



Do small funding amounts lead to reverse herding? A field experiment in reward-based crowdfunding



Michael A. Zaggl^{a,*}, Joern Block^b

^a School of Business and Social Sciences, Aarhus University, Fuglesangs Allé 4, 8210 Aarhus V, Denmark

^b Department of Management, University of Trier, Universitätsring 15, 54296 Trier, Germany

ARTICLE INFO

Keywords:

Crowdfunding
Reward-based
Biases
Herding
Reverse herding
Observational learning
Field experiment
Small contributions

ABSTRACT

Several biases are known to influence funding decisions in crowdfunding. Among these biases is herding behavior; that is, the tendency to imitate the funding decisions of others. Herding is a very robust phenomenon in crowdfunding and uniformly characterized as a positive reinforcement effect. We challenge this characterization and ask whether the funding decisions of others may in fact have a negative effect and lead to a reduction of follow-up funding decisions if they are very small – a phenomenon to which we refer as *reverse herding*. We conducted a field experiment at a reward-based crowdfunding platform by randomly contributing small funding amounts to some campaigns while keeping track of a non-manipulated control group. Our findings support the notion of reverse herding. The number and amount of contributions by the crowd following our small funding amounts were fewer and smaller than in the control group. We discuss reverse herding in relation to established crowdfunding concepts and formulate a dilemma of small contributions: Although small contributions are a fundamental part of crowdfunding, they can also cause the detrimental effect of reverse herding. Practical and theoretical implications of reverse herding are discussed and several opportunities for future research are outlined.

1. Introduction

Research has identified a number of biases in crowdfunding (Geiger and Oranburg, 2018; Greenberg and Mollick, 2017; Guenther et al., 2017; Lin and Viswanathan, 2015; Younkin and Kuppaswamy, 2017). Such biases systematically influence the funding decisions of the crowd based on attributes that are not directly related to the quality or social desirability of the crowdfunding campaigns. One of the most fundamental and widely discussed biases in crowdfunding is herding behavior (Astebro et al., 2017; Rijt et al., 2014; Vismara, 2018; Vulkan et al., 2016), that is, the tendency to imitate the actions of others (Banerjee, 1992; Bikhchandani et al., 1998). Such imitation behavior leads to a boost of those crowdfunding campaigns that already have received contributions, thus creating a positive reinforcement.

In this paper, we build on the existing understanding of herding in crowdfunding and reason that herding can be reversed when only small funding amounts are contributed to the project. It then takes the form of negative feedback and pushes towards an equilibrium of zero contributions instead of positive reinforcement. We refer to that phenomenon as *reverse herding*. It is important to note that the small funding amounts, which cause reverse herding, are relative to no contributions at all. Thus, reverse herding means the reduction of follow-up investments because of small (though positive) funding amounts.

* Corresponding author.

E-mail addresses: zaggl@mgmt.au.dk (M.A. Zaggl), block@uni-trier.de (J. Block).

There is a rationale for reverse herding: small funding amounts might represent uncertainty and hesitation of the funder. Uncertainty is more salient in small funding amounts than it is in the absence of funding. Thus, it is not just the act of funding in itself that creates the signal, but its size might constitute a critical moderating factor, leading to a positive herding effect only if it is reasonably high. If too small, a reverse herding effect might be the consequence.

Reverse herding represents a serious challenge for crowdfunding practice because small funding amounts are not only the cause of reverse herding, they are also key to the fundamental idea of crowdfunding. This idea is the collection of small contributions from many people and the accumulation of these contributions in order to fund entire projects (Colombo et al., 2014; Gierczak et al., 2016; Mollick, 2014). Thus, when considering reverse herding, small contributions represent a dilemma. On the one hand, they are desirable because they increase campaign support, while on the other hand, they reduce future contributions.

We test reverse herding in a randomized field experiment on a leading reward-based crowdfunding platform. Consistent with our notion of reverse herding, the results of the experiment show a strong negative effect of contributing small amounts relative to a control group to which nothing has been contributed.

Our paper contributes to the growing literature on funding behavior in crowdfunding (e.g., Agrawal et al., 2015; Astebro et al., 2017; Block et al., 2018; Bretschneider and Leimeister, 2017; Moysidou, 2017; Vismara, 2018; Vulkan et al., 2016). We introduce reverse herding as a new aspect of herding relevant in crowdfunding. More broadly and beyond crowdfunding, we also contribute to the literature on herding (Banerjee, 1992; Bikhchandani et al., 1998; Cai et al., 2009). So far, this literature has not taken into account that the size or strength of a trigger for herding can qualitatively change the signal, thus leading to a negative effect.

In the remainder of this paper, we next briefly categorize different types of crowdfunding. Then, we discuss herding behavior and reverse herding. Thereafter, we describe our empirical method and the results. Finally, we discuss the findings and their implications for theory and practice, state limitations, motivate future research, and conclude the paper.

2. Background

2.1. Forms of crowdfunding

Although the label “crowdfunding”, which denotes the source of funding (i.e., the crowd), is a commonality across different campaigns and platforms, the purposes for gathering financial resources and the motivations for contributing funds can vary considerably. Thus, it is useful to conceptually distinguish different types of crowdfunding campaigns. The crowdfunding literature, while capturing perspectives of entrepreneurship, information systems, and law (Bradford, 2012; Gierczak et al., 2016; Haas et al., 2014; Mollick, 2014) differentiates the following types: (1) patronage or donation-based crowdfunding, which represents funding in form of donations without any material returns for funders who are only motivated by altruistic reasons (Allison et al., 2013; Burtch et al., 2013); (2) crowd lending (or lending-based crowdfunding), which contains the expectation of monetary compensation for the funder, usually in the form of interest for providing a loan (Butler et al., 2017; Zhang and Liu, 2012); (3) equity-based crowdfunding, in which the funder gets ownership rights on a business (Guenther et al., 2017; Vulkan et al., 2016); and (4) reward-based crowdfunding, which contains material and non-material rewards often directly related to the funded project, such as a specimen of the product or pre-purchase rights, or honorable mentioning in some way (e.g., if the product is a movie) (Colombo et al., 2014; Greenberg and Mollick, 2017). Though many crowdfunding platforms are specialized in one of these types (Haas et al., 2014), it is often not possible to unambiguously categorize the crowdfunding campaigns on a given platform. For example, funders in crowd-lending can be incentivized by monetary concern and altruistic motivations (Allison et al., 2015).

The different forms of crowdfunding represent an epistemological obstacle. Motivations and behaviors of funders and project owners and the dynamics in crowdfunding campaigns are very likely subject to these differences, making generalizations difficult. Empirical comparisons indeed show tremendous differences between crowdfunding forms (Dushnitsky and Fitza, 2018). In this paper, we focus on reward-based crowdfunding.

2.2. Herding behavior

Herding takes place when the observed behavior of others is used to inform one's decision making through imitating this behavior. Herding can help to improve the decision of the imitating individual (Anderson and Holt, 1997; Banerjee, 1992). The theoretical explanation for herding behavior is that the observed behavior reveals information that otherwise is not available to the decision-maker. Thus, uncertainty is reduced. Herding is considered to be rational when the observed behavior of others is used appropriately and improves decision making (Banerjee, 1992; Bikhchandani et al., 1998; Henrich and Boyd, 1998). It can also be irrational, that is, when observed behavior reduces decision quality, for example when the information is overestimated or information cascades filter behaviors that lead to suboptimal decisions (Simonsohn and Ariely, 2008).

Herding has been empirically observed in many different social contexts, for example, menu choice in restaurants (Cai et al., 2009), online product choice decisions (Huang and Chen, 2006), product configurations in mass customization (Zaggl et al., 2019), online product rating (Wang et al., 2014), online auctions (Simonsohn and Ariely, 2008), emotional states such as happiness (Fowler and Christakis, 2008), health behavior such as obesity or smoking (Christakis and Fowler, 2007, 2012), and many more. Further, herding has received a particular interest in the context of financial investment decision making (Froot et al., 1992; Hirshleifer et al., 1994) as well as in all of the four types of crowdfunding: donation-based crowdfunding (Burtch et al., 2013), lending-based crowdfunding (Zhang and Liu, 2012), equity-based crowdfunding (Astebro et al., 2017; Burtch, 2011; Hornuf and Neuenkirch, 2017; Vismara, 2018), and reward-based crowdfunding (Colombo et al., 2014; Rijdt et al., 2014).

2.3. Reverse herding

Herding in crowdfunding means that early contributions stimulate later contributions. It has been characterized in the literature as based on imitation (Anderson and Holt, 1997; Banerjee, 1992) and, in the context of crowdfunding, as being uniformly positive (Astebro et al., 2017; Colombo et al., 2014; Rijt et al., 2014; Vulkan et al., 2016). For example, based on archival data on equity-based crowdfunding campaigns, Astebro et al. (2017) suggest that the size of funding amounts is proportional to the size of earlier contributions. According to their regression estimates, doubling a particular funding amount increases the size of follow-up funding amounts by up to 20%. These findings imply an invariably positive relationship throughout the whole spectrum of possible funding amounts (i.e., any positive value). Thus, contributions regardless of their size should lead to additional investments. Similarly, Rijt et al. (2014) argue that follow-up contributions are stimulated by “the mere presence of an initial donation.” (p. 6935).

In contrast to this “success-breeds success” (or “the richer get richer”) perspective (Astebro et al., 2017; Colombo et al., 2014; Rijt et al., 2014; Vulkan et al., 2016), herding theory can be interpreted such that small contributions represent negative signals, even relative to zero contributions. They can be perceived as an indicator of the opposite attributes of what large or normal funding amounts signify, thus embodying uncertainty and doubt in the quality of a campaign. This negative perception prevails relative to zero contributions because zero contributions are not as salient as small contributions. Thus, though small contributions are larger, they may in fact provide a stronger negative signal.

Based on this reasoning we expect that small funding amounts – relative to no funding amounts at all – do *not* lead to small positive follow-up funding contributions, but instead have a negative effect on the number and size of follow-up contributions. We refer to this effect as *reverse herding*.

3. Data and method

Our empirical approach was motivated by the objective of deriving insights about the causality in the relationship between small funding amounts and follow-up funding. Therefore, we conducted a randomized field experiment at one of the largest reward-based crowdfunding platforms. Choosing this method allows us to control for endogeneity, which is inherent to (reverse) herding because of the dynamic feedback effects discussed earlier.

To create a homogenous sample, we defined several criteria for campaigns to be included. First, we limited the sample to the platform’s campaign category “Tech and Innovation,” with the other two categories defined by the crowdfunding platform (“Creative Works” and “Community Projects”) excluded because of their predominantly artistic or social goals which often do not satisfy the definition of reward-based crowdfunding. Second, only projects with a funding goal of a maximum of 5,000 currency units were included. Third, a funding period of at least 25 days needed to be left. Fourth, the campaigns needed to provide a material reward (in contrast to a symbolic reward) for the funders either in the form of a physical product or a service from which non-funders are excluded. Thus, pure donation-based campaigns were not included in the sample. (Although the platform is usually considered as typical for reward-based crowdfunding (Dushnitsky and Fitza, 2018), campaigns without rewards can be hosted as well.) Fifth, campaigns needed to have at least a textual description. Sixth, most importantly, the campaign must not have received any funding at the point in time when we included them into the sample.

The data collection procedure took place over a period of seven weeks (between May 13th and July 1st, 2017). Each week at the same time (Saturday afternoon), a research assistant collected data from the platform. First, the research assistant checked for new campaigns fulfilling all of the six sampling criteria. Each new campaign was randomly allocated to either the treatment or the control group. The campaigns in the treatment group immediately received funding of one currency unit (i.e., one US Dollar, one Euro, one Canadian Dollar, one Australian Dollar, or one Pound Sterling depending on the currency defined by the campaign owner). Importantly, these contributions occurred before any other contribution in the project took place (sixth criterion). The campaigns in the control group were not manipulated. The adding of new projects to the sample ended on July 1st. Second, the research assistant logged the contributions received by the sampled campaigns (those included in the previous weeks). The logging of the contribution data was continued until August 5th, 2017 to complete the data from the latest included campaigns.

During the data collection procedure, we experienced a setback. The platform management noticed a pattern in our contribution behavior. The small amounts spread across many campaigns originating from a single account made them suspicious and they blocked our account on May 31st. Despite several requests, the account was not reactivated. We created multiple new accounts and continued to fund on June 17th. Thus, all projects that originated between June 3rd (the Saturday after the account had been blocked) and June 10th were allocated to the control group. On June 17th, we switched back to adding to the treatment and the control group using the new accounts.

Overall, the data collection led to a sample of 84 campaigns, 33 in the treatment group and 51 in the control group.

4. Results

4.1. Testing reverse herding

The data from the randomized experiment show strong differences between the treatment and the control group. We found significantly fewer contributions in the treatment group than in the control group ($\text{mean}_{\text{Treatment}} = 0.121$, $\text{mean}_{\text{Control}} = 1.215$, $p < 0.01$). In the treatment group, only 4 of 33 campaigns (12.1%) received any funding. By comparison, more campaigns in the control group received funding: 14 of 51 campaigns (27.5%).

The contributed sums were also smaller for the treatment group compared to the control group. To test this, we used a Wilcoxon signed-rank test for non-normally distributed data ($\text{mean}_{\text{Treatment}} = 3.54$, $\text{mean}_{\text{Control}} = 82.86$, $p < 0.05$). Considering only campaigns that received any contribution provides a similar picture ($\text{mean}_{\text{Treatment}} = 29.25$, $\text{mean}_{\text{Control}} = 301.86$, $p < 0.05$). Both of these results – fewer contributions and lower contributed sums – support the basic notion of reverse herding.

We further tested whether the treatment affects the size of the first funding by the crowd. Therefore, we considered only the amount of the first contribution by the crowd. Again, we found a statistically significant effect, though the difference between the treatment and the control group is much smaller compared to the test considering the sum of all contributed amounts ($\text{mean}_{\text{Treatment}} = 3.55$, $\text{mean}_{\text{Control}} = 36.84$, $p < 0.05$).

Overall, our analysis shows that there is not only a statistically significant effect of reverse herding but also an economically significant effect. Differences in the effect sizes are considerably larger in all tests, differing by tenfold or more between treatment and control group.

4.2. Robustness tests

To ensure that our sampling strategy produced a random allocation between the treatment and the control group, we compared the distribution of several attributes of the campaigns between the two groups. In the case of random sampling, these attributes should be arbitrarily distributed between the groups. These attributes are (1) the funding period duration, (2) the product category (product is a tangible, material product or a service coded as 0 or 1), (3) the funding goal, (4) the implementation stage of the product (concept, prototype, production, or market-ready coded as 0 to 3), (5) and whether the funding goal was fixed or flexible (coded as 0 or 1). We did not find statistically significant differences between the groups in any of these attributes ($p > 0.10$).¹

We also conducted an OLS regression analysis of the logged investment sums predicted by the experimental group and the attributes as control variables (see Table 1), which shows that the negative effect by the treatment (treatment = 1, control = 0) remains statistically significant ($p < 0.05$) when the control variables are considered.

5. Discussion and conclusion

5.1. Summary of findings

We asked the question of whether small funding amounts lead to a reverse herding effect in crowdfunding campaigns. In a randomized field experiment at one of the leading reward-based crowdfunding platforms, we found evidence for such an effect: initial small funding amounts – compared to no initial funding amounts at all – led to fewer and smaller follow-up contributions by the crowd.

5.2. Implication for theory

Our study contributes to the existing understanding of crowdfunding. The crowdfunding literature has considered herding behavior as a potential issue that might lead to suboptimal funding allocations in crowdfunding (Astebro et al., 2017; Colombo et al., 2014; Rijt et al., 2014). However, herding has been characterized as imitation behavior, exerting an invariably positive self-reinforcing effect throughout the entire spectrum of possible funding amounts. By discovering reverse herding as a new facet of herding in crowdfunding, our study shows that this characterization is incomplete. Consequently, we can draw a more comprehensive and nuanced picture of herding and the dynamics of the contribution behavior in crowdsourcing.

The fact that the basic idea of crowdfunding inherently builds on the idea of small contributions makes reverse herding a highly relevant topic. Small contribution amounts are theoretically essential because the basic idea of crowdfunding is the collection of multiple small amounts (Colombo et al., 2014; Gierczak et al., 2016; Mollick, 2014). However, the discouraging of follow-up contributions by reverse herding renders small contributions an issue. This creates a dilemma when it comes to small contribution amounts in crowdfunding. On the one hand, small contributions, in their sum, represent valuable contributions, on the other hand, they reduce the probability and size of follow-up contributions.

Next to contributing to the crowdfunding literature, our study also has implications for the broader literature on herding (Banerjee, 1992; Bikhchandani et al., 1998), which has so far characterized herding as imitation, directed in the same direction as the observed behavior (Baddeley, 2010; Bikhchandani et al., 1998). Without contradicting the fundamental concept of observing others' decisions to inform one's own decision making, our study identifies a deviation from the notion that imitation is the mechanism to exploit the information contained in the behavior of others. Instead of imitation, we found diversion. The crowd observes the behavior of earlier funders, but instead of imitating this behavior, it shies away from campaigns that have received very small earlier contributions. Thus, we argue that reverse herding can be explained within the existing theory and that it should be seen as a specification or an extension of herding theory but not as an exception or a contradiction.

¹ In detail, the results are (1) funding period duration: $p = 0.620$, (2) product category: $p = 0.985$, (3) funding goal size: $p = 0.545$, (4) implementation stage: $p = 0.200$, (5) funding goal (flexible or fixed): $p = 1.00$.

Table 1
Regression analysis predicting contributed sums (log).

	<i>Dependent variable:</i>
	Funded sum by crowd (log)
Treatment	−0.845** (0.417)
Funding period duration	0.053** (0.026)
Product category	0.014 (0.501)
Funding goal	0.00004 (0.0001)
Implementation stage	−0.354 (0.214)
Funding goal (flexible = 1 or fixed)	−1.040** (0.512)
Constant	1.303 (1.132)
Observations	84
R ²	0.167
Adjusted R ²	0.102
Residual Std. Error	1.841 (df = 77)
F Statistic	2.571** (df = 6; 77)

Note: *p < 0.1; **p < 0.05.

5.3. Implication for practitioners

Practical implications concern designers of crowdfunding platforms and capital seekers. The size of the smallest possible funding amount that is allowed by the platform can have a crucial impact on the campaigns. Platform designers might consider informing campaign owners about the effect of reverse herding and then let them define the minimum contribution amount. It would also be possible to increase the minimum contribution amount for the entire platform. However, it is unclear if and to what degree this measure avoids reverse herding. Reverse herding might be triggered by the minimum possible contribution amount regardless of the absolute size of this amount.

Capital seekers also need to be aware of reverse herding. According to the dilemma of small contribution amounts, capital seekers should be aware of the downsides of requesting small amounts. Though small contributions add to the campaign goal, they can undermine the overall campaign success by reducing follow-up contributions. Thus, when setting up a campaign, capital seekers might be best advised not to suppress small contributions, but – importantly – neither should they actively ask for them. Calling many people and asking for small contributions can be detrimental to campaign success. Further, capital seekers are encouraged to see small contributions as negative feedback, which might lead them to improve the campaign or its presentation.

5.4. Limitations and future research directions

Our results are derived from a randomized field experiment on one of the leading reward-based crowdfunding platforms. We sampled based on the campaign category, set an upper limit on the funding amount, and ensured that only projects with a material reward were included. Although comparative analyses have shown that many empirical findings are specific to the particular crowdfunding platform and can even be inconsistent on the same platform across time (Dushnitsky and Fitza, 2018), we have no reason to think that our findings are not applicable to other reward-based crowdfunding projects on similar platforms (e.g., Kickstarter). Because our experiment was designed with a minimum intervention and conducted in the field, we are quite confident that process-specific elements are uncritical for generalizing our findings. However, leaving the context of reward-based crowdfunding might draw a different picture. While we would expect our results to also apply to equity-based crowdfunding, they might be irrelevant or even reversed in donation-based crowdfunding.

We could not exploit the data from our experiment to a fuller extent because of the small sample size. This leaves open questions such as what are the possible mediators and moderators of the relationship between small funding amounts and reduced follow-up contributions? The most natural candidate for being either a mediator or a moderator is the notion of family and friends (Agrawal et al., 2015; Ordanini et al., 2011). This notion has been developed in prior crowdfunding research and describes relatives and personal friends as contributors who have personal relationships with the campaign owner (Agrawal et al., 2015). Family and friends are a very likely source of small funding amounts. Specifically, family and friends have two characteristics making them relevant for reverse herding. First, family and friends often have distinct knowledge about the campaign and the founder that is not publicly available. They can estimate the credibility of the campaign owner and distinguish fraud campaigns from honest projects more easily. Their knowledge also places them in a position to be among the first to know about the existence of a campaign and thus to contribute very early, usually at the beginning of the funding period (Kuppuswamy and Bayus, 2015, 2018; Ordanini et al., 2011). Thus, they are predestined to serve as leaders when it comes to herding. Second, family and friends are less motivated by material returns (Bretschneider and Leimeister, 2017) but their motivations are affected by their personal relationships with the campaign owners. For example, they can demonstrate

loyalty by contributing. When pairing the motivation of showing loyalty to the campaign owner with the possibility that they are not convinced about the quality of the campaign, it is very likely that they contribute despite the low quality, but their contributions are smaller than under normal campaign quality. Put simply, family and friends might feel impelled to show their loyalty to the campaign owner through contributing despite the low project quality.

Given the phenomenon of reverse herding, it might be necessary to reevaluate the role of family and friends. They should not only be seen as important campaign supporters (Agrawal et al., 2015), but also as a possible source for negative signals, which can reduce follow-up contributions. Contributions from family and friends might always be discounted as acts of loyalty instead of quality signals. We would like to stimulate future empirical research to test these arguments.

Future research should also test reverse herding in other forms of crowdfunding especially in equity-based crowdfunding. It could be that the effects are even stronger in that context. Reverse herding might not exist in donation-based crowdsourcing, especially when it comes to humanitarian campaigns. Here small amounts might not necessarily be interpreted as a negative signal but as an indicator of desperation and thus the importance of the campaign. Relatedly, the context of company-internal crowdfunding contests could be relevant for studying reverse herding. Here, prior research has identified herding as a driver of contribution decisions (Schweisfurth et al., 2017; Zagg et al., 2018). Thus, it could be that reverse herding might also play a critical role in these contests.

Fundamentally, it is important to figure out where the exact thresholds for normal (positive) herding and reverse herding are. One can think of the contribution amount as being a continuous variable. At the higher end, it stimulates follow-up contribution decisions, at the lower end it dampens them, and in-between there might be a neutral part. Investigating the specific parts of that spectrum and especially the limits of positive and negative effects on the follow-up contributions is of high academic and practical interest. Therefore, future research could experiment with splitting funding amounts into many and fewer contributions, keeping the total funding amount of the manipulation constant, and comparing the impact on follow-up contributions.

5.5. Conclusion

We have shown that reverse herding takes place in reward-based crowdfunding: Small contributions to a crowdfunding campaign (relative to no contribution) lead to fewer and smaller follow-up contributions by the crowd. Reverse herding in crowdfunding establishes a dilemma: Small contributions are part of the basic idea of crowdfunding and desirable, but they may reduce follow-up contributions and thus endanger the overall success of a campaign.

Funding

This work was supported by the DFG Sonderforschungsbereich 768.

Declaration of competing interest

The authors declare no conflict of interest.

References

- Agrawal, A., Catalini, C., Goldfarb, A., 2015. Crowdfunding: geography, social networks, and the timing of investment decisions. *J. Econ. Manag. Strategy* 24, 253–274.
- Allison, T.H., Davis, B.C., Short, J.C., Webb, J.W., 2015. Crowdfunding in a prosocial microlending environment: examining the role of intrinsic versus extrinsic cues. *Entrep. Theory Pract.* 39, 53–73.
- Allison, T.H., McKenny, A.F., Short, J.C., 2013. The effect of entrepreneurial rhetoric on microlending investment: an examination of the warm-glow effect. *J. Bus. Ventur.* 28, 690–707.
- Anderson, L.R., Holt, C.A., 1997. Information cascades in the laboratory. *Am. Econ. Rev.* 87, 847–862.
- Astebro, T., Sierra, M.F., Lovo, S., Vulkan, N., 2017. Herding in equity crowdfunding. *SSRN Electr. J.*
- Baddeley, M., 2010. Herding, social influence and economic decision-making: socio-psychological and neuroscientific analyses. *Philos. Trans. R. Soc. Biol. Sci.* 365, 281–290.
- Banerjee, A.V., 1992. A simple model of herd behavior. *Q. J. Econ.* 107, 797–817.
- Bikhchandani, S., Hirshleifer, D., Welch, I., 1998. Learning from the behavior of others: conformity, fads, and informational cascades. *J. Econ. Perspect.* 12, 151–170.
- Block, J., Hornuf, L., Moritz, A., 2018. Which updates during a crowdfunding campaign increase crowd participation? *Small Bus. Econ.* 50, 3–27.
- Bradford, C.S., 2012. Crowdfunding and the federal securities laws. *Columbia Bus. Law Rev.* 2012, 1–150.
- Bretschneider, U., Leimeister, J.M., 2017. Not just an ego-trip: exploring backers' motivation for funding in incentive-based crowdfunding. *J. Strateg. Inf. Syst.* 26, 246–260.
- Burch, G., 2011. Herding behavior as a network externality. In: *Thirty Second International Conference Information Systems (Shanghai)*.
- Burch, G., Ghose, A., Watal, S., 2013. An empirical examination of the antecedents and consequences of contribution patterns in crowd-funded markets. *Inf. Syst. Res.* 24, 499–519.
- Butler, A.W., Cornaggia, J., Gurun, U.G., 2017. Do local capital market conditions affect consumers' borrowing decisions? *Manag. Sci.* 63, 4175–4187.
- Cai, H., Chen, Y., Fang, H., 2009. Observational learning: evidence from a randomized natural field experiment. *Am. Econ. Rev.* 99, 864–882.
- Christakis, N.A., Fowler, J.H., 2007. The spread of obesity in a large social network over 32 years. *N. Engl. J. Med.* 357, 370–379.
- Christakis, N.A., Fowler, J.H., 2012. Social contagion theory: examining dynamic social networks and human behavior. *Stat. Med.* 32, 556–577.
- Colombo, M.G., Franzoni, C., Rossi-Lamastra, C., 2014. Internal social capital and the attraction of early contributions in crowdfunding. *Entrep. Theory Pract.* 39, 75–100.
- Dushnitsky, G., Fitza, M.A., 2018. Are we missing the platforms for the crowd? Comparing investment drivers across multiple crowdfunding platforms. *J. Bus. Ventur. Insights* 10, e00100.
- Fowler, J.H., Christakis, N.A., 2008. Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the framingham heart study. *BMJ* 337, a2338–a2338.
- Froot, K.A., Scharfstein, D.S., Stein, J.C., 1992. Herd on the street: informational inefficiencies in a market with short-term speculation. *J. Financ.* 47, 1461–1484.
- Geiger, M., Oranburg, S.C., 2018. Female entrepreneurs and equity crowdfunding in the US: receiving less when asking for more. *J. Bus. Ventur. Insights* 10, e00099.

- Gierczak, M.M., Bretschneider, U., Haas, P., Blohm, I., Leimeister, J.M., 2016. Crowdfunding: outlining the new era of fundraising. In: Brüntje, D., Gajda, O. (Eds.), *Crowdfunding Europe*. FGF Studies Small Business Entrepreneurship. Springer.
- Greenberg, J., Mollick, E., 2017. Activist choice homophily and the crowdfunding of female founders. *Adm. Sci. Q.* 62, 341–374.
- Guenther, C., Johan, S., Schweizer, D., 2017. Is the crowd sensitive to distance? How investment decisions differ by investor type. *Small Bus. Econ.* 50, 289–305.
- Haas, P., Blohm, I., Leimeister, J.M., 2014. An empirical taxonomy of crowdfunding intermediaries. In: *Thirty Fifth International Conference Information Systems* (Auckland).
- Henrich, J., Boyd, R., 1998. The evolution of conformist transmission and the emergence of between-group differences. *Evol. Hum. Behav.* 19, 215–241.
- Hirshleifer, D., Subrahmanyam, A., Titman, S., 1994. Security analysis and trading patterns when some investors receive information before others. *J. Financ.* 49, 1665–1698.
- Hornuf, L., Neuenkirch, M., 2017. Pricing shares in equity crowdfunding. *Small Bus. Econ.* 48, 795–811.
- Huang, J.-H., Chen, Y.-F., 2006. Herding in online product choice. *Psychol. Mark.* 23, 413–428.
- Kuppuswamy, V., Bayus, B.L., 2015. Crowdfunding creative ideas: the dynamics of project backers in Kickstarter. *SSRN Electr. J.*
- Kuppuswamy, V., Bayus, B.L., 2018. Crowdfunding creative ideas: the dynamics of project backers. In: *The Economics Crowdfunding*. Springer International Publishing, pp. 151–182.
- Lin, M., Viswanathan, S., 2015. Home bias in online investments: an empirical study of an online crowdfunding market. *Manag. Sci.* 62, 1393–1414.
- Mollick, E., 2014. The dynamics of crowdfunding: an exploratory study. *J. Bus. Ventur.* 29, 1–16.
- Moyssidou, K., 2017. Motivations to contribute financially to crowdfunding projects. In: Salamapasis, D., Mention, A.-L. (Eds.), *Open Innovation: Unveiling the Power of the Human Element*. World Scientific, pp. 283–318.
- Ordanini, A., Miceli, L., Pizzetti, M., Parasuraman, A., 2011. Crowd-funding: transforming customers into investors through innovative service platforms. *J. Serv. Manag.* 22, 443–470.
- Rijt, A. van de, Kang, S.M., Restivo, M., Patil, A., 2014. Field experiments of success-breeds-success dynamics. In: *Proceedings of the National Academy of Sciences of the United States of America*, vol. 111, pp. 6934–6939.
- Schweisfurth, T.G., Zaggl, M.A., Schöttl, C.P., 2017. Does similarity between evaluator and creator affect the evaluation of ideas? In: Atinc, G. (Ed.), *Proceedings Seventy-Seventh Annual Meeting Academy Management*.
- Simonsohn, U., Ariely, D., 2008. When rational sellers face nonrational buyers: evidence from herding on eBay. *Manag. Sci.* 54, 1624–1637.
- Vismara, S., 2018. Information cascades among investors in equity crowdfunding. *Entrep. Theory Pract.* 42, 467–497.
- Vulkan, N., Åstebro, T., Sierra, M.F., 2016. Equity crowdfunding: a new phenomena. *J. Bus. Ventur. Insights* 5, 37–49.
- Wang, T., Wang, D., Wang, F., 2014. Quantifying herding effects in crowd wisdom. In: *Proceedings 20th ACM SIGKDD International Conference Knowledge Discovery Data Mining - KDD '14*. ACM Press.
- Younkin, P., Kuppuswamy, V., 2017. The colorblind crowd? Founder race and performance in crowdfunding. *Manag. Sci.* 64, 3269–3287.
- Zaggl, M.A., Hagenmaier, M.A., Raasch, C., 2019. The choice between uniqueness and conformity in mass customization. *R D Manag.* 49, 204–221.
- Zaggl, M.A., Schweisfurth, T.G., Schöttl, C., Raasch, C., 2018. Hierarchical distance and idea evaluation in enterprise crowdfunding. In: *Thirty Ninth International Conference Information Systems* (San Francisco).
- Zhang, J., Liu, P., 2012. Rational herding in microloan markets. *Manag. Sci.* 58, 892–912.