



Third-party signals in crowdfunded microfinance: which microfinance institutions boost crowdfunding among refugee entrepreneurs?

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Abstract Despite the relevance of crowdfunding as a financing tool for underrepresented entrepreneurs, prior research pays scant attention to the funding gap for refugee entrepreneurs. Using a composite framework that integrates both entrepreneurship research and signalling theory, the current study investigates how microfinance institutions (MFIs) and refugee entrepreneurs can deploy signals to pursue entrepreneurial opportunities on digital platforms. The results, based on refugee data pertaining to 5615 loans on Kiva during 2015–2018, reveal that when

refugee loan campaigns are affiliated with an MFI that itself features lower default rates, achieves high profitability, adopts an entrepreneurial support orientation, operates transnationally and is digitally focused, the campaign achieves better crowdfunding performance outcomes than refugees campaigns affiliated with an MFI that lacks these features. These findings provide clear evidence that when MFIs offer reputational signals, visible to the crowd of lenders, it can increase entrepreneurial financing and democratize resource acquisition among financially excluded refugee entrepreneurs.

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Plain English Summary Can microfinance institutions boost crowdfunding among refugee entrepreneurs and their small businesses? Yes, they can. Third-party signals may support growth in alternative finance for #refugees. While research on entrepreneurship has largely targeted immigrant entrepreneurs, the refugee context has been neglected, namely how refugee entrepreneurs fund their economic activities. With signalling literature on new venture financing of entrepreneurship being greatly fragmented, we contribute to the understanding of how crowdfunding microfinance boost venture financing of refugees. We study the gain of legitimacy by refugee entrepreneurs displayed through reputational signals intertwined with the reputation of microfinance institutions (MFI). Our results reveal higher success in funding outcomes when the loan campaign is linked with microfinance institutions with lower loan default rates, higher profitability, driven by entrepreneurial support, operating internationally and with a digital presence, compared with MFI that lacks

these features. Our work has relevant implications for underrepresented refugee entrepreneurs, crowdfunding actors, policymakers and scholars. Our findings indicate that the affiliation between refugees-microfinance institutions creates certain reputational signals which enhance entrepreneurial finance and shape conditions for societal integration in the host country. For crowdfunding platforms, we show that to develop an effective, self-perpetuating entrepreneurial ecosystem, they should work to build their reputation among lenders, by capitalizing on and making third-party signals more readily available. At the same time, they must conduct due diligence to assess and monitor MFIs' behaviour. Policy makers are recommended to build up on this digital microfinance experience to enhance new venturing finance refugee programs. We, thus, extend prior findings about the importance of third-party affiliations by establishing a composite framework of third-party signals in the context of new venture financing for financially excluded communities, and refugees in particular. Accordingly, for scholars, we offer cross-disciplinary insights into which characteristics of intermediaries can facilitate links between the supply (crowd of lenders) and demand (refugee entrepreneurs) sides in prosocial crowdfunding.

Keywords Crowdfunding · Entrepreneurship · Microfinance · Refugees · Third-party signals

JEL Classification G21 · J15 · L26 · F22 · F23

1 Introduction

The number of refugees worldwide has reached record levels for the post-World War II period (Braithwaite et al., 2019) and is expected to keep increasing in the twenty-first century (Guo et al., 2020). Refugee populations accounted for 26.4 million people in 2020,¹ more than two-thirds of whom came from five countries: Syria, Venezuela, Afghanistan, South Sudan and Myanmar (UNHCR, 2021). Most of them suffer extreme conditions and poverty (UNDP, 2017), as well as unique, complex barriers, stemming from their inadequate prior knowledge

about the host countries' cultural norms, values and institutional and business environments, as well as their lack of embeddedness in the social and economic networks of their host countries (Meister & Mauer, 2018). Furthermore, refugees usually leave their homes urgently and quickly, such that they may be unable to certify their academic or professional backgrounds (Wauters & Lambrecht, 2006).

Microfinance initiatives, especially those that adopt crowdfunding models, thus appear highly relevant to refugee populations (Figueroa-Armijos & Berns, 2022), with the potential to alleviate poverty by supporting entrepreneurship as a development tool (Bruton et al., 2013). Their actual effects on refugees' entrepreneurial efforts remain uncertain though, due to a relative lack of entrepreneurship research focused on refugees (Desai et al., 2021). In general, crowdfunded microfinance institutions (MFIs) facilitate access to funding for new ventures in unconventional and impoverished contexts, because they can overcome some constraints of conventional MFIs (Moss et al., 2015) and informing lenders' decision-making processes (Allison et al., 2013; Jancenelle et al., 2018). That is, even if MFIs deploy massive funds to alleviate poverty (Karlan & Zinman, 2011), access to such banking services remains a substantial barrier for refugee populations (e.g. Buscher, 2013; Easton-Calabria & Hakiza, 2021), which means the MFIs cannot achieve their mission of serving populations that lack access to conventional credit options.

To address this challenge, we propose that a cross-disciplinary signalling theory perspective might be pertinent. According to this theory, signals are "observable characteristics attached to the individual that are subject to manipulation" (Spence, 1973, p. 357). In a crowdfunding context, the MFI is a third party to the lending transaction between the crowd of lenders and unknown refugee entrepreneurs, and the signals it sends might inform lenders about the quality of entrepreneurs. Such third-party signals might be even more relevant than individual (internal) signals sent by refugees, insofar as they certify the borrowers' quality signals. For this study, we control for the intrinsic (internal) signals sent by borrowers and focus on external, third-party signals in a composite framework that reflects the multipart research question that guides our efforts: *What role do third-party*

¹ By definition, refugees are "people who flee across borders to escape violent conflict or persecution" (UNDP, 2017, p. 36).

signals play in mitigating information asymmetry and improving resource acquisition through crowdfunded microfinancing of refugee entrepreneurs?

As this framework implies, we predict that entrepreneurs rely on the third-party MFIs to signal their quality and attract funding, which also resonates with a certification hypothesis that predicts third parties are needed to provide credible signals that can certify the signals emitted by entrepreneurs (Kleinert et al., 2020). For example, as Megginson and Weiss (1991) show, venture capitalists can provide certification. We predict that MFIs can take on a similar role in crowdfunding microfinance settings. But to do so, they must maintain strong reputations (Kleinert et al., 2020), such as by affiliating with entrepreneurs about which they have positive inside information (Anglin et al., 2020). Because the crowdfunding platforms have long-term incentives to support high-quality projects (Roma et al., 2021), which enables them to retain lenders interested in future campaigns, MFIs also must address information asymmetry and adverse selection issues to identify good borrowers (Stiglitz & Weiss, 1981), despite the inherent uncertainties of long-term crowdfunding outcomes (Mollick, 2014). These market features create powerful incentives for MFIs to select borrowers whose entrepreneurial attributes indicate that they can repay their loans.² These applications of signalling theory also uncover some similarities between crowdfunding markets and job markets. Entrepreneurs, as the primary signallers, “are relatively numerous and in the market sufficiently infrequently that they are not expected to (and therefore do not) invest in acquiring signalling reputations” (Spence, 1973, p. 355). Because refugee entrepreneurs request funding only occasionally, they may prefer to “lease” their reputations by affiliating with well-established, third-party MFIs (Reuer et al., 2012). In turn, the crowdfunding platforms, such as Kiva, establish mandatory criteria for partnering with MFIs, including commitments to serving poor and vulnerable populations. This aspect of Kiva’s selection process resonates with

some recent microfinance literature on hybrid MFIs, which adopt a development logic to serve the poor but also a banking logic to ensure their own financial sustainability (Battilana & Dorado, 2010). The partnership with Kiva reinforces their overall social mission, because only MFIs that explicitly seek to alleviate poverty and have sufficient revenues to support their operations may access Kiva’s crowdfunding platform. In this distinct funding context, the pro-social digital platform enables both entrepreneurs and MFIs to raise interest-free financial resources from the crowd.

Accordingly, we turn to Kiva.org, the leading crowdfunded microfinance platform, to gather data related to how and which third-party signals best support refugee entrepreneurship. With our research window of 2015–2018, we account for the beginning of the modern global refugee crisis. We consider 5615 refugee entrepreneur loan campaigns, with an 86.8% crowdfunding success rate, to test the effects of four types of third-party signals (financial, social, geographical coverage and digitalization) offered by MFIs on public profile pages (see the Appendix, Figs. 2, 3, 4 and 5).

The results reveal that refugee entrepreneur loan campaigns associated with MFIs with better financial performance (lower default rates) that also are oriented towards entrepreneurial support, appear in more than one country and maintain digital profiles, achieve better campaign performance than refugee campaigns sponsored by MFIs without these features. These findings align with both signalling theory and the certification hypothesis. We check for the potential effects of information overload, other social performance indicators and indirect signals, while controlling for potential sample selection bias, and still find support for the core results.

With these findings, our research makes two main contributions. First, with regard to research on third-party signalling, we extend prior findings about the importance of third-party affiliations for raising crowdfunding finance (Anglin et al., 2020) by specifying which characteristics of and precisely how third-party signals can address the refugee finance gap. Notably, social performance is more difficult to measure than financial performance, and no consensus exists regarding what motivates the crowd of lenders, such as whether they prioritize financial or social motives when making lending decisions (Galak

² We adopt Spence’s (2002, p. 434) reasoning about “who is in the market persistently and hence who has an incentive to establish a reputation through repeated plays of the game.” When MFIs use crowdfunding markets consistently to fund loan campaigns, their repeated participation should foster their reputations among lenders.

et al., 2011). In acknowledging the dual nature of MFIs (Mersland et al., 2011), we propose additional measures of social performance. In particular, Kiva's social badges function explicitly to support entrepreneurs. Unsophisticated lenders, who lack credit risk assessment skills, likely rely on these social badges, which appear as visual cues on Kiva's website. They also might consider MFI digitalization, because an MFI needs to build trust and a positive reputation, as can be communicated through digital platforms. In this sense, lenders should perceive MFI digitalization as a costly reputation signal. Finally, because internationalization creates support networks across countries that should increase MFIs' knowledge and technical resources, it might provide a certification effect. The transnational status of an MFI thus represents another positive and costly signal for the crowd of prosocial lenders, which encourages them to finance refugee borrowers. We confirm these predictions: MFIs with a social orientation, digital presence and international operations are rewarded by the crowd of lenders, as manifested in their strong fundraising performance. The value of these third-party signals and MFI profiles hold even in the presence of direct and indirect signals and for different crowdfunding performance outcomes. Thus, we outline new third-party signals that can certify MFIs' reputations, legitimate refugee entrepreneurs and signal the quality of refugees' campaigns to the crowd of lenders, who are driven by prosocial motives. Such insights advance extant understanding; we also establish a composite framework of third-party signals in the context of new venture financing for financially excluded communities, and refugees in particular.

Second, we extend growing literature on signalling to crowdfunded microfinance contexts. Most crowdfunding microfinance research seeks to identify and test signals that originate within the campaign (e.g. cognitive evaluation theory, Allison et al., 2015; warm-glow theory, Allison et al., 2013; moral foundations theory, Jancenelle & Javalgi, 2018; institutional theory, Jancenelle et al., 2019). We add to this research domain by identifying the relevance of third-party affiliations. Previous research on third-party signalling also tends to prioritize economic characteristics (e.g. track records of venture capitalists, Colombo et al., 2019), whereas we consider how MFIs engaged in prosocial crowdfunding activities can send their own positive signals to lenders.

By funding refugee entrepreneurs, lenders perceive a warm-glow effect; their goals are not merely economic in nature. As a result, they rely on the reputation of affiliated third-parties to make their decisions. In other words, lenders consider which entrepreneurs the MFIs support, as well as those MFIs' international experience and digitalization. Our findings help clarify fragmented entrepreneurial signalling findings and reveal which signals are most useful for entrepreneurs (Colombo, 2021), and we do so in the critical crowdfunded microfinance context, at the frontier of literature pertaining to refugees and entrepreneurship (Desai et al., 2021). In addition to answering calls to examine how MFIs can facilitate resource acquisition by underserved entrepreneurs (Anglin et al., 2020; Moss et al., 2015), we offer cross-disciplinary insights into which characteristics of intermediaries can facilitate links between the supply (crowd of lenders) and demand (refugee entrepreneurs) sides in prosocial crowdfunding.

Beyond these research contributions, the practical implications of our research can inform three relevant parties. For refugees, we recommend that they affiliate with third-parties that exhibit lower default rates, support entrepreneurs, have broader geographical coverage and favour digitalization. If they can find an MFI that sends these multiple signals, they can increase the funding appeal of their campaigns. For crowdfunding platforms, we show that to develop an effective, self-perpetuating entrepreneurial ecosystem, they should work to build their reputations among lenders, by capitalizing on and making third-party signals more readily available (e.g. emphasizing crucial information in MFI profile pages on loan campaign pages). At the same time, they must conduct due diligence to assess and monitor MFIs' behaviour. Lenders are mainly concerned with getting their capital back, so they can make another loan in the future. Due diligence can provide a greater sense of safety to investors and assure them that their funds are going to good causes (Kiva, 2022e). Finally, policy makers can apply our findings about how public information (available on digital platforms) combines with private MFI information to anticipate and encourage crowdfunding as a means to address ongoing refugee crises and global poverty concerns.

In the next section, we outline prior research on third-party signalling, which forms a backdrop for our hypotheses. Then we describe the research design, sample and variables, before presenting the main

results and robustness tests. Finally, we discuss the theoretical and practical implications of our findings, as well as some limitations and research pathways.

2 Background and hypotheses development

2.1 Crowdfunded microfinance and refugee entrepreneurs

Crowdfunding broadly refers to “efforts by entrepreneurial individuals and groups ... to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries” (Mollick, 2014, p. 2). In addition to traditional crowdfunding types (i.e. donation, debt, equity, and reward; Berns et al., 2020), some novel approaches have gained popularity, including online microfinance that enables individual lenders to fund individual entrepreneurs (Galak et al., 2011). Crowdfunding platforms such as Kiva, Lendwithcare and Babyloan enable MFIs to disburse loans, such that they act as intermediaries between lenders and entrepreneurs, in keeping with a pass-through microlending model (Allison et al., 2013). The MFIs perform various tasks on digital platforms, in addition to making payments, such as keeping loan records and monitoring loans (Berns et al., 2021), as well as screening entrepreneurs, creating and posting profiles and pushing particular campaigns to help fund impoverished entrepreneurs who may lack the resources or expertise to develop and launch their own campaigns (Anglin et al., 2020).

Among underrepresented entrepreneurs, one group is especially marginalized and overlooked by prior research (Desai et al., 2021; Fuller-Love et al., 2006): refugee entrepreneurs displaced from their home country and struggling to earn living wages (UNDP, 2017), who are among the most socially excluded groups from conventional forms of social protection (Hulme et al., 2011) and thus among the most vulnerable populations (Nourse, 2003). They face multiple constraints, including language barriers and lack of professional ties with people from the host country (Guo et al., 2020). They also likely have lost money, assets and certificates; the loss of relevant documentation leaves them unable to establish professional

credentials or skills and thus hinders their entrance into the labour market (Guo et al., 2020). The combination of these barriers and insufficient recourse to conventional financial services, whether from traditional MFIs (Convergences, 2019) or traditional lending markets (Armendáriz & Morduch, 2005), limit their entrepreneurial activities.

Furthermore, refugees are heterogeneous populations with varying levels of education, status and experience in different sectors of the economy (Guo et al., 2020). Yet they share some common characteristics, such as a lack of social capital to pursue ventures in non-native markets (Butticè & Useche, 2022). They also must deal with substantial uncertainty about the future (Nourse, 2003), which may include life-threatening situations or persecution of a political or racial nature (Guo et al., 2020), as well as forced migration, such as in regions of the Middle East, Africa and Europe, as well as countries such as Afghanistan, the Central African Republic, the Democratic Republic of the Congo, Iraq, Somalia, South Sudan, Ukraine and Syria (Ben-Yehuda & Goldstein, 2020). The Syria refugee crisis, for example, created a vast exodus of refugees of different nationalities throughout Europe, which had expansive political implications, including debates about Britain’s exit from the European Union and US restrictions on refugee entries and travel bans for Muslim-majority countries (Braithwaite et al., 2019).

Beyond the humanitarian implications—vulnerable populations need access to food, security (Guo et al., 2020), medical care, and social services (Braithwaite et al., 2019)—the global refugee crisis has had entrepreneurial implications too. Financing refugee entrepreneurs may incur high agency costs, but refugees also tend to succeed in their entrepreneurial efforts (Fuller-Love et al., 2006). Migration constitutes a risky activity that likely fosters more risk-tolerant attitudes, which can be beneficial for entrepreneurship (Naudé et al., 2017). Karlan and Zinman (2011) argue that microloans that move through unconventional channels, such as community ties and informal credit, enhance risk-coping abilities and align effectively with the risk attitudes displayed by refugee entrepreneurs. Crowdfunded microfinance platforms such as Kiva then might find targeted lenders for this particular group, such as by allowing them to search for “refugees and IDPs

[Internally Displaced People]”, a feature that creates unique opportunities for refugee entrepreneurs with limited access to conventional funding.

Prior research also affirms that crowdfunded microfinance offers particular benefits for individual borrowers (Galak et al., 2011), female and rural borrowers (Figueroa-Armijos & Berns, 2022) and humanitarian (Moleskis et al., 2019) and basic-need (Gafni et al., 2021) projects. Research that relies on signalling theory also identifies the impact of various signals conveyed by public information about successful crowdfunding outcomes, pertaining to organizational characteristics (Moss et al., 2015), loan quality (Berns et al., 2020), economic or normative standards (Jancenelle et al., 2018) and moral foundations (Jancenelle & Javalgi, 2018). While some signalling theory-inspired entrepreneurship studies have addressed how entrepreneurs can attract funding from potential lenders, we find little consideration of when crowdfunded microfinance might be more likely to provide entrepreneurial loans to refugees (Correia et al., 2021). This void in signalling literature pertaining to new venturing financing adds to the existing fragmentation in the field, despite decades of signalling-related entrepreneurship research (Colombo, 2021). We accordingly draw on signalling theory to examine how affiliating with MFIs might act as a signal and certify the quality of refugees’ projects, thereby enhancing their funding opportunities in crowdfunded microfinance.

2.2 Signalling theory and crowdfunding

Information asymmetries occur in traditional lending markets (Stiglitz & Weiss, 1981); they are even more severe on crowdfunding platforms (Colombo et al., 2022), where funding takes place within a short period of time (Courtney et al., 2017).³ Unlike traditional entrepreneurial settings, which are subject to a host of regulations, crowdfunding investors may be more prone to exploitation by entrepreneurs or sophisticated investors. These digital platforms mainly feature amateur lenders, who rarely have experience evaluating new business opportunities (Ahlers et al., 2015) and find

³ On Kiva for example, lenders provide as little as US\$25 to borrowers. Each loan is advertised on the platform for up to 30 days, typically. If it is fully funded, it moves to the disbursement phase; if not, lenders are reimbursed, and the campaign is cancelled.

due diligence efforts very costly (Galak et al., 2011). On prosocial crowdfunding platforms, information is displayed in a hierarchical (hypertext) structure, which walks from the entrepreneur through a path of information (McKnight et al., 1991). Information gaps can be particularly great for peer-to-peer loans, because they result from both demand and supply sides. On the demand side, applicants often come from developing countries and have relatively limited abilities to produce documentation or information. On the supply side, beside small lenders typically lack the expertise needed to perform in-depth, sophisticated credit analyses, they are driven by social concerns. Therefore, signals about the quality of the borrower and the project become particularly important.

Signalling theory offers several options for reducing information asymmetries (Spence, 1973, 2002). Fundamentally, more informed signallers can send observable signals of their unobservable quality to less informed receivers (Connelly et al., 2011). Third-party signals that arise from a signaller’s affiliation with other parties can certify the signaller’s quality to uninformed external investors (Dineen and Allen, 2016). To secure investments, entrepreneurs might indicate their ventures’ potential by aligning with third parties. For example, Colombo et al. (2019) show that the affiliation of biotech ventures with prestigious universities leads to higher initial public offering valuations. Such affiliations affirm the new venture’s legitimacy, as well as providing substantive benefits, such as mentoring, access to resources and ongoing monitoring (Plummer et al., 2016). Arguably, prestigious actors value their reputation highly and therefore guard carefully against tarnishing it (Fisch et al., 2022).

For prosocial crowdfunding microfinance, MFIs manage the initial loan, veto entrepreneurs and take responsibility for ensuring a sufficient supply of campaigns on platforms (Allison et al., 2013). Lenders on these platforms provide a form of “insurance” for loans already disbursed by MFI. But if the MFI were to mismanage the loan, these lenders would not be repaid, compromising the future operations of the MFI and the continuous supply of capital to entrepreneurs (Galak et al., 2011). Therefore, in their effort to obtain funding, entrepreneurs might seek to associate with a MFI, which is a less costly signal for high-quality borrowers than for low-quality borrowers, and also is salient information for the crowd of lenders.

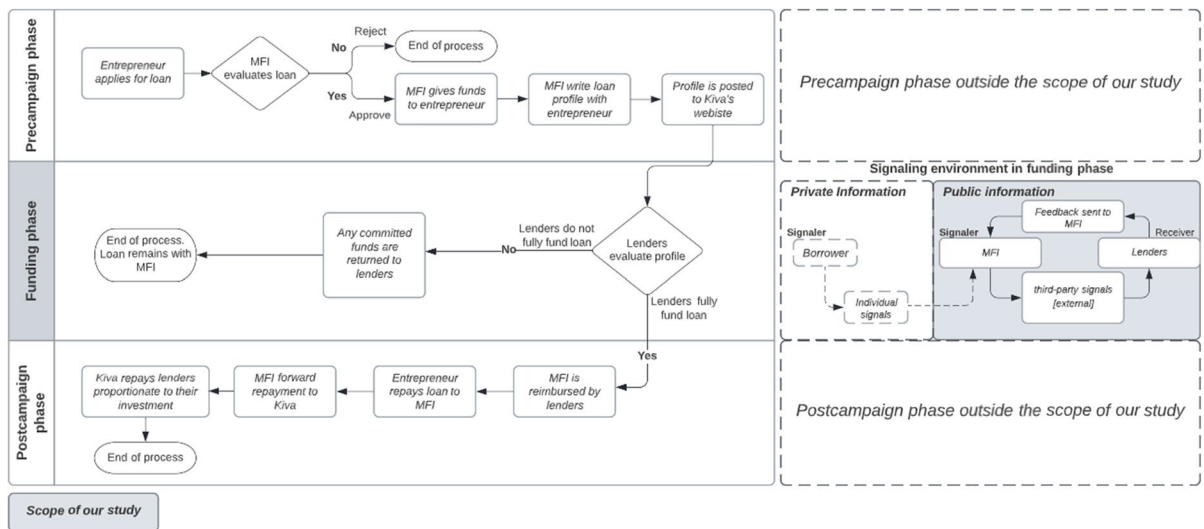


Fig. 1 Signaling environment on Kiva. Source: Authors' adaptation from Allison et al. (2013) and Connelly et al. (2011)

A borrower's affiliation with a MFI is costly for both parties. The borrower competes to affiliate with a reputable MFI, which requires it to offer transparency and costly information reporting. In return, it benefits from the MFI's reputation and a certification effect for its internal signals. On some platforms, including Kiva, the borrower receives prefunding from the MFI, before the campaign launches, which reduces risk exposure. The MFI accrues reputational costs, but in addition, offering affiliation and information-based certification requires it to engage in costly screening and monitoring. By selecting a good borrowers, the MFI maximizes the chances of being refunded by the crowd of lenders. However, the cost of the affiliation effort should vary for bad and good borrowers. Good borrowers use positive signals to communicate the quality of their projects; bad borrowers struggle to produce such communication and might find it impossible or too costly to acquire positive signals. The MFI is less willing to assume signalling costs for the latter type of borrower. Therefore, if an MFI agrees to affiliate with a borrower, it represents a signal that creates a separation equilibrium (Vismara, 2018) and enables lenders to distinguish credible signals from good versus bad borrowers. Third-party signals and external affiliation have crucial effects.⁴ In Fig. 1, we

⁴ The effectiveness of third-party signals also arises in equity (Kleiner et al., 2020) and reward (Roma et al., 2021) crowd-funding contexts.

depict the hierarchical signalling process and the parties involved, as occurs on the Kiva prosocial crowd-funding platform.

2.3 Hypotheses

Crowdfunding platforms are complex, dynamic, noisy, largely unregulated environments (Ahlers et al., 2015), in which multiple signals compete for attention, transmit key unobserved information and reduce information gaps. Entrepreneurs on these platforms face highly uncertain environments, particularly because crowdfunding campaigns often feature ambiguous communication, in which the "parties have been deprived of the ability to communicate directly" (Spence, 2002, p. 434). In these circumstances, signals have a double function: (i) they reveal the campaign's quality and underlying refugee or project quality, and (ii) they legitimate refugees, which should encourage lenders to fund refugee entrepreneurial campaigns. However, as entrepreneurial signalling researchers acknowledge, "there is a limited systematic understanding of what and how to signal to prospective investors to gain legitimacy and financial resources" (Colombo, 2021, p. 238). In particular, we do not know which signals legitimate refugee entrepreneurs or how, nor how such legitimation might translate into a signal of campaign quality. Refugee entrepreneurs face reputational issues; they

lack relevant documents to establish their credentials and skills (Guo et al., 2020). Even if they have access to their diplomas, the problem of equivalence arises (Wauters & Lambrecht, 2008). In crowdfunding contexts, an association with an MFI might help the entrepreneur overcome these reputational issues. Achieving an affiliation with a reputable MFI, with which they cannot communicate directly, is difficult and costly though, in line with the premise of signalling theory that effective signals of quality can mitigate adverse selection concerns only if their cost is high (Spence, 2002).

For refugee entrepreneurs, external certification is particularly relevant, because they launch business campaigns in foreign cultural, social, economic and legal contexts. Their past record of achievements tends to be inaccessible; they lack relevant documents to certify their habilitations and skills (Guo et al., 2020). Their present living situations often are fragile, and their future is uncertain as a consequence of political and/or racial persecution (Wauters & Lambrecht, 2008). In combination, these factors make it difficult for them to offer a clear, unambiguous signal of the quality of their entrepreneurial project. We argue that refugee entrepreneurs should work to affiliate with a reputable MFI to signal and certify the quality of their campaigns and underlying projects to maximize their chances of crowdfunding success. If an MFI has positive information about a refugee entrepreneur, it should be more willing to establish an affiliation with that entrepreneur's campaign (Anglin et al., 2020), and this third-party signal informs potential lenders and reduces their uncertainty.

In turn, the refugee entrepreneurs can attract lenders, based on the performance and track records of affiliated MFIs (Anglin et al., 2020). Such track records improve even further when the borrowers repay their loans, so we posit that only entrepreneurs who are confident they can succeed and repay their loans undertake the costly effort to affiliate with reputable MFIs. Similarly, MFIs only undertake screening and communication efforts if they are confident that the entrepreneurs will succeed. This reasoning suggests a virtuous cycle at the platform level that recirculates funding from more lenders more rapidly to more entrepreneurs, in the presence of third-party signals.

2.3.1 MFI financial performance in noisy signalling environments

The quality of entrepreneurs and their projects can be communicated by several types of signals, but MFIs' financial performance metrics (e.g. default rate, profitability) may be especially salient, because they are monitored and available on crowdfunding microfinance platforms (Anglin et al., 2020). Because MFIs put their reputations at stake when they affiliate with an entrepreneur, they select these partners carefully (Kleinert et al., 2020) and prefer those that appear likely to repay the loans. Furthermore, MFIs depend on repaid funds (low default rate) to survive and continue recirculating funding to other entrepreneurs in virtuous lending cycles (Jancenelle et al., 2018) that further enhance platform reputations. To build strong reputations for crowdfunding, MFIs need good loan repayment track records and low default rates, outcomes that also improve their financial performance and help them attract more funding. Lenders can find this public information on the crowdfunding microfinance platform, so they can hold MFIs accountable for their financial performance and loan track records. In turn, we predict that MFI have dual incentives, in relation to both the crowd of lenders and their own business mission, to achieve lower default rates, higher profitability and long-term financial sustainability. Thus we expect a negative (positive) association between MFI default rate (MFI profitability) and crowdfunding performance outcomes. Formally,

H1a: When a refugee entrepreneurship campaign is affiliated with an MFI that exhibits higher default rates, it is negatively associated with crowdfunding performance on crowd-funded microfinance platforms.

H1b: When a refugee entrepreneurship campaign is affiliated with an MFI that exhibits higher profitability, it is positively associated with crowdfunding performance on crowd-funded microfinance platforms.

2.3.2 MFI social orientation in noisy signalling environments

The prosocial nature of crowd-funded microfinance platforms, which provide MFIs with access to subsidized capital at interest-free rates, suggests MFIs also must exhibit strong social performance in their efforts

to compete with other MFIs for more of these attractive resources (Ly & Mason, 2012). That is, the social missions of microfinance platforms provide an implicit subsidy for MFIs to pursue their own social missions. Because platforms such as Kiva have strong social missions, they demand social commitments from their partners. Kiva assigns a social scorecard (badges) to MFIs to underline which social areas MFIs are involved in.⁵ To earn the social badges that Kiva awards, MFIs must submit applications, detailing their mission, which should include the purpose of the interest-free funding of loans (Kiva, 2022a). In addition, Kiva requires a minimum level of financial assets (at least US\$100,000), an adequate lending programme (portfolio quality), and a minimum portfolio value (more than US\$50,000) in the first year of a partnership (Dorfleitner et al., 2020).⁶ Although Kiva allows MFIs to charge interest rates to borrowers, it requires those interest rates to be justifiable and necessary for the MFIs' sustainability (Kiva, 2022a).⁷ To attract lenders in this competitive environment and achieve the status of Kiva partner, MFIs seek costly third-party signals. They must trade-off between social commitments and financial performance, in that strong financial performance generally reduces financial inclusivity, shifting loans away from the most vulnerable borrowers (Aduda & Kalunda, 2012).

The borrowers' entrepreneurs association to MFIs with socially-badged could be seen by the lenders that they the most need of funds. Refugees face different barriers, including language, cultural and norm differences. The labour market pushes refugees towards entrepreneurship but also limits their access to traditional financing. The affiliation of a refugee entrepreneur with an MFI that has earned social badges, such as those signifying that it provides training and supports entrepreneurs in starting, managing, and growing their businesses (Kiva, 2022c), signals that investing in these entrepreneurs, despite their circumstances and the willingness to incur the risk of the loan, is a costly endeavour and might signal their commitment to the business (Becchetti & Conzo, 2011).

⁵ Kiva's social scorecard consists of seven badges: Anti-Poverty Focus, Vulnerable Group Focus, Client Voice, Family and Community Empowerment, Entrepreneurial Support, Facilitation of Savings, and Innovation.

⁶ These partnership criteria are available on Kiva's website (Kiva, 2022a).

⁷ The specific loan interest rate is not listed on Kiva; it only indicates whether interest is charged or not.

Kiva attract lenders who are motivated to help others in need and also embraces an entrepreneurial attitude (Galak et al., 2011), promoting investor–entrepreneur links rather than simple donor–recipient relationships (Bajde, 2013). Thus, we predict that MFIs with a social orientation favour entrepreneurship in general and the underrepresented niche of refugee entrepreneurship in particular. Formally,

H2. Refugee entrepreneurship campaigns affiliated with MFIs that adopt entrepreneurial support orientations have positive effects on crowdfunding performance on crowdfunded microfinance platforms.

2.3.3 MFI internationalization in noisy signalling environments

An open question in microfinance literature pertains to whether MFIs should focus or diversify (Zamore, 2018), which might manifest as a particular geographic focus or international diversification of the portfolio of projects they support (Castellani & Afonso, 2021). More geographical diversification reduces the impacts of idiosyncratic local risks (Goetz et al., 2016). International business literature also indicates that internationalization can certify the firm's quality investments (Peng et al., 2022). The process of internationalization entails a costly learning process that creates new knowledge, international experience and resources (Schweizer, 2012), which in turn enhance the firm's ability to deal with complex problems, in diverse legal and cultural contexts.

The reasons, nature and processes of mobility make refugees a specific class of migrants, who do not move primarily for economic or business reasons. The forced nature of their mobility thus might shape their economic activity (Desai et al., 2021). Barriers related to unfamiliarity, relational hazards and lack of legitimacy constrain refugees from exploiting their business ideas and launching entrepreneurial projects in foreign markets (Zaheer, 1995). An international MFI may be better able to assess borrowers' quality and the potential value of their entrepreneurial projects. Accordingly, an association with an MFI with international experience is a costly signal; only refugee entrepreneurs that meet the selected MFI criteria earn this affiliation.

From a social mission perspective, MFIs with greater geographical coverage can help displaced refugees by establishing international support networks (Drori et al., 2018), boosted by their international experience (Isern & Cook, 2004). By providing funding, investors gain a warm-glow effect (Allison et al., 2013) and can fulfil people's desire to launch or grow a business. Still, investors need to balance their desire to help others with the risks associated with lending to the poor (Allison et al., 2015; Moss et al., 2015). If the loans are not paid back, investors are not reimbursed for their contributions, which decreases the supply of financial capital available to MFIs.⁸ The refugee entrepreneurs' affiliation with transnational MFIs provide a positive signal of their projects' quality. Microfinance research also indicates that geographic reach is relevant (Castellani & Afonso, 2021) and internationalization particularly improves the social performance of MFIs (Mersland et al., 2011). Therefore, a project sponsored by an MFI operating in more than one country provides a positive, costly signal and additional certification, beyond simple affiliation, because its international experience implies it can better assess refugees' entrepreneurial projects, relative to MFIs that only operate in a single country. Thus, we formulate the following hypothesis:

H3. Refugee entrepreneurship campaigns affiliated with transnational MFIs enjoy more success on crowdfunded microfinance platforms.

2.3.4 MFI digitalization in noisy signalling environments

Digitalization processes combine information, communication, technology and connectivity (Vial, 2019). For banks, digital initiatives enhance the effectiveness of their customer relationships and their reputations (Bernini et al., 2021), with positive implications for their funding options (Fombrun et al., 2000). In microfinance settings, which are noisy contexts, transmitting information is challenging. Entrepreneurs need to draw prospective investors' attention

to substantive signals, but multiple other signals also compete for their attention (Drover et al., 2017). Larger MFIs and those with bank-type legal status exhibit greater financial service digitalization, such as by hosting websites that enable digital communication and connectivity between lenders and borrowers (Tadele et al., 2018) or mobile financial services (Dorfleitner et al., 2019). Such communication channels should establish stronger relationships with both borrowers and lenders.

Refugees exhibit significant heterogeneity in socioeconomic profiles and individual attributes (e.g. age, gender, education; Butticiè and Useche, 2022), which raises questions about how host country-specific human capital might affect refugees' integration into the nation's economic activity (Desai et al., 2021). Refugee entrepreneurs may find it difficult to exploit their entrepreneurial ideas as outsiders (Fairlie, 2012). Their lack of local business networks spanning providers, financiers and customers, as well as their lack of legitimacy among local audiences, might explain their outsider status (Fisher et al., 2017). Refugee entrepreneurs' affiliation with a digitalized MFI signals that they likely can tap into different and more distant networks (Vismara, 2018). The willingness of refugees to undertake venture projects in hostile environments, which increases the risk of the loan, is costly and signals their strong commitment, in support of the foundational MFI business model, which is based on trust.

Prosocial crowdfunding lenders lend, in part, to aid those in need and derive good feelings from doing so (Allison et al., 2013). Digital communications are a powerful tool for making people aware of vulnerable borrowers who are soliciting help.⁹ The joy of giving is amplified by publicity and social networks established through digital communications, a reputation gains displayed by lenders' testimonies in the Kiva platform (Kiva, 2022e). Lenders rely on reputational signalling by trustworthy intermediaries (Agrawal et al., 2014). Large MFIs with digital competencies should be able to attract more skilled labour and develop effective screening tools. Thus, the loans they make can signal the creditworthiness of refugee

⁸ Lenders do not receive any interest from the MFI but bear the credit default risk of the corresponding loan and, because the loans are granted in U.S. dollars, the risk of depreciation too.

⁹ Bekkers and Wiepking (2011) conclude that awareness of need, solicitation, costs and benefits, altruism, reputation, psychological benefits/warm glow effects, values and efficacy are eight most important drivers of charitable giving.

entrepreneurs. Because digitalization should enhance the MFI's reputation, lenders perceive MFI digitalization as a costly reputation signal that affirms the MFI's quality and skills and also certifies borrowers affiliated with it. Formally,

H4. Refugee entrepreneurship campaigns affiliated with MFIs with greater digitalization levels enjoy more success on crowdfunded microfinance platforms.

3 Research design

3.1 Sample and data

We collected data from Kiva (<https://www.kiva.org/build/data-snapshots>), the leading prosocial crowdfunded microfinance platform, with a stated mission of "connecting people through lending to alleviate poverty" (Kiva, 2022b). Our sample includes 5615 business loan campaigns, posted by MFIs supporting refugees, during 2015–2018.¹⁰ They appeared in the Kiva-tagged "refugees and IDPs" category (Kiva, 2022d). The average amount funded is US\$1095, and the funding success rate is 86.8%, with each loan backed by an average of 32 lenders. They needed 19 days on average to fund their campaigns fully. Kiva also publishes the entrepreneur's profile at the start of the fundraising process. During each fundraising campaign, which usually lasts 30 days, Kiva applies an All-Or-Nothing model, such that only fully funded loan campaigns receive funding; otherwise, lenders get reimbursed. It also relies on pass-through MFI intermediaries (Allison et al., 2013), which creates a unique context for studying third-party signalling (see Fig. 1). Following standard practices (e.g. Gama et al., 2021), we excluded non-business loans from the sample, to narrow our research focus to refugee entrepreneurs raising crowdfunded microfinance for their businesses.

3.2 Sample descriptive statistics

In Online Resource 1, we detail the sample of campaigns, organized by country (panel A), campaign year (panel

B), MFI (panel C) and market category/sector (panel D). Following standard practice in crowdfunding research, we include heterogeneous market categories to achieve greater external validity (Taeuscher et al., 2021). Prior research shows that lenders often sort loan campaigns by sectors or regions, creating various types of competition (e.g. Ly & Mason, 2012), so we account for these features when constructing our refugee sample. It comprises 5615 business loan campaigns in 22 countries; the 39 MFIs in our sample sponsor loans pertaining to 15 market categories. The top three countries (Jordan, Lebanon and Palestine) represent more than two-thirds of the sample, likely reflecting their geographical proximity to Syria, a major origin of asylum seekers in 2015 and 2016. The majority of loan campaigns are concentrated in 2017 and 2018. More than three-quarters of the sample pertains to loans intermediated by the National Microfinance Bank (Jordan), Palestine for Credit & Development (FATEN) (Palestine) or Al Majmoua (Lebanon). Refugee entrepreneurs mainly request funding for entrepreneurial ventures in the food, services, retail or agriculture sectors.

Table 1 present the variables used and their operationalization. In Table 2, we outline the descriptive statistics and correlations. In terms of financial performance, MFIs achieve an average default rate of 1% and average profitability of 7.4%, consistent with the broader Kiva sample reported by Anglin et al. (2020). We code refugee-based campaigns affiliated with socially oriented MFIs by noting the presence of the entrepreneurial support badge, which appears for about one-third (35%) of the sample. We also find that MFIs operating in more than one country promote 25% of all campaigns. Finally, information about the presence of MFI websites on Kiva pages reveals that 96% of them exhibit this form of digitalization. Figures 2, 3, 4 and 5 in the appendix provide illustrations of these third-party signals as they appear on the Kiva platform.

As a check for multicollinearity, we compute variance inflation factors (VIF), all of which fall below the reference value of 10 (see Table 2). Thus, our results are unlikely to suffer from multicollinearity issues.¹¹

3.3 Empirical design

In line with prior crowdfunding literature (e.g. Duan et al., 2020), we apply three resource acquisition

¹⁰ To acknowledge the effects of the global refugee crisis, we collected data on refugee entrepreneurial loans posted between January 2015 and December 2018, the final complete year available at the time of data collection.

¹¹ The values for the independent variables produce a mean VIF of 1.97, a low score of 1.04, and a high score of 3.13.

measures—amount *FUNDED*, number of *LENDERS*, and funding *SPEED*—to gauge performance or success in crowdfunding microfinance. Following standard practices in crowdfunding research, we use logarithmic forms of these three dependent variables to account for the skewness of their distributions. To test hypotheses 1–4, in which we predict that refugee entrepreneurs whose loan campaigns are affiliated with MFIs that offer signals of better profitability, social orientations, wider geographical coverage and digitalization achieve better outcomes than those affiliated with MFIs without such features, we estimate the following model:

$$\begin{aligned} & \text{FUNDED/LENDERS/SPEED}_i \\ &= \beta_0 + \beta_1 \text{MFI}'s_default_rate_i + \beta_2 \text{MFI}'s_profitability_i \\ &+ \beta_3 \text{MFI}'s_entrepreneurial_support_i + \beta_4 \text{TransnationalMFI}_i + \beta_5 \text{MFI}'s_website_i \\ &+ \sum_{k=6}^{10} \beta_k X_{ki} + \beta_{11} FE_i + \sum_{k=12}^{13} \beta_k Z_{ki} + \sum_{k=14}^{15} \beta_k W_{ki} + \varepsilon_i \end{aligned} \quad (1)$$

In multiple regressions, we use three proxies for crowdfunding performance outcomes of an *i*th refugee entrepreneurship campaign. First, *FUNDED* represents the amount funded in US dollars, or else 0 if the refugee campaign is not fully funded, expressed in logarithmic form. Second, *LENDERS* is the number of lenders that funded the successfully funded loan campaign, in logarithmic form. Third, *SPEED* equals 1000 divided by the funding time, measured in days, in logarithmic form. These operationalizations reflect standard practices in crowdfunding research (e.g. Dorfleitner et al., 2021; Duan et al., 2020).

With four sets of independent variables, we capture third-party signals from MFIs seeking lenders to support their chosen refugee entrepreneurs through Kiva. We introduce complementary individual-level signals (X_{ik}) and control variables related to the borrower (FE_i), loan (Z_{ik}) and MFI (W_{ik}) characteristics. As individual signals, we control for *Public updates*, which represent efforts to reach and inform lenders interested in the campaign (Mollick, 2014). We add *Campaign time* to control for fundraising duration (Taeuscher et al., 2021). Moreover, we include the exclusion narrative (*Exclusion*), such that we deploy *DICTION* software to calculate the average score on a validated exclusion dictionary (Hart & Carroll, 2015). We anticipate that exclusion keywords reflect the social isolation of refugees, which is valuable information for lenders, such that we expect a positive association with crowdfunding performance

outcomes. We also employ *DICTION* to control for *Altruistic* narrative keywords, as previously used in crowdfunding research (e.g. Berns et al., 2020).¹² Because the Syrian refugee crisis was acute during our study period, we control for mentions of Syria in the loan campaign descriptions (*Syria loan description*) with a dichotomous variable, where 1 indicates that the campaigns mention Syria in their descriptions and 0 otherwise. We also include conventional control variables, such as the gender of the entrepreneur ($FE \equiv \text{Female}$), loan amount (*Size*), loan term (*Maturity*) (vector Z) and the MFI's risk rating (*Rating*) (vector W) (Galak et al., 2011; Ly & Mason, 2012). We add the average funding time for each MFI per year (*MFI's funding time*) (vector W). By accounting for regional, month and sector fixed effects, we can control for variations that could determine crowdfunding performance outcomes. Finally, we perform further analyses and robustness checks to rule out sample selection bias.

4 Results

4.1 Main findings

Table 3 contains the results of the hypotheses tests (H1–H4), obtained with an ordinary least squares (OLS) regression model. However, the significant number of unsuccessfully funded campaigns (13.2% of the total) implies that OLS estimations may yield biases, so we confirm the findings with a Tobit model as well. These results are consistent with the OLS estimations and available on request. In Table 3, the first column contains the baseline regression for all control variables; column 2 incorporates third-party signal variables and controls; column 3 depicts individual-level signals and controls; and column 4 represents the full model with all independent variables. We specify the findings linked to the three dependent variables with letter designations for the columns: F for *FUNDED*, L for *LENDERS* and S for *SPEED*.

The findings generally support our predictions, with the exception of H1b, for which we find no support. Consistent with H1a, the *MFI default rate*

¹² *DICTION* computes the Altruistic narrative based on the average scores on extrapolations of a standard passage size of 500 words. Online Resource 2 lists all keywords used.

Table 1 Variable definitions

Variable	Definition
Dependent variables	
FUNDED	Amount funded in US dollars (plus 1), in logarithmic form
LENDERS	Number of lenders that funded the loan campaign (plus 1), in logarithmic form
SPEED	1000 divided by the funding time measured in days, in logarithmic form
Covariates	
Third-party signals (TPS)	
<i>Financial TPS</i>	
MFI's default rate	MFI's default rate, or amount of loans defaulted, divided by amount of total loans (in MFI's profile page on Kiva)
MFI's profitability	MFI's profitability, or return on assets (in MFI's profile page on Kiva)
<i>Social TPS</i>	
MFI's entrepreneurial support	1 if the MFI has the social badge "Entrepreneurial support," and 0 otherwise
<i>Cross-country TPS</i>	
Transnational MFI	1 if MFI has reported presence in more than one country on MFI's profile page on Kiva, and 0 otherwise
<i>Digitalization TPS</i>	
MFI's website	1 if MFI has an website on MFI's profile page on Kiva, and 0 otherwise
Control variables	
<i>Individual-level quality signals(X_{ki})</i>	
Public updates	Number of updates to the loan made by Kiva or MFI
Campaign time	Time in days between planned ended time and post time
Exclusion	Dictionary describing the sources and effects of social isolation, in the descriptive narrative of the entrepreneurs' profile
Altruistic	Altruistic-appealing keywords present in the descriptive narrative of the entrepreneurs' profile
Syria loan description	1 if loan description has a mention of "Syria," and 0 otherwise
<i>Borrower control (FE_i)</i>	
Female	1 if female entrepreneur, and 0 otherwise
<i>Loan controls (Z_{ki})</i>	
Size	Loan amount requested in US dollars, in logarithmic form
Maturity	Loan maturity in months, in logarithmic form
<i>MFI controls (W_{ki})</i>	
Rating	MFI rating assigned by Kiva, from 1 (i.e. high risk) to 5 (i.e. low risk)
MFI's funding time	The average funding time of MFI per year

coefficient is negatively associated with the amount *FUNDED* (-0.088 , $p < 0.01$), number of *LENDERS* (-0.044 , $p < 0.01$) and funding *SPEED* (-0.066 , $p < 0.01$). The *MFI profitability* coefficient indicates no significance at conventional levels, so as noted, we cannot confirm H1b. To gauge the economic significance of these findings, we compute changes in the three dependent variables in response to variations in the *MFI default rate*, from the 25th percentile (0.26%) to the 75th percentile (0.42%), using the coefficients in columns F4, L4 and S4. The value change between the two percentile default rates results from decreases

of 1.4% in the amount *FUNDED*, 0.7% in the number of *LENDERS* and 1.1% in funding *SPEED*, *ceteris paribus*. In turn, we find support for H2, H3 and H4. In line with H2, MFIs with an *entrepreneurial support* badge exhibit positive and significant associations with *FUNDED* (0.564, $p < 0.01$), *LENDERS* (0.241, $p < 0.01$) and *SPEED* (0.417, $p < 0.01$), unlike MFIs without this badge. Consistent with H3, loan campaigns affiliated with *transnational MFI* are positively and significantly associated with *FUNDED* (1.075, $p < 0.01$), *LENDERS* (0.562, $p < 0.01$) and *SPEED* (1.125, $p < 0.01$). Finally, MFIs with *websites*

Table 2 Descriptive statistics and correlations

Variables	Mean	S.D	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) MFI's default rate	1.02	2.24	2.71	1.000														
(2) MFI's profitability	7.41	7.06	2.24	0.138*	1.000													
(3) MFI's entrepreneurial support	0.35	0.48	2.8	0.406*	0.244*	1.000												
(4) Transnational MFI	0.25	0.43	2.6	-0.091*	-0.321*	-0.371*	1.000											
(5) MFI's website	0.96	0.19	1.84	0.090*	0.015	0.139*	0.115*	1.000										
(6) Public updates	1.23	0.53	1.1	-0.086*	0.096*	0.003	-0.175*	0.082*	1.000									
(7) Campaign time	34.72	7.01	1.04	0.009	-0.015	0.138*	-0.028*	0.020	-0.011	1.000								
(8) Exclusion	3.37	3.97	1.88	-0.128*	0.165*	0.407*	0.135*	0.116*	-0.069*	0.081*	1.000							
(9) Altruistic	18.32	10.25	1.51	-0.139*	-0.049*	0.131*	0.352*	-0.050*	-0.147*	0.009	0.422*	1.000						
(10) Syria loan description	0.11	0.31	1.24	-0.116*	0.129*	0.247*	-0.202*	-0.164*	-0.056*	0.089*	0.255*	0.058*	1.000					
(11) Female	0.44	0.50	1.19	-0.026*	0.061*	-0.126*	-0.191*	-0.198*	0.086*	-0.075*	-0.196*	-0.060*	-0.040*	1.000				
(12) Size	7.03	0.54	1.96	-0.379*	-0.083*	-0.166*	0.304*	0.119*	-0.082*	0.024	0.212*	0.181*	0.003	-0.139*	1.000			
(13) Maturity	2.97	0.30	3.13	-0.146*	-0.476*	-0.443*	0.614*	0.007	-0.154*	-0.054*	-0.080*	0.153*	-0.207*	-0.019	0.507*	1.000		
(14) Rating	3.82	0.45	2.38	-0.451*	-0.255*	-0.045*	0.062*	0.361*	0.091*	-0.026	0.052*	0.041*	-0.037*	-0.004	0.177*	0.218*	1.000	
(15) MFI's funding time	15.62	2.72	2.01	0.260*	-0.414*	0.126*	-0.100*	0.212*	-0.071*	0.097*	-0.121*	-0.147*	-0.044*	-0.159*	-0.042*	0.047*	-0.171*	1.000

* $p < .05$. Sample with 5615 observations. *VIF* variance inflation factor. Table 1 contains descriptions of all the variables

Table 3 Estimation results for crowd-funding performance outcomes

	FUNDED				LENDERS				SPEED			
	(F1)	(F2)	(F3)	(F4)	(L1)	(L2)	(L3)	(L4)	(S1)	(S2)	(S3)	(S4)
Third-party signals (TPS)												
<i>Financial TPS</i>												
MFI's default rate	-0.104*** (0.030)	-0.088*** (0.030)	-0.053*** (0.015)	-0.044*** (0.016)	-0.084*** (0.019)	-0.066*** (0.019)						
MFI's profit-ability	-0.017** (0.009)	-0.010 (0.009)	-0.006 (0.005)	-0.003 (0.005)	0.001 (0.006)	0.004 (0.006)						
<i>Social-badge TPS</i>												
MFI's entrepreneurial support	1.047*** (0.084)	0.564*** (0.114)	0.503*** (0.045)	0.241*** (0.061)	0.746*** (0.052)	0.417*** (0.071)						
<i>Cross-country TPS</i>												
Transnational MFI	1.178*** (0.121)	1.075*** (0.136)	0.638*** (0.064)	0.562*** (0.072)	1.197*** (0.075)	1.125*** (0.083)						
<i>Digitalization TPS</i>												
MFI's website	1.003*** (0.196)	0.743*** (0.206)	0.388*** (0.105)	0.267** (0.111)	0.795*** (0.129)	0.628*** (0.131)						
Individual-level quality signals (X_{ki})												
Public updates		0.710*** (0.059)	0.746*** (0.073)	0.325*** (0.028)	0.346*** (0.034)	0.460*** (0.053)						
Campaign time		0.025*** (0.004)	0.023*** (0.004)	0.012*** (0.002)	0.011*** (0.002)	-0.017*** (0.002)						
Exclusion		0.083*** (0.009)	0.049*** (0.010)	0.041*** (0.005)	0.026*** (0.006)	0.040*** (0.006)						
Altruistic		0.022*** (0.003)	0.011*** (0.004)	0.012*** (0.002)	0.006*** (0.002)	0.006*** (0.002)						
Syria loan description		0.265*** (0.079)	0.332*** (0.085)	0.124*** (0.043)	0.162*** (0.046)	0.405*** (0.055)						
Controls												
<i>Borrower (FE_i)</i>												
Female	0.785*** (0.068)	1.102*** (0.070)	0.873*** (0.068)	1.073*** (0.069)	0.409*** (0.036)	0.567*** (0.037)	0.454*** (0.036)	0.550*** (0.037)	0.877*** (0.044)	1.149*** (0.043)	0.922*** (0.043)	1.110*** (0.043)

Table 3 (continued)

	FUNDED				LENDERS				SPEED			
	(F1)	(F2)	(F3)	(F4)	(L1)	(L2)	(L3)	(L4)	(S1)	(S2)	(S3)	(S4)
<i>Loan controls (Z_{ki})</i>												
Size	0.246*** (0.067)	-0.023 (0.078)	0.034 (0.071)	-0.035 (0.079)	0.504*** (0.037)	0.380*** (0.042)	0.398*** (0.038)	0.374*** (0.042)	-0.662*** (0.044)	-0.862*** (0.049)	-0.808*** (0.045)	-0.853*** (0.049)
Maturity	-0.863*** (0.117)	-1.281*** (0.180)	-0.388*** (0.126)	-1.056*** (0.179)	-0.320*** (0.063)	-0.578*** (0.096)	-0.100 (0.067)	-0.467*** (0.096)	-0.658*** (0.076)	-1.168*** (0.112)	-0.315*** (0.080)	-1.015*** (0.111)
<i>MFI controls (W_{ki})</i>												
Rating	0.038 (0.087)	-0.623*** (0.111)	-0.053 (0.090)	-0.489*** (0.122)	-0.006 (0.046)	-0.302*** (0.058)	-0.050 (0.047)	-0.230*** (0.063)	-0.046 (0.057)	-0.585*** (0.069)	-0.123** (0.058)	-0.500*** (0.080)
MFI's funding time	-0.081*** (0.013)	-0.119*** (0.016)	-0.060*** (0.013)	-0.090*** (0.017)	-0.034*** (0.007)	-0.048*** (0.009)	-0.023*** (0.007)	-0.033*** (0.009)	-0.109*** (0.008)	-0.132*** (0.010)	-0.085*** (0.008)	-0.105*** (0.011)
Constant	7.072*** (0.589)	10.458*** (0.670)	4.714*** (0.635)	7.462*** (0.729)	0.736** (0.323)	2.413*** (0.363)	-0.358 (0.326)	0.959*** (0.365)	11.454*** (0.454)	14.419*** (0.508)	10.981*** (0.459)	13.466*** (0.517)
Observations	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615
Adjusted-R ²	0.09	0.13	0.15	0.17	0.12	0.16	0.17	0.18	0.27	0.33	0.33	0.36
F test	24.31	27.00	27.33	25.86	44.81	45.91	45.38	42.44	68.18	70.35	75.08	72.79
p value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F test FE _i	131.64	246.69	165.42	238.62	129.28	236.65	161.94	226.97	406.38	710.81	468.81	679.69
p value FE _i	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F test Z _{ki}	27.71	32.11	5.01	22.93	94.11	43.86	56.79	39.86	240.51	381.75	233.17	339.56
p value Z _{ki}	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F test W _{ki}	21.20	31.81	10.62	15.19	12.39	21.04	5.43	9.34	95.02	90.86	53.40	48.04
p value W _{ki}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AIC	25,370.90	25,120.20	25,029.70	24,918.00	18,173.90	17,950.50	17,881.70	17,785.90	20,051.00	19,578.40	19,589.00	19,313.90
BIC	25,596.40	25,378.90	25,288.40	25,209.80	18,399.50	18,209.20	18,140.40	18,077.70	20,276.60	19,837.10	19,847.70	19,605.70

The dependent variables are FUNDED, LENDERS, and SPEED. Robust standard errors are in parentheses. Regional, month, and industry effects were included but are unreported here. AIC Akaike information criterion, BIC Bayesian information criterion. X_{ki} is the vector of individual-level quality signals, FE_i indicates a female borrower, Z_{ki} is the vector of loan controls, and W_{ki} is the vector of MFI controls. Table 1 contains a description of all the variables

*** $p < .01$, ** $p < .05$, * $p < .1$

achieve greater crowdfunding success than MFIs without a digital presence, in terms of the FUNDED (0.743, $p < 0.01$), LENDERS (0.267, $p < 0.05$) and SPEED (0.628, $p < 0.01$) variables, in support of H4.

The effect of the control variables on the outcome variables is consistent with existing literature. Specifically, the individual-level signals *public updates*, *exclusion narrative*, *altruistic narrative* and mention of *Syria loan description* all exhibit positive and significant associations with FUNDED, LENDERS and SPEED. *Campaign time* is positively associated with FUNDED and LENDERS, though its association with SPEED is negative and significant (-0.019 , $p < 0.01$), which is appropriate, because longer campaign durations that reduce funding SPEED might signal a lack of confidence to the crowd (Mollick, 2014). The control variable results are as expected, according to previous studies. *Female refugee entrepreneurs* achieve greater Kiva platform crowdfunding success; larger campaign amounts and higher loan maturities return higher and lower success outcomes, respectively. A notable exception again relates to funding SPEED though: Larger loans are positively associated with longer funding times in days and thus slower funding SPEED.

We find a negative effect of the MFIs' higher ratings (i.e. lower risk) with all three dependent variables. This unexpected result can be explained by crowdfunding literature. Previous studies offer mixed evidence, such that some do not indicate that safer loans achieve better crowdfunding success based on ratings (Ly & Mason, 2012), but others assert that ratings are positively associated with fundraising times (Galak et al., 2011), which entails a negative association with funding SPEED. Perhaps third-party signals, as a form of readily available information, become more ambiguous in noisy signaling environments (Plummer et al., 2016). The average MFI funding time per year generates the expected negative association with FUNDED, LENDERS and SPEED, such that MFI campaigns with longer durations achieve less successful crowdfunding outcomes.

4.2 Robustness tests and supplementary analyses

4.2.1 Alternative dependent variable (funding success)

To assess if our findings are robust to changes in the dependent variable, we repeated the previous analyses but rely on a dichotomous measure of funding success as

the dependent variable, indicating whether the campaign is fully funded or not (e.g. Ahlers et al., 2015). With probit models, we retest the main findings and find consistent results in these supplementary analyses, as detailed in Online Resource 3. For this test, the sample size decreases to 4445 observations, because public updates; regions in East Asia and the Pacific and South Asia; and the education, health and wholesale sectors all predict success perfectly. The results of our prior hypotheses tests remain significant ($p < 0.01$); the average marginal effects also confirm the predicted directions and strength of the effect of each third-party signal. Furthermore, in two additional analyses, with standard errors clustered by MFI and by country, the findings remain consistent with our main findings ($p < 0.01$) (see Online Resource 4).

4.2.2 Controlling for textual information overload

The amount of textual information in project descriptions appears to exhibit an inverted U-shaped association with the amount of funding raised and number of funders. We test for this association (see Online Resource 5) by using short text descriptions of the loan uses (columns A1–A3) and long text descriptions of project campaigns (columns B1–B3). The results affirm the inverted U-shaped relationship of short descriptions with LENDERS and SPEED (columns A2 and A3).¹³ But with long descriptions, we find no effect on loan campaign performance. Perhaps the rationality and cognitive limitations of decision-makers inform this finding; they might choose on the basis of incomplete or incorrect knowledge (Packard et al., 2017) if they avoid reading long descriptions. Our main findings remain robust after controlling for textual information overload though.

4.2.3 Controlling for other social performance indicators

Social third-party signals other than entrepreneurial support badges might exert effects too. In line with business ethics research, we control for whether MFIs target vulnerable populations (Figueroa-Armijos & Berns, 2022). We test a *Vulnerability* dummy variable, equal to 1 if MFIs earn antipoverty or vulnerable group focus social badges, and 0 otherwise. We also control for *Average*

¹³ Online Resource 6 contains a graphical representation of the concave relationship between loan use description length and the dependent variables.

loan size per capita income (*ALSpC*), or the average MFI loan size as a percentage of the per capita gross national income multiplied by 100, and the average MFI *Cost to borrower* (portfolio yield), measured as the MFI's financial earnings ratio divided by its average outstanding loan portfolio per year (Anglin et al., 2020). In an unreported preliminary analysis, we discovered high VIF values for both *ALSpC* and *Cost to borrower*, so we orthogonalized them, following standard procedures (Taeuscher et al., 2021).¹⁴ The results in Online Resource 5 (columns C1–C3) are consistent with our main findings, except that MFI websites are not statistically significant. Perhaps in noisy signalling environments, with too many signals, third-party signals compete for lenders' attention. We caution that this analysis pertains only to a crowdfunded microfinance refugee entrepreneurial context.

4.2.4 Controlling for indirect signallers

Signalling literature identifies various signallers (Colombo, 2021; Connelly et al., 2011), so we attempt to capture two indirect signallers: lenders and Kiva's volunteer staff. According to Meoli and Vismara (2021), severe information asymmetry and high uncertainty surrounding crowdfunding may lead lenders to mimic their peers' behaviours, because other lenders' decisions provide information and signal investment quality. Therefore, we compute *Popularity* as the number of favourite tags attributed by lenders to each campaign, plus 1, in logarithmic form. Kiva is a nonprofit organization; we consider whether its volunteer staff might act as potential signallers. For the variables *Volunteer pick* and *Volunteer like*, we assign values of 1 if the campaign receives a volunteer pick or like tag, respectively, and 0 otherwise. Broader crowdfunding research suggests that staff picks have impacts on funding success (Taeuscher et al., 2021), but to the best of our knowledge, our test represents the first application of these variables to crowdfunding microfinance. In Online Resource 5 (columns D1–D3), we show that the main findings hold after controlling for these indirect signals.¹⁵

¹⁴ The VIFs for *ALSpC* and *cost to borrower* are 39.68 and 19.38, which exceed the threshold of 10. With a modified Gram–Schmidt procedure implemented in Stata's *orthog* command (Sribney, 1998), we orthogonalize these two variables, after which the VIFs for *ALSpC* and *cost to borrower* are 4.66 and 4.84, respectively. Detailed results are available on request.

¹⁵ In unreported estimations, after controlling for additional signals linked to information overload, social performance and indirect signallers, the results still hold. They are available on request.

4.2.5 Controlling for potential sample selection bias

This study relies on business loan campaigns, for two reasons. First, there is a broad consensus that crowdfunding microfinance attracts lenders with hybrid motives (financial and prosocial) (e.g. Galak et al., 2011), which relate to the nature of the loan campaigns, that is, business or non-business purposes. Second, on Kiva, humanitarian and personal loan campaigns coexist with entrepreneurial and business loan campaigns (Gafni et al., 2021). Self-selection can occur if refugee entrepreneurs who design their loan campaigns are non-randomly selected from the refugee population. For example, self-selection among refugees could occur if some entrepreneurs achieve funding success (i.e. the campaign is funded) and these benefits outweigh the cost between the choice of allocating their loan campaigns to either a business loan or a non-business loan. To account for the possibility of endogenous selection, we consider whether refugee entrepreneurs select between business or personal loans in their loan profile, which might influence our results through a sample selection bias. In a two-step Heckman selection model (Heckman, 1979), we model the following equation system, in which Eq. 2 refers to selection in the second stage, and Eq. 3 pertains to the first stage:

$$\begin{aligned} & \text{FUNDED/LENDERS/SPEED}_i^{\text{OLS}} \\ &= \beta_0 + \beta_1 \text{MFI's default rate}_i + \beta_2 \text{MFI's profitability}_i + \\ & \beta_3 \text{MFI's entrepreneurial support}_i + \beta_4 \text{Transnational MFI}_i + \beta_5 \text{MFI's website}_i \\ & + \sum_{k=6}^{10} \beta_k X_{ki} + \beta_{11} \text{FE}_i + \sum_{k=12}^{13} \beta_k Z_{ki} + \sum_{k=14}^{15} \beta_k W_{ki} + \lambda(\cdot) + \mu_i \end{aligned} \quad (2)$$

$$\begin{aligned} & \text{BUSINESS}_i^{\text{probit}} \\ &= \alpha_0 + \alpha_1 \text{MFI's default rate}_i + \alpha_2 \text{MFI's profitability}_i \\ & + \alpha_3 \text{MFI's entrepreneurial support}_i + \alpha_4 \text{Transnational MFI}_i \\ & + \alpha_5 \text{MFI's website}_i + \sum_{k=6}^{10} \alpha_k X_{ki} + \beta_{11} \text{FE}_i + \sum_{k=12}^{13} \alpha_k Z_{ki} \\ & + \sum_{k=14}^{15} \alpha_k W_{ki} + \alpha_{16} \text{ER}_i + \gamma_i \end{aligned} \quad (3)$$

The first-stage probit model computes the likelihood that entrepreneurs seek a business (=1) or personal use (=0) loan; it produces the $\lambda(\cdot)$ value that refers to the inverse Mills ratio (IMR), a self-selection correction term that we add to the second-stage model (Eq. 2) to address potential selection bias. We also add an exclusion restriction (ER_i), based on the *Percentage of MFI business loans* provided to refugees in the year prior to the campaign posting date. Entrepreneurs may imitate their peers (Duan et al., 2020) and identify loans received from affiliated MFIs that sponsor refugees. Finally, personal use loans tend to receive

faster funding, especially if they are for smaller amounts (Gafni et al., 2021), so the nature of the project can determine crowdfunding success. To ensure that the variables in Eq. 2 represent a subset of the variables in Eq. 3 (which our system satisfies), Heckman models need at least one variable in the selection equation that does appear in the main equation (Certo et al., 2016), as is true of the *Percentage of MFI business loans*. This selection variable, or exclusion restriction (ER), thus enters Eq. 3. It affects the likelihood that an observation appears in the sample (i.e. likelihood that entrepreneurs choose business or personal use loans) in the first-stage probit model but does not affect the dependent variables (FUNDED, LENDERS, SPEED) in the second-stage OLS model (Certo et al., 2016).

Refugees can access prosocial crowdfunding through MFI-sponsored loans or direct loan campaigns (i.e. MFI non-sponsored loans), though direct loans are “only available to businesses in the US and social enterprises internationally” (Kiva, 2022e) and represent only 20 observations among all the refugees loans we gather during 2015–2018. Although self-selection does not appear to be an issue for our sample, it might be relevant for other crowdfunding platforms. Kiva represents a unique context; as Allison et al., (2013, p. 697) recognize, “the entrepreneurs receiving loans on Kiva are generally more likely to be in a desperate poverty condition than is the average entrepreneur in the same country.” That is, it is not only the best entrepreneurs who achieve third-party affiliations, but also borrowers in desperate poverty, who tend to receive support from MFIs. Thus, the poorest entrepreneurs gain reputational signals, reflecting efforts to align with Kiva’s requirement that partner MFIs have a “social mission to serve the poor, unbanked and underserved” (Kiva, 2022e), as well as the likelihood that the crowd will refinance them by lending to the poorest customers. But these poorest borrowers are even less likely to have the resources or entrepreneurial skills to apply to Kiva by themselves, which might explain the relatively few direct loans to refugees. Despite fair access to credit from Kiva, a sample-induced endogeneity problem may arise.¹⁶ If refugee

entrepreneurship choices are non-random, it could create unobservable information that affects crowdfunding success. In our non-random sample specifically, the statistical relationship may be affected by sample selection bias and produce flawed results (Certo et al., 2016).

In Table 4, we display the Heckman two-stage regression model results for FUNDED, LENDERS and SPEED. The first-stage probit model includes 8582 campaigns linked to business and personal purposes. The ER is positive and significantly associated with the likelihood that refugee entrepreneurs choose a business loan campaign (2.212, $p < 0.01$). That is, MFIs prefer business loans, which influences whether refugees launch business or personal use loan campaigns. To capture the strength of the ER, we use both the McFadden R^2 of the first-stage probit model and the correlation between the ER and IMR (Certo et al., 2016). McFadden’s R^2 is 0.25 for the first stage; we find a moderate correlation between the ER and IMR (-0.55). These values point to a strong ER. The second-stage OLS regression results control for sample selection bias, including IMR. The IMR coefficients are negative and statistically significant for LENDERS (-0.19 , $p < 0.1$) and SPEED (-0.35 , $p < 0.01$), whereas FUNDED indicates a non-significant IMR. On balance, the model specifications indicate that our sample is less likely to achieve crowdfunding success than a non-selected sample. Thus, the variables for various third-party signals are consistent with our main findings, and we can confirm the robustness of the results even when we control for sample-induced endogeneity.

5 Discussion

Although MFIs invest billions of dollars in efforts to alleviate poverty, they also might function as third-party signallers, a role that rarely has been noted in crowdfunding microfinance literature. In an effort to address this gap and support growing research insights into refugee entrepreneurs, we establish the value of third-party signalling in resource acquisition by demonstrating MFIs’ role in signalling third-party affiliations. Next, we briefly expound on what we can infer from these results, our research contributions and the implications for further research and policy recommendations.

When MFIs have a higher default rate, it produces a negative link with all three dependent variables, such that it reduces crowdfunding performance in terms of the amount funded, number of lenders and funding speed.

¹⁶ There may be more than one selection bias mechanism. For example, refugee entrepreneurs may choose Kiva to launch their loan campaigns due to its prosocial nature or all-or-nothing feature. This platform self-selection may not be independent of the loan campaign type, which induces a double selection problem. Due to the lack of data from other crowdfunding platforms though, we cannot address this double selection problem, which represents a study limitation.

Table 4 Heckman model (sample selection bias)

	(Heckman 1)	(Heckman 2)	(Heckman 3)
First stage, probit (dependent variable: business loans)			
Percentage of business loans MFI (last year)	2.212*** (0.187)	2.212*** (0.187)	2.212*** (0.187)
Observations (1st stage probit model)	8582	8582	8582
McFadden R ²	0.25	0.25	0.25
χ^2 test	2000.80	2000.80	2000.80
<i>p</i> value	0.00	0.00	0.00
Second stage, OLS			
<i>Financial TPS</i>			
MFI's default rate	-0.089** (0.035)	-0.045** (0.018)	-0.068*** (0.021)
MFI's profitability	-0.009 (0.011)	-0.002 (0.006)	0.005 (0.007)
<i>Social-badge TPS</i>			
Entrepreneurial support	0.572*** (0.119)	0.247*** (0.063)	0.429*** (0.073)
<i>Cross-country TPS</i>			
Transnational MFI	1.101*** (0.138)	0.584*** (0.073)	1.166*** (0.084)
<i>Digitalization TPS</i>			
MFI's website	0.785*** (0.222)	0.302** (0.118)	0.694*** (0.135)
Individual-level quality signals (X_{ki})			
Public updates	0.746*** (0.060)	0.346*** (0.032)	0.460*** (0.037)
Campaign time	0.023*** (0.005)	0.011*** (0.003)	-0.018*** (0.003)
Exclusion	0.047*** (0.011)	0.024*** (0.006)	0.037*** (0.007)
Altruistic	0.016*** (0.006)	0.011*** (0.003)	0.014*** (0.004)
Syria loan description	0.420*** (0.137)	0.235*** (0.073)	0.539*** (0.083)
Controls			
<i>Borrower controls</i> (FE_i) Female	1.055*** (0.072)	0.536*** (0.038)	1.083*** (0.044)
<i>Loan controls</i> (Z_{ki})			
Size	-0.041 (0.080)	0.369*** (0.043)	-0.862*** (0.049)
Maturity	-1.068*** (0.183)	-0.477*** (0.097)	-1.034*** (0.112)
<i>MFI controls</i> (W_{ki})			
Rating	-0.458*** (0.123)	-0.204*** (0.065)	-0.453*** (0.075)
MFI's funding time	-0.085*** (0.018)	-0.028*** (0.010)	-0.097*** (0.011)

Table 4 (continued)

	(Heckman 1)	(Heckman 2)	(Heckman 3)
Constant	7.225*** (0.965)	0.763 (0.513)	13.103*** (0.591)
Observations selected sample: business loans	5615	5615	5615
λ (inverse Mills ratio)	-0.23	-0.19*	-0.35***
Rho	-0.10	-0.16	-0.26
χ^2 test	1039.08	1109.49	3140.91
<i>p</i> -value	0.00	0.00	0.00

The dependent variables are (1) FUNDED, (2) LENDERS, and (3) SPEED. Standard errors are in parentheses. In the first-stage regression intercept, the main independent variables (third-party signals), individual-level quality signals, control and regional variables, and month effects were included but are unreported here. In the second-stage regression, regional, month, and industry effects were included but are unreported here. Table 1 contains a description of all the variables

*** $p < .01$; ** $p < .05$; * $p < .1$

Moreover, MFIs that offer entrepreneurial support, according to their social orientation badges, achieve better outcomes than MFIs without them. Regarding international experience, refugee loans signalled by transnational MFIs with greater geographical coverage achieve better crowdfunding performance outcomes than those linked to local MFIs, present in just one country. As our findings show, MFI digitalization also relates to better performance outcomes for refugee entrepreneurs. All these results remain robust after controlling for additional signals, such as information overload, other social performance indicators and indirect signals. Furthermore, even though our findings reflect a non-random sample of refugee business loans, Heckman's (1979) test provides consistent evidence that our main results are valid, affirming the impact of such signals on lending decisions.

For signalling, crowdfunding and entrepreneurship literature, we respond to calls for a better understanding of the underrepresented niche of refugee entrepreneurs (Desai et al., 2021), by extending signalling theory and certification effects to these entrepreneurs, according to their third-party affiliations with MFIs, as a means to access crowdfunded microfinancing. Our findings reveal that third-party signals help reduce information asymmetries in refugees' entrepreneurial loan campaigns. Four signalling dimensions—financial, social, internationalization and digitalization—all prove relevant to lenders' decisions to fund refugee entrepreneurs. We also contribute to signalling entrepreneurial finance research by expanding the range of potential third-party signals available for crowdfunding and microfinance efforts, in line with calls to examine MFIs' roles more closely. By outlining methods to democratize access to finance through crowdfunding for

underrepresented entrepreneurs (Cumming et al., 2021), we offer the first effort, to the best of our knowledge, to apply signalling theory to the financially constrained group of refugee entrepreneurs and their uses and emphases of third-party signals. In addition to integrating refugee entrepreneurship research with entrepreneurial finance contexts, we address the noisy signalling environment of crowdfunded microfinance, by linking third-party signalling with individual-level (entrepreneurial) signalling and readily available signals on crowdfunding microfinance platforms. In fragmented signalling literature, crowdfunding represents a research frontier. By clarifying how different signals function in a distinct signalling environment (Huang et al., 2022), created by the largest crowdfunding microfinance platform, we reveal the need for researchers to continue trying to understand how third-party signals interact with signals from other sources, such as managers, management teams and boards of directors, as well as entrepreneurs and new venture development organizations.

Our results also offer practical implications. First, refugee entrepreneurs should realize that the crowd of lenders emphasizes third-party affiliations and exhibits preferences for MFIs that achieve better financial performance. These lenders also consider intangible factors, such as MFIs that support entrepreneurial projects, cover broader geographies and establish a digital presence. Second, to develop an effective and self-perpetuating entrepreneurial ecosystem, digital platforms should work to build up their reputations among lenders by capitalizing on and making third-party signals more readily available (e.g. emphasizing crucial information from the MFI profile pages on loan campaign pages), and at the same time conduct due diligence to assess and monitor

MFIs' behaviour. Because lenders do not expect monetary returns but rather are concerned with getting their capital back to make another loan in the future, such diligence can provide more safety to investors and reassure them that their funds are going to a good cause (Kiva, 2022e). Crowdfunding platforms can build their own reputations by emphasizing crucial signals on loan campaign pages, so they are easily visible to lenders. Third, policy makers dealing with refugee crises might explore the potential of crowdfunded microfinance further, especially as a form of public policy or refugee program, to help accelerate the democratization of entrepreneurial finance among these marginalized groups. Our cross-disciplinary perspective—we apply signalling theory to crowdfunding and entrepreneurship—reveals some signals that refugee entrepreneurs can use to attract lenders, increasing their chances of successful resource acquisition. Policy makers then might highlight and embrace these pathways to learn how public information (available on digital platforms) interacts with MFIs' financial information, as well as the possible benefits of integrating other data set information, such as from the MIX Market or ATLAS.

6 Conclusion

We extend signalling theory to crowdfunded microfinance, by linking research on refugee entrepreneurship with a body of literature on third-party signals, certification hypotheses and crowdfunding dynamics. On a leading crowdfunding microfinance platform, we investigate whether entrepreneurial loan campaigns

framed by refugee status achieve better performance outcomes, while controlling for MFI affiliation as third-party trustees. The findings affirm that crowds of lenders support entrepreneurial campaigns launched by the marginalized refugee group affiliated with reliable MFIs. Even when we consider individual-level entrepreneurial signals, information overload, other social performance signals and additional indirect signallers, we consistently find that lenders rely on entrepreneurs' affiliations with informed third-parties (i.e. MFIs).

In turn, we provide both theoretical and practical contributions at the intersection of refugee entrepreneurship and crowdfunding. Third-party signals help refugee entrepreneurs achieve better crowdfunding performance in their pursuit of entrepreneurial opportunities, which contributes to the reduction of the refugee funding gap. We also establish two key insights. First, this empirical evidence should inform decision-making by policy makers, by revealing an effective way to integrate refugee entrepreneurs into local economies, adopt entrepreneurship as a tool for economic participation and encourage prosocial lender microfinance as a means of development. Second, first-time refugee entrepreneurs, with the support of MFIs, can use these findings to inform their efforts to signal the quality of their ventures and engage the crowd in funding their loan campaigns. Accordingly, the findings reveal a way to achieve triple objectives: mitigate information asymmetry, promote entrepreneurship and reduce the refugee funding gap. Third, this study complements prior studies of how refugee entrepreneurs and lenders interact in crowdfunding settings, by analysing crowdfunding performance specifically.

Appendix

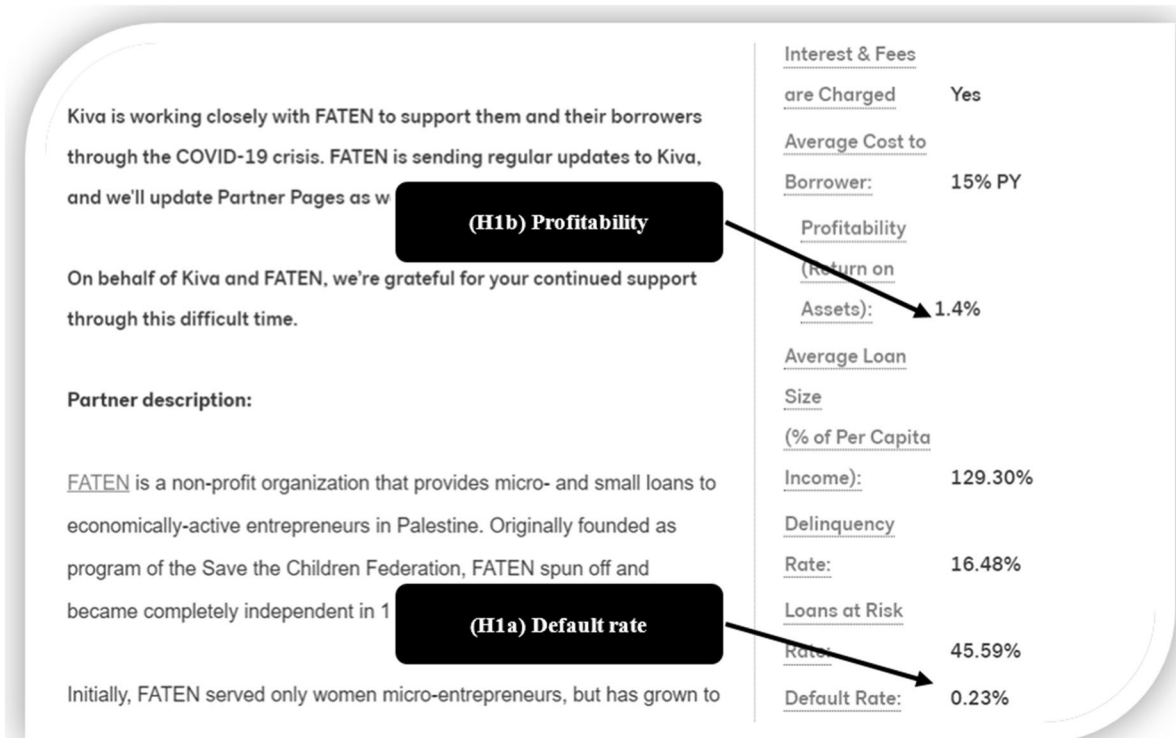


Fig. 2 MFI page view: Financial third-party signals (as seen by lenders on Kiva MFI profile pages)

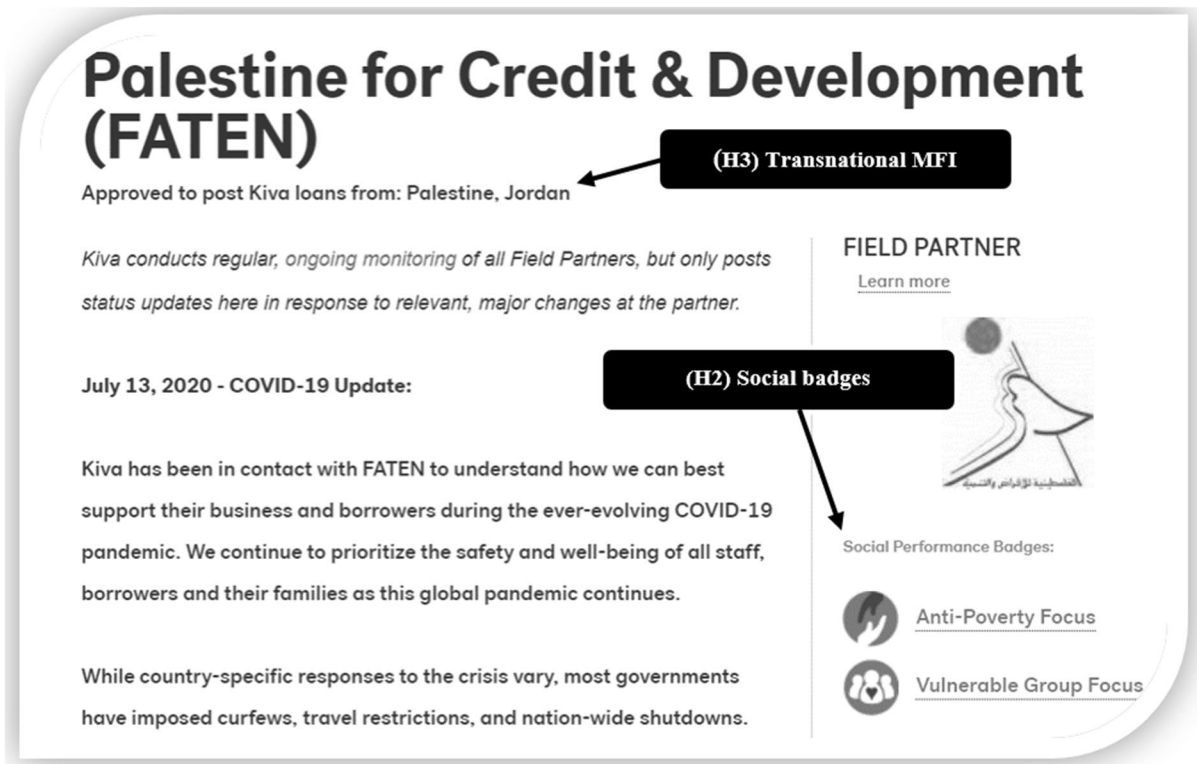


Fig. 3 MFI page view: Geographical coverage and social third-party signals (as seen by lenders on Kiva MFI profile pages)

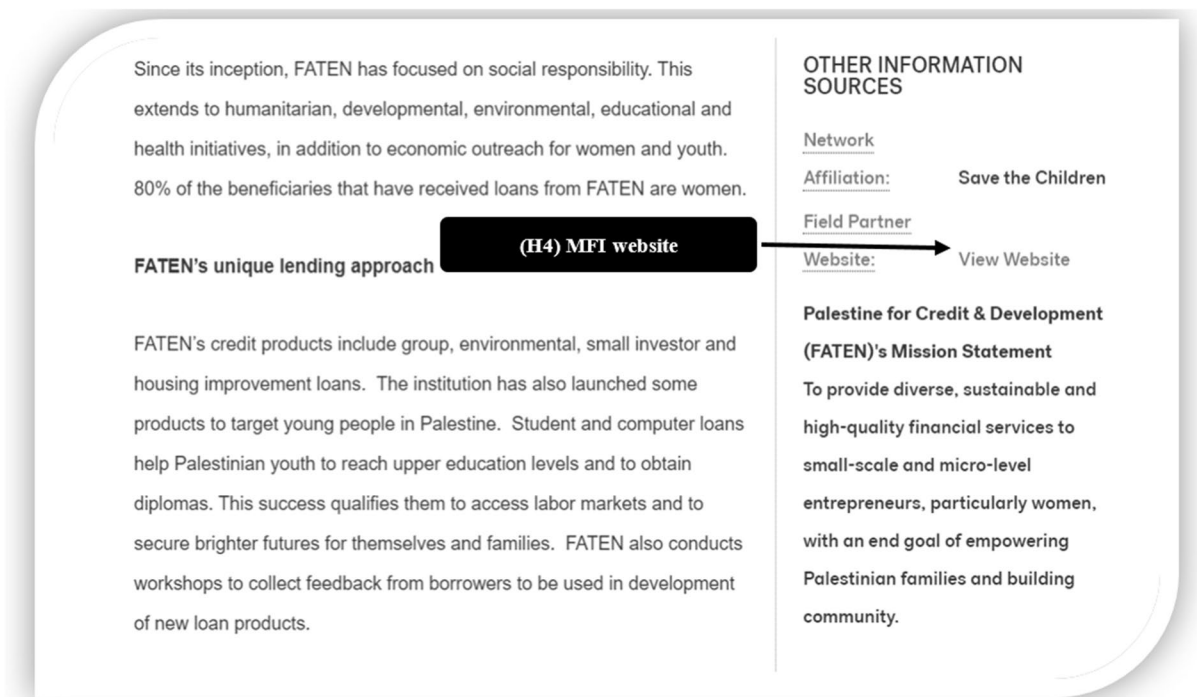


Fig. 4 MFI page view: Digitalization third-party signal (as seen by lenders on Kiva MFI profile pages)

This loan is special because:

It benefits refugees who have been marginalized

Lev Plaves
Kiva staff

(H1b) Profitability

More about this loan

This loan helps Palestinian people, specifically those living in refugee camps throughout the West Bank and Gaza. Palestinian refugee camps have inadequate infrastructure and don't receive the same basic services compared to other Palestinian... helping marginalized people... financial needs.

(H1a) Default rate

About Palestine for Credit & Development (FATEN):

Palestinians face unique challenges due to the economic and political environment in the West Bank and Gaza. Click here to learn more about how Kiva and FATEN are working to help Palestinian borrowers overcome these obstacles and how your support can make a difference.

Field Partner: Palestine for Credit & Development (FATEN)

Time on Kiva: 145 months
Kiva borrowers: 15,823
Total loans: \$28,037,075
Average cost to borrower: 15% PY
Profitability (return on assets): 1.6%
Average loan size (% of per capita income): 129.30%
Delinquency rate: 12.93%
Loans at risk rate: 32.33%
Default rate: 0.22%
Currency exchange loss rate: 0.00%

More about Palestine for Credit & Development (FATEN)
[What is a Field Partner?](#)

Fig. 5 Campaign view: Third-party signals (as seen by lenders on Kiva campaign profile pages)

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