Crowdfunding and Social Capital: A Systematic Review

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Abstract

Crowdfunding has been rising rapidly as a new entrepreneurial financing channel, and social capital theory is one of the most promising theories to research this phenomenon. However, previous research on the relationship between social capital and crowdfunding neglects certain facets of social capital and their influence throughout the crowdfunding campaign. Hence, this paper aims to provide a comprehensive review on how social capital affects crowdfunding by conceptualizing a theoretical model that explains how different dimensions of social capital develop through virtual communities and how they interact with each other, thereby influencing crowdfunding campaign performance. I classify social capital into structural, relational, and cognitive dimensions, and describe elements of each dimension of social capital based on influential social capital research.

Following a systematic literature search, I collected 57 papers for this review, most of which research confirms a positive relationship between each facet of social capital and crowdfunding campaign success. By analyzing how each facet of the multidimensional construct of social capital affects crowdfunding, this paper suggests that different facets of social capital not only affect crowdfunding separately, but interact with each other during different phases of a crowdfunding campaign. My research also stresses the role of virtual communities during the crowdfunding campaigns that are affected by each facet of social capital. For example, the crowdfunding activities such as backing others’ projects and updating the project can create relational social capital in the virtual community, thereby encouraging certain types of investors to support the project.

Considering that the accumulation of funding exhibits different characteristics during a crowdfunding campaign, I build a three-phase model to explain how social capital embedded in virtual communities affects crowdfunding success: In the early stage of a crowdfunding campaign, strong social network ties and a particular weak ties, investors who get backed by the same entrepreneurs before, are more likely to fund the projects because of a sense of trust, obligation, and reciprocity. In the second phase, investors driven by financial return are mainly from weak ties and latent ties, thus the commitment, communication, and cognitive social capital play an important role in this period by enhancing investors’ funding intention. The last phase is characterized by the funding speed-up towards the target due to the collective behaviors in the virtual communities. In this phase, we find that trust, identity, and cognitive social capital are essential in triggering the collective behaviors among weak ties and latent
ties.
To sum up, this paper expands existing work by collecting literature that covers all facets of social capital. Based on these papers, I summarize how each facet of social capital contributes to crowdfunding success. Then I introduce the concept of ‘virtual community’ to explain how social capital develops through the community. Moreover, I build a three-phase model to elaborate how do social capital embedded in virtual communities affect crowdfunding success through three phases.
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Following a systematic literature search, I collected 57 papers for this review, most of which research confirms a positive relationship between each facet of social capital and crowdfunding campaign success. By analyzing how each facet of the multidimensional construct of social capital affects crowdfunding, this paper suggests that different facets of social capital not only affect crowdfunding separately, but interact with each other during different phases of a crowdfunding campaign. My research also stresses the role of “virtual communities” during the crowdfunding campaign that are affected by each facet of social capital. For example, the crowdfunding activities such as backing others’ projects and updating the project can create relational social capital in the virtual community.

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1. Introduction

Crowdfunding is a new and rapidly growing phenomenon in entrepreneurship, allowing project-owners to request funding from a potentially large pool of interested funders. Mollick (2014, p.2) defines crowdfunding as “the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries”.

Scholars classify crowdfunding models according to the ‘reward’ for investors into a donation, rewards-based, lending and equity model (Belleflamme, Lambert, & Schwienbacher, 2014). Gerber, Hui, and Kuo (2012) suggest that one factor why people are motivated to fund a project through crowdfunding is because of social interactions realized through crowdfunding platforms, e.g., strengthening commitment to an idea through feedback and feelings of connectedness to a community with similar interests and ideals. “Interactions”, “connectedness”, and “similar interest” all belong to the concept of social capital.

Social capital generally represents the value embedded in the social relationships of individuals or collectives (Nahapiet & Ghoshal, 2000). Entrepreneurship scholars consider social capital as a valuable resource since it helps entrepreneurs overcome information asymmetry, share knowledge, and identify opportunities. Specifically, in the field of entrepreneurial finance, a lot of research indicating that offline investments in early-stage ventures are likely to be local because trust and reputation play an important role in finance, especially when regulations and oversight are absent (Agrawal, Catalini, & Goldfarb, 2015). Unlike offline investment in which trust and reputation are built through interpersonal interactions, the long distance between founders and advocates makes it difficult for founders to build relationships with potential investors. Therefore, in the crowdfunding domain, we still need to gain a deeper understanding of how project creators can benefit from social capital (McKenny et al., 2017; Skirnevskiy, Bendig, & Brettel, 2017).

Scholars study the role of social capital from different perspectives, e.g., signal theory, social network theory, social identity theory, and psychological capital theory; and from different classifications, e.g., structural, relational, and cognitive dimensions; individual and torrential dimensions, and internal and external dimensions. Meanwhile, crowdfunding research focusing on social capital remains fragmented: Some crowdfunding research involves some facets of social capital, e.g. trust, identity, reciprocity, without mentioning the concept of social capital. At last, the interplay of different dimensions of social capital is neglected in most papers. In fact, different dimensions of social capital do not work separately to affect information sharing and cooperation in the community (Inkpen & Tsang, 2005). Therefore, this paper not only summarizes how different dimensions of social capital affect crowdfunding performance but also conceptualizes a theoretical model explaining how different dimensions of social capital develop through virtual communities and how they interact with each other, thereby influencing crowdfunding campaign performance.

2. Methodology

2.1 The Classification of Social capital

Following a systematic method, the procedure to collect literature works in a transparent and reproducible way. The first step is to identify the classification of social capital. The seminal and highly influential work by Nahapiet and Ghoshal (2000) divides social capital into three dimensions: structural, relational, and...
cognitive. It provides the theoretical foundation for most of the following highly cited research on social capital.

*Structural social capital* refers to the overall pattern of connections between individuals embedded in social networks, *relational social capital* describes the kind of personal relationship that individuals developed through the interaction with each other, and *cognitive social capital* refers to the resources which provide shared interpretations, representation, and meaning in the group (Nahapiet & Ghoshal, 2000). We collected the literature following this classification and described the facets of each dimension (see table 1).

### Table 1 Facets of each dimension of social capital

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Facets</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural social capital</td>
<td>Social network ties.</td>
<td>Social network ties provide access to resources.</td>
<td>Nahapiet and Ghoshal (2000);</td>
</tr>
<tr>
<td></td>
<td>Social network configuration</td>
<td>The network configuration determines the pattern of linkages among the individuals in the network</td>
<td>Inkpen and Tsang (2005);</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td>Trust affect knowledge transfer, individual expectations, and the motivation to cooperate.</td>
<td>Inkpen and Tsang (2005); Nahapiet and Ghoshal (2000)</td>
</tr>
<tr>
<td>Norms</td>
<td></td>
<td>The social norms represent the degree of consensus in society.</td>
<td>Nahapiet and Ghoshal (2000)</td>
</tr>
<tr>
<td>Obligations.</td>
<td></td>
<td>Obligations denote a commitment or duty to conduct some activities in the future.</td>
<td>Nahapiet and Ghoshal (2000)</td>
</tr>
<tr>
<td>Identity</td>
<td></td>
<td>Identity is the process whereby people see themselves as one of the group members.</td>
<td>Nahapiet and Ghoshal (2000)</td>
</tr>
<tr>
<td>Reciprocity</td>
<td></td>
<td>Reciprocity refers to actions which are contingent on expected rewards from others and cease when the expected rewards are unfulfilled.</td>
<td>Wasko and Faraj (2005)</td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
<td>Commitment expresses a sense of responsibility to help others.</td>
<td>Wasko and Faraj (2005)</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td>The communication in a social group can generate the satisfaction and well-being among the people.</td>
<td>Kromidha and Robson (2016)</td>
</tr>
<tr>
<td>Cognitive social capital</td>
<td>Shared language</td>
<td>Shared language can promote the understanding of collective targets and the appropriate behaviors in groups.</td>
<td>Nahapiet and Ghoshal (2000); Inkpen and Tsang (2005)</td>
</tr>
<tr>
<td></td>
<td>Shared narratives</td>
<td>Shared narratives within a community increase the creation and transfer of the understanding of events.</td>
<td>Nahapiet and Ghoshal (2000);</td>
</tr>
</tbody>
</table>
Shared goals illustrate the degree to which community members share common cognition and methods to the group tasks. Inkpen and Tsang (2005)

Shared culture means the degree to which social norms affect the relationship. Inkpen and Tsang (2005)

Shared value binds the network members, facilitating cooperative action. Cohen, Prusak, and Prusak (2001)

It is important to note that different facets of each dimension of social capital interact with each other. For instance, obligations within network lead to collective trust and reciprocity (Hoffman, Hoelscher, & Sherif, 2005). Different dimensions of social capital also affect each other, e.g., networks can facilitate the transmission of a person's trustworthiness within the network (Wu et al., 2017), generate a sense of obligation among individuals (Shane & Cable, 2002); while the social norms provide the foundation for the shared culture (Inkpen & Tsang, 2005). Based on the summary of the facets of social capital, we expand the searching scope from the crowdfunding research which explicitly mentions "social capital" to those involves some facets of social capital when we collected relevant literature.

2.2 Literature collection, synthesis, and analysis

The goal of this research is to synthesize the crowdfunding research which involves the concept of social capital to establish a systematic model to explain how different dimensions of social capital interplay with each other and affect crowdfunding. Therefore, we need to collect relevant research on social capital and crowdfunding first, then to summarize how different facets of social capital influence crowdfunding performance, and finally establish a theoretical model based on this summary.

The procedure to collect papers works as follow (see Figure 1): We searched literature through the Web of Science and Google Scholar by the combination of keywords from two categories: “crowdfunding” and “social capital”. The “crowdfunding” category consists of crowdfunding, online lending, P2P lending etc.; while the “social capital” category includes social capital, social networks, trust and so on. To ensure the quality of the papers, we only kept the paper from Science Citation Index Expanded (SCIE), Social Science Citation Index (SSCI), top conferences and highly cited online working papers (over 100 times) from Social Science Research Network (SSRN).
We got 221 papers in total but some of them are repetitively counted in different rounds of search. Thus, we need to delete these duplicates first. After browsing abstracts, we only kept those from the fields of business, management and economics. For the rests, we check the empirical model or the main arguments of the qualitative research to delete the papers only mention social capital in the introduction or literature review.

Consequently, we got 57 papers on the relationship between social capital and crowdfunding performance in total, and 44 of them are empirical studies (their main arguments and empirical results can be seen in the Appendix). These papers cover all dimensions of social capital and all types of crowdfunding. We can see that cognitive social capital is less frequently discusses comparing to the other two dimensions, and only a few studies take more than two dimensions of social capital into account. Similarly, scholars pay little attention to donation crowdfunding (see Figure 2). While the rest includes literature review, descriptive and qualitative analysis of crowdfunding.
The relationship between different facets of social capital and each type of crowdfunding performance is summarized in Table 2. We can see that almost all research demonstrates a positive relationship between social capital and crowdfunding performance.

Table 2 Summary of Research on Social Capital and Crowdfunding

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Facet</th>
<th>Donation</th>
<th>Reward-based</th>
<th>Lending</th>
<th>Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural</td>
<td>Social networks</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
<td>NA</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Relational</td>
<td>Obligation/ Reciprocity</td>
<td>NA</td>
<td>+</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Identity</td>
<td>NA</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Commitment</td>
<td>NA</td>
<td>+</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td>NA</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Shared value</td>
<td>NA</td>
<td>+</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Shared goal</td>
<td>NA</td>
<td>+</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

3. Structural social capital and crowdfunding

In the emerging body of crowdfunding literature, mainly the entrepreneurs’ social network size and the heterogeneity of the impact of different social network ties on crowdfunding performance are considered as the determinants of the crowdfunding success.

3.1 Entrepreneurs’ social network size and crowdfunding.

Early research on crowdfunding focuses on finding the determinants of crowdfunding success. Considering a huge uncertainty in crowdfunding campaigns. Ahlers et al. (2015) apply signal theory to crowdfunding research, arguing that start-ups need to signal their true value to small investors, and entrepreneurs’ social networks are a costly signal. Other scholars follow this approach and test whether the entrepreneur’s social networks is an effective signal for reflecting the projects’ true value (Vismara, 2016a). Research conducted in a similar manner stresses the role of social networks in crowdfunding by arguing that social networks can mitigate information asymmetry (Zheng et al., 2014), attract professional investors (Roma, Petruzzelli, & Perrone, 2017), help entrepreneurs form their mutual identity (Kromidha & Robson, 2016), and enable entrepreneurs access to more resource (Saxton & Wang, 2014).

Most researchers measure social network as the number of friends on social media, and they find that entrepreneurs’ social network size has a positive influence on fundraising success in donation crowdfunding (Saxton & Wang, 2014), reward-based crowdfunding (Giudici et al., 2013; Mollick, 2014; Zheng et al., 2014), lending crowdfunding (Freedman & Jin, 2017), and equity crowdfunding (Vismara, 2016a). Besides, other research took social network as control variables also prove a positive relationship between crowdfunding performance and social network (e.g., Butticè et al., 2017; Mollick, 2014; Skirnevskiy et al.,
2017). However, some researchers who choose other factors instead of the number of online friends find different effects. Ahlers et al. (2015) use the share of nonexecutive director on ventures’ board to measure social networks and find that social networks have no impact on crowdfunding success.

3.2 Different types of social networks and crowdfunding

Previous research usually classifies social network ties into strong ties and weak ties. However, here is a different type of relationships in crowdfunding communities, perceptual relations (i.e., being unknown to each other) (Borst, Moser, & Ferguson, 2018). To further characterize social networks in crowdfunding communities, we need to introduce a third type, the latent ties, which means the potential relationship between unknown community members (Borst et al., 2018).

Earlier work indicates several differences in the influence of a diverse set of social network ties on crowdfunding campaigns. First, ties affect crowdfunding in different stages of the campaign. In the early stage of crowdfunding campaigns, the investment accumulates quickly due to the early backers who are directly connected to the project owners; while in the second period, the funds accumulate slowly because the process depends on the social networks of investors and the recommendations made from person to person (Agrawal, Catalini, & Goldfarb, 2015; Davidson & Poor, 2016; Ordanini et al., 2011). Second, social ties also affect investors’ funding motives. Polzin, Toxopeus, and Stam (2018) suggest that both strong ties and weak ties are motivated to invest in a project not only for financial return but also for keeping a good relationship with the fundraisers. Therefore, these investors base their decision making on the information about the project-owner instead of the information about the project. Third, social network ties influence how investors get project information. Agrawal, Catalini, and Goldfarb (2015) suggest that family and friends, which represent strong ties, have other channels beside crowdfunding platforms to communicate with creators. By contrast, the weak ties and latent ties mainly search for information on the platform and other social media, therefore social media can help to attract more weak and latent ties in crowdfunding campaigns (Borst et al., 2018).

4. Relational social capital and crowdfunding

Whereas structural social capital determines the range of potential funders within a fundraiser’s reach, the relational social capital determines the possibility that an investment is fulfilled (Zheng et al., 2014). Zheng et al. (2014) introduced the term “relational social capital” in the crowdfunding literature meanwhile the term "internal social capital" belongs to the relational dimension.

4.1 Trust and crowdfunding

Trust plays an important role in entrepreneurial financing. Crowdfunding platforms accumulate trust between entrepreneurs and investors as backers are motivated to support the entrepreneurs they trust (Gerber & Hui, 2013). Crowdfunding scholars study the role of trust in different dimensions. By summarizing different classifications, trust in crowdfunding research mainly involves three dimensions: Trust towards strangers, trust in fundraisers and, trust in the platform (e.g., Chen, Lai, & Lin, 2014; Kshetri, 2017). All research demonstrates a positive relationship between trust and crowdfunding performance.

Most research focuses on trust in fundraisers. Zheng et al. (2016) measure trust by fundraisers’ creditworthiness (including previous crowdfunding experience and backing activities) and entrepreneur-sponsor interactions. Moreover, others find that previous successful campaigns have a positive influence on
crowdfunding performance (Butticè et al., 2017; Skirnevskiy et al., 2017; Yum, Lee, & Chae, 2012). Meanwhile, more verified certification information, such as the identification, resident registration, and loan transaction agreement, can also enhance the trust in fundraisers (Lee & Lee, 2012). On the lending crowdfunding platform Prosper, both investors and borrower can join in a group, and the endowment by the group leader reflects the trustworthiness of the fundraisers (Chen, Zhou, & Wan, 2016; Xu et al., 2015).

Trust towards strangers can be considered as a type of informal institutions. In a society with a low degree of trust among strangers, investors are less likely to support strangers’ project (Kshetri, 2015, 2017). As for trust in the platform, Chen, Lai, and Lin (2014) measured trust in the intermediary by questionnaire on investors. Similarly, Zhao et al. (2017) use survey data to build a structural equation model and find that trust can enhance funding intention by reducing perceived risk and promoting commitments.

4.2 Obligation, Reciprocity, and crowdfunding

Obligation and reciprocity are mainly discussed in reward-based crowdfunding (Colombo, Franzoni, & Rossi-Lamastra, 2015; Zheng et al., 2014). Internal social capital triggers reciprocity through a feeling of perceived obligation (Tsai & Ghoshal, 1998). Entrepreneurs who receive funding from others may feel obligated to support by giving back, thus this obligation is named specific reciprocity (Zheng et al., 2014).

Obligations are measured by the fundraisers' backing activities. Zheng et al. (2014) measure obligation as the number of others’ projects in which an entrepreneur invested before the expiration of his or her own crowdfunding, and they find that the obligation to fund other entrepreneurs has a positive impact on crowdfunding performance. Colombo, Franzoni, and Rossi-Lamastra (2015) emphasize that the internal social capital, which consists of obligation and reciprocity, promotes the success rate of crowdfunding campaigns by attracting more early contribution. Butticè et al. (2017) also use the term "internal social capital" to represent backing activities. They measure backing activities as the number of comments that the proponent had posted on backed projects and find that this type of social capital also has a positive effect on project success. Moreover, obligations affect crowdfunding campaigns by moderating the effect of psychological capital on crowdfunding performance (Anglin et al., 2018).

Crowdfunding is not a purely economic phenomenon, and reciprocal giving develops a certain relationship in crowdfunding platform, fostering project success, while the non-reciprocal giving has a negative influence on crowdfunding success (André et al., 2017). Other researchers indicate indicates that both direct reciprocity (owners tend to support their backers) and indirect reciprocity (owners tend to support people who have backed others) have a positive impact of crowdfunding success (Zvilichovsky, Inbar, & Barzilay, 2015).

4.3 Identity and crowdfunding

In crowdfunding, identity affects people’s behavior and the reasoning why they invest, thus people are more likely to support projects which are consistent with their own identity (Gerber & Hui, 2013). Colombo, Franzoni, and Rossi-Lamastra (2015) suggest that crowdfunding proponents share a sense of mutual identity, which results in mutual supports in crowdfunding.

A part of existing research on crowdfunding emphasizes the interaction between social identity and other types of social capital. For example, group identity, measured as the entrepreneurs use the term "we" or "together", can help entrepreneurs engender effective commitments among investors, eventually encourage
funders to back the project in the form of financial capital (Allison et al., 2017). Other scholars apply social identity theory in crowdfunding research. Crowdfunders are not entirely homogenous, thus social identity plays an important role in affecting investors' decision in crowdfunding communities.

In lending crowdfunding, social identity features affect an investors’ funding motivation in two ways: first, the social networks associated with the identity of borrowers within the networks affect the probability that borrowers repay the investment and lender’s decision-making; second, offline external social identity can be used to judge borrowers’ reliability online (Feller, Gleasure, & Treacy, 2017). Chen et al. (2017) measure social identity by whether borrowers belong to a team, and they find that social identity has a positive influence on crowdfunding performance.

Social identity theory is also applied in reward-based crowdfunding. Kromidha and Robson (2016) measure social identity as the number of sharing project information on personal Facebook pages by supporters and find that the degree to which investor identify themselves as group members is positively associated with the project success. Some researchers use similar concepts as proxies for social identities, such as group cohesion, which means the interdependencies among group members (Chen et al., 2016). The authors suggest that group cohesion affects the efficiency of social connection in the group, thereby increasing the project’s success rate.

4.4 Other relational social capital and crowdfunding

There are singular studies on other facets of relational social capital. Based on social exchange theory, Zhao et al. (2017) argue that establishing backer’s commitment spurs backers’ intention to invest in a crowdfunding campaign. Giudici, Guerini, and Rossi-Lamastra (2018) find that localized compliance with social norms enhances the positive effect of local altruism on crowdfunding performance. While Gleasure and Morgan (2018) argue that social norms affect crowdfunding by establishing, refining or adjusting the nature of community, subject, and rules.

Communication is another type of relational social capital. On crowdfunding platforms, fundraisers communicate with investors through commenting, updating, and Q&A. Prior research indicates that the number of comments is positively associated with crowdfunding performance (Cho & Kim, 2017; Mollick, 2014). Recent work finds that whether the comments are positive, irrelevant and accurate also affect funding success (Xu & Chau, 2018). Apart from comments, project updates are another way of communication, because they reflect efforts by founders to inform funders about the developments of the project (Block, Hornuf, & Moritz, 2018; Mollick, 2014). Moreover, Q&A provides a channel for investors to request more information from fundraisers. Lee and Lee (2012) find a positive relationship between the number of Q&A posted online and crowdfunding performance.

5. Cognitive social capital and crowdfunding

In contrast to structural and relational social capital, cognitive social capital is relatively rarely discussed in crowdfunding research. To our knowledge, Zheng et al. (2014) is the only empirical research that involves the relationship between cognitive social capital and crowdfunding performance. They measure cognitive social capital as project description length. However, Skirnevskiy et al. (2017) argue that this measurement cannot represent cognitive social capital. Hence it is worthwhile exploring the relationship between crowdfunding performance and some facets of cognitive social capital, among which shared value is most frequently discussed.
5.1 Shared value and crowdfunding

Shared value reflects the degree of consensus among network members. Crowdfunding is driven by not only economic benefits but also a set of shared value which unify a bunch of investors and anchor them to certain projects (Butticè et al., 2017; Gleasure & Feller, 2016). The shared value in the crowdfunding community not only directly affect investors’ identity towards the crowdfunding community (Gleasure & Feller, 2016), but also makes it easier for serial crowdfunders to fund their projects (Butticè et al., 2017).

We find two empirical papers on shared value and crowdfunding. Zhao et al. (2017) argue that there is a high level of trust and commitment between backers and fundraisers in reward-based crowdfunding if they share similar value. Josefy et al. (2017) suggest that shared values within a community are related to collective beliefs, trust, judgements, cooperation, and aligned behaviors, meanwhile, these shared values encourage funders to shift their funding intension from self-interest toward more collective benefits for the whole community. They provide empirical evidence to substantiate that the degree to which a campaign goal is consistent with community culture positively affects crowdfunding performance.

5.2 Other cognitive social capital and crowdfunding

Other cognitive social capital includes share language, narratives, goals, and culture. Previous research indicates that there are significant cultural differences in crowdfunding platforms from different countries, and the cultural difference moderates the effect of social capital on crowdfunding performance (Zheng et al., 2014). Specify, Burtch, Ghose, and Wattal (2013) show that the cultural difference (the national cultural difference between lenders and borrowers) has a negative influence on online lending actions. Moreover, crowdfunding performance is related to language and narrative style (Anglin et al., 2018; Block et al., 2018). The underlying studies are somewhat related to cognitive social capital theory. For instance, Allison et al. (2015) apply the cognitive evaluation theory to explain how language the entrepreneurs use affects backer’s funding motivation. Another concept similar to cognitive social capital is the “collective language”. Collective language stresses the distinctiveness of the group and enhances the saliency of the identity in members' self-concepts (Shamir, House, & Arthur, 1993). Allison et al. (2017) demonstrate that collective language can function as peripheral cues to enhance crowdfunders' motivation to invest.

Shared language and culture also interplay with other factors contribute to crowdfunding success, including some facets of social capital such as group identity (Reiche, Harzing, & Pudelko, 2015), communications and social norms (Inkpen & Tsang, 2005), as well as other factors like geography (Burtch et al., 2013). Therefore, we assume that cognitive social capital may also affect crowdfunding performance indirectly through the mediation effect of these factors.

6. A synthetic view: social capital, virtual community and crowdfunding success

6.1 From crowds to virtual communities

Crowdfunding investors do not make decisions independently, they are influenced by others. Thus, we focus on the role of virtual communities instead of crowds. As we discussed earlier, social capital plays an important role in forming virtual communities. Meanwhile, virtual communities also contribute to the development of social capital. Scholars pointed out the importance of virtual communities in crowdfunding campaigns.
First, virtual communities are the foundation of the crowdfunding platform. Crowdfunding community unifies a group of individuals who share the same value (Butticè et al., 2017). Previous research suggests that people form a virtual community crowdfunding communities because they would get “community benefits” such as consumption experience and investing experience (Belleflamme et al., 2014), mentorship (Hui, Greenberg, & Gerber, 2014), friendship, and a chance to improve society (Gerber et al., 2012).

Second, virtual communities are the place different types of crowdfunding activates conducted. Entrepreneurs can get example projects as models, find specialized expertise, raise a campaign, broadcast their project, and get feedback from others on the community; while investors can follow the project, share the projects by their own social media, post comments, discuss with other investors and invest (Hui et al., 2014). These activities also help to develop social capital among community members.

Third, virtual communities also affect investors’ decision-making. In crowdfunding campaigns, the funding comes from the online community members. Previous research indicates that social capital embedded in virtual communities, such as group cohesion and group trust, enhances investors’ funding intention (Chen et al., 2016). Furthermore, investors’ motivation can also be affected by others’ decision. The early accumulation of funding can attract more sequent investors, thereby triggering a chain reaction (‘herding’) in crowdfunding campaigns (Colombo, Franzoni, & Rossi-Lamastra, 2015; Vismara, 2016b). On some platforms, investors are required to join communities to make an investment. For example, in an American equity crowdfunding platform, AngelList, investors must join a syndicate to invest in a project. While individuals can also establish communities through other types of platforms, e.g., Prosper (Chen et al., 2016; Lin et al., 2013), and Kickstarter (Colombo, Franzoni, & Rossi-Lamastra, 2015).

Therefore, taking virtual communities into account in the research on the relationship between social capital and crowdfunding performance has not only academic value but also practical implications. Based on the papers discussed before, we analyze which types of social capital exist and develop in crowdfunding communities, how they interplay with each other and finally affect crowdfunding performance.

6.2 Social capital in crowdfunding communities

**Structural social capital**: In crowdfunding communities, entrepreneurs’ strong ties include family and friends. The weak ties consist of acquaintances, friends of friends, customers, or visitors (Bruton et al., 2015; Polzin, Toxopeus, & Stam 2018). Specifically, investors that have been backed by the entrepreneurs before are a type of weak ties which to some extent substitute the strong ties, because they play an important role in the early stage of funding (Butticè et al., 2017; Colombo, Franzoni, & Rossi-Lamastra, 2015). While latent ties contain strangers, who mainly collect information of project through crowdfunding platforms and other social media, and make an investment decision based on this information (Borst et al., 2018).

**Relational social capital**: Trust and obligation are the two facets embedded in strong ties. Agrawal et al. (2015) suggest that family and friend may invest in a project due to the sense of obligation. Polzin, Toxopeus, and Stam (2018) suggest that investors with strong ties with founders are motivated by the willingness to strengthen their relationship and obligation. Thus, trust and obligation play an important role in encouraging strong ties to support the projects.

In contrast to strong ties which are mainly built through offline communications, both weak ties and latent ties are mainly developed online on crowdfunding platforms and through other social media (Borst et al.,
Therefore we propose that weak ties and latent ties mainly affect crowdfunding performance through communication (i.e. the comments and the updates of projects), commitment (Zhao, Chen, Wang, & Chen, 2017), and group identity (Feller et al., 2017; Kromidha & Robson, 2016). However, investors who were backed by the entrepreneurs before are the exception as they are motivated by obligation and reciprocity (Butticè et al., 2017; Zheng et al., 2014).

**Cognitive social capital:** Cognitive social capital consists of shared value, shared culture, shared language, and shared narratives and affects crowdfunding campaign in different ways. First, cognitive social capital is the foundation of the crowdfunding community by unifying a bunch of people share similar goals and culture (Butticè et al., 2017). Besides, cognitive social capital may enhance the narrative effectiveness among group members, thereby affecting investors’ evaluation of project quality (Nahapiet & Ghoshal, 2000). Therefore cognitive social capital is related to the collective beliefs and goals in the community, making group member behave collectively to achieve the shared goals (Josefy et al., 2017).

Social capital is the foundation to form a virtual community, and crowdfunding activities embedded in virtual communities can promote the development of social capital in turn. The size of entrepreneurs’ social network can be increased because referrals inducing potential backers (Skirnevskiy et al., 2017), meanwhile social media activities attract more potential ties (Borst et al., 2018). For the relational social capital, backing activities engender obligation among project creators and investors (Colombo, Franzoni, & Rossi-Lamastra, 2015); online communication enhances trust between backers and entrepreneurs (Zheng et al., 2016). As for cognitive social capital, investors are likely to share their values and narratives when they transfer information on the crowdfunding platform (Skirnevskiy et al., 2017). Therefore, different dimensions of social capital can be generated from the crowdfunding activities and may work together to affect crowdfunding performance. For instance, trust created through communication can alleviate the uncertainty of the project, while shared values encourage investors to take collective goals into account, which may also enhance their motivation to fund.

Some facets of social capital in virtual communities interact with each other. For example, if the community members share the same goals and values, they are more likely to consider themselves as the members of a community, hence enhancing the social identity to the community. While previous research indicates that social identity relates to trust, and the higher level of trust can promote the commitments of the fundraisers (Zhao et al., 2017; Zheng et al., 2016). Therefore, researchers should not study different types of social capital independently. These paper stresses the entanglement of different facets of social capital in crowdfunding research to provide a deeper understanding of how social capital affect crowdfunding performance. The multidimensional social capital embedded in virtual communities can be seen in Figure 3.
6.3 Crowdfunding campaigns over time: A three-phase model

Ordanini et al. (2011) suggest that there is a temporal dimension in a reward crowdfunding campaign consisting of three stages. The first stage is termed "friend-funding phase", which features a quick accumulation of funding reaching about half of the target capital. The second phase is "getting to the crowdfunding", depicted by a slow-down growth in the funding accumulation. Not all campaigns can reach the third phase, "engagement moment", in which the funding speed-up towards the target (see Figure 4).

Figure 3 Multidimensional social capital in virtual community

Figure 4 Typical path of investment via a crowdfunding platform

(Source: Ordanini et al., 2011)

While in the other types of crowdfunding we can find the similar characteristic. Friends and family also play an important role in lending crowdfunding (Lin et al., 2013) and equity crowdfunding (Lukkarinen et al., 2016; Polzin et al., 2018). Specifically, Lukkarinen et al (2016) suggest that private social networks, which consist of friends and family, also contribute to the accumulation of early funding. Several studies also provide empirical evidence of the chain reaction in phase three in reward-based crowdfunding (Colombo,
Franzoni, and Rossi-Lamastra, 2015), in lending crowdfunding (Liu et al., 2015; Luo & Lin, 2013), and in equity crowdfunding (Vismara, 2016b).

Based on our analysis above, we believe this three-phase model fit all types of crowdfunding campaigns, thus breaking crowdfunding campaigns into three stages helps us have a deeper understanding of how social capital affect crowdfunding. Moreover, the effects of different facets of social capital on crowdfunding performance vary in different phases, while some facets also interplay with certain social capital during the campaigns. Therefore, we build a three-phase model to elaborate on how different facets of social capital interact with each other in different stages to promote the crowdfunding performance (see Figure 5).

**Phase I.** In the early stage of crowdfunding, fundraisers get support not only through their strong ties but also by investors who get backed by the same entrepreneurs before. Previous research indicates that these "loyal backers" (Butticè et al., 2017) and family and friends (Agrawal, Catalini, & Goldfarb; Ordanini et al., 2011) play an important role in this phase. Trust, obligation, and reciprocity are the motivations of investors in this phase because they perceive it as their duty to support the entrepreneurs. Or they believe in the fundraisers and want to keep a good relationship with the fundraisers.

**Phase II.** This period is funded by both weak ties and latent ties. Those investors are driven by financial returns, thus need to access the quality of the projects, which requires due diligence, making the funding accumulated slowly. The commitments made by fundraisers and online communications can reduce the perceived risks and encourage funder to support the projects (Feller et al., 2017; Zhao et al., 2017). Cognitive social capital has a moderate effect on the relationship between relational social capital and crowdfunding performance by affecting the narrative effectiveness.

**Phase III.** The difference between Phase II and III is that investors are motivated to follow other investors’ decision instead of evaluating the quality of projects. The funding accumulated in the early stage attracts a huge number of investors by enhancing collective intelligence (Yum et al., 2012), reducing the uncertainty.
(Colombo, Franzoni, & Rossi-Lamastra, 2015); causing information cascades (Vismara, 2016b); and leading to herding behaviors (Liu et al., 2015). Vismara (2016b) specifically finds that investors with links to his social media are more easily to trigger information cascade. In contrast, investors concealing their name and amount of investment reduces subsequent investors’ funding intention (Burtch, Ghose, & Wattal, 2016).

The link on the project page to entrepreneurs’ social media also increases the level of trust because social media can certify investors’ identity, making them more trustworthy. Previous research suggests that Facebook use also increase social trust among people (Valenzuela, Park, & Kee, 2009). Both the group identity and cognitive social capital can unite the group member, leading collective behaviors among group members (Josefy et al., 2017). Therefore, we suggest that trust, group identity, and cognitive social capital are essential at this stage.

7. Conclusions and avenues for future research

In line with Nahapiet and Ghoshal (2000), this paper classifies social capital into three dimensions: structural social capital, relational social capital, and cognitive social capital. By studying influential literature on social capital, we provide a comprehensive summary of elements of each dimension of social capital. Based on this classification, we collect research involves facets of social capital, such as trust, identity, and reciprocity. Most studies indicate that all dimensions of social capital positive associated with crowdfunding performance, while only a few empirical results show that social capital has nonsignificant effects on crowdfunding. Based on this analysis we find promising fields for future crowdfunding and social capital research.

Empirical research on cognitive social capital and crowdfunding

From the argument above, we can see that there is little empirical research on the relationship between cognitive social and crowdfunding performance. A more appropriate proxy for cognitive social capital should be found. One possible solution is measuring cognitive social capital by a survey. For example following Chang and Chuang (2011), we might measure shared language as “Voluntary actions or enjoyment to help other participants in a virtual community” through 4 questions. Another proxy would be geographic property. Some communities are defined by geography (Josefy et al., 2017). Intuitively, residents live in close by having a similar background, thereby sharing the same culture and language.

Syndicate social capital

Previous research emphasizes the importance to build a crowdfunding community to support crowdfunding campaigns (e.g., Belleflamme et al., 2014; Hui et al., 2014). Different dimensions of social capital can be developed in the community, for instance, the social network ties, group trust and identity, and shared vision and goals. Previous research indicates that venture capitalists (VCs) tend to syndicate their investments with other VCs, while the syndicate social capital can affect VCs’ decision-making through diffusing information (Sorenson & Stuart, 2001). Similarly, syndicates exist on several crowdfunding platforms, e.g., the Syndicate Room in the UK, and the AngelList in the US. The leader-follower syndicate models are mainstream in the Chinese equity crowdfunding market. Agrawal, Catalini, and Goldfarb (2016) argue that syndicates reduce the market failures because the leaders in the syndicate have both the ability and incentive to leverage the information about the project. However, relevant studies are ignored in crowdfunding
research. Future research may pay attention to this community, and study how structural, relational and cognitive social capital within the syndicates affect crowdfunding performance.

**An institutional perspective**

As discussed earlier, social capital is also a type of informal institutions (Kshetri, 2017). The relationship between social capital and crowdfunding performance can be moderated by national culture, which is another type of informal institution (Cho & Kim, 2017; Zheng et al., 2014). We can also test whether formal institutions moderate the effect of social capital on crowdfunding performance. Another possibility would study how does social capital as an informal institution affect crowdfunding at a regional or macro level. Previous research mainly focuses on individual social capital. Since social capital also exists in the macro level, from an institutional point of view, regional social capital, such as local trust, the density of voluntary organizations, may affect both individual crowdfunding campaign and the regional crowdfunding volume.

**Appendix**

<table>
<thead>
<tr>
<th>Article</th>
<th>Dimension</th>
<th>Facet</th>
<th>Types</th>
<th>Measurement</th>
<th>Argument</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxton and Wang (2014)</td>
<td>Structural</td>
<td>Social network</td>
<td>Donation</td>
<td>The number of members on Facebook Causes</td>
<td>Social networks strongly link to resource acquisition; the members of the voluntary organizations are more likely to donate.</td>
<td>Confirm</td>
</tr>
<tr>
<td>Giudici, Guerini, and Rossi Lamastra (2013)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The number of Facebook friends</td>
<td>Social networks can signal the quality of the projects, and territorial social capital has a moderate effect on this relationship</td>
<td>Confirm</td>
</tr>
<tr>
<td>Mollick (2014)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The number of Facebook friends</td>
<td>Social networks as control variables</td>
<td>Confirm</td>
</tr>
<tr>
<td>Zheng et al. (2014)</td>
<td>Structural/relational/cognitive</td>
<td>Social network</td>
<td>Reward-based</td>
<td>Facebook or Weibo friends/ backing activates/ length of project descriptions</td>
<td>Social networks help to broadcast, obligation and share meaning increase funding intention</td>
<td>Confirm</td>
</tr>
<tr>
<td>Allison et al. (2017)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The number of times the project’s funding page was shared on Facebook</td>
<td>Social networks as control variables</td>
<td>Disconfirm</td>
</tr>
<tr>
<td>Kunz et al (2017)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The number of Facebook friends</td>
<td>Social networks increase entrepreneurs’ trustworthiness</td>
<td>Confirm</td>
</tr>
<tr>
<td>Roma et al. (2017)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The total LinkedIn connections</td>
<td>Entrepreneur’s social network attract professional investors</td>
<td>Confirm</td>
</tr>
<tr>
<td>Kang, Jiang, and Tan (2017)</td>
<td>Structural</td>
<td>Social network</td>
<td>Reward-based</td>
<td>The sum of Weibo follower number of advocates</td>
<td>Advocates’ social capital positive associates with funding performance, and distance can enhance this relationship</td>
<td>Confirm</td>
</tr>
<tr>
<td>Authors</td>
<td>Type</td>
<td>Network/ Social Capital/ Tie</td>
<td>Setting</td>
<td>Construction/ Measurement</td>
<td>Findings</td>
<td>Status</td>
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<tr>
<td>Bao and Huang (2017)</td>
<td>Structural/ Relational</td>
<td>Social network/ obligation</td>
<td>Reward-based</td>
<td>Number of Facebook friend &amp; backing projects</td>
<td>Social networks help to advertise; obligation leads to a reciprocity mechanism</td>
<td>Confirm</td>
</tr>
<tr>
<td>Liao, Zhu, and Liao (2015)</td>
<td>Structural/ Relational</td>
<td>Social networks/ praise and obligation</td>
<td>Reward-based</td>
<td>Number of Facebook friend, sharing of the project/actions of ‘like’ &amp; ‘support’</td>
<td>Both structural and relational social capital positively affect crowdfunding performance, and this relationship is moderated by project types</td>
<td>Confirm</td>
</tr>
<tr>
<td>Lin et al. (2013)</td>
<td>Structural</td>
<td>Friendship networks</td>
<td>Lending</td>
<td>Friendship hierarchy from level 1 to 5</td>
<td>Friendship can mitigate adverse selection and information asymmetry</td>
<td>Confirm</td>
</tr>
<tr>
<td>Chen et al. (2016)</td>
<td>Structural/ Relational</td>
<td>Social network/ trust/ identity</td>
<td>Lending</td>
<td>The affiliated group size/ group leader endorsement/ whether group members make a bid</td>
<td>The greater group size, the weaker group cohesion/ leader endorsement increase funding intention/ identity conveys a signal for the verification of borrowers, reducing the interest rate</td>
<td>Confirm</td>
</tr>
<tr>
<td>Freedman and Jin (2017)</td>
<td>Structural</td>
<td>Social network</td>
<td>Lending</td>
<td>Different social network attributes, including whether in a group, group leader endorsement and friend endorsement etc.</td>
<td>The information conveyed by social capital can affect lenders’ decision-making</td>
<td>Confirm</td>
</tr>
<tr>
<td>Xu et al. (2015)</td>
<td>Structural/ Relational</td>
<td>Social network/ trust/ identity</td>
<td>Lending</td>
<td>Similar to Chen, Zhou, and Wan (2016)</td>
<td>Social capital has a positive effect on the likelihood of lending project</td>
<td>Confirm</td>
</tr>
<tr>
<td>Liu, et al. (2015)</td>
<td>Structural</td>
<td>Strong ties/ weak ties/ online friends/ strangers</td>
<td>Lending</td>
<td>The relationship between borrowers and lenders</td>
<td>The strength of social networks affects investor’ willingness to lend and herding behaviors.</td>
<td>Confirm</td>
</tr>
<tr>
<td>Luo and Lin (2013)</td>
<td>Structural</td>
<td>Strong ties</td>
<td>Lending</td>
<td>Whether the bid is from a friend.</td>
<td>Friend bid helps to trigger herding behaviors in crowdfunding campaign</td>
<td>Confirm</td>
</tr>
<tr>
<td>Ahlers et al. (2015)</td>
<td>Structural</td>
<td>Social network</td>
<td>Equity</td>
<td>The share of nonexecutive director on ventures’ board</td>
<td>Social networks can reflect the quality of the entrepreneur, thereby increasing crowdfunding performance</td>
<td>Disconfirm</td>
</tr>
<tr>
<td>Vismara (2016a)</td>
<td>Structural</td>
<td>Social network</td>
<td>Equity</td>
<td>The number of LinkedIn proponents</td>
<td>Social networks help overcome information asymmetry</td>
<td>Confirm</td>
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<tr>
<td>Vismara (2016b)</td>
<td>Structural</td>
<td>Social network</td>
<td>Equity</td>
<td>The share of nonexecutive director on ventures’ board</td>
<td>Social networks can reflect the quality of the entrepreneur.</td>
<td>Disconfirm</td>
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<td>Authors</td>
<td>Methodology</td>
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<td>Variable</td>
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<td>Lukkarinen et al. (2016)</td>
<td>Structural</td>
<td>Social network</td>
<td>Equity</td>
<td>The percentage of its minimum funding goal during the hidden phase &amp; dummy variable if the company has Facebook activities.</td>
<td>Private networks attract early funding, leading to high success rate. Social media network also contributes to the crowdfunding success.</td>
<td></td>
</tr>
<tr>
<td>Polzin et al. (2018)</td>
<td>Structural</td>
<td>Strong, weak, and no ties</td>
<td>Equity and lending</td>
<td>The strength of the relationship between entrepreneurs and investors</td>
<td>The strength of social network affects investors’ decision-making.</td>
<td></td>
</tr>
<tr>
<td>Zheng et al. (2016)</td>
<td>Relational</td>
<td>Trust</td>
<td>Reward-based</td>
<td>Successful crowdfunding experience; investment in others; and entrepreneur-sponsor interactions</td>
<td>Both entrepreneur’s entrepreneur-sponsor interactions and creditworthiness have a positive influence on crowdfunding performance.</td>
<td></td>
</tr>
<tr>
<td>Yum et al., (2012)</td>
<td>Relational</td>
<td>Trust</td>
<td>Lending</td>
<td>Past loan activities, success, investment amount etc.</td>
<td>The transaction history is a substitution for creditworthiness.</td>
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<tr>
<td>Chen, Lou, and Van Slyke (2015)</td>
<td>Relational</td>
<td>Trust</td>
<td>Lending</td>
<td>Survey on actual lenders on PP Dai.</td>
<td>Social capital can enhance investor's funding willingness by increasing the trust in borrowers</td>
<td></td>
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<tr>
<td>Greiner and Wang (2010)</td>
<td>Relational</td>
<td>Trust</td>
<td>Lending</td>
<td>Group membership, group leader reward rate, and group member endorsement</td>
<td>Trust behaviors are a peripheral route to increase crowdfunding performance in an ELM model</td>
<td></td>
</tr>
<tr>
<td>Lee and Lee (2012)</td>
<td>Relational</td>
<td>Trust</td>
<td>Lending</td>
<td>Identity verification/ the number of Q&amp;A</td>
<td>Both identity verification and number of Q&amp;A can attract more bids</td>
<td></td>
</tr>
<tr>
<td>Zhao et al. (2017)</td>
<td>Relational</td>
<td>Trust/ commitment/ shared value</td>
<td>Reward-based</td>
<td>Survey adapted from previous research.</td>
<td>Trust and commitment enhance funding intention by reducing perceived risk/ shared value enhances trust and commitment</td>
<td></td>
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<tr>
<td>Cholakov and Clarysse (2015)</td>
<td>Relational</td>
<td>Trust</td>
<td>Reward-based</td>
<td>Question about “trust of use of funds”.</td>
<td>Trust others play a more important role in reward crowdfunding than financial motives.</td>
<td></td>
</tr>
<tr>
<td>Kang et al. (2016)</td>
<td>Relational</td>
<td>Trust</td>
<td>Equity</td>
<td>Two questions on calculus trust, and three questions on relational trust.</td>
<td>Both relationship trust and calculus trust mediate the effect of social interaction ties, network externality, perceived accreditation, and third-party seal etc. to funding motivation.</td>
<td></td>
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<tr>
<td>Researcher(s) and Year</td>
<td>Relational Aspect</td>
<td>Social Capital Type</td>
<td>Social Capital Description</td>
<td>Effect</td>
<td>Confirmation</td>
<td></td>
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<tr>
<td>Colombo et al. (2015)</td>
<td>Relational Obligation and reciprocity</td>
<td>Reward-based</td>
<td>The number of others' projects in which an entrepreneur invested before</td>
<td>Social capital enhances crowdfunding performance by attracting early contribution</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Butticè et al. (2017)</td>
<td>Relational Obligation</td>
<td>Reward-based</td>
<td>The number of comments which the crowdfunders had posted on backed projects</td>
<td>The social capital from backing activity has a positive effect on crowdfunding success</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Skirnevskiy et al. (2017)</td>
<td>Relational Obligation</td>
<td>Reward-based</td>
<td>The number of projects that entrepreneurs have created in the platform.</td>
<td>The social capital affects crowdfunding performance by the mediation of early back.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>André et al. (2017)</td>
<td>Relational Reciprocity</td>
<td>Reward-based</td>
<td>The proportion of pledges of which amount is higher than that of reward</td>
<td>Reciprocal giving has a positive effect on crowdfunding performance</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Zvilichovsky et al. (2015)</td>
<td>Relational Reciprocity</td>
<td>Reward-based</td>
<td>The number of backers who are supported by the owner</td>
<td>Both direct reciprocity and indirect reciprocity have a positive impact of crowdfunding success</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Kromidha and Robson (2016)</td>
<td>Relational Identity/Communication</td>
<td>Reward-based</td>
<td>The number of project sharing by supporters/number of comments and updates</td>
<td>Both identity and communication positively associate with the success rate.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Allison et al. (2017)</td>
<td>Relational Identity</td>
<td>Reward-based</td>
<td>Dummy variable = 1 if the entrepreneurs use the term &quot;we&quot; or &quot;together&quot;</td>
<td>Group identity positively affects crowdfunding performance by calling commitments and influencing narrative effectiveness.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Nevin et al. (2017)</td>
<td>Relational Identity</td>
<td>Equity</td>
<td>The use, appropriation, and selectivity of social media</td>
<td>Social media use helps companies convey their identity to the funders, therefore positively affecting funding performance.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Chen et al. (2017)</td>
<td>Relational Identity</td>
<td>Lending</td>
<td>Whether the lender join a team</td>
<td>Joining a team cause a sense of identity, thereby increasing lending activities.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Giudici et al. (2018)</td>
<td>Relational Social norms &amp; localized relational social capital</td>
<td>Reward-based</td>
<td>Derived from a principal component analysis of several measurements</td>
<td>Localized social capital and compliance with social norms enhances the positive effect of local altruism on crowdfunding performance</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Kim et al. (2017)</td>
<td>Relational Communication</td>
<td>Reward-based</td>
<td>The number of comments and updates</td>
<td>Communication relates to online trust, increasing investor's funding motivation.</td>
<td>Confirm</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Domain</td>
<td>Type</td>
<td>Description</td>
<td>Confirmation</td>
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<tr>
<td>Xu and Chau (2018)</td>
<td>Relational</td>
<td>Communication</td>
<td>The number of comments, whether they are positive, and perceived accuracy et. Both the amount and the content of the comments contribute the funding success.</td>
<td>Confirm</td>
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<tr>
<td>Block, Hornuf, and Moritz (2018)</td>
<td>Relational</td>
<td>Communication</td>
<td>The number of updates posted on the platform Project updates have a positive effect on crowd participation but with a few days lags.</td>
<td>Confirm</td>
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<tr>
<td>Josefy et al. (2017)</td>
<td>Cognitive</td>
<td>Shared goal</td>
<td>Reward-based Three dimensions of culture which are related to the goal to save the local theaters</td>
<td>Confirm</td>
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<tr>
<td>Burtch, Ghose, and Wattal (2013)</td>
<td>Cognitive</td>
<td>Shared culture</td>
<td>Lending Cultural distance data from the World Values Survey The degree to which crowdfunding goals align with local culture affects crowdfunding performance.</td>
<td>Confirm</td>
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</tr>
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**Reference**


https://doi.org/10.2753/JEC1086-4415150204


https://doi.org/10.1016/j.im.2016.09.001


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