The Role of Online Community on Crowdfunding Platform

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1. INTRODUCTION AND HYPOTHESES

In recent years, crowdfunding platforms, such as Kiva and GoFundMe have been developed to help the public at large by providing financial help. Such crowdfunding platforms usually provide some means of online communities to allow their users to share information, discuss mutual interests, and observe from others' contribution via internet (Chen et al. 2010). However, many of crowdfunding platforms fail to retain a sustainable users' engagement (Chen et al. 2017). Wiesenfeld et al. (1999) suggest that organizational identification is essential to sustaining online community as it facilitates the coordination of members and encouragement of participation. Organizational identification reflects a members' self-identify (i.e. who am I) and the extent to which the organizational identity (i.e. who is this organization) is incorporate into self-identity (Ashforth & Mael 1989). After participating in online communities, self-identity and organizational identity jointly affect the lenders' behavior. Recent literature has shown that organizational identity and self-identity may change overtime. Most of the literature dealing with temporal perspective on organizational identification fall into qualitative research (Humberd & Rouse 2016, Bednar et al. 2010). Thus, there is a gap to empirically depict the objective identification trajectories (i.e. identification measured longitudinally). In this paper, we fill in the gap and examine the role of online community on crowdfunding platforms by showing the dynamic view of organization identification.

People are motivated to behave in ways that are consistent with the meanings and expectations associated with their self-identity (Rise et al. 2010), and as such, contribute on behalf of themselves most of the time. Yet, after participating in a lenders community (i.e. join the team), lenders have another input to their current identity: the sense of an organizational identity. The identification with the lender's team is the overlap of between the self-identity of a focal member and the organizational identity (Dutton et al. 1994). In the case of crowdfunding, the identification with the online community influences what the members do and why they give (Gerber & Hui, 2013). We follow Solinger et al. (2013) and divide the process of member's adjustment after joining a community into two stages: encounter and adjustment. In the encounter stage, when the individual has just entered the organization, they may take initiative and engage proactively in behaviors to foster their adjustment and become effective community participants (Gruman et al. 2006). After joining a community, the lenders actively seek for traits about the group identity by observing other members' community-identified loans (i.e. loans that are contributed on behalf of the community). Since the community members can observe each other's community-identified loans through their own internal community communication system, the new community members can gain recognition as a way to increase their overlap with identity with the community by contributing more community-identified loans. Therefore, we hypothesize that:

> *H1 (Newcomer effect): Online lenders contribute the most to community-identified loans as they become a new community member.*

However, new community members may not be familiar with the community identity when they first join a community. These new members may not agree entirely with the belief of the community. They may not contribute on behalf of the community because of the psychological cost of identity transition (Shih et al. 2010). This transition cost of the new identity deters the lenders to adopt new identity. As a result, part of the lender's contribution cannot be converted to community-identified loans. Therefore, it leads to a spillover effect on self-identified loans (i.e. loans that are contributed on behalf of self):

> *H2 (Newcomer spillover effect): Online lenders contribute the most to self-identified loans as they become a new community member.*

In adjustment stage (Solinger et al. 2013), when the individual's self-identity is gradually transforming toward the organizational identity (Ashforth & Schinoff 2016), community members are extrinsically motivated by the peer recognition for being part of the community or motivated by the pressure of peer disappointment for the low contribution. At this stage, individual may enact a behavior driven his fear of unfulfilling his obligation or his guilts, worries or shames (Ryan and Deci 2000), and may crowd-out or undermine intrinsic motivation (Frey 1994). After joining a community, the intrinsically-motivated microlending activities of the lenders becomes more extrinsically motivated due to the peer recognition and pressure. As such, a motivational crowd-out effect exists. Therefore, we hypothesize that:

> *H3 (Crowd-out Effect): Online lenders contribute the least to both the self- and community-identified loans after the newcomer effect disappears.*

However, when a member stays longer in the online community, her self-identity is more likely to overlap with the online community due to her seniority and familiarity with the community (Dutton et al 1994, Ashforth & Schinoff 2016). Hence, the community member is more willing to engage in the community activities when her self-identity changes and is perceived to be more aligned with the community-identity (Bubenzer 2016). As such, the lenders substitute more of their self-identified loans by contributing community-identified loans. Therefore, we propose that:

> *H4: Online lenders contribute more community-identified loans as they stay longer in the online community.*
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> *H5: Online lenders substitute self-identified loans more with the community-identified loans as they stay longer in the online community.*

2. STUDY CONTEXT

we employ a proprietary dataset from Kiva.org the world's first and largest peer-to-peer microfinance website. Through Kiva.org, a lender can make at least $25 loan to support the borrowers with no interest in return. Like many other online platforms, Kiva faces the challenge of user engagement. In Aug 2008, Kiva introduced a "team" feature to encourage lenders to contribute as a team The Kiva users can create and join these lending teams as an online community based on their school affiliation, location, or any other common interests. After choosing the loans to contribute, lenders have an option to decide whether they want to contribute on behalf of the team or themselves. This unique feature allows us to distinguish how the organizational identity would play a role in the contributing behavior of the lenders. Kiva introduced this team feature (enabling the online community) in August 2008. To study the effect of the online community, we collect the transaction data from January 2007 to December 2009 so that we can compare the lending activities before and after the team feature is implemented as an exogenous shock. In total, we obtain 3,279,253 payment transactions made by 400,432 lenders. To be consistent throughout the study, we only focus the lenders who has joined at most one team during our study period. This results in using only 96% of the lenders. During our study period, there were 157,215 funded loans, 7,914 active teams (i.e. the teams that had at least one contribution during our study period).

3. MODEL AND RESULT

To examine the role of online community on crowdfunding platforms, we study the contributing behavior of the lenders before and after joining the online community. However, it is possible that the characteristics of the lenders (e.g. the contributing preference or the activeness of the lenders) may influence their decision of joining an community and simultaneously affect their contributing decisions. This may in turn lead to a self-selection bias in our study. To alleviate this concern, we provide several empirical treatments to minimize the self-selection bias. First, it is considered the introduction of team feature on the platform as an exogenous shock to the Kiva's lenders. Hence, the coverage of the data from year 2007 to year 2009 allows us to observe the changes in lenders' activities before and after such exogenous shock. Second, we include the lender-fixed effect γ_i to control for all the time-invariant factors $\tau_t$that characterize the lenders. We also use a time-fixed effect to control for the platform-wide time trends such as seasonality or other unobserved temporal factors. Third, to further reduce the potential selection bias among the lenders who has joined a team and the lenders who did not join any teams, we create a matched sample using a propensity score matching algorithm based on all the observable characteristics and contribution activities. After matching, we have 17,643 controlled lenders and 17,643 treated lenders in our sample. Last but not least, we adopt a staggered difference-in-differences approach (Angrist & Pischke 2008) to estimate the online community effects on the lending behaviors. Our estimation model is as follows:

$$y_{it} = \gamma_i + \tau_t + \sum_j \beta_j\,(\varphi_{it}) + X_{it} + \varepsilon_{it}$$

To measure the contribution level of the lenders, we aggregate the lending activities into lender-month level. Here, y_{it} represent four different outcomes: (1) self-identified loans, (2) community-identified loans, (3) sum of two types of loans which capture the net effect of joining an online community and (4) difference of two types of loans which capture the transition from self-identity to organizational identity after joining an online community, φ_{it} is the vector of relative time dummies. X_{it} represent the number of contributed loans and the total payment amount in the previous month controlling for the trends of the lender's previous contributing behavior.

Our result demonstrates that, after joining the community, lenders contribute more on behalf of the community to create more alignment with the community-identity over time (H1). The number of self-identified loans is increased by 0.31 unit, which suggests almost an 13% increase compared to the average contribution before joining the community. This is in line with our H2 which indicate the newcomer effect on the community-identified contribution may have a spillover to the self-identified contribution (H2). Also when the effect of community is low at the beginning, there is a motivational crowd-out effect (i.e. total contributed loans decreased by 0.21 unit) where the increment in community-identified loans cannot compensate the loss in self-identified loans (H3). The result also supports H4 by showing positive community effect on community-identified contributions increases overtime as we can observe that the net effect of the online community subsequently increases overtime. We also show that community members substitute more of their lending activities with the community-identified loans. This is in line with H5 that lenders will continuously engage in the community discussions and activities, which leads to an alteration in their identity, values, behaviors and thus become more aligning with the community.

Our study has several important implications for practitioners. It highlights the importance of online community identity. In this paper, we suggest that one way to enhance the online community effect is to focus on the identity of the community. The platform managers can further improve the lenders' engagement by enhancing the overlap of the lenders and communities' identities.

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