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How Microfinance Can Close Asymmetrical Information on Peer-to-Peer Platforms

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Requirements for Interdisciplinary Honors in Accounting and Finance and
Economics

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Abstract

Peer-to-peer lending has sprung up in recent years, defined by its flexibility to meet the needs of loan applicants from a range of financial backgrounds. Institutional investors' reluctance to fund small business owners has facilitated the widespread acceptance of peer-to-peer lending, which represents a convenient investment medium for prospective borrowers, individual investors, and P2P companies. Though, the inclusive model inherent in P2P lending breeds practical concerns for investors who expect to maximize returns while minimizing default risks. This paper proceeds to explore the value of information, the importance of information in principle-agent relationships, and how information must be leveraged further by P2P platforms to maintain high returns on investments for individual investors. Due to the importance of accurate, up-to-date borrower information, the literature herein suggests that P2P companies should outsource the procurement of borrower information to increase investment values and attract larger volumes of credit from individual investors. As a result of the absence of academic literature that explores the incorporation of microfinance institutions' core competencies into the P2P business model, advantages of this business partnership are thus considered on a foundational level, leaving room for further empirical research in the future. Hence, this paper represents a working solution to be explored over time.

Introduction

Self-employment is a challenging opportunity to successfully undertake. Creating two out of every three jobs and accounting for over half of United States' sales, small businesses are the backbone of the American economy (Harrison 2013). Although the amount of small business births has steadily increased since the financial recession, the probability that a small business survives for 10 years is less one-third; moreover, minority owned businesses are failing at a higher rate than their non-minority counterparts (Wolken 2002, Lowrey 2005).

In a post-crisis environment, individuals have found it difficult to obtain loans from institutional banks. For reasons explored further herein, individuals' perceived risk by banks has been unfavorably skewed due to the market forces of the 2008 recession and questionable risk assumptions that persist today. Many individuals applying for loans are small business owners applying for small business loans.

Access to credit has been a commonly cited challenge among many small business owners (Federal Reserve Bank of New York). Since the financial crisis, institutional banks have increased their funding to large businesses; however, institutional banks have not shown the same willingness to distribute loans to small

businesses at similar rates (Ross and Farhat 2012). This constrains small business's budgets and encumbers long-term growth potential, hiring activities, and fulfilling existing orders. This is in large part due to bank's perceived riskiness of a borrower's background, a result of unverifiable history or insufficient financial status to cover a bank's costs associated with a borrower's potential default risk.

Figure 1: Small Business Loans Down Since the Financial Crisis of 2008
Small Firm Loan Balances at Banks ($ billions)
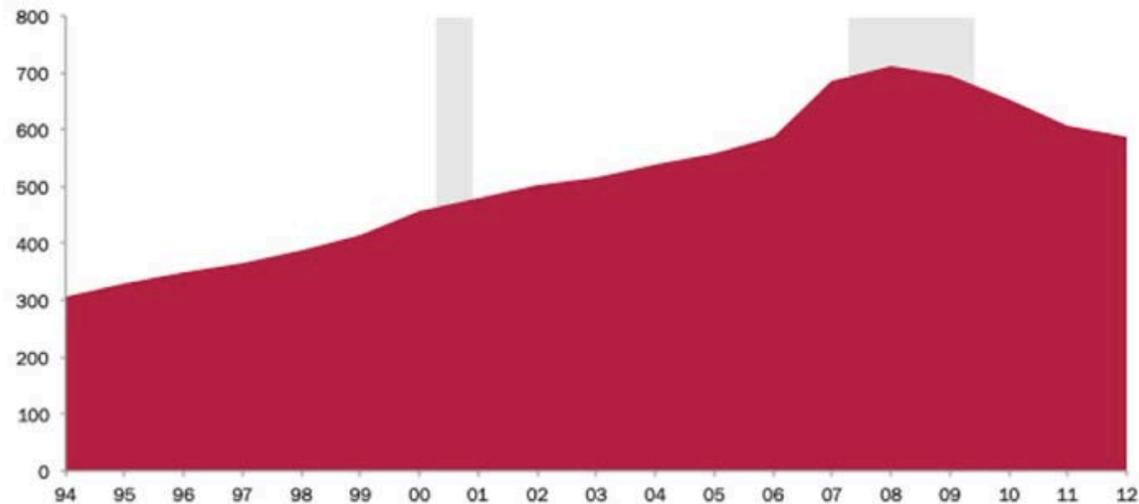
Source: HBS, "The State of Small Business Lending: Credit Access during the Recovery and How Technology May Change the Game", by Karen Gordon Mills, Brayden McCarthy.

Figure 2: Small Business Loans Are In Decline
Small Business Share of Loans at Banks (%) vs. Total Outstanding Commercial Loans ($ Billions)
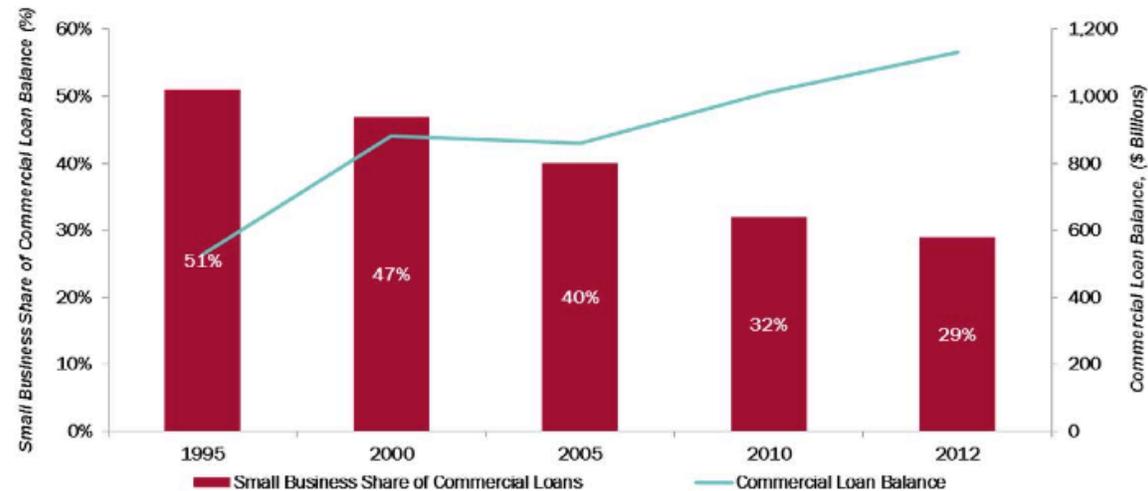
Source: HBS, "The State of Small Business Lending: Credit Access during the Recovery and How Technology May Change the Game", by Karen Gordon Mills, Brayden McCarthy.

Substantial premiums on accurate, detailed borrower information exist in the loan marketplace today. Borrower information allows a creditor to assess default risk, minimize moral hazard, and avoid adverse selection difficulties. However, creditors differ on their respective investment criteria when considering loan applicants, which sometimes discourages prospective borrowers from applying to loans who deem the time commitment more valuable than the loan itself.

Peer-to-peer investing, a decentralized form of marketplace lending, may present a viable solution for individuals who own small businesses but have not successfully obtained credit through traditional investment channels. Due the P2P business model and investors' varying levels of risk tolerance, borrowers of different credit levels may find it easier to obtain loans through the P2P platform instead of through a traditional bank. Thus, elaborating on the market for borrower information within the P2P marketplace must be explored further.

This report underlines the high value of information in today's lending markets – especially in marketplace lending, and how leveraging the microcredit business model may augment safer returns for investors, higher rates of loan approval among individuals who own small businesses, and increase the capital volume which is traded on P2P platforms. Peer-to-peer lending has shown to meet the needs of prospective loan borrowers where institutional banks have come up short. The implications of such developments are aligned with the interests of both minority owned businesses and small business owners without sufficient collateral or revenues streams, who cannot qualify for small business loans from traditional channels.

The first section of this report will thus address the value of borrower information in marketplace lending using an example of adverse selection. Through this example, the report will transition into the benefits of making this information accessible to investors, whereby one may begin to understand how obtaining this information may enhance market opportunities for different stakeholders. The cumulative effect will be to increase opportunities for small businesses and close the credit gap among all business owners, hence individuals and their families. Next, I will expand upon the microcredit business model and how this model has been shown to work in the presence of little borrower information. Finally, the report will suggest the incorporation of microcredit services into P2P platforms to combat information asymmetry and transform P2P lending into a true value-add investment tool for the borrowers, investors, and the P2P platform companies.

Borrower Evaluation

In a post-crisis economy, creditors and borrowers alike are feeling the aftershock of the recovery. Since 2008, the Consumer Confidence Index has increased over 60%, increasing money velocity within the economy (Federal

Reserve Bank of St. Louis). The Case-Schiller Index, which measures residential housing price changes, is finally reestablishing much of its pre-recession values, and consumer spending is booming (Trading Economics). Theoretically, this should equate to an improved chance of being approved for small business loans as a result of healthy economic indicators.

The Federal Reserve Bank of New York conducted a study on 37 percent of all small businesses who applied for credit in 2013, and of businesses that did apply, over 40 percent either received no capital, or received less than their requested amount (Mills and McCarthy 2014). While the reasons for this may be plentiful, loan evaluations strongly consider the personal wealth of small business owners. This is because the assets of a small business are often associated with or derive from the personal wealth of the business owner him or herself – magnifying the importance of a business owner's creditworthiness.

During a bank's evaluation process, the lack of an established credit history negatively affects any borrower's chance of successfully securing a loan. Common reasons for loan denials are: lack of collateral, unreliable revenue streams, subpar credit scores, or no traceable credit history. Institutional banks typically charge risky borrowers higher interest rates to compensate for assuming a higher risk of default.

Figure 3: Small Firms Rely on Home Collateral
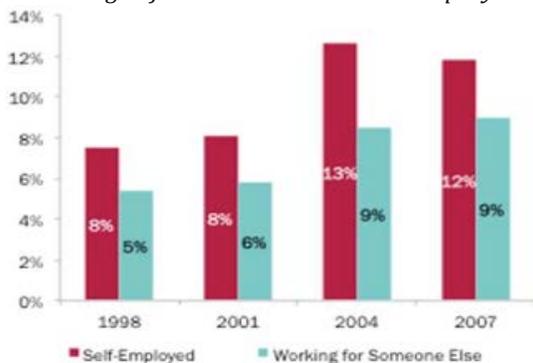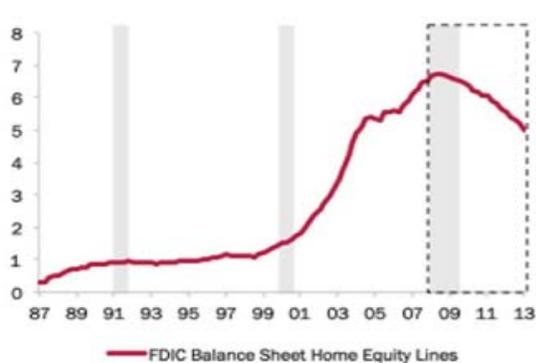*Percentage of Households with Home Equity Debt*

Figure 4: Home Prices after Recession
HELOC's on Bank Balance Sheets

Source: Source: HBS, "The State of Small Business Lending: Credit Access during the Recovery and How Technology May Change the Game", by Karen Gordon Mills, Brayden McCarthy.

To prospective creditors, collateral represents assets to claim in the event of borrower default, a tool to minimize losses and incentivize repayment. Although owning property has been shown to decrease loan denial rates by up to 30%, even when minority owners own real estate, loan denial rates are nearly twice as high among minority-owned businesses compared to non-minority owned businesses (Wolken 2002, Kymn 2014). The proportionately higher loan denial rates as a result have ominous implications for minority-owned businesses' associated survival rates, questioning the authenticity of the evaluation systems used by institutional banks. Most importantly, leaving small businesses unfunded hampers American

GDP growth, limits social class mobility, and ultimately perpetuates inefficient markets.

The Value of Verifiable Information

Out of the total amount of small businesses that were denied loans from the Federal Reserve Bank of New York's report, it remains unclear how many were newly birthed businesses. However, out of the annualized 475,000 small business births that were measured on average by the Small Business Administration between 2006 and 2011, it is a fair assumption for the purpose of demonstration that a considerable amount of the newly incepted businesses lacked verifiable information to meet the minimal needs of institutional investors (United States Small Business Administration). Verifying information is a costly activity for banks to conduct; mostly all institutional banks would not undertake unmeasurable risk and extend credit in such instances. For creditors lacking satisfactory borrower information, adverse selection may occur. The inability to verify a borrower's creditworthiness may force banks to charge safe and risky borrowers the same rates. In turn, this may discourage safe borrowers from seeking credit to fund their business ventures if they fundamentally qualify for lower rates elsewhere on the market. A creditor's inability to authenticate creditworthiness creates a suboptimal marketplace when the aggregate amount of possible business projects go unfunded due to an entrepreneur's refusal to pay higher interest rates. Thus, this example of adverse selection indirectly affects all borrowers. Looking at an example of adverse selection, one can simulate the evaluation process faced by potential borrowers and creditors.

In this example, two types of hypothetical borrowers exist – risky and safe. Let us assume that lack of information prevents creditors from distinguishing safe from risky deals. Under these circumstances of an agent-principle relationship, borrowers may be in a favorable positon due to their ability to falsely represent their creditworthiness to interested investors or banks. For illustrative purposes, both risky and safe borrowers are risk averse, and do not contain sufficient assets to use as collateral to secure loans at a traditional bank.

For the creditor, breaking even is the most important objective when underwriting a loan. The creditor must, at the very minimum, cover the costs associated with disbursing funds to the borrower. In this example, let us say the cost of capital for the creditor is 50 cents per dollar amount lent to both types of borrowers. Hence, the lender must receive back 150% of the principle amount of the loan in order to break even. However, the problem remains for the bank – they cannot determine which of their customers are more risky than the others. Although the bank would like to charge their riskier customers higher interest rates than their safer customers, lack of information forces the bank to charge all of their customers the same rate to ensure their costs will always remain covered.

Simplifying this common problem: the bank has a 50/50 chance at lending to a safe customer versus a risky borrower. In this example, the safe borrower succeeds 100% of the time, and the risky borrower succeeds only 75% of the time. The lender's chance of successfully breaking even is 87.5% (= 0.5 * 1.00 + 0.5 * 0.75). At this rate, the lender will not have enough money on average to cover their costs of originating the loan (.875 * $150 = $131.25; $131.25 - $150 = -$18.75). To compensate for this risk, lenders would have to increase their interest rates from 50% to 71.5% (.875 * $171.5≈$150) (Armendariz and Morduch 2005).

In the end, safe borrowers may balk at the high interest rate environment that a creditor is forced to create for all borrowers. The market proves to be inefficient in the absence of borrower information because of creditors' inability to decipher borrowers' risk profiles, and creditors subsequently inflating interest rates to obtain loans. The circumstances surrounding attracting the total amount of possible borrowers are muffled, decreasing the total amount of possible economic activity in local markets. Thus, verifiable information's demonstrable value plays a pivotal role in the evaluation process for the creditor, and has indirect consequences to the economy at large (2005).

The Microfinance Business Model and Its Application in Investment Markets

Microfinance institutions leverage group lending methods to minimize default risk by relying heavily on incentives to warrant loan repayments. In the microfinance business model, by extending credit to a group of borrowers instead of a single individual, included members become integral parts of a team's objective to repay loan amounts. If members do not repay their quotient of the loan balance, the remainder of the principal amount is siphoned off from the rest of the group. Members within the group have joint liability; thus, the performance of any one individual affects the aggregate. Not only does this reduce risks of moral hazard, but lessens the cost of loan distribution and collection (Yum, Lee, Chae 2012).

Reducing information asymmetry and increasing monitoring efforts may lower risk for institutional investors. Although both are costly and difficult for financial institutions to achieve, microcredit institutions have found a great deal of success maintaining great relationships with borrowers to simultaneously reduce default risk and remain profitable. In addition, banks have expressed their willingness to place a large price on an intermediary that can reduce information asymmetries prevalent in today's lending marketplace (Bruett 2007).

Microcredit institutions may thus benefit from the current needs of today's institutional lenders while still accomplishing the organizational mission to provide financial services to higher-risk individuals. Due to microfinance institutions' core competency of relationship-based lending to eliminate information asymmetry,

microfinance institutions may thus act as delegated monitors for investors. By outsourcing this function to an intermediary, institutional banks or individual investors may be able to reduce monitoring costs that they may have been forced to undertake and instead ensure to a greater degree of certainty that investments will be less risky, thereby reducing adverse selection possibilities. Peer-to-peer (P2P) investing represents an actionable platform where microfinance institutions may be useful intermediaries for investors and borrowers in the midst of information asymmetry that is prevalent in today's P2P platforms.

Basic Information on P2P Lending

Advancing aspects of microcredit objectives, P2P platforms are more likely to accommodate small business owners than institutional banks – augmenting small business growth and community development. Borrowers from P2P platforms often enjoy lower interest rates than loans distributed from microcredit institutions due to the loan's online origination, thereby cutting costs. Hence, P2P lending can be the nexus for many investing parties: especially investors seeking to diversify their portfolios with high returns.

For peer-to-peer lending platforms, revenues are generated from fees charged to both borrower and lender. Borrowers pay loan origination fees for connecting the investor with the borrower, while investors are charged service fees as a percentage of the loan's interest in exchange for fulfilling the investor's investment needs. Investors retain profit from the remainder of the loan interest charged to borrowers. Unlike traditional banks, P2P platforms do not lend their own capital. With the P2P business model, prospective borrowers are connected directly to individual investors through the P2P platform where the two parties may connect to distribute or obtain unsecured loans, often without the presence of financial intermediaries. To obtain a loan, interested borrowers submit basic information about themselves, such as: income, employer, assets, project description and requested loan amount. A borrower is typically approved within hours of submitting this information, making P2P lending especially convenient for borrowers and investors alike. Investors may then view a candidate profile and elect to fund a portion or entirety of a borrower's requested loan amount.

Current Bottlenecks with P2P Lending

Peer-to-peer industry leaders Lending Club and Prosper originate over $7 billion in loans annually, but have been unsuccessful in finding sustainable solutions for maximizing loan repayment. As a result of P2P lending between borrowers and the investors being a one-time interaction, presenting investors with detailed or

accurate borrower information is critical for an improved risk evaluation process. To this end, efforts from Lending Club and Prosper are either non-existent or strongly misguided (Magee, 2011). For instance, Lending Club does not verify borrower information at all, leaving investors particularly vulnerable to default risk. Prosper has developed social collection efforts influenced by microfinance concepts in efforts to decrease the lending risks associated with unsecured lending (Collier, Hampshire 2010). Through the usage of community-based reputation systems, Prosper hopes to impact the behaviors of borrowers in a manner that encourages the repayment of loans much like microfinance institutions do.

The designed community reputation system necessitates the participation of a borrower's respective community. Members within one's community organizations are required to commit time to provide their own information and confirm a prospective borrower's information, such as his or her career, assets, income, or project description. Examples of community members may include: employers, faith-based communities, or volunteer communities. Community members are responsible for creating publically listed web pages on Prosper's domain, where community membership must be established, defined, and proven.

Many practical inefficiencies exist with Prosper's model, though. Such community members must be pitched on Prosper, the P2P platform, the purpose for their time commitment, provide personal information on the Prosper website – from which the community members receive no benefit, and maintain the publically listed website through the election of a community leader charged with monitoring members of the individual community and the criteria for which membership is based. Thus, Prosper relies heavily on others' goodwill, altruism, and time. This may be inefficient on a large scale where information may be insufficient due to low participation rates from the community members, or where biased information is provided by community members to favor the borrower to which the borrower belongs. Community members undertake a great deal of effort to create a community web page that may only be used once by a single person within the community. Thus, this may not prove to be a sustainable option for individual investors to obtain reliable borrower information into the future.

Furthermore, privacy concerns may be more prevalent amongst borrowers on Prosper's community reputation system. One may feel uncomfortable providing personal credit history for verification to community members. Furthermore, among community members a borrower feels comfortable to disclose personal financial information to, it may be inferred that those community members may be more willing to provide falsified verifications on the borrowers' behalf out of a sense of affinity. Although successful examples of the community reputation exist, further research is required to investigate the percentage of aggregate borrowers who belong to these community reputation systems, compare default rates between community affiliations and non-community affiliations, and inspect default trends within the community reputation system based on community size.

How Microfinance May Enhance P2P Lending

Although Lending Club and Prosper have managed to lower default rates annually, investors that lend on their platforms regularly face negative returns (Yang 2015). Through the measurement of bad loans – as defined by loans in default or which have not been repaid in over 60 days – the cost of bad loans greatly exceeds the positive returns from repaid loans in the P2P lending market. On the two lending websites, Prosper investors may experience a negative 20.2% ROI, while Lending Club investors observe a negative 13.8% ROI (2015).

However, the inclusion of microfinance services to peer–to–peer (P2P) lending platforms represents an attractive option for four separate parties: the borrower, the investor, the P2P provider, and the microfinance institution itself. Microfinance institutions can offer certain core competencies to P2P platforms by increasing available information about prospective borrowers through relationship lending. Due to the unsecured nature of P2P loans, significant moral hazards exist for current borrowers utilizing P2P platforms, as the impetus to repay loans is not great beyond building one's credit score. However, through outsourcing monitoring services to microfinance institutions, P2P platforms may avoid incremental costs associated with potential default risks caused by information asymmetry or moral hazard. Through outsourcing loan supervisory services, P2P platforms may ultimately realize granular growth. Newfound information made available to P2P investors may facilitate the decision process when distinguishing which loan requests to fulfill within certain credit grade categories – further balancing the spread of credit amongst all credit categories. Moreover, paying small fees to a microfinance institution may attract a larger volume of capital from new investors interested in diversifying their portfolio in marketplace lending (P2P). Possessing accurate information in the P2P lending place may thus be a competitive advantage for competing P2P platforms seeking to generate market share.

Figure 5: Loan Distribution and Default Rate by Credit Grade on P2P Platforms

Year	Percentage of Total Loans by amount							Default Rate
	AA	A	B	C	D	E	HR	
2006	7.5%	7.7%	9.3%	11.2%	9.8%	8.9%	45.6%	39.2%
2007	15.4%	16.8%	19.9%	21.3%	15.3%	6.2%	5.2%	39.5%
2008	23.3%	19.5%	23.2%	17.4%	11.2%	3.0%	2.5%	33.0%
2009	21.6%	24.9%	6.9%	17.9%	13.6%	5.2%	9.8%	15.2%
2010	16.1%	20.9%	14.7%	9.0%	19.5%	8.3%	11.5%	16.7%
2011	7.3%	17.5%	16.9%	9.1%	27.1%	16.7%	5.5%	22.6%
2012	7.3%	17.7%	18.1%	22.8%	18.9%	5.4%	9.9%	31.2%
2013	4.6%	16.5%	24.5%	31.2%	14.9%	6.8%	1.5%	23.6%
2014	6.8%	18.3%	24.0%	29.4%	1.4%	6.5%	13.6%	24.5%

Year	Default rate YoY							Overall
	AA	A	B	C	D	E	HR	
2006	8.8%	16.7%	24.7%	36.2%	35.8%	48.8%	64.8%	39.2%
2007	14.3%	25.8%	33.3%	41.1%	42.8%	53.2%	62.2%	39.5%
2008	18.3%	25.6%	32.9%	33.4%	37.4%	43.6%	52.5%	33.0%
2009	6.0%	9.3%	16.8%	15.4%	22.4%	22.3%	23.7%	15.2%
2010	3.9%	9.8%	11.2%	15.3%	21.4%	24.9%	25.4%	16.7%
2011	2.9%	9.4%	15.5%	14.9%	24.8%	32.1%	31.0%	22.6%
2012	8.1%	9.3%	14.1%	20.1%	23.9%	25.9%	28.5%	31.2%
2013	4.1%	2.8%	4.6%	7.5%	10.8%	13.1%	13.6%	23.6%
2014	8.7%	0.4%	0.7%	1.2%	1.6%	2.5%	1.7%	24.5%

Source: Massachusetts Institute of Technology, "Analysis and Assessment of Credit rating model in P2P lending an instrument to solve information asymmetry between lenders and borrowers", by Yang Yang.

Conclusion

Although microfinance institutions are in a position to profit from the needs of P2P companies, the P2P market is expected to grow substantially long-term. The similarities that exist between the P2P and microfinance business models may represent an opportunity for microfinance institutions to create a large online presence, leapfrogging current P2P platforms and offering P2P platforms of their own, distinguished by superior information reliability and availability for socially conscious investors seeking to add double bottom line investments to their portfolios.

Room for further research exists in the scope of the proposed business partnership model of microcredit institutions and P2P platforms. By outsourcing monitoring services to microcredit institutions, it remains to be studied how many loans would avoid default stages as a result of maintaining better borrower information obtained from the microfinance partnership. Furthermore, studying profitability scenarios for investors that include cost savings that result from increased information and monitoring efforts needs to be explored. The implications for other parties should be considered, too. Would the outsourcing cost for P2P platforms significantly affect fees paid by borrowers and investors? How willing will investors be to pay higher fees for better assurance that default rates may be further diminished? Most importantly, would new individual investors be more inclined to invest in P2P platforms in the midst of increased information?

While these questions must be explored over time, P2P lending represents an immediate solution for small business owners to receive credit which many businesses depend on, facilitating efficient markets whereby the aggregate amount of funded projects are being maximized. Although discrimination has been observed in P2P platforms in the form of higher interest rates, minority owned business owners may see better success in loan approval rates through P2P platforms.

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