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The Dynamics of Investor Sentiment Impacts in Equity Crowdfunding: Unveiling the When

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Expanding upon the known impact of investor sentiment on crowdfunding contributions, we delve deeper to pinpoint specific conditions under which sentiment influences investor choices. Grounded in psychological theory, we assert that sentiment's influence thrives at the peak of investor attention, primarily on a campaign's first day and among projects with greater uncertainty. Our empirical study, based on 447 campaigns with 17,244 daily observations from the United Kingdom's Crowdcube platform, substantiates our claim. Our research enhances the comprehension of equity crowdfunding investors and provides practical insights for its proponents.

Introduction

A new type of crowdfunding – equity crowdfunding – has recently emerged as one of the main sources of finance for entrepreneurs, start-ups and small businesses (see e.g. Blaseg, Cumming and Koetter, 2021; Brown and Davies, 2020). As estimated by European Business Angel Network (2018), entrepreneurs and small firms across Europe were successful in raising EUR 630 million through equity crowdfunding in 2017, which accounts for about 5% of total capital (EUR 11 billion) raised for early-stage firms. A unique feature of crowdfunding and equity crowdfunding is that firms can raise capital directly from the crowd of investors without any financial intermediary. Given the central role of the crowd in the market, scholars have put it as the top priority of research in crowdfunding 'to better understand the characteristics of the pool of investors that contribute to [the] crowdfunding campaign' (McKenny *et al.*, 2017, p. 297). In line with this call, Bruton *et al.* (2015) specifically highlight the need to better understand the 'wisdom' and 'madness' of the crowd.

Most of the studies in the research area have, however, focused intensively on the 'wisdom' of the crowd, where investors make seemingly rational decisions by evaluating signalling from the project creator (see Ahlers *et al.*, 2015; Hornuf and Neuenkirch, 2017; among others) or observing others (Nguyen, Cox and Rich, 2019; Vismara, 2018).[1] Investment decisions in equity crowdfunding are, however, also likely to be impacted by less rational factors, particularly the sentiment of investors, broadly defined as a belief about future cash flow and investment risks that is not justified by the facts at hand (Baker and Wurgler, 2007). The concept of investor sentiment is also referenced in Keynes (1936), where he discusses how the (financial) market is influenced by alternating waves of optimistic and pessimistic investor sentiment. Observed as the prevailing investor attitude in traditional financial markets (see Baker and Wurgler, 2006; De Long *et al.*, 1990; among others), investor sentiment may have substantial influences on equity crowdfunding because of the uniqueness of the market with the dominance of individual investors (Ahlers *et al.*, 2015) and challenges in valuing business, characterized by their youthfulness and lack of an established earnings history of seeking capital in the market (Vismara, 2018).[2]

While extant studies (Courtney, Dutta and Li, 2017; Shafi and Mohammadi, 2020; among others) have doc-

[1]Refer to Mochkabadi and Volkmann (2020) for a review of the literature.
[2]Refer to the next section for in-depth discussions elaborating this contention.

umented evidence of the general impacts of sentiment in crowdfunding, this paper goes further to investigate the important questions of when equity crowdfunding investors are more likely prone to sentiment. Adopting theoretical arguments from psychology literature, we develop two hypotheses which pinpoint instances when investors are most likely to be susceptible to sentiment.

First, research on investor attention (Barber and Odean, 2008; Barber *et al.*, 2022; Da, Engelberg and Gao, 2011; among others) underscores the significance of attention in shaping the behaviour, sentiment and decisions of retail investors. A study by Barber *et al.* (2022) presents evidence from the Fintech brokerage platform Robinhood indicating that retail investors are more inclined to speculate on attention-induced stocks. Da, Engelberg and Gao (2011) posit a positive relationship between retail investor attention and sentiment. Our contention is that the impact of sentiment is likely to be more pronounced when attention is elevated during equity crowdfunding campaigns. Within the context of equity crowdfunding, campaigns tend to attract the most attention on their initial funding day, with this attention rapidly diminishing on subsequent days (e.g. Hornuf and Schwienbacher, 2018; Kuppuswamy and Bayus, 2017). Our hypothesis is therefore that the effects of sentiment may be more pronounced on the first day compared to subsequent days of funding campaigns.

Second, evidence from psychological studies (e.g. Forgas, 1995; Hegtvedt and Parris, 2014) suggests that sentiment influences decision-making most in situations that are ambiguous and lacking in solid information. We accordingly hypothesize that sentiment will have stronger effects on campaigns with greater levels of uncertainty.

Using the sample of 447 projects listed on UK equity crowdfunding platform Crowdcube, with 17,244 corresponding daily observations from December 2013 to January 2018, the results from our regressions indicate that sentiment effects are significant and sizable only on the first day of a crowdfunding campaign, when attention tends to be the highest, and disappear on subsequent days. Interestingly, our empirical results also confirm that the impacts of sentiment are more pronounced in the subsample of high-uncertainty projects. The results are robust, with different proxies used to measure sentiment and projects' uncertainty.

This paper contributes significantly to various streams of literature. Our most important contribution is to shed further light on the sentiment side of equity crowdfunding investors (see e.g. Cerpentier, Vanacker and Paeleman, 2022; Shafi and Mohammadi, 2020; among others). More specifically, Shafi and Mohammadi (2020) show evidence that the contribution amount is impacted by the weather-induced mood of investors. Cerpentier, Vanacker and Paeleman (2022) find that entrepreneurs tend to secure more funds during periods of favourable (hot) market environment. Our findings advance previous studies by identifying situations, particularly under high investor attention and level of uncertainty, where sentiment has more pronounced impacts on investors in equity crowdfunding.

This paper also adds to a growing literature studying the funding dynamics of the equity crowdfunding market. Previous studies have suggested several factors affecting the dynamics of campaign funding. These include firm quality and uncertainty (Ahlers *et al.*, 2015), herding due to information cascades (Vismara, 2018), collective attention (Kuppuswamy and Bayus, 2017) and portal design (Hornuf and Schwienbacher, 2018). None of these studies analyse the irrational behaviour of unsophisticated investors in the market. We provide evidence that investor sentiment is another important mechanism which drives the funding dynamics of equity crowdfunding.

Our study contributes to a growing literature studying the role of investor sentiment in different financial contexts. A considerable body of literature on sentiment has been documented in the equity market by showing how market-wide sentiment affects stock prices (Brown and Cliff, 2004; Da, Engelberg and Gao, 2015). In an initial public offering (IPO) context, Derrien (2005) and Dorn (2009) find consistent evidence that retail investors (who are primarily influenced by sentiment) pay higher premiums on IPOs when they are launched, resulting in IPO overpricing. To the best of our knowledge, our study stands as the first to investigate when sentiment has the most pronounced impact within the unique landscape of the equity crowdfunding market.

The rest of the paper is organized as follows. The next two sections discuss the literature on investor sentiment and the sentiment effect in relation to equity crowdfunding. Then we develop our hypotheses and describe the data and methodology. We present the main empirical results and discuss the results of robustness tests, before concluding.

Literature on investor sentiment

Psychological studies (e.g. Arkes, Herren and Isen, 1988; Bower, 1991; Johnson and Tversky, 1983) provide insights into how sentiment influences decision-making. For instance, individuals in optimistic moods tend to evaluate prospects more favourably, making optimistic decisions, while those in pessimistic moods may exhibit the opposite behaviour (Wright and Bower, 1992).

In the realm of finance, the acknowledgement of investor sentiment as a driving force in decision-making

has long been established. Broady defined it as a belief about future cash flow and investment risks that is not justified by the facts at hand (Baker and Wurgler, 2007). The notion of investor sentiment can be found in Keynes (1936), who mentions that '… [the] market is subject to waves of optimistic and pessimistic sentiment, which are unreasoning and yet in a sense legitimate where no solid basis exists for a sound calculation'. In recent times, investor sentiment has garnered increasing attention as a cornerstone of the behavioural finance research stream (De Bondt and Thaler, 1985), which is dedicated to exploring the profound impacts of psychology on human behaviour within financial markets and delving into the intricate ways in which behavioural biases shape and influence market dynamics.

A wealth of literature (e.g. Antoniou, Doukas and Subrahmanyam, 2016; Lamont and Thaler, 2003; Yu and Yuan, 2011; among others) has consistently demonstrated the pervasive impact of investor sentiment on financial markets. Antoniou, Doukas and Subrahmanyam (2016) contribute valuable insights by revealing that unsophisticated and overconfident traders exhibit a penchant for risky stocks, particularly those with high beta, during periods characterized by high market optimism. Similarly, Lamont and Thaler (2003) shed light on the behaviour of unsophisticated investors, illustrating their increased likelihood to enter and invest in the stock market during prosperous periods. Yu and Yuan (2011) further underscore the influence of investor sentiment by demonstrating the uncorrelation between the market's mean variance during high-sentiment periods.

In summary, the above literature review affirms the presence of investor sentiment in the financial markets. We posit that insights from the literature on sentiment among retail investors can be applied to our study of investor sentiment in equity crowdfunding, for several reasons. First, equity crowdfunding offerings are widely accessible to the public (Rossi, Vanacker and Vismara, 2021), implying that the investors in this market may also be those engaged in traditional financial markets. Indeed, studies provide evidence that investors in equity crowdfunding are also influenced by the tone of mass media (Mendes-Da-Silva *et al.*, 2024) or economic policy (Hsieh and Vu, 2021). Second, as detailed in the subsequent section, the typical cohort of investors and firms in equity crowdfunding mirrors those identified in traditional markets as particularly susceptible to sentiment influence. Therefore, our study draws upon existing literature to elucidate the factors underlying the presence of investor sentiment in equity crowdfunding. Building on this, we formulate hypotheses regarding the circumstances in which the effects of sentiment are likely to be most pronounced within the crowdfunding context.

Investor sentiment effects on equity crowdfunding

Drawing upon insights from the literature on investor sentiment, the unique features of the equity crowdfunding market strongly imply that investments in this arena are highly susceptible to the influence of investor sentiment. In the forthcoming sections, we delve into these distinctive characteristics and explore the evidence of sentimental effects in the crowdfunding literature.

Investors in equity crowdfunding

The equity crowdfunding market is typically dominated by many individual and small investors, that is, the crowd – who are normally lacking in knowledge, experience, ability and even incentive to conduct analysis on the true value of campaigns (see e.g. Ahlers *et al.*, 2015; Coakley and Lazos, 2021; Vismara, 2018). Ahlers *et al.* (2015) point out that 'Small investors, who are often the primary target of start-ups on equity crowdfunding platforms, do not normally have the ability to extensively research and assess potential investments'. These small, individual and unsophisticated investors are exactly those who are identified as most likely to be prone to different psychological biases and behave irrationally in the market, that is, sentiment traders (see e.g. Baker and Wurgler, 2006, 2007; De Long *et al.*, 1990; Shefrin and Statman, 1985; Stambaugh, Yu and Yuan, 2012; Wallmeroth, 2019).[3] For example, Lee, Shleifer and Thaler (1991) find that fund discount changes are correlated with changes in retail investors' sentiment. Hvidkjaer (2008) shows that retail investor trades explain return co-movements of stocks with high retail concentration, resulting in an overvaluation of these stocks in the short run and underperformance in the long run.

Challenges in valuing firms raising funds in equity crowdfunding

Firms seeking funding through equity crowdfunding often face considerable difficulty establishing their valuation, putting them in the group of firms that are identified by the literature (Baker and Wurgler, 2006, 2007; Lemmon and Portniaguina, 2006; among others) as being particularly susceptible to the influence of investor sentiment. Indeed, Baker and Wurgler (2007) put that the crucial characteristics of sentiment-induced stocks are the '… difficulty and subjectivity in determining their true values' (p. 132).

The challenges in valuing firms in equity crowdfunding are rooted in several key factors that distinguish

[3]We use the terms retail, unsophisticated and individual investors interchangeably.

this market from more traditional financial markets. First, firms seeking capital in the market typically belong to the category of early-stage start-ups, characterized by their youthfulness and lack of an established earnings history, but substantial growth potential with extreme payoffs in the future (Cumming and Groh, 2018; Vismara, 2018). Indeed, Vismara (2018, p. 5) documents that 'Uncertainty, intrinsic to all entrepreneurial settings, is more severe in crowdfunding markets, where projects are typically proposed by first-time entrepreneurs'. Second, the investment environment in the equity crowdfunding market is marked by a notable information asymmetry between investors and firms, a distinction more pronounced compared to other fundraising avenues like IPOs or traditional stock markets. In this setting, the absence of scrutiny and certification by financial analysts or formal intermediaries for the business plans and financial reports provided by fundraisers amplifies the uncertainty in firm valuation (Vismara, 2018). The equity crowdfunding platforms which facilitate the transactions also could not provide any investment advice or assessments on business quality as they must operate strictly as passive conduits between entrepreneurs and investors to conform with Financial Conduct Authority regulations (Nguyen, Cox and Rich, 2019). Indeed, it is clearly stated on equity crowdfunding platform Crowdcube that 'Crowdcube does not endorse any of the businesses raising finance on the platform, nor do we provide investment advice of any description, so before deciding to invest we strongly encourage all Crowdcube members to undertake their own research and if there is uncertainty, to receive independent advice before investing'.[4]

Studies of investor sentiment in crowdfunding

Consistent with the above arguments, the literature on investor sentiment in (equity) crowdfunding has documented evidence of impacts of sentiment on the market. More specifically, Shafi and Mohammadi (2020) show evidence that the contribution amount is impacted by the weather-induced mood of investors. Mendes-Da-Silva *et al.* (2024) measure market sentiment by tone of daily news and report the impact on investors in reward-based crowdfunding in Brazil. Courtney, Dutta and Li (2017) find that investors are influenced by the sentiment in comments of other investors on US crowdfunding platform Kickstarter. Similar to Courtney, Dutta and Li (2017), several studies find evidence that investors are influenced by the sentiment in the language used by entrepreneurs in the US market (Dority, Borchers and Hayes, 2021; Johan and Zhang, 2020), Germany (Dorfleitner, Hornuf and Weber, 2018) and China (Jiang *et al.*, 2020).

Synthesizing the above arguments on the uniqueness of the market and evidence from the literature, we contend that investor sentiment will generally have an impact on investments in equity crowdfunding. We extend the current studies by investigating the situations in which equity crowdfunding investors are more likely to be prone to sentiment. In the next section, we put forth the proposition that investors in equity crowdfunding are most likely to be susceptible to sentiment when their attention on projects is high and their investments are made in projects with a high level of uncertainty.

Hypothesis development

Investor attention and sentiment in equity crowdfunding

Growing evidence from the line of studies on individual investor attention (Barber and Odean, 2008; Barber *et al.*, 2022; Da, Engelberg and Gao, 2011; among others) highlights the importance of investor attention on investor behaviour and trading decisions. An early study by Merton (1987) shows evidence suggesting that investor attention has impacted investor behaviour and asset pricing. Huberman and Regev (2001) present an interesting case showing that stock prices react to new information only when the information grabs the attention of investors. Barber and Odean (2008) argue that faced with the problem of choosing among thousands of common stocks, cognitive-bound investors tend to limit their search and buy stocks that caught their attention. Consistent with this argument, the author reports that individual investors are net buyers of attention-grabbing stocks including stocks in the news, stocks with high abnormal trading volume and those with extreme returns. Following the framework of Barber and Odean (2008), Da, Engelberg and Gao (2011) and Lou (2014) find a positive correlation between retail investor attention and short-time stock price. Recent studies document additional evidence on the influences of attention on individual investor behaviour in lottery stocks (Bali *et al.*, 2019; Liu *et al.*, 2020), mobile app trading platform Robinhood (Barber *et al.*, 2022) and cryptocurrency markets (Smales, 2022).

Given the evidence on the role of investor attention in investor behaviour, Da, Engelberg and Gao (2011) note that '… because attention is a necessary condition for generating sentiment, increased investor attention, especially from "noise" traders prone to behaviour biases, will likely lead to stronger sentiment' (p. 1471). Following Da, Engelberg and Gao (2011), we posit that for investors engaged in equity crowdfunding to formulate sentiment regarding the potential of crowdfunding campaigns, their initial attraction to these campaigns is imperative. Consequently, we argue that the impact of

[4]Clearly stated on the Crowdcube website (https://www.crowdcube.com/pg/due-diligence-charter-1745, extracted 23 July 2019).

sentiment on equity crowdfunding investors becomes more accentuated when there is heightened attention from investors.

Within the context of equity crowdfunding, investor attention will be more likely to peak on the first day of an equity crowdfunding campaign (Hornuf and Schwienbacher, 2018; Kuppuswamy and Bayus, 2017). The initial attention on new projects is also further bolstered by strategic advertising campaigns and newsletters dispatched by the crowdfunding platforms to potential investors. Empirical studies (e.g. Hornuf and Schwienbacher, 2018; Nguyen, Cox and Rich, 2019) consistently affirm that crowdfunding initiatives amass a significant portion of their investments on the first day of their launch. However, attention, being a scarce cognitive resource (Kahneman and Tversky, 1973), is rapidly depleted amidst the abundance of information, as noted by Da, Engelberg and Gao (2011). Hornuf and Schwienbacher (2018) contend that investor attention towards new campaigns diminishes swiftly on arrival of the new information available on the platform.

Synthesizing the above arguments, we contend that while sentiment may be important throughout the funding campaigns, its impact will be most pronounced on the first day of a fundraising campaign, when attention (on the campaign) is at its peak, and diminish on subsequent days as attention (on the campaign) wanes. Our first hypothesis is therefore

H1: The sentiment effect on investments will be most pronounced on the first day compared to subsequent days of an equity crowdfunding campaign.

Firm's uncertainty and investor sentiment in equity crowdfunding

Studies in the psychology literature suggest that sentiment impacts on decision-making are most pronounced in situations that are uncertain and lacking solid information (e.g. Forgas, 1995; Hegtvedt and Parris, 2014). Daniel, Hirshleifer and Subrahmanyam (1998, 2001) posit that psychological biases such as overconfidence, conservatism and representativeness are more pronounced when there is more ambiguity. Baker and Wurgler (2006) argue that the effect of investor sentiment would not have the same levels of impact across all categories of stocks. In particular, they show empirically that the sentiment has little effect on stocks that have concrete valuation, for example, dividend-paying, profitable stocks with a long history of earnings. However, the sentiment effect is more pronounced for speculative stocks with a high level of uncertainty in valuation, such as small, young, unprofitable, high-volatility, non-dividend-paying, extreme-growth and distressed stocks. These speculative characteristics allow investors to expect high-end valuations of such stocks when the market sentiment is high. Consistent with Baker and Wurgler (2006), Lemmon and Portniaguina (2006) also find a relationship between investor sentiment and returns of small stocks and stocks with low institutional ownership. Many studies provide consistent evidence that sentiment largely influences stocks with a high level of uncertainty, that is, stocks that are hard to value (see e.g. Bali, Cakici and Whitelaw, 2011; Birru, 2018; Han and Kumar, 2013; Stambaugh, Yu and Yuan, 2012), firms with lower profits, higher risks in lending and low credit rating (McLean and Zhao, 2014). In the context of equity crowdfunding, we accordingly hypothesize that sentiment effects will be stronger for campaigns with a greater level of firm uncertainty (i.e. speculative firms). Our hypothesis is that

H2: The sentiment effects will be stronger for campaigns with higher levels of uncertainty than those with lower levels of uncertainty.

Data and methodology

Data

We employ an automated programme to extract data for all campaigns initiated on or after December 2013 and concluded on or before January 2018 on the leading UK equity crowdfunding platform Crowdcube. This is to ensure that we can observe the full fundraising period of the campaigns. Our final sample includes 447 projects, from which we have a total of 17,244 daily observations. For each campaign, we manually collect the majority of information and documentation data from the campaign webpage and also obtain supplementary information on the company for the period between its incorporation and the commencement date on the Crowdcube platform from records provided by Companies House. It should be noted that the sample size is quite large for research in equity crowdfunding. Indeed, Hornuf and Neuenkirch (2017) and Hornuf and Schwienbacher (2018) conducted research on 44 and 89 German equity crowdfunding campaigns, respectively, while Vismara (2018) used a sample of 132 projects from Crowdcube. The statistics of our sample is also largely in line with other studies of equity crowdfunding in the United Kingdom. For example, the average campaign target is £267,269 compared to £144,000 (Vismara, 2018) for campaigns in 2014. The higher target amount is likely due to the fast growth of the equity crowdfunding market. Such a growth trend is in line with the findings of Vulkan, Åstebro and Sierra (2016) that the funding target and investment size increase over time. The average equity offered by our sample is 15.34%, which is similar to the averages of 14% and 16%, respectively, reported by Vismara (2018) and Walthoff-Borm, Schwienbacher and Vanacker (2018). Altogether, our sample is

reasonably representative of the equity crowdfunding market, at least in the United Kingdom.

Variables

Our main independent variable is the measurement of investor sentiment in the equity crowdfunding market. As there is no direct measure of equity crowdfunding investors' sentiment, we use the monthly consumer confidence index constructed by Growth from Knowledge (GFK) on behalf of the European Commission as our proxy.[5] The index provides an indication of the outlook for future economic and financial situations and has been widely used as a measure of investor sentiment in financial markets (e.g. Antoniou, Doukas and Subrahmanyam, 2013; Easaw, Garratt and Heravi, 2005; El Hajjar *et al.*, 2024; Lemmon and Portniaguina, 2006; Schmeling, 2009; Wang, Su and Duxbury, 2021). As the majority of investors on Crowdcube are UK individuals, we argue that the index is a relevant proxy for sentiment in equity crowdfunding as it is calculated based on a survey sent to 2000 randomly selected individuals aged 16+ in the United Kingdom.[6] Selection criteria are imposed on age, sex, religion and social class to ensure the final sample is representative of the UK population.

As the GFK index may reflect the economic fundamentals to some extent, we orthogonalize the index with a list of macroeconomic indicators to remove the effect of confounding economic factors, following the methods of Baker and Wurgler (2007), McLean and Zhao (2014) and Li, Hoque and Liu (2023). More specifically, we regress the GFK index on five macroeconomic indicators collected from the Office for National Statistics[7] – industrial production growth (IPG), growth in consumption of durable goods (GCD), growth in consumption of non-durable goods (GCN), growth in consumption of services (GCS), growth in employment (GE) and UK economic recession indicator (REC) – and use the regression residuals (GFK_ortho) as a measure of monthly investor sentiment.

In our study, we impute daily investor sentiment on any day of the equity crowdfunding campaign as follows. If the day of the campaign is within the first 10 calendar days of a month, we use the value of GFK_ortho in the previous calendar month. Otherwise, we use the value in the current calendar month.[8]

To investigate the sentiment effects in equity crowdfunding, we examine how the number of daily investors changes with variation in investor sentiment. Arguably, investments in equity crowdfunding campaigns may increase due to the increasing participation of unsophisticated investors when market sentiment is high. In contrast, in low-sentiment periods, these investors become pessimistic about firms' prospects and thus may stay out of the market. Consequently, equity crowdfunding campaigns become less demanded in such periods than in high-sentiment periods. Taken together, correlations of fluctuations in investors' sentiment and number of investors may be seen as evidence of impacts of sentiment on equity crowdfunding investors.

It is shown in Table 1 that a typical campaign attracts around 2.654 investors per day. The median value, however, is quite large: 5.514. The maximum (minimum) number of daily investors is 36 (0), respectively. This skewness in investor distribution necessarily suggests that investments in equity crowdfunding campaigns concentrate on certain days.

We include a battery of variables which are identified in the literature (Ahlers *et al.*, 2015; Cumming, Meoli and Vismara, 2019; Nguyen, Cox and Rich, 2019; Rossi, Vanacker and Vismara, 2021; Vismara, 2018) as having an impact on the investment flows of the campaigns. These variables (defined in Table 1) consist of campaign-specific characteristics to measure firms' quality and platform-level measurement of funding flows, to measure the overall activity of the platform. Our variables are winsorized at the 1% and 99% levels.

Measures of firm uncertainty

To understand the relationship between uncertainty and investor sentiment, we separate our sample into groups of high and low-uncertainty firms and compare the impacts of sentiment on investments in these groups. Zhang (2006) argues that firm uncertainty may stem from two sources, including the volatility of a firm's underlying fundamentals and poor information quality. To measure the uncertainty of firms' fundamentals, we follow Zhang (2006) to categorize firms based on firm size. Firm size is widely used in the literature as a measurement of firm uncertainty (see e.g. Baker and Wurgler, 2006; Birru, 2018). Arguably, small firms tend to be less diversified and are associated with less information available on the market compared to large firms. Thus, small firms tend to be more volatile and harder or more subjective to value than large firms. We define high (low)-uncertainty firms if the firm size is below (above) the mean firm size for all firms in the sample.

We also use the presence of sophisticated investors in firms before crowdfunding campaigns as another proxy for uncertainty. We argue that firms capable of

[5]Refer to Lemmon and Portniaguina (2006) for a detailed discussion of the consumer confidence index.

[6]The questionnaire includes questions about the general economic situation of the country, personal financial situation of the household and climate for major purchases and savings.

[7]Access through https://www.ons.gov.uk/

[8]We ensure the robustness of our results by using 0-day and 15-day cutoff points. The results are consistent and reported in the text. We thank an anonymous reviewer for suggesting this robustness check.

Table 1. Summary statistics

	Mean	SD	Median	Min	Max	Description
Main variables						
Number of daily investors	2.654	5.514	1.000	0.000	36.000	The number of investors pledging to a campaign on each day
Sentiment	−5.937	4.150	−6.625	−15.074	4.389	The UK consumer confidence index orthogonalized by macroeconomic factors each month. If the campaign day lies within the first 10 days of the month, the orthogonalized confidence index for the previous month is used; otherwise, the index for the current month is used
Investment size	0.773	2.933	0.010	0.000	81.500	Average daily amount raised per investor (daily amount raised (£∗1000)/daily number of investors)
Daily amount raised	3.611	11.517	0.020	0.000	81.500	The natural logarithm of daily amount raised (£∗1000)
Campaign-specific controls						
Target	12.150	0.792	11.918	10.309	14.221	Natural log of target amount of money the campaign plans to raise (£∗1000)
Patent	0.078	0.269	0.000	0.000	1.000	Dummy variable = 1 if documents include the campaign listing that reports a patent (pending), and 0 otherwise
Trademark	0.539	0.499	1.000	0.000	1.000	Dummy variable = 1 if campaign has trademark, and 0 otherwise
Equity_Offered	15.344	6.536	16.000	3.230	35.070	The percentage of equity offered by the campaign founders (%)
Tax	0.508	0.500	1.000	0.000	1.000	Dummy variable = 1 if investors have access to the Seed Enterprise Investment Scheme (SEIS), and 0 otherwise
Firm age	4.044	3.127	3.000	0.000	15.000	The number of years between the incorporation year and the campaign listing year
Firm size	3.143	3.582	4.206	−6.908	9.446	Natural log of firm total assets
London	0.311	0.463	0.000	0.000	1.000	Dummy variable = 1 if the business is based in London, and 0 otherwise
Sophisticated_Investors	0.107	0.310	0.000	0.000	1.000	Dummy variable = 1 if angel venture capitalists invest in the campaign, and 0 otherwise
Positive sales	0.025	0.155	0.000	0.000	1.000	Dummy variable = 1 if the revenue is positive in the previous accounting year, and 0 otherwise
Management_Size	4.767	6.712	3.000	0.000	51.000	The number of managers in the management team
Management_Shareholder	1.570	1.393	1.000	0.000	13.000	The number of managers who are also shareholders of the campaign in the management team
Management_Female	0.210	0.282	0.000	0.000	1.000	The ratio of female managers in the management team
Platform controls						
Active_Campaigns	27.955	9.819	28.000	3.000	47.000	The total number of active campaigns on the Crowdcube platform on a given day
Competing_Investment	2.103	1.999	2.472	−3.912	5.337	The natural log of the total number of investments recorded on the Crowdcube platform on a given day (£∗1000)

Note: This table presents the summary statistics of our sample of campaign daily observations. The main variables and campaign-specific control variables are calculated at the campaign level based on 447 campaigns hosted on the UK FCFS equity crowdfunding platform. The platform control variables are computed on a daily basis. The total number of campaign daily observations is 17,244 and the sample period is from December 2013 to January 2018.

securing financial backing from sophisticated investors, particularly venture capital, are likely to attain higher credibility compared to firms that were not able to. Hence, firms with sophisticated investors will have lower levels of uncertainty, and vice versa.

Trademarks represent facets of intellectual property within a business venture, serving as mechanisms through which entrepreneurs communicate the value of their offering to prospective investors (Hornuf, Schmitt and Stenzhorn, 2018). We use trademark ownership as another measure of uncertainty. More specifically, campaigns (firms) are categorized as low uncertainty when they possess trademarks, and vice versa.

Empirical results

Investor attention and the impacts of sentiment

Table 2 summarizes the daily investors' dynamics by days in the fundraising period. Consistent with the literature (Hornuf and Schwienbacher, 2018), it shows that the first day of the funding period receives a disproportionate number of daily investors compared to the other days. Indeed, the table indicates that on average, firms receive 11.654 investments (investors) on the first day of a funding campaign, in comparison with nearly 6.977 investments on the second day of the funding period. The investments received can be seen to decrease even

Table 2. Investor sentiment and investments in equity crowdfunding campaigns: Portfolio analysis

	All campaigns	High sentiment	Low sentiment	High − Low	*t*-stat.
		Number of daily investors			
First day	11.654	12.995	10.451	2.545**	2.045
Second day	6.977	7.522	6.487	1.034	1.259
Third day	4.830	5.593	4.138	1.455	2.076
Middle period	2.847	3.159	2.563	0.595	1.172
Third last	3.800	4.295	3.355	0.941*	1.606
Second last	4.784	5.571	4.081	1.491	2.103
Last day	8.414	9.441	7.496	1.945**	1.942

Note: This table reports the average daily investors for all, high and low-sentiment campaigns, as well as the difference between the high and low-sentiment campaigns. The campaign investment variables are defined in Table 1. A high-sentiment campaign is one in which the first-day sentiment value is above the median value of the first-day sentiment of all campaigns; a low-sentiment campaign is below the median value. First, second and third represent the first, second and third days of the fundraising period, respectively. Second last and third last refer to the second to last and third to last day of the funding period, respectively. Middle period represents the half-way day of the funding process. The sample period is from December 2013 to January 2018. The *t*-statistics for the difference between high and low-sentiment periods are reported in the last column. * and ** indicate significance at the 10% and 5% level, respectively.

further in subsequent days of the funding period. While trading volume is widely used as a measure of retail attention (e.g. Bajo *et al.*, 2016; Da, Engelberg and Gao, 2011), such evidence essentially supports our argument that investor attention is the highest on the first day of a funding campaign.

To examine our hypothesis that the sentiment effects on investments are dependent on the level of investor attention, we divide our sample into two groups of campaigns that launch in high and low-sentiment periods. A high-sentiment campaign is one whose first-day sentiment value is above the median value of the first-day sentiment of all campaigns, while a low-sentiment campaign is below the median value. The average daily investment activities are computed separately for high and low-sentiment days. The results in Table 2 largely support our hypothesis. The sentiment effect is shown to be most pronounced on the first day of equity crowdfunding campaigns, when attention is highest, and then disappears on subsequent days of the campaign. Specifically, on the first day, projects attract on average 12.995 investors during high-sentiment days compared to just 10.451 investors on low-sentiment days, with the difference being 2.545 investors between the two sentiment periods. The difference is statistically significant at a 5% level of confidence. The equivalent numbers are only marginal and statistically insignificant on subsequent days, except for the last day. Altogether, our portfolio analysis shows strong evidence supporting our hypotheses.

Although the portfolio approach is simple and intuitive, it cannot explicitly control for other potential variables that could affect investment flows. It is possible that the high investment flows in high-sentiment periods could be due to the high quality of campaigns launched during such periods, or the fact that investors prefer to invest on a particular day, that is, the 'day of the week' effect. To address such concerns, we perform a series of regressions which allow us to control for a battery of additional potential variables. Table 3 reports the results from the impacts of sentiment on the number of daily investors on each day of a funding cycle. For Specification 1, we perform an analysis using the negative binominal, while Specification 2 is estimated using a Poisson regression[9] as the dependent variable (number of investors per day) is a non-negative integer or count variable. In each specification, we allow for robust standard errors and the fixed effects of category and listing years.[10] We also control for the day of the week and a wide range of other potential variables that may have an impact on the investment flows to projects.

The results from Specifications 1 and 2 are consistent with H1. On the first day of a funding campaign, projects launched in high-sentiment periods can attract significantly higher number of investors than those that launch when sentiment is low. Indeed, the table shows that the coefficient on sentiment from Specifications 1 and 2 (number of investors) is statistically significant at the 1% level of confidence. The magnitude of impacts is also economically sizable. Specifically, it is implied from Specification 1 that a one standard deviation increase in the level of investor sentiment can lead to around 16.597% more investors in the campaign on the first day.[11] In addition to Table 3, our results show that

[9]The negative binomial regression is preferable to a Poisson regression model due to overdispersion of the dependent variable (number of investors). The mean of the number of investors is 2.654 and its variance is 30.4 (5.514^2), which exceeds the mean more than 11 times (see Table 1).

[10]We also follow Cumming and Hornuf (2022) to control for month effects. The results are consistent.

[11]The standard deviation of investor sentiment is 4.150, as in Table 1. The increase in number of investors is calculated as $(e^{4.150*0.037} - 1) * 100 = (e^{0.154} - 1) * 100 = 16.597\%$.

Table 3. Investor sentiment and number of daily investors in equity crowdfunding campaigns: Regression analysis

	Number of daily investors (Negative Binominal)							Number of daily investors (Poisson)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Main independent variable														
Sentiment	0.037***	−0.010	−0.001	0.008	−0.011	0.001	0.023	0.027***	−0.014	−0.009	−0.015	−0.025	0.009	0.019
	(0.012)	(0.014)	(0.014)	(0.021)	(0.023)	(0.020)	(0.020)	(0.010)	(0.013)	(0.014)	(0.020)	(0.021)	(0.018)	(0.014)
Campaign-specific controls														
Target	0.275***	0.262***	0.377***	0.442***	0.363***	0.230**	0.007	0.273***	0.311***	0.491***	0.584***	0.419***	0.243**	0.178**
	(0.059)	(0.062)	(0.071)	(0.089)	(0.082)	(0.100)	(0.094)	(0.051)	(0.066)	(0.066)	(0.100)	(0.083)	(0.105)	(0.073)
Patent	0.162	−0.011	−0.071	−0.047	0.157	0.022	0.042	0.104	0.079	0.076	−0.109	0.263	0.235	0.220*
	(0.129)	(0.165)	(0.155)	(0.244)	(0.250)	(0.238)	(0.225)	(0.094)	(0.145)	(0.154)	(0.256)	(0.257)	(0.211)	(0.133)
Trademark	0.142	0.084	0.048	0.275**	0.101	0.174	0.133	0.145*	0.059	0.064	0.208	0.117	0.185	0.137
	(0.087)	(0.096)	(0.099)	(0.129)	(0.128)	(0.131)	(0.122)	(0.079)	(0.106)	(0.103)	(0.150)	(0.127)	(0.125)	(0.091)
Equity_Offered	−0.015**	−0.008	−0.006	−0.015	−0.054***	−0.041***	−0.052***	−0.012**	−0.004	−0.007	−0.018	−0.037***	−0.014	−0.029***
	(0.007)	(0.008)	(0.009)	(0.012)	(0.011)	(0.012)	(0.011)	(0.005)	(0.007)	(0.008)	(0.013)	(0.010)	(0.011)	(0.008)
Tax	−0.264**	−0.477***	−0.340***	−0.558***	−0.763***	−0.679***	−0.824***	−0.166	−0.474***	−0.379***	−0.412*	−0.584***	−0.595***	−0.538***
	(0.109)	(0.119)	(0.117)	(0.176)	(0.159)	(0.162)	(0.155)	(0.128)	(0.145)	(0.140)	(0.249)	(0.224)	(0.190)	(0.163)
Firm_Age	−0.016	0.006	−0.033	−0.053**	−0.094***	−0.090***	−0.083***	−0.018	−0.004	−0.035	−0.026	−0.034	−0.017	−0.054**
	(0.015)	(0.017)	(0.020)	(0.027)	(0.027)	(0.027)	(0.027)	(0.013)	(0.017)	(0.021)	(0.033)	(0.029)	(0.028)	(0.026)
Firm_Size	−0.001	0.004	0.013	0.045**	0.0407*	0.075***	0.071***	−0.010	0.017	0.021	0.0512*	0.036	0.096***	0.056**
	(0.012)	(0.014)	(0.018)	(0.023)	(0.021)	(0.025)	(0.022)	(0.011)	(0.016)	(0.018)	(0.027)	(0.022)	(0.029)	(0.024)
London	0.092	0.007	−0.092	−0.114	−0.152	0.122	0.318*	−0.010	0.042	0.006	−0.008	−0.259	0.046	0.067
	(0.096)	(0.112)	(0.126)	(0.164)	(0.164)	(0.178)	(0.178)	(0.106)	(0.118)	(0.135)	(0.169)	(0.164)	(0.161)	(0.136)
Sophisticated_Investors	−0.226*	0.093	0.094	0.350*	0.235	0.329*	0.315*	−0.143	0.094	0.021	0.178	0.093	0.108	0.138
	(0.123)	(0.127)	(0.165)	(0.179)	(0.191)	(0.188)	(0.178)	(0.091)	(0.114)	(0.167)	(0.201)	(0.161)	(0.176)	(0.129)
Positive_Sales	−0.353*	0.068	−0.008	0.110	−0.886***	−0.157	−0.316	−0.254	−0.025	−0.103	−0.043	−0.887***	−0.240	−0.096
	(0.214)	(0.235)	(0.283)	(0.319)	(0.269)	(0.400)	(0.305)	(0.167)	(0.236)	(0.291)	(0.280)	(0.247)	(0.355)	(0.192)
Management_Size	0.018***	0.014*	0.022***	0.017	0.038***	0.023**	0.026***	0.013***	0.004	0.012	0.005	0.036***	0.008	0.016**
	(0.006)	(0.008)	(0.007)	(0.013)	(0.010)	(0.011)	(0.009)	(0.005)	(0.009)	(0.008)	(0.013)	(0.010)	(0.010)	(0.006)
Management_Shareholder	0.006	−0.043	−0.031	−0.033	−0.011	−0.059	0.005	0.018	−0.020	−0.018	−0.033	−0.013	−0.005	0.025
	(0.031)	(0.035)	(0.040)	(0.051)	(0.059)	(0.060)	(0.049)	(0.025)	(0.034)	(0.038)	(0.053)	(0.061)	(0.048)	(0.031)
Managerment_Female	−0.060	0.098	−0.037	0.347	0.036	0.198	0.326	−0.140	0.060	0.036	0.023	−0.056	0.027	0.131
	(0.168)	(0.180)	(0.161)	(0.220)	(0.201)	(0.241)	(0.203)	(0.144)	(0.205)	(0.205)	(0.230)	(0.222)	(0.249)	(0.161)
Platform controls														
Active_Campaign	−0.006	0.001	−0.009	0.000	0.002	0.003	0.002	−0.008	−0.001	−0.018**	−0.013	−0.007	0.000	−0.007
	(0.008)	(0.007)	(0.008)	(0.010)	(0.010)	(0.010)	(0.009)	(0.006)	(0.007)	(0.008)	(0.010)	(0.009)	(0.010)	(0.007)
Competing_Investment	0.025	0.016	0.058**	0.096***	0.051	−0.006	−0.020	0.037**	0.018	0.058**	0.106***	0.016	−0.041	−0.009
	(0.025)	(0.028)	(0.025)	(0.036)	(0.034)	(0.037)	(0.033)	(0.019)	(0.025)	(0.026)	(0.034)	(0.034)	(0.035)	(0.026)

Table 3. (Continued)

	Number of daily investors (Negative Binominal)							Number of daily investors (Poisson)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Other controls														
Monday	0.206	−0.108	−0.103	0.450*	0.304	0.455*	−0.108	0.043	−0.255	−0.140	0.414	0.297	0.349	0.083
	(0.295)	(0.307)	(0.187)	(0.260)	(0.217)	(0.237)	(0.253)	(0.253)	(0.306)	(0.197)	(0.316)	(0.203)	(0.223)	(0.206)
Tuesday	0.161	0.690***	0.517	0.229	0.427*	0.657***	0.325	−0.044	0.530**	0.705**	0.182	0.432*	0.371*	0.404*
	(0.201)	(0.263)	(0.372)	(0.266)	(0.247)	(0.230)	(0.244)	(0.163)	(0.268)	(0.304)	(0.290)	(0.241)	(0.206)	(0.211)
Wednesday	0.342	0.329**	0.393**	0.615**	0.245	0.942***	0.646***	−0.021	0.215	0.349*	0.532*	0.295	0.737***	0.460**
	(0.222)	(0.163)	(0.200)	(0.245)	(0.240)	(0.269)	(0.242)	(0.164)	(0.172)	(0.204)	(0.280)	(0.203)	(0.225)	(0.198)
Thursday	0.341	0.178	0.377**	0.442*	0.153	0.572**	0.918***	−0.027	0.053	0.380**	0.567**	0.476*	0.352	0.659***
	(0.230)	(0.160)	(0.149)	(0.226)	(0.257)	(0.274)	(0.259)	(0.189)	(0.172)	(0.156)	(0.258)	(0.265)	(0.220)	(0.201)
Friday	0.347	0.243	0.246	0.239	−0.218	0.537**	0.078	0.126	0.032	0.234	0.242	0.083	0.391*	0.182
	(0.216)	(0.185)	(0.152)	(0.232)	(0.233)	(0.256)	(0.276)	(0.160)	(0.196)	(0.162)	(0.276)	(0.235)	(0.237)	(0.206)
Saturday	0.237	−0.154	0.116	0.382	−0.228	0.128	0.387	−0.012	−0.175	0.023	0.456*	−0.006	−0.183	0.296
	(0.244)	(0.177)	(0.178)	(0.236)	(0.229)	(0.256)	(0.289)	(0.197)	(0.201)	(0.182)	(0.262)	(0.259)	(0.251)	(0.218)
lnalpha	−0.902***	−0.884***	−0.732***	−0.232*	−0.113	0.026	0.111							
	(0.124)	(0.121)	(0.128)	(0.132)	(0.121)	(0.119)	(0.111)							
Constant	−1.726**	−3.141***	−23.630	−5.026***	−2.454**	−0.648	2.740**	−1.414**	−3.599***	−20.540	−6.346***	−3.465***	−1.160	1.018
	(0.779)	(0.736)		(1.067)	(1.052)	(1.224)	(1.149)	(0.604)	(0.761)		(1.147)	(1.039)	(1.208)	(0.906)
Observations	442	441	429	437	444	445	447	442	441	429	437	444	445	447
Category*Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses.

This table reports the regression results by regressing the number of daily investors on a particular day on sentiment index and different sets of explanatory variables. For brevity, we only report coefficients of the sentiment for the first to third days, middle period and last 3 days in the table. The descriptions of all variables are listed in Tables 1 and 2. Specifications (1) and (2) report the results for number of daily investors using negative binominal and Poisson regressions, respectively, with category*listing year fixed effect and robust standard error. The sample period is from December 2013 to January 2018. The coefficient estimates of the variables and robust standard errors are reported. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 4. Investor sentiment and investments in equity crowdfunding campaigns in high and low-uncertainty subsamples

	Number of daily investors (Negative Binominal)		Number of daily investors (Poisson)	
	High uncertainty	Low uncertainty	High uncertainty	Low uncertainty
	Panel 4A: Firm size			
Sentiment	0.034**	0.021	0.064***	0.016
	(0.014)	(0.016)	(0.019)	(0.013)
Observations	221	221	221	221
Control variables	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES
	Panel 4B: Sophisticated investors			
Sentiment	0.034**	0.074	0.024**	0.074
	(0.014)	(0.050)	(0.012)	(0.050)
Observations	394	48	394	48
Control variables	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES
	Panel 4C: Trademark			
Sentiment	0.078***	0.028*	0.046*	0.022*
	(0.024)	(0.016)	(0.025)	(0.013)
Observations	205	237	205	237
Control variables	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES

Note: This table reports the regression results by regressing the number of daily investors on a particular day on sentiment and different sets of explanatory variables in high and low-uncertainty subsamples based on three uncertainty proxies: firm size (Panel 4A); sophisticated investors (Panel 4B); and trademark (Panel C). For brevity, we only report coefficients of the sentiment on the first day. The high-uncertainty (low-uncertainty) subsample consists of the bottom (top) 50% of campaigns sorted on firm size. The high-uncertainty (low-uncertainty) subsample consists of firms that do not (do) have a trademark and sophisticated investors. The descriptions of all variables are listed in Tables 1 and 2. Specifications (1) and (2) report the results for number of daily investors using negative binominal and Poisson regressions, respectively, with category*listing year fixed effect and robust standard error. The sample period is from December 2013 to January 2018. The coefficient estimates of the variables and robust standard errors are reported. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

– consistent with our hypothesis – sentiment has no impact on investments on other days of the funding period. Altogether, the results from our analysis are all consistent with our hypotheses, suggesting that sentiment effects in equity crowdfunding are most pronounced when investors pay highest attention to the projects, that is, the first day of funding campaigns, and then disappear on later days as fundraising progresses.

Firm uncertainty and the impacts of sentiment

To understand the relationship between firm uncertainty and sentiment impacts, we repeat our estimations of sentiment effects on investments as in Table 3 and report subsamples of high and low-uncertainty firms in Table 4 categorized by firm size (Panel 4A), sophisticated investors (Panel 4B) and trademark (Panel 4C) . For brevity, we only show the results on sentiment variables and from specifications using negative binomial and Poisson regressions for the number of investors. These tables include only the results from the first day of a funding cycle as, similar to Table 3, we did not find that investments in high and low-sentiment projects are different on other days of the funding cycle. Overall, the results support our hypothesis that the sentiment effects would be stronger in campaigns with higher levels of uncertainty than those with lower levels of uncertainty. Indeed, we consistently observe across all tables the statistically significant impacts of sentiment on the number of investors among campaigns characterized by high uncertainty, and not among those with low uncertainty. The economic influence is also sizable. For instance, from Panel 4A a one standard deviation increase in the level of investor sentiment can lead to around 15.1% more investors in a campaign with a high level of uncertainty.[12] In our unreported results, we find that sentiment effects are insignificant even among high-uncertainty firms for other days of the funding cycle.

[12]The increase in number of investors is calculated as $(e^{4.150*0.037} - 1) * 100 = (e^{0.141} - 1) * 100 = 15.1\%$.

Further analysis

We have expanded our analysis to delve deeper into the effects of sentiment on the financial dynamics of fundraising campaigns.[13] Specifically, we investigated the impacts of sentiment on two key measures of financial flows: investment size (daily amount raised/daily number of investors) and the natural logarithm of daily amount raised. Table 5 provides the outcomes of ordinary least square (OLS) regressions, assessing the influence of sentiment on these financial flow metrics. The results presented in the tables suggest that a higher level of sentiment is associated with smaller average investments and does not exert a significant impact on capital inflow. This observation necessarily sheds further light on the main analysis suggesting that during high-sentiment periods, the increased number of investors is primarily composed of individual investors, with a relatively lower participation from larger (institutional) investors.[14] These implications align with findings in the existing literature (Antoniou, Doukas and Subrahmanyam, 2016; Baker and Wurgler, 2006; Lamont and Thaler, 2003; Yu and Yuan, 2011) reporting that during periods of elevated sentiment, unsophisticated investors tend to engage more in the market, whereas institutional investors typically scale back their activities.

Robustness tests

One major issue with research in investor sentiment is the measurement of sentiment, which is understandably very difficult to gauge. To ensure the robustness of our results, we replicate our main analysis with several alternative sentiment proxies.[15]

First, we check the robustness of our results with different cutoff points (i.e. 0 and 15 days) to impute the value of daily investor sentiment. For the 0-day cutoff, we use the value of sentiment measure of the corresponding calendar month. For the 15-day cutoff point, if the day of the campaign is within the first (last) 15 days of a calendar month, we use the value of sentiment measure in the previous (this) calendar month. The results are shown in Panels 6A and 6B of Table 6.

Second, in addition to macroeconomic factors as described above, we orthogonalize the consumer confidence index (GFK) to market condition measurement using the daily return of the MSCI index. We replicate the main analysis using this alternative sentiment proxy and document the results in Panel 6C of Table 6.

Third, we have tried an alternative sentiment proxy to GFK. Following Gausden and Hamas (2022), we use the Consumer Confidence Indicator (CCI), which is collected through consumer surveys and measured by the Directorate General for Economic and Financial Affairs for different economies in the European Union (EU). We use the CCI for the United Kingdom and report the results of analysis using this measurement in Panel 6D of Table 6.

Finally, we employ post-fundraising equity market returns as daily measures of investor sentiment. The choice of post-fundraising market returns as a proxy is motivated by the findings of Lowry (2003). The author argues that if investor sentiment does influence market-wide returns, and firms choose to go public during high-sentiment periods, then the IPO volume would be negatively associated with future market returns, since excessive market optimism leads to future market return reversal.[16] Similarly, if investors' optimism drives excessive demand for equity campaigns on the first day and such sentiment represents the market-wide sentiment that affects market returns, then the investments on the first day should be negatively related to future market returns. We measure the daily sentiment by calculating future 5-day compound returns on the FTSE ALL SHARE index. We report the results using market return calculated as a percentage change in Panel 6E (future market returns) and market return calculated as a log of the difference in Panel 6F (future log market returns) of Table 6. The results in these panels largely confirm the significant impact of measures of sentiment on the first-day number of investors, but not on the remaining days.

Table 7 reports alternative specifications for the main results. Specifically, while the main results are based on robust standard errors without cluster, Panel 7A reports the cluster by category due to possible potential dependencies or correlations among observations within categories. In Panel 7B, we narrow our focus to important categories with more than 1000 observations of the total sample. Overall, these results corroborate our previous findings.

Conclusion

The purpose of this section is to summarize the findings of the paper, as well as to discuss its practical implications and limitations.

[13] We thank an anonymous reviewer for suggesting this perspective for our further analysis.

[14] While it's mathematically possible that higher investor sentiment attracts more investors, each investing a smaller amount, the literature does not provide evidence supporting a reduction in investment size during high-sentiment periods.

[15] We thank an anonymous reviewer for suggesting these robustness checks.

[16] Numerous studies document the effect of future return reversal following investors' optimism (see e.g. Baker and Wurgler, 2006, 2007; Stambaugh, Yu and Yuan, 2012).

Table 5. Further analysis: Investor sentiment and investment size/daily amount raised in equity crowdfunding campaigns

	Investment size (OLS)							Daily amount raised (OLS)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Main independent variable														
Sentiment	−0.114**	0.052	−0.091	0.029	−0.005	−0.029	0.158**	0.277	0.152	−0.047	−0.030	−0.127	0.212	0.376
	(0.057)	(0.048)	(0.072)	(0.032)	(0.038)	(0.055)	(0.065)	(0.427)	(0.328)	(0.265)	(0.169)	(0.203)	(0.273)	(0.402)
Campaign-specific controls														
Target	0.586***	0.638**	0.561**	0.281	0.205*	−0.097	0.742*	12.090***	5.636***	4.690***	3.790***	3.605***	3.599***	7.944***
	(0.220)	(0.251)	(0.220)	(0.177)	(0.124)	(0.226)	(0.379)	(1.631)	(1.144)	(1.150)	(1.123)	(0.912)	(1.254)	(1.663)
Patent	−0.270	0.971	−0.958**	0.714	0.051	−0.222	−0.750	2.096	3.118	−1.741	1.992	2.886	−0.278	1.493
	(0.324)	(0.942)	(0.434)	(0.517)	(0.292)	(0.255)	(0.507)	(4.138)	(3.802)	(2.098)	(2.312)	(2.262)	(2.354)	(4.182)
Trademark	0.283	−0.009	−0.267	0.378*	0.171	0.172	0.430	−0.973	1.290	−0.174	1.225	1.097	2.608*	3.166
	(0.301)	(0.270)	(0.477)	(0.213)	(0.175)	(0.353)	(0.351)	(2.205)	(1.684)	(1.252)	(0.957)	(0.937)	(1.378)	(2.247)
Equity_Offered	0.056*	0.035	0.034	0.002	0.049**	−0.083**	−0.043	0.019	0.092	0.023	−0.011	0.058	−0.278**	−0.527***
	(0.029)	(0.025)	(0.027)	(0.018)	(0.020)	(0.040)	(0.028)	(0.197)	(0.157)	(0.109)	(0.110)	(0.099)	(0.131)	(0.199)
Tax	−1.284***	−0.585	−0.066	−0.503*	−0.807***	−1.337*	−1.239**	−6.801**	−3.725*	0.846	−1.642	−3.865***	−3.956**	−10.030***
	(0.423)	(0.442)	(0.551)	(0.278)	(0.229)	(0.694)	(0.487)	(2.736)	(2.194)	(1.524)	(1.250)	(1.238)	(1.974)	(3.074)
Firm_Age	−0.052	0.068	−0.054	−0.007	−0.041	−0.118***	0.001	−0.626*	−0.071	−0.324	0.163	−0.321**	−0.532*	−0.788*
	(0.038)	(0.087)	(0.055)	(0.040)	(0.026)	(0.037)	(0.070)	(0.324)	(0.316)	(0.234)	(0.322)	(0.143)	(0.290)	(0.442)
Firm_Size	−0.035	0.011	0.036	0.023	0.014	0.051*	0.114**	−0.135	0.126	0.202	−0.045	−0.048	0.428**	0.848***
	(0.039)	(0.032)	(0.046)	(0.035)	(0.026)	(0.031)	(0.048)	(0.298)	(0.183)	(0.169)	(0.137)	(0.151)	(0.191)	(0.325)
London	0.068	0.561	−0.634*	0.711***	−0.013	−0.371	0.761*	2.039	0.960	−1.345	2.002**	−0.176	0.054	2.238
	(0.307)	(0.454)	(0.357)	(0.260)	(0.186)	(0.556)	(0.442)	(2.484)	(1.687)	(1.174)	(0.984)	(1.029)	(1.577)	(2.484)
Sophisticated_Investors	−0.397	0.184	0.882	−0.206	0.406	0.322	−0.622	−2.544	4.534	4.000	−0.508	1.721	3.053	−2.535
	(0.520)	(0.543)	(1.141)	(0.338)	(0.331)	(0.411)	(0.574)	(4.139)	(3.706)	(3.451)	(2.095)	(2.178)	(3.150)	(3.846)
Positive_Sales	3.797**	−0.564	−1.175**	−0.070	−0.157	−0.404	−1.835***	16.630*	4.444	−1.505	−1.078	−1.130	−0.526	−4.296
	(1.777)	(0.639)	(0.593)	(0.466)	(0.385)	(0.589)	(0.665)	(8.631)	(7.590)	(4.716)	(2.890)	(2.320)	(4.197)	(5.843)
Management_Size	−0.013	0.027	0.040	−0.011	−0.010	0.000	0.042	0.423**	0.308	0.458**	0.003	0.316**	0.008	0.659***
	(0.028)	(0.046)	(0.030)	(0.018)	(0.013)	(0.025)	(0.032)	(0.206)	(0.211)	(0.184)	(0.079)	(0.137)	(0.149)	(0.193)
Management_Shareholder	−0.042	−0.077	−0.046	0.005	0.007	0.165	−0.006	0.911	−1.331*	−1.116**	−0.056	−0.300	0.270	1.019
	(0.129)	(0.159)	(0.132)	(0.084)	(0.093)	(0.113)	(0.118)	(0.922)	(0.760)	(0.538)	(0.461)	(0.434)	(0.620)	(1.045)
Managerment_Female	0.350	−0.357	−0.395	0.390	0.740*	−0.014	−0.536	−2.477	−0.367	1.274	−0.531	−0.266	−0.609	−2.173
	(0.666)	(0.360)	(0.492)	(0.415)	(0.398)	(0.371)	(0.515)	(4.160)	(2.793)	(2.574)	(1.503)	(1.353)	(2.670)	(3.714)
Platform controls														
Active_Campaign	−0.021	−0.008	−0.007	0.017	0.008	0.018	−0.022	−0.113	−0.151	−0.048	0.006	0.016	−0.026	−0.149
	(0.024)	(0.026)	(0.037)	(0.014)	(0.012)	(0.035)	(0.033)	(0.178)	(0.140)	(0.088)	(0.067)	(0.073)	(0.117)	(0.150)
Competing_Investment	0.058	−0.070	−0.019	0.063	−0.020	−0.018	0.025	1.208*	−0.017	0.458	0.665**	0.167	−0.433	0.069
	(0.073)	(0.081)	(0.111)	(0.061)	(0.055)	(0.070)	(0.081)	(0.620)	(0.486)	(0.365)	(0.308)	(0.202)	(0.411)	(0.592)

Table 5. (Continued)

	Investment size (OLS)							Daily amount raised (OLS)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Other controls														
Monday	−1.925	−0.311	−0.190	−0.452	−0.188	0.406	−0.639	−8.263	−6.108	−1.220	−1.498	−0.246	5.156**	−1.200
	(1.332)	(0.642)	(0.450)	(0.333)	(0.536)	(0.435)	(0.413)	(9.419)	(5.219)	(1.299)	(1.469)	(2.112)	(2.512)	(3.264)
Tuesday	−0.289	0.976	−1.645	−0.372	−0.034	0.435	−0.052	−3.828	7.081	1.100	−1.036	3.834*	3.563	3.167
	(1.373)	(0.647)	(1.238)	(0.380)	(0.474)	(0.366)	(0.425)	(8.484)	(5.823)	(8.873)	(2.080)	(2.113)	(2.315)	(3.675)
Wednesday	−0.277	0.926*	−0.654	−0.418	−0.755*	1.328	−0.191	2.392	2.442	−2.509	−1.345	−0.675	9.238***	−0.265
	(1.358)	(0.480)	(1.146)	(0.401)	(0.453)	(0.911)	(0.458)	(8.292)	(3.110)	(3.211)	(1.937)	(1.478)	(2.405)	(3.692)
Thursday	0.320	0.607	−0.017	−0.057	−0.545	0.017	−0.521	2.229	1.450	1.658	−0.388	1.171	2.673	5.424
	(1.711)	(0.430)	(0.508)	(0.409)	(0.448)	(0.326)	(0.478)	(8.773)	(2.709)	(1.961)	(1.753)	(1.834)	(2.239)	(3.837)
Friday	−1.083	0.414	0.245	−0.369	−0.543	0.914	−0.088	0.074	−3.410	0.067	−2.363	2.527	3.853*	−1.393
	(1.324)	(0.400)	(0.706)	(0.377)	(0.430)	(0.685)	(0.429)	(8.576)	(3.169)	(1.782)	(1.555)	(2.111)	(2.014)	(3.480)
Saturday	−0.761	0.376	−0.574	−0.024	−0.716*	0.515	2.348**	0.237	−1.274	−3.242	1.892	−0.057	1.879	7.948*
	(1.366)	(0.363)	(0.727)	(0.453)	(0.431)	(0.450)	(1.106)	(8.526)	(2.588)	(2.390)	(2.348)	(1.502)	(1.634)	(4.679)
Constant	−6.446**	−5.724*	−7.260**	−3.786*	−2.691*	3.404	−4.694	−131.8***	−57.120***	−49.940***	−45.970***	−44.280***	−5.992	−47.600**
	(3.175)	(3.332)	(2.893)	(2.106)	(1.621)	(2.506)	(3.931)	(21.660)	(13.470)	(12.180)	(13.100)	(12.270)	(26.300)	(22.430)
Observations	442	441	429	437	444	445	447	442	441	429	437	444	445	447
R-Squared	0.256	0.206	0.181	0.166	0.193	0.163	0.275	0.612	0.283	0.307	0.242	0.344	0.360	0.440
Category*Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses.

This table reports the regression results by regressing the investment size and daily amount raised on a particular day on sentiment index and different sets of explanatory variables. For brevity, we only report coefficients of the sentiment for the first to third days, middle period and last 3 days in the table. The descriptions of all variables are listed in Tables 1 and 2. Specifications (1) and (2) report the results for the investment size and daily amount raised using OLS regressions, respectively, with category*listing year fixed effect and robust standard error. The sample period is from December 2013 to January 2018. The coefficient estimates of the variables and robust standard errors are reported. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 6. Robustness tests: Alternative measurements for sentiment

	Number of daily investors (Negative Binominal)							Number of daily investors (Poisson)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Panel 6A: 0-day Cutoff														
Sentiment_0Day_Cutoff	0.048***	−0.005	0.019	0.028	−0.024	−0.012	−0.020	0.034***	−0.010	0.005	−0.007	−0.017	0.009	−0.008
	(0.012)	(0.015)	(0.017)	(0.028)	(0.026)	(0.025)	(0.021)	(0.011)	(0.016)	(0.018)	(0.026)	(0.022)	(0.019)	(0.016)
Panel 6B: 15-day Cutoff														
Sentiment_15Day_Cutoff	0.051***	0.001	0.032**	0.023	−0.008	0.004	−0.004	0.031***	−0.001	0.021	−0.014	−0.019	0.014	0.012
	(0.011)	(0.014)	(0.016)	(0.023)	(0.022)	(0.020)	(0.020)	(0.010)	(0.014)	(0.018)	(0.025)	(0.021)	(0.018)	(0.014)
Panel 6C: Sentiment-Adjusted MSCI														
Sentiment_Adjusted_MSCI	0.050***	0.000	0.026	0.024	−0.007	−0.002	−0.003	0.034***	−0.002	0.018	−0.014	−0.018	0.011	0.013
	(0.012)	(0.014)	(0.016)	(0.023)	(0.024)	(0.021)	(0.020)	(0.010)	(0.014)	(0.018)	(0.023)	(0.021)	(0.019)	(0.014)
Panel 6D: Consumer Confidence Indicator														
Sentiment_CCI	0.098***	0.010	0.060	0.019	−0.022	−0.020	−0.080	0.063**	−0.005	0.032	−0.026	0.003	0.004	−0.043
	(0.035)	(0.036)	(0.039)	(0.061)	(0.057)	(0.057)	(0.046)	(0.032)	(0.041)	(0.048)	(0.061)	(0.049)	(0.048)	(0.031)
Panel 6E: Future Market Returns														
Future Market Return	−5.729**	3.686	3.607	−7.569**	1.899	−1.191	−1.887	−4.720**	4.128*	3.349	−5.012	4.279	0.975	3.430
	(2.313)	(2.415)	(2.645)	(3.755)	(3.692)	(4.628)	(4.193)	(2.060)	(2.262)	(2.764)	(3.838)	(3.649)	(4.607)	(2.954)
Panel 6F: Future Log Market Returns														
Future Log Market Returns	−13.230**	8.584	8.350	−17.250**	4.282	−2.863	−4.397	−10.940**	9.578*	7.794	−11.370	9.875	2.231	7.924
	(5.276)	(5.508)	(6.028)	(8.639)	(8.521)	(10.690)	(9.648)	(4.689)	(5.161)	(6.300)	(8.814)	(8.419)	(10.660)	(6.787)
Observations	442	441	429	437	444	445	447	442	441	429	437	444	445	447
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table reports the regression results by regressing the number of daily investors on a particular day on alternative measurements for sentiment: 0-day cutoff (Panel 6A); 15-day cutoff (Panel 6B); sentiment-adjusted MSCI (Panel 6C); CCI (Panel 6D); future market returns (Panel 6E); future log market returns (Panel 6F) and different sets of explanatory variables as in Table 3. For the 0-day cutoff, we use the value of sentiment measure of the corresponding calendar month. For the 15-day cutoff, if the day of the campaign is within the first (last) 15 days of a calendar month, we use the value of sentiment measure in the previous (this) calendar month. Sentiment-adjusted MSCI is constructed based on the orthogonalization of consumer confidence to market condition using the daily return of the MSCI index. The CCI has been collected through consumer surveys and measured by the Directorate General for Economic and Financial Affairs for the United Kingdom. Future market returns (future log market returns) are computed as the compounded future 5-day return (log return) on the FTSE ALL SHARE index. For brevity, we only report coefficients of the sentiment for the first to third days, middle period and last 3 days in the table. The descriptions of all variables are listed in Tables 1 and 2. Specifications (1) and (2) report the results for number of daily investors using negative binominal and Poisson regressions, respectively, with category*listing year fixed effect and robust standard error. The sample period is from December 2013 to January 2018. The coefficient estimates of the variables and robust standard errors are reported. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 7. Robustness tests: Alternative specifications

	Number of daily investors (Negative Binominal)							Number of daily investors (Poisson)						
	First day	Second day	Third day	Middle period	Third last	Second last	Last day	First day	Second day	Third day	Middle period	Third last	Second last	Last day
Panel 7A: Cluster by Category														
Sentiment	0.037***	−0.010	−0.001	0.008	−0.011	0.001	0.023	0.027***	−0.014	−0.009	−0.015	−0.025	0.009	0.019
	(0.012)	(0.014)	(0.014)	(0.021)	(0.023)	(0.020)	(0.020)	(0.010)	(0.013)	(0.014)	(0.020)	(0.021)	(0.018)	(0.014)
Observations	442	441	429	437	444	445	447	442	441	429	437	444	445	447
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster by Category	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Panel 7B: Remove 2013 and 2018														
Sentiment	0.037***	−0.010	−0.001	0.008	−0.008	0.004	0.025	0.027***	−0.014	−0.009	−0.015	−0.023	0.012	0.023
	(0.012)	(0.014)	(0.014)	(0.021)	(0.023)	(0.020)	(0.020)	(0.010)	(0.013)	(0.014)	(0.020)	(0.021)	(0.017)	(0.015)
Observations	428	428	416	434	438	439	441	428	428	416	434	438	439	441
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Category*Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Robust standard errors	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table reports the regression results by regressing the number of daily investors on a particular day on alternative specifications: cluster by category (Panel 7A); remove 2013 and 2018 (Panel 7B) and different sets of explanatory variables. For brevity, we only report coefficients of the sentiment for the first to third days, middle period and last 3 days in the table. The descriptions of all variables are listed in Tables 1 and 2. Specifications (1) and (2) report the results for number of daily investors using negative binominal and Poisson regressions, respectively, with category*listing year fixed effect and robust standard error. The coefficient estimates of the variables and robust standard errors are reported. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Findings

The paper explores the role of investor sentiment in the equity crowdfunding market. We find that investments during high-sentiment periods are significantly higher than during low-sentiment periods. Extending the literature on sentiment in equity crowdfunding, we report that the sentiment effect will be disproportionately pronounced in the presence of high attention and for high-uncertainty firms. Our findings are robust to alternative sentiment and firm uncertainty proxies and alternative specifications.

Practical implications

The findings from our study also offer several interesting practical implications for entrepreneurs, investors and crowdfunding platforms. First, entrepreneurs who aim to attract investors into their equity crowdfunding campaigns should strategically time their fundraising campaigns to align with optimistic market sentiments. This recommendation aligns with observations in the IPO literature (Derrien, 2005) and in equity crowdfunding (Cerpentier, Vanacker and Paeleman, 2022), indicating that firms are more likely to secure increased funding in a 'hot' market. Further to the extant literature, our study suggests that proactive measures to enhance investor attention prior to campaign launches can attract more sentiment-driven investors. The impact of sentiment is economically noteworthy, as evidenced by our findings revealing a potential increase of around two investors on the first day during high-sentiment periods compared to low-sentiment periods. This translates to a substantial 20% rise in the number of investors on the first day of projects during low-sentiment periods.

Second, for investors whose goal is to accurately value projects, the results indicate that their valuation is most likely to be affected by sentiment on the first day of a funding campaign, when they pay most attention to the campaign. To learn more about the campaign, those investors may choose to delay their investment in order to either receive more information from other investors' trades (Vismara, 2018) or for information updates from the firm. However, they will bear the risk of missing an investment opportunity when shares are sold out (Nguyen, Cox and Rich, 2019).

Third, the implications for platforms are a bit more complicated. On the one hand, platforms would like to motivate as many investors as possible – including sentiment traders – to invest through them. This may imply that platforms prefer high sentiment. On the other hand, if investors are excessively impacted by sentiment and overinvest in high-uncertainty firms (which may end up with poor-quality projects), then they may abandon equity crowdfunding altogether. Thus, a sustainable policy may be to encourage entrepreneurs to provide more information about their business to reduce the negative impacts of sentiment.

Limitations and future studies

Despite the notable contributions made to the existing literature, it is essential to acknowledge the limitations of our paper, which may open avenues for future research.[17] First, there may be different concerns with the measurement of investor sentiment. Using a static measurement of investor sentiment for several days during funding campaigns assumes a consistent sentiment level, which might not accurately reflect the reality, as investor sentiment may undergo shifts throughout the funding period in response to events and information. Also, our measurement of sentiment using the CCI, which is collected from the whole population, may not accurately capture the sentiment of investors in equity crowdfunding. While we have checked the robustness of our results with alternative sentiment measures, future studies could develop more direct measures of sentiment in crowdfunding and delve into the dynamic impacts of sentiment.

Second, our research is conducted on a specific platform (Crowdcube) within a single country (the United Kingdom). Extending this study to other crowdfunding platforms and countries would be important to confirm the generalizability of our results.

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