as articulated by Fink (2019), is characterised as a systematic, explicit, and replicable blueprint for identifying, appraising, and deciphering documented evidence. The utilisation of this method in the present research aims at identifying and evaluating data sources instead of pre-existing knowledge to facilitate an accurate examination of the ICO phenomenon.

Our data collection spanned from January to September 2021. We employed text analysis software to extract all web links embedded in all academic articles where the phrase 'initial coin offering' was featured in the title, abstract, or keywords, disregarding factors such as publication date, peer-reviewed status, or language. This method led to the identification of 134 distinct ICOs and 34 online platforms, inclusive of rating and news websites and additional resources listing ICOs. Further exploratory multi-media searches on Google, web forums, and social media platforms utilising keywords such as «ICO list», «ICO database», and«ICO rating» revealed 69 more online resources that contained lists of ICOs. The online database «similarweb.co» aided in identifying similar online resources, adding another 18 links, and cumulating a total of 121 web domains. Of these, 23 were irrelevant or did not list ICOs, and 43 were no longer active. A manual collection of ICO entries from the remaining 55 online resources was conducted, including eight websites that were active but had not been updated since the ICO surge between 2017 and 2020. We also retrieved data from 16 defunct websites through web archives or their still-active social media accounts. This laborious process enabled the compilation of an exhaustive list of ICOs, even incorporating short-lived and unsuccessful projects unattainable on current trading platforms.

The compilation of media reports concerning Initial Coin Offerings (ICOs) was accomplished through a similarly rigorous and systematic process. Primarily, the Financial Times was identified as the data source. The choice of the Financial Times reflects the theoretical focus of the study on reliable financial media rather than on any specific news outlet. As one of the world's leading financial newspapers, the Financial Times combines high editorial standards with a global readership, making it particularly suitable for analysing ICO markets, where both issuers and investors operate across national boundaries. The use of a single, internationally recognised source also ensures consistency in editorial style and sentiment measurement. Consequently, the Financial Times is employed as an empirical representation of reputable international financial media rather than as the object of interest in itself. Also, the Financial Times provides early and extensive reporting on ICOs, combined with its solid and high-quality financial analysis. Moreover, the newspaper appeals to a wide readership demographic that aligns with the ICO target audience interested in financial products. Subsequently, an archival retrieval was employed to load all the Financial Times articles that reported on ICOs. Given that the acronym ICO can also refer to the Information Commissioner's Office in the UK, we cross-check the articles retrieved to be sure to retain only those referring to the Initial Coin Offering phenomenon. The time frame of these reports stretched from early 2017 up until the conclusion of our observational period in 2021. A subsequent quantitative evaluation was conducted to ascertain the frequency of articles within each temporal segment, followed by a qualitative appraisal utilising an in-text sentiment analysis.



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Crowd’s contagion and decentralised finance funding

Belghitar, Yacine; Gartner, Johannes; Moro, Andrea

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