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## WISDOM OF THE CROWD? SOCIAL INFLUENCE STRATEGIES AND RISK ASSESSMENT IN MICROLENDER CROWDFUNDING



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### ABSTRACT

Crowdfunding platforms are emerging as a critical source of early-stage financing for entrepreneurs. Although these platforms reduce the challenges of fundraising, collective action by participants on these platforms increases investor risk. In this study, we investigate the impact of two social influences – investments by high reputation investors and emotional appeals – impact the risk-taking of crowdfunding participants. Our empirical analyses indicate that high-reputation investors decrease the risk-taking, while strong emotional appeals increase risk-taking of crowdfunding participants. Implications of these findings the crowdfunding literature are discussed.

### INTRODUCTION

The rapid emergence of peer-to-peer crowdfunding platforms around the world leverages the interdependent collective action of market participants to raise capital for individuals and firms. According to Belleflamme and colleagues (2010), crowdfunding is defined as “an open call, essentially through the internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes” (Belleflamme et al., 2010). In 2011, industry analysts report that investors allocated over \$280 million into new crowdsourcing and crowdfunding platforms (Prentice, 2012). Furthermore, the Gartner research company projects that by 2013, the total volume of crowd-based peer-to-peer loans will increase by 66% over current levels to \$5 billion (Prentice, 2012). Based on these trends, a growing number of industry experts predict that crowdfunded platforms will become a dominant source of early-stage capital to entrepreneurial ventures since they allow firms to access capital from a wider audience than typically participate in traditional private equity markets (Prentice, 2012).

At the same time, numerous critics contend that crowdfunding platforms will generate suboptimal returns for investors since market outcomes are driven not by individual choice but rather by the strategic actions of groups of individuals (Griffin, 2012). Furthermore, these critics contend that the interdependent nature of these platforms reduces instrumental motivations and encourages free-riding by participants, herding behaviors will create insolvable social dilemmas and negatively impact investor decision-making (Zhang and Liu, 2012; Agrawal, Catalini, and Goldfarb, 2011). Certainly, crowdfunded microlending platforms run the risk of exacerbating several of the common herding behaviors that plague global financial markets – such as reputational cascades and emotional contagion – that cloud the objective assessment of investment risk (Simonsohn & Ariely, 2008; Scharfstein & Stein, 1990; Shiller, 1995, 2002). Countering these negative consequences of collective action on crowdfunding platforms, however, is the suggestion that the collective wisdom of investors in crowdfunding platforms may also reduce search time

for sorting investment targets quickly thereby amplifying the respective signals of good and bad investment targets (Zhang & Liu, 2012; Agrawal, Catalini, & Goldfarb, 2011; Banerjee, 1992). Furthermore, since the relative success of these crowdfunding platforms relies upon the interdependent actions of individuals, investors with stronger reputational capital may strive to pursue more prudent decision-making strategies to ensure the sustainability and long-term success of these platforms. To examine these competing perspectives, in this study, we examine the impact of two social influence triggers – reputation and emotional appeals by potential funding recipients – on peer-to-peer lending decisions within the crowdfunded microlending industry.

### HYPOTHESES DEVELOPMENT

Given the ubiquity of interdependent decision-making in financial markets, scholars in fields as diverse as behavioral economics (Henrich et al., 2001), geography (Miller, 1992), sociology (Boudon, 2003), psychology (Herrnstein, 1990), and philosophy (Satz & Ferejohn, 1994) contend that social dilemmas are a key factor in interdependent decision-making. In social theory, social dilemmas arise when individuals are challenged to make “...independent choices in an interdependent situation...” (Hardin, 1971; Ostrom, 1998, p. 3). On crowdfunding platforms, critics contend that the reliance of these platforms on the collective actions of market participants leave crowdfunding participants susceptible to the herding behaviors which so often negatively impact other types of investment behavior (Simonsohn & Ariely, 2008). In particular, whereas crowdfunding attempts to leverage “the wisdom of the crowds” in allocating capital to individual ventures, the negative view of crowdfunding suggests that the interdependent nature of these funding platforms amplifies the effects of social dilemmas on investor outcomes (Simonsohn & Ariely, 2008). In particular, the social cues embedded crowdfunding platforms are likely to induce investors to follow the crowd instead of rationally analyzing the risk of specific investment opportunities (Simonsohn & Ariely, 2008).

In prior research, reputational concerns often cause less experienced investors to mimic higher profile investors when making decisions in order to protect their reputation as competent actors (Hirshleifer & Teoh, 2003; Ottaviani & Sørensen, 2000; Scharfstein & Stein, 1990). For example, when high profile individuals make specific investments, many smaller investors are likely to follow suit (e.g. “The Warren Buffett Effect.”). Finance theorists tend to view these types of reputational social influences negatively since the “...investment made does not reflect any private information originally possessed by the agent” (Ottaviani & Sørensen, 2000, p. 698). In these cases, less experienced investors mimic the judgments of individuals they perceive to be experts rather than making their own evaluations of risk. Accordingly reputational signals amplify the social dilemma embedded in crowdfunding platforms thereby generating suboptimal market outcomes (Ottaviani & Sørensen, 2000; Shiller, 2002).

*Hypothesis 1: The collective reputation of participants on crowdfunding platforms strengthens the effects of deal risk on campaign funding.*

A second avenue of social influence in crowdfunding markets is the role of emotional appeals by entrepreneurs requesting funds from potential donors. Prior research tends to view human emotions with a reserved wariness. On one hand, utilitarian scholars such as Bentham (1789) incorporated emotions centrally in the concept of utility (Loewenstein, 2000). The evolution of economic thought during the neoclassical revolution in economics, however, largely stripped emotions from models of utility maximization. Instead, neoclassical theory conceptualizes utility “as an index of preference(s)” thereby displacing the role of emotions in decision-making processes

(Loewenstein, 2000, p. 426). Building on these developments, investor decision-making generally views emotions as a negative force clouding the clear assessment of risk by market participants (Loewenstein, 2000; Loewenstein, Weber, Hsee, & Welch, 2001; Lucey & Dowling, 2005).

In contrast, emotions play a far more central role in social theories of collective action. Emotional states like anger, fear, and disgust often motivate groups to engage in radical actions to alter the *status quo* (Van Zomeren, Spears, Fischer, & Leach, 2004). In other settings, emotional concerns exert a stabilizing influence on the collective actions of group participants by inducing individuals to conform to prevailing social norms thereby regulating self-interested behaviors (Elster, 1989). Emotional states can also spill over from individuals to groups (Bartel & Saavedra, 2000), and even catalyze collective identities as a precursor of cooperative social movements (Polletta & Jasper, 2001). In financial markets, scholars contend that when the circumstances surrounding an investment decision are uncertain and complex, investors may tend to rely more on emotion to make decisions (Kahneman & Riepe, 1998). Research suggests that the reputation of an investment target is central to investors' decisions, (Helm, 2007) and that investors are likely to demonstrate more affective loyalty towards high-reputation investment targets.

*Hypothesis 2a: Emotional appeals weaken the relationship between deal risk and campaign funding.*

*Hypothesis 2b: Emotional appeals attenuate the relationship between investor reputations and campaign funding.*

*Hypothesis 2c: Emotional appeals strengthen the relationship between investor reputations and deal risk campaign funding.*

## METHOD

To test these hypotheses, we develop a dataset of 6,045 entrepreneurs who solicit funding through Kiva – an online crowdfunding platform. We match these data with information on the lenders who contributed to these loans. As outlined in the introduction of the paper, crowdfunded microfinance loans are funded by large numbers of investors who each provide relatively small amounts of capital to the entrepreneurs in our sample. In our dataset, the 6,045 ventures seeking capital are located in 39 developing countries and are funded by 63,028 unique lenders making 149,543 different investments. The total loan amount provided to these 6,045 ventures ranged from USD \$50 to USD \$5,000, with an arithmetic mean of \$612.78.

### Dependent Variable

The dependent variable is a measure of time, “Hours to Funding.” This is a continuous variable measured in hours from when the funding request was first released to investors until the moment it is fully funded.

### Independent Variables

To operationalize **deal risk**, we create an index sum of the following four measures: the size of the loan in dollars, the repayment term (in months), whether the loan will be repaid monthly or all at once at the end of the term (a “balloon payment”), and whether the risk of principal loss due to fluctuations in currency exchange rates has been hedged for the loan or whether the lender bears such risk. The entrepreneurial narratives contained in solicitations for funding are

frequently laden with emotional content. Prior research demonstrates that expressive writing on websites can convey intense emotions (Bantum & Owen, 2009). Given the prominence of these narratives in the appeals for funding on the Kiva site, we utilize these narratives to model how the emotionally-laden stories interact with other factors to shape lender decision-making. To analyze the emotional content of such narratives (e.g., Bantum & Owen, 2009), we employ a computerized content analysis (computer aided textual analysis or CATA) methodology on the 6,045 narratives using the DICTION program (Hart, 1984, 2001; Short, Broberg, Cogliser, & Brigham, 2010; Short & Palmer, 2008). The investor reputation item captures the extent to which the reputation of early lenders influences the resource mobilization process. The Kiva microlending platform only shows who has lent to an entrepreneur once five individuals have made loans. This is to prevent the individual amounts lent by any one person from being identifiable to others. Thus, we examine the combined reputation of the first five funders for each loan. For each of these five early funders per loan, we calculated the number of loans each person had made and the number of other lenders these early funders invited to join since these two factors would be the most observable signals of reputation visible to other participants. We sum each individual's scores across the five early funders for each loan. This results in two combined reputation scores for the early funders for each loan. Finally, we standardize these two values and sum them to create a single measure of investor reputation.

### Control Variables

To rule out alternative explanations, we include several control variables used in previous microlending research (e.g., Allison et al., 2013; Galak, Small, & Stephen, 2011): dummy variables as controls for each country of origin for the loan requests, dummy variables for each industry/sector, continuous variables to account for key differences among the lending partners associated with each loan that are not related to deal risk, for the amount of information offered in the entrepreneurial narrative to capture key differences in the content of the communication, and for the demographic characteristics of the funded entrepreneur. Dummy variables for four industry sectors: agriculture and fishing; manufacturing and natural resource extraction; services and transportation; and retail and wholesale trade. We also control for the prior experience of the funding NGO lending partner, in terms of their history with the microlending platform (their tenure), number of loans made, and dollar amount of loans made to address variance in the risk of loans depending on the NGO partner. To control for the effect of some entrepreneurial narratives being longer than others, we include the item "Word Count," which is an integer reflecting the number of words about the entrepreneur offered to prospective funders. Finally, we control for whether the entrepreneur being funded is male or female, in light of research suggesting that access to funding varies depending on gender (Ibarra, 1992).

### RESULTS

Our results from our OLS regression models reported in Table 1 in the Appendix indicate that, consistent with the logic outlined in H1, deals with more objective risk take longer to raise funding than deals when investor reputations are high than when investor reputations are low. These results confirm the logic of H1 that the reputations of the initial set of investors appear to be inducing a more prudent assessment of risk by market participants. The second set of hypotheses examines the moderating impact of the emotional appeal of the entrepreneur's solicitation for funding on the other key variables in the model. H2a predicts that stronger emotional appeals will weaken the relationship between deal risk and the resource mobilization process. Our analysis

confirms this interpretation as stronger emotional appeals appear to decrease the amount of time taken to complete funding when deal risk is high thereby suggesting that the emotional appeal contained in the entrepreneur's solicitation for funding at least partially masks the objective deal risk inherent in their appeal. H2b argues that the emotional appeal of the entrepreneur's solicitation for funding will attenuate the effects of higher reputation investors while amplifying the errors of the investors with weaker reputations. A non-significant interaction term suggests a lack of support for this hypothesis. Finally, H2c argues that stronger emotional appeals will amplify the interaction between deal risk and investor reputation such that stronger reputation investors will take a more prudent approach when evaluating high-risk deals versus weaker reputation investors taking a more risk-seeking approach. Our results indicate that investors with stronger reputations take the most prudent approach to evaluating deal risk when evaluating deals with high risk that are laden with strong emotional appeals. Conversely, investors with weaker reputations tend to respond rapidly to funding requests with high deal risk as the emotional appeal grows stronger. These results suggest strong support for H2c.

### DISCUSSION AND LIMITATIONS

Based on our findings discussed in the previous section, our study makes three contributions to theory regarding the role of collective action in interdependent decision-making settings. First, we find that the reputational effects of investors play a strong, positive role in governing the interdependent behaviors of investors on crowdfunding platforms. Importantly, we find that not only is collective action possible in these contexts, but the collective wisdom of individuals within the crowd appears to be quite successful in assessing the risks inherent in each investment opportunity. Second, consistent with our theoretical arguments, we find that emotional appeals play a significant role in shaping the perception of investment risk among crowdfunding participants. Specifically, we find that ventures initiating strong emotional appeals take less time to mobilize funding when deal risks are high. These results suggest that emotional appeals play a significant role in shaping the collective actions of market participants in crowdfunding platforms. In Barsade's (2002) study of emotional contagion among work groups, the emotional mechanisms which generate the collective emotional state of study participants resides at the unconscious level. Barsade (2002) speculates that efforts to create emotional contagion through social groups by intentional action might also yield similar outcomes. This study provides such evidence since the description of the contextual difficulties experienced by participants in the Kiva programs significantly decreases the amount of time it takes for an entrepreneur to mobilize a round of funding. Third, the results of this study also suggest that reputational concerns can act synergistically with objective risk data to shape entrepreneurial action. Overall, we find that crowdfunding investors still utilize objective risk information, but simply change how they interpret these data. Accordingly, in certain cases, reputational effects, rather than clouding the assessment of risk, can actually encourage individuals to evaluate risks more effectively.

References are not included due to space limitations but are available upon request from the authors of the study.

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## APPENDIX ONE: TABLE ONE

Variables:	Dependent Variable: Total Time to Funding											
	Model 1: Controls	Model 2: Main Effects	Model 3: Interaction	Model 4: Interaction	Model 5: Interaction	Model 6: Full Model						
<b>Controls<sup>a</sup>:</b>												
Industry <sup>a</sup>												
Location <sup>a</sup>												
Constant	48.04 (5.15) ***	110.18 (5.91) ***	103.26 (5.93) ***	108.14 (1.45) ***	110.41 (5.91) ***	103.06 (5.92) ***						
Word Count	9.62 (2.80) **	-2.81 (2.88)	-3.25 (2.88)	-3.23 (2.87)	-2.76 (2.88)	-4.20 (2.91)						
Gender	56.89 (6.35) ***	44.84 (5.80) ***	43.60 (5.77) ***	44.55 (5.79) ***	44.81 (5.80) ***	42.77 (5.74) ***						
NGO History	18.83 (7.20) **	15.52 (7.69) *	16.40 (7.70) *	15.45 (7.73) *	15.79 (7.68) *	16.41 (7.75) *						
NGO Prior Deals	28.03 (4.96) ***	32.89 (4.75) ***	34.82 (4.72) ***	32.67 (4.79) ***	33.04 (4.75) ***	34.67 (4.78) ***						
NGO Total Loans (\$)	-28.77 (9.33) **	-48.14 (9.18) ***	-51.92 (9.10) ***	-47.13 (9.22) ***	-48.38 (9.18) ***	-51.03 (9.22) ***						
<b>Main Effects:</b>												
Deal Risk		44.65 (2.22) ***	45.23 (2.24) ***	44.48 (2.21) ***	44.65 (2.22) ***	45.85 (2.22) ***						
Investor Reputation		17.98 (1.33) ***	16.48 (1.20) ***	17.93 (1.33) ***	18.05 (1.32) ***	17.18 (1.21) ***						
Emotional Appeal		-5.60 (2.28) *	-4.73 (2.27) *	-6.41 (2.55) *	-5.43 (2.32) *	-5.95 (2.60) *						
<b>Interactions:</b>												
Deal Risk X Investor Reputation			7.03 (1.10) ***			7.30 (1.00) ***						
Deal Risk X Emotional Appeal				-3.60 (1.45) *		-2.42 (1.56) *						
Investor Reputation X Emotional Appeal					0.89 (1.33)	2.43 (1.21)						
Investor Reputation X Emotional Appeal X Deal Risk						3.29 (1.00) **						
<b>Model Statistics:</b>												
R <sup>2</sup>	0.22	0.34	0.36	0.34	0.34	0.36						
F-statistic	31.93 ***	40.35 ***	41.66 ***	40.12 ***	39.80 ***	41.19 ***						

<sup>a</sup> Industry and Location Dummy Variables not reported in table to conserve space. Robust standard errors reported in parentheses.

N= 6045. † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001.