

# **Peer-to-Peer Lending: How it works, and are the Risks appropriately understood**

**By**

**Bryan Quinlan**

**An essay submitted to the Department of Economics**

**In partial fulfillment of the requirements for**

**The degree of Master of Arts**

**Queen's University**

**Kingston, Ontario, Canada**

**July 2015**

***copyright © Bryan Quinlan 2015***

*If you're trying to achieve, there will be roadblocks. I've had them; everybody has had them. But obstacles don't have to stop you. If you run into a wall, don't turn around and give up. Figure out how to climb it, go through it, or work around it.*

*- Michael Jordan*

*A metaphor of the financial market trying to avoid regulation*

## **TABLE OF CONTENTS**

<b><i>Introduction</i></b>	<b>4</b>
<b><i>P2PL Framework and Research</i></b>	<b>6</b>
<b><i>What is Peer to Peer Lending?</i></b>	<b>8</b>
<b><i>Advantages of Peer to Peer vs. Traditional Lending</i></b>	<b>15</b>
<b><i>Potential Problems of Peer to Peer Lending</i></b>	<b>17</b>
<b><i>Potential Reform Suggestions</i></b>	<b>20</b>
<b><i>Future Research possibilities</i></b>	<b>22</b>
<b><i>Conclusion</i></b>	<b>2</b>

## ***Introduction***

Lending and borrowing is a vital part of any financial system to create growth. Financial tools connect those who have excess funds, to those who need to borrow funds. Borrowed funds can be used for investment purposes (such as investment in a small business), or to consolidate debt with lower interest rates (such as credit card debts). These are only two of many possible examples; those in the market can use borrowed funds for any purpose they deem fit. However, entities applying for a loan must somehow convince investors that the borrowed funds will be returned and returned with an interest premium.

Traditionally, the majority of loans were handled by the Banking sector. Over time the banking sector has developed methods of assessing who would qualify for a loan and the estimated risk associated with each applicant. Also, many regulations have been implemented to protect the financial industry and those connected to this industry from either historical market failures or potential future failures in the markets. Such regulations were developed through foresight of potential informational asymmetries based on market failures in the past in order to avoid predictable failures in the future.

Most recently, the modern financial crisis was a significant market failure. Although the origins of this failure were extremely complex making it difficult to point to any one single cause, improperly assessed default risks on loans was a contributing factor. Though an in-depth explanation is beyond the scope of this paper, In brief, the subprime mortgage crisis consisted of loans being approved to those who would normally be too high of a default risk in traditional banking screening practices. However, as these were asset backed loans the risk or loss was thought to be less. Compounding this problem was that banks, who performed the screening, were selling the loans and, they believed, the associated risk in the asset backed securities market. This crisis eventually led to more regulation and a shift in banking practices.

Since the crisis, lenders and borrowers have been flocking to a new form of lending known as Peer-to-Peer lending (P2PL). This is where investors lend money to borrowers directly, based on the idea that people are lending to their 'peers'. This is done outside of the traditional banking sector. With the improved communication and tools associated with online financial systems, P2PL is done through web sites. These, unlike the above asset backed loans, are unsecured. Unsecured loans are not back by an asset; for example a mortgage is backed by the house itself. Thus, a distinction is drawn between P2PL and traditional banking. Because of this distinction, P2PL does not face the same regulations as the banking system and thus, may be susceptible to past problems that have occurred in the banking sector. One could argue that P2PL has attempted to side step regulations to increase potential short run profit margins that traditional banking is unable to offer. This may be one of the main reasons there has been such an explosion in the P2PL market since the financial crisis of 2008 (upstart, 2015).

Because of the lack of regulations facing P2PL, the limited literary works done on the topic are raising some potential concerns for the industry (Wikipedia, 2015). Default risk assessment is a main topic of concern. P2PL screening is nowhere near the level of the traditional banking sector. This has led to a concern that the proprietary algorithms of the online web companies may be inappropriately leaving investors with potentially a false assessment of the default risk premium on their respective investment/loan (Lending Club, 2015). The incentive of P2PL web companies is another concern touched on in the literature, yet not as widely written about. As P2PL companies are simply matching lenders with borrowers, what is their incentive to appropriately asses the default risk of borrowers? Moreover, as the web companies themselves seem to have no, or very little, "skin in the game" or exposure in the case of default this furthers the issue of improper incentive structures. This leads to concerns with the accuracy and incentive for proper screening of potential borrower default risks.

The main purpose of this paper is to ask questions and draw inferences on the P2PL industry to encourage further research and more in-depth financial models. By combining the research so far in the industry and comparing it to the loan industry in banking, a parallel can be drawn of potentially significant information asymmetries in the P2PL business models. The hope is that P2PL platforms can then be more precisely assessed in the market thus, creating a more accurate default risk premium, aiding regulators in the difficult task of understanding and creating new regulation in an emerging industry without dampening what could be a potential efficient method of lending.

By understanding potential informational asymmetries in the LC model, inferences of current and potential future problems can be made. Interpreting economic models on how they would apply to P2PL companies, such as the Diamond-Dybvig model on bank runs and financial crises (Diamond 1983), can provide insight into potential future flaws, or even collapse, of the P2PL industry.

### ***P2PL Framework and Research***

A background of what it P2PL, the differences between P2PL and traditional banking, how credit rating agencies differ, and a literature review of notable research thus far on the topic. Below will outline the dynamics of P2PL and what research has drawn attention to in this emerging financial market.

#### *What is Peer-to-Peer Lending?*

P2PL is a form of borrowing and lending done directly with investors and borrowers through online web companies that match up these groups. This form of lending is a break from traditional banking lending practices, thus, it is avoiding financial intermediaries for the loaning market. Some main differences compared to a bank loan is that P2PL are unsecured loans. The predominantly largest parts of the P2PL's are credit card loans (ConsumerReports 2013).

Loans are auctioned or credit risk is assessed and given a score for lenders to choose to invest or not. The basic idea is that borrowers that have a higher risk of default will have higher interest rates. Because of the nature of P2PL, lenders have the ability to choose to whom they will invest and thus can mitigate risk and also find investments for their respective level of risk tolerance.

The web based loan companies that match lenders and borrowers collect fees to fund their services. Fees are charged for loan collection services as well as monitoring services. These tend to be recouped through loan repayment and are billed, generally, by the size of the loan itself (Lending Club 2015). This leads to lower expenses than traditional banks, and thus lower rates for borrowers and higher returns for investors than traditional banks offer.

#### *Traditional Lending by Banks*

In order to understand why P2PL has become so popular a brief understanding of traditional lending practices needs to be understood. Traditional banks are the main source of loans, and as of the time of this paper, still significantly dominate the market compared to P2PL (Research and Markets 2015). Large bank loans are typically secured with sufficient collateral to back the loan. For example, a mortgage is backed by the value of the house. This minimizes the risk of loss for the banks loan. Moreover, banks have a rigorous screening process to lower the potential chance of default from borrowers. Some key aspects of screening are a credit check, income, income to debt ratios etc... Thus, with the amount of screening and monitoring as well as the banks funding of the loan, significant resources are tied up to minimize this risk. This raises the cost of the banks loaning process.

Banks also do pass on some of the risk from these loans by selling these assets as securities on the market for asset backed securities. This lowers the exposure of the banks to toxic loans that would lower the bank's profitability. Both the rigorous screening process and the reselling of asset back securities help minimize the banks' exposure for loans.

### *Credit Rating Agencies*

A credit rating agency assesses the risk of default to a particular investment involving debt. This is a third party, who assesses different characteristics of the debt involved and then gives the particular debt a score. The score then is a signal of the risk of default. The purpose of this paper is not to discuss the short falls of such a service, it is only introduced to provide the reader with background information on lending/borrowing systems. It is important to note that credit rating agencies do not rate individual consumers, but only instruments of investments. Thus, P2PL is not subject to credit rating agency systems. Therefore P2PL, because of its unique designation which is outside of traditional lending services, avoids not only financial intermediary costs but also avoids potentially useful rating systems which would improve information related to realistic risk values for investors.

### *Literature review*

Few papers have been able to draw any inference on data in P2PL thus far. Those papers that have been done explore social network impacts, screening in new credit markets, mitigating adverse selection, democratizing loan approval, creating friendships to solve asymmetries, herding behavior in loans, and screening practices.

Freedman and Jin's (2008) work *Do Social Networks Solve Information Problems for Peer-to-Peer Lending?* using Prosper.com was able to collect data to gain further insight into the dynamics of P2PL. Prosper.com was one of the first P2PL companies in the U.S. Freedman and Jin used data to determine whether social networks could alleviate information problems between lenders and borrowers, focusing on three main issues. The first issue is adverse selection. Adverse selection is when there is informational asymmetries which may allow poor borrowers to pass the selection process to request loans. Lenders know a credit grade assigned by Prosper.com but not actual credit scores. The second



issue the authors highlight is that learning to choose more quality borrower comes from a pattern of failed. Lenders seem to have to learn from personal mistakes on who to lend to. The third issue found is that a high interest rate is indicative of a lower quality borrower. So, those who are applying through Prosper.com would more likely be lower quality than an average bank borrower. Freedman and Jin found that if a loan had a friend's endorsement, these would have fewer missed payments and also generate higher returns for lenders. However, group lending without an endorsement has the opposite effect compared to non-group lending. Therefore, social networks have some effect depending on the level of "soft" information provided (such as a personal story) compared to traditional "hard" information (such as credit scores). The authors highlighted the asymmetric information problems that exist in P2P lending. Specifically, they did find how the market is adapting to these problems through social networks to substitute for a gap in information provided prior to lending funds to a borrower.

It is important to examine the growth of the P2PL market to better understand its complexities, especially at and after the financial crises. Iyer et al. (2009) paper *Screening in New Credit Markets: Can Individual Lenders Infer Borrower Creditworthiness in Peer-to-Peer Lending?* analyze the financial crises at the time to examine the growth and screening capability of smaller borrowers. Since the crisis, the P2PL market is experiencing substantial growth year over year. The authors draw inference at the beginning of this trend as the financial crisis occurred. One of the key components of P2PL is that borrower's true credit scores are not collected. Instead, a "softer" credit score is assigned based on the application. From there, the lenders then begin to collect "soft" data, which can be highly subjective, in order to assign a rate to loan funds. The study finds that these soft methods are able "to infer 1/3 of the information to infer a third of the variation in creditworthiness" (Iyer et al., 2009). Since 1/3 of information can be determined through none traditional sources, this means that lenders can make decisions on lending rates for borrowers. Iyer et al. found that lenders would lend at 140 basis points lower to borrowers who did actually have a better credit score. This leads one to infer that soft

information can be used to offer more appropriate rates to lenders based on the true (unobserved) credit scores. This means that the non-traditional credit variables that borrowers provide such as an individual's background/history, pictures, descriptions, and online exchanges (Prosper.com, 2015), are statistically significant as a signal to lenders so that they adjust lending rates accordingly. Iyer et al. found that the "soft" information was mostly used in the lower credit score market for funds. Thus; they conclude that the P2PL market is a "viable complement" to the traditional bank lending markets. This is more so the case in the market for smaller borrowers (Iyer et al., 2009).

A potential problem for the P2PL market is that of adverse selections. One can infer that, the P2PL markets may attract those who are not suitable for traditional loans, therefore they resort to a less vigorous screening process. Weiss et al.'s (2010) *Mitigating adverse selection in p2p lending: empirical evidence from prosper study* collected data to review this potential hazard. Over 5,000 credit transactions from prosper.com were collected as data. Their conclusion was that any variables from the data that do show as a statistically significant indicator of credit worthiness, are verified by prosper.com. The data also reveal that, those variables provided by the borrowers through Prosper.com to the lenders are not statistically significant enough to know a borrower's credit score (Weiss et al., 2010). Thus, the paper concludes that the information, in which Prosper.com does verify for credit worthiness, is in fact the relevant or is the more important indicators of credit worthiness identified by the authors. Therefore, if most online P2PL platforms have similar policies to prosper.com, they are already mitigating against adverse selection to the market. This would lead one to infer that since such precautions are statistically significant, then there is protection in place to avoid a future crash. Secondly, Weiss et al. suggest that the group nature of the lenders also mitigates the possibility of adverse selection. It seems that a social group platform is deterring adverse selection. Therefore, the authors suggest that both the information in which prosper.com chooses to verify and the group nature of the P2PL markets both lower the probability of a default on a loan. The author's conclusions are

contrary to what one would predict to occur in such a market. One would predict that the incentives for borrowers, who cannot find credit in the traditional sense, are those who turn to a P2PL market.

However, the evidence in this paper suggests that the market is mitigating the potential for adverse selection.

Herzenstein ET al. (2008) took an approach of focusing on the borrower in P2PL markets. They were mainly interested in seeing what variables raise the likelihood of funding success. By focusing on the borrower and what variables lead to successful loans, Herzenstein ET al. (2008) *The democratization of personal consumer loans? Determinants of success in online peer-to-peer lending communities* et al. found that the democratization of consumer loans was eliminating some of the bias which still existed in traditional banking based on demographics. The paper went further to suggest that the democratization of the auction process for funds is an improvement over traditional lending practices. This is an improvement as demographic attributes, which traditional banks do in some ways still apply, have very little effect on predicting success of a loan in the P2PL market. The Democratization leads to the decision to lend to a borrower based on financial strength and the effort the borrower displays in the auction process to impress lenders and appropriately communicate with them (Weiss ET al. 2010). The paper does remind the reader that just fewer than 90% of loans on prosper.com remain unfunded. Thus, those who are unsuccessful in seeking funds must be finding credit through another source if at all (Weiss ET all 2010). This data led the authors to infer that lenders are bidding more rationally than traditional banks. This perhaps is due to the fact that lenders are using their own personal funds and thus rely on only the variables that are statistically significant. Herzenstein ET al. findings also relate to the progression of the market. The paper concludes with suggestions for borrowers to increase their likelihood of loan auction success through extensive personal information provided, credit grade, and membership in an affinity group. Prior to this paper, there was not much guidance for borrowers to help them make decisions on which variables to focus on for funding applications in P2PL markets.

Normally the P2PL market is anonymous. The borrower is simply identified by some type of ID and remains anonymous to the lenders. However, in the P2PL markets that exist there are examples of when borrowers, with online friendships to lenders, break this anonymity in the market. Lin ET al. (2011) *Judging borrowers by the company they keep: friendship networks and information asymmetry in online peer-to-peer lending*, looked at data from prosper.com where this has occurred. The data shows that online friendships lead to borrowers receiving better outcomes. There may also exist a social pressure on the borrower to repay the loan to those they personally know (Lin ET al. 2011). The findings were statistically more significant for loan repayment when these friendships were verifiable. Thus, the authors argue that friendship acts as a signal for credit quality, and lower chances of default (Lin ET al. 2011). The data suggests that such friendship does indicate credit quality. This again, like the other papers discussed on P2PL, addresses the problem of adverse selection in the P2PL market. Here, Lin et al. discuss how borrowers will adapt to the market as signaling theory suggests. Signaling theory states that borrowers will use non-traditional methods of conveying credible information. One adaption is an “arm’s length” signal of credit quality through online relationships. The author’s discuss how this is especially surprising, when compared to banks, since in P2PL there is a “lack of sophisticated risk assessment methodologies or scale economies” (Lin ET all 2011). As the above suggests, adverse selection is a concern as traditional intermediaries (banks) are eliminated. The loss of traditional data, and the soft data collected by traditional intermediaries’ leads to the assumptions of more adverse selections. However, Lin et al., argue that the online relationships may help mitigate some of this effect. The “signals” are correlated positively to friendships that are more difficult to form, such as the social and economic online relations created. This leads to more credible signals of lower default (Lin et al. 2011).

To contrast Herzenstein et al.'s (2008) focus on borrowers, Lee and Lee (2012) *Herding behavior in online p2p lending: an empirical investigation* focuses on the lenders' behavior in P2PL markets.

Unlike most papers on this subject, Lee and Lee strongly point out that lenders in the P2PL markets are not professional investors. To compound this lack of experience, the risk is greater to the lenders compared to traditional banking as the loans are unsecured. The main focus of the article is on herding behavior where large groups of people act similarly to each other. This is more common to online markets. Lee and Lee (2012) find that some characteristics of herding are shared while others are discouraged. The data also comes from Korea using a different source than prosper.com, which most other authors have used. The main finding is that herding exists in the P2PL market, but it has a diminishing marginal effect as it moves further along the bidding process. Unfortunately, the methodology of the paper has limitations which the authors point out. There is skewed data as the loans become closer to being funded, where a different behavioral pattern exists in borrowers and outliers occur in the data. Also, the study ignores the "soft" data provided by the borrowers and their financial situation as a whole. The authors point out that through a survey to lenders of the site, these lenders gain an emotional benefit by helping others in their time of financial hardship. Regardless though, the finding of herding behavior being prevalent and how this behavior evolves through the bidding process is useful to understanding the P2PL market as it evolves.

Another paper that reinforces the herding behavior and discusses the bidding process further is *Dynamics of bidding in p2p lending service: effects of herding and predicting loan success* by Ceyhan ET al. (2011). Using some of the only data available for the market, prosper.com, and the authors studied the lifetime of the bidding process and what factors affect that process. As found previously, bids follow a herding behavior. Thus, they are not evenly distributed over the lifetime of the bid. Bidding tends to occur at the beginning of a listing and then again near the end. This is especially prevalent, as the bid gets closer to being funded. The authors identified three main factors that affect lender decision-

making processes: “interest rate, probability of being amongst the winning lenders, and overall probability of a listing being successful” (Ceyhan ET al., 2011). According to the paper, over the lifetime of the bid these factors are constantly changing. This in turn affects lending behavior where there is a non-uniform distribution of the bids (Ceyhan ET al., 2011). The paper also looks at how individual lenders perform, and ties that to the above decision making processes. They find a link between profits earned to that of bidding preferences. With these data, the authors constructed two models for the P2PL markets. The first, is a logistic regression model. This model is used to predict the success probability of a listing to receive funding. Second, is a model to predict the probability of the successful repayment of a loan. With these two models, the authors then showed that a bids trajectory “plays an important role on both of these models, and only based on the temporal progression of the bidding behavior, we can well estimate listing success” (Ceyhan ET al., 2011).

To understand the traditional lending and screening process, Neave’s paper *Why does bank screening matter? Private information and publicly traded securities* (2014), tracks information for bank screening for loans to the securitization instruments that the loans eventually become. Neave develops a general equilibrium model to trace the effects of the above process. He shows that “bank screening capabilities are a sufficient condition for banks and market agents to coexist simultaneously in an essentially neoclassical equilibrium, and that tracing the impacts of private screening to public securities valuation involves the interaction of several crucial variables” (Neave 2014, pg 1) The paper does points out that as changes in screening quality occur, this can be costly. The reader should be reminded that the P2PL market does not use the same costly screening practices as the banks. Neave also discusses, like the P2PL markets, the moral hazard in the securitization process. This is due to that fact that risk is being sold off in the securitization of the loan. Thus, the loan originator is alleviated of most of the risk for the loan in traditional banking. Neave’s model suggests that “skin-in-the-game” provisions, like those of the Dodd-Frank Act, are unfortunately weak incentives for the banks to provide more rigorous

screening practices. P2PL companies have also alleviated themselves of the risk from loans. They've become the middle man and have no "skin-in-the-game" either. Thus, the moral hazard on screening exists in P2PL as well. Perhaps, some solutions put forward in Neave's paper could apply to P2PL markets.

Finally, with a similar goal to Neave, Morse's (2015) paper *Peer to peer crowdfunding: information and the potential for disruption in consumer lending* discusses many potential topics for future research. Morse does ask a core question on P2PL markets, does "crowdfunding disintermediate and mitigate information frictions in lending such that choices and outcomes for at least some borrowers and investors are improved?" (Morse, 2015, pg 2). Morse, through other literature, states that investors do indeed capture some extra rents that are available with the lowering of the cost of financial intermediation. However, Morse warns that this does not include added risk and portfolio choices of the lenders. With rents being captured by lenders, then improved pricing and access to funds for borrowers is implied by this. Morse also states that borrowers should find greater access to funds and/or pricing.

### ***Advantages of Peer to Peer vs. Traditional Lending***

Based on a review of the literature and study into the P2PL system, the main advantages are the decrease in interest rates for borrowers and higher return rates for lenders, the reduction in intermediaries, the decrease in regulation, and solving the problem of the use of short term borrowing for long term loans

#### ***Interest rates:***

P2PL attracts borrowers in the same way as the current credit market but borrowers are potentially able to get more attractive rates through P2PL companies. Moreover, some of those who cannot acquire traditional financing are able to find financing through P2PL web sites. Thus, with lower

interest rates for borrowers, and potential financing for those who cannot find financing through traditional avenues, this attracts more borrowers to these companies to acquire loans.

For investors/lenders, higher returns are available than savings account returns or investments from some other financial instruments. P2PL also empowers the investor with the ability to choose who to invest in and whether this meets the investors risk tolerance preferences.

### *Reduction in Intermediaries*

P2PL companies are able to offer lower rates to borrowers whilst simultaneously offering higher returns to investors than some other financial instruments such as savings accounts. P2PL platforms compare to saving accounts interest rates. This is possible as the web based companies are able to cut out many of the costs associated with banks. Examples of such efficiencies are that web based company's do not have the infrastructure overheads that banks have. They also have lower monitoring service overheads. These lower costs for P2PL companies which is passed onto the borrowers and lenders.

### *Less Regulation*

As P2PL does not fit into a traditional classification, they also do not face the standard regulation that traditional banks face. As a result of the 2008 financial crisis, increased regulation has reduced profit margins for banks as well as credit availability for loans in that specific market. Thus, P2PL companies have capitalized on this by being still able to offer credit to those who would not qualify for traditional loans or offer a better interest rate than would otherwise be found at a bank. This attracts a large borrowing market, thus raising demand for loans in the P2PL market. Lenders also gain advantages from the lower operating costs of P2PL platforms with higher interest rates on the loans. However, the benefit of less regulation assumes of course, that the risk is appropriately assessed by the lenders and thus meets their specific appetite for risk.



### *Short term borrowing for long term loans*

P2PL have solved an inherent problem within the banking industry. The Diamond-Dybvig model, developed in 1983, outlined how runs could happen on banks (Diamond 1983). This also applies to many financial instruments. The model describes a potential liquidity problem of bank business practices. Banks, by creating long term illiquid assets such as mortgages, are funded by short term liquid liabilities, i.e. deposits. Thus a potential problem may occur if the proportion of short term deposit withdrawals causes a cash flow problem to fund the long term mortgages. In times of financial uncertainty, depositors may increase their withdrawal rate above a certain unforeseen threshold. The bank can become insolvent as deposits were used to fund long term loans and cannot meet depositor withdrawal requirements also known as a “bank run”. P2PL has avoided this problem as lenders are tied to borrowers for the duration of the loan, unlike banks. Long term loans are not funded by short term liabilities. Lenders also do have the ability to sell the loan at a discount should they require the funds earlier. Thus, this avoids the risk for the Diamond-Dybvig’s model as it would apply to the P2PL market.

### ***Potential Problems of Peer to Peer Lending***

Though there are several advantages, there are also potential weaknesses in the P2PL system, specifically issues of incentives, information asymmetry, adverse selection, and Future Inferences of the Peer-to-Peer Market.

### *Incentives*

Perhaps the most obvious problems with the P2PL markets is the incentives of the web based companies. These companies are the intermediary in matching lenders with borrowers. Their respective incentive for diligent credit risk checking and scoring is unclear, if not absent. The business model is based on a structure of maximizing total loan billing, so there is incentive to encourage lending. A portion of each loan is collected through service fees. As the P2PL companies have next to no risk,

should any of these loans default, there is no incentive to minimize risk, only to maximize total loans. However, lenders are using the unknown and proprietary algorithms of these web based companies to assess the default risk of borrowers (Lending Club 2015). This appears to be a conflict of interests that is not addressed in the interest rate setting for lenders. The market is still young, and may not have corrected for this flaw yet.

### *Information asymmetry*

It is unclear if a significant portion of unsophisticated investors are providing funds to this market. These investors may not be properly aware of or educated on the complexities of the lending system in order to make informed risk assessments of borrowers. The P2PL companies, as part of their services to investors, assess the credit default risk of borrowers and give them a score. Lenders with less experience or education in risk assessment may be placing too much weight or trust in such scores, thus inappropriately having interests rates set too low for their respective true risk value.

### *Adverse selection*

Many individuals who would be unable to get traditional lending can turn to P2PL to find credit. If traditional banks believe these borrowers to be too risky for loans, why are we to believe that potentially less sophisticated investors will be able to appropriately assess an alternative default risk? The possible reasons for this is that: investors have more information than the banks or differing risk tolerances compared to the banks. It is unlikely that P2PL investors have more information than banks, as the screening process is not as extensive on P2PL compared to banks. Differing risk tolerances could be market efficiency. Now investors with more risk tolerance can choose riskier loans to gain higher interest rates on their investments meeting their preferences. Regardless, the industry appears to be fundamentally flawed towards adverse selection of higher risk borrowers at higher interest rates than traditional bank lending services.

### *Future Inferences of the Peer-to-Peer Market*

The great recession, as the 2008 financial crisis has been deemed, had many causing factors that compounded into one of the worst recessions in recent history. Many causal factors primarily originated in the financial sector. One of the most publicized leading causes of this was the subprime mortgage loan market. Loans were developed for those who are at higher risk for default in order to become home owners and grow the economy. These loans were then packaged by the bank into asset backed securities and then sold off in the market. This was to pass on the risk. This created a new incentive for the bank originating the loans. Now, it was profitable to simply create more loans as the risk was assumed to be passed on. Thus, the banks thought that they were not exposed to any losses should these loans default. This led to a boom in the amount of loans being given to higher risk borrowers. Incentives were provided to acquire and approve loans, and the screening practices were lowered for approval. Now the banks simply originated loans to be sold to investors in the assets backed securities market, thus becoming the “middle man” for loanable funds. Once the lower quality loans began to default, this created a domino effect through the market causing a market failure in the financial system.

The recession was, in part, created when banks assumed the role of intermediaries or brokers between investors and mortgage backed securities. Now, P2PL companies are performing the exact type of role that banks assumed prior to 2008. P2PL companies do not face any exposure to potential losses but are the entities screening the quality of borrowers for default. Thus, without any risk of losses, incentives are therefore only to increase total loans given, rather than to increase the quality of loans to ensure repayment, as discussed under the incentives subsection above. Like the 2008 crisis, the incentive structure is not appropriately synced for those who are screening the borrowers for default risks. This is eerily similar to lax subprime mortgage practices. Although the Dodd-Frank act was enacted to solve some of these potential problems (Markovich,2013), the more worrisome comparison

is that the financial regulations developed in the wake of the 2008 crisis do not put P2PL under the same classification as banks. Ergo, they do not face the same regulations that were created to diminish the potential of such a crisis from happening again for similar reasons. One could then infer that the P2PL market has a reasonable risk of contributing to a similar problem in the future. The incentive structure of P2PL and the incentive structure of the banks are quite similar. Just as what occurred for the sub-prime lending crisis, only the total loan amounts and not the quality of borrowers is where the profit incentive lies for P2PL. P2PL companies leave little reason as to why they would be concerned for increased defaults which could lead to collapse of such a market. Loses would be only to the lenders and not to the P2PL companies themselves.

### ***Potential Reform Suggestions***

Potential problem areas discussed in the previous section can be addressed through reforms in regulation, incentives, and growth.

#### *Regulatory*

The P2PL market is performing a very similar service to that of banks in the loan market. Regulations for the banking sector that are more oriented to the loaning portion of banking can be applied or adjusted and then applied to P2PL sector. Obvious complications will be on the fact that banks carry many loans as assets, where P2PL companies do not carry loans. However, the markets are similar and one could argue that this industry was created to revert to old riskier practices by side stepping regulation in order to raise profit margins. Regulations are pointless if markets can simply continue similar practices by creating new instruments or markets to avoid regulatory constraints. However, one may argue that leaving the market to its own fate holds merit. Unlike bank loans, where depositors leave it to the banks themselves to decide to whom they lend money, in the P2P markets, the lenders are individuals and thus are fully aware of their money being loaned away. This distinction

between banks and P2PL in the loaning market is substantial. As banks are simply gambling with depositor's funds and then selling those funds in the securities markets. The bank, as an entity, is not in and of itself putting any money to the loan. In the P2PL markets, there is no intermediary bank. The lenders pick and bid to loan their own funds to borrowers. Thus, the incentive structures for choosing which loans to fund would be vastly different. Therefore, an argument can be made, that similar banking regulation should not apply to this market. This does not discount the fact that such regulations may be contextually similar to banking regulations. Therefore, any new P2PL regulation drafted have a similar industry to use as a template. However this is a delicate balance of having appropriate regulations whilst not constricting the markets ability to discover more market efficiencies and advantages.

### *Incentives*

The inherent problem with P2PL companies is that the incentives to create more loans can outweigh the incentive of appropriately assessing default possibilities and/or the quality of said loans. One potential solution would be for P2PL companies to be liable for some portion of loans, i.e. "skin in the game". However, this defeats one of the main aspects of the business model, that P2PL are matching borrowers with lenders and allowing for varying risk preferences in those matches. Also, as discussed in Neave paper above, "skin-in-the-game" is not an effective deterrent to the moral hazard present. Therefore, an alternative approach is needed. Creating competition between companies, based on default rates of loans provided, would create incentives to more properly screen potential borrowers. This would cause companies to focus on raising loan repayment rates in order to attract lenders to funding loans. As the present revenue collection mechanisms of this industry stands, collecting fees on successfully funded loans is the main revenue source. Therefore lenders, through competition, could choose which company's platform to lend through based on default rates. This would create a stronger incentive for lending platforms to increase loan repayment rates. This could most effectively be done through improved screening of borrowers prior to loans being successfully

funded. Loan repayment rates would have to be publically reported to create the appropriate competitive response. However, this is a potential avenue to link banking regulation purposes to P2PL practices.

### *Growth*

As P2PL markets continue to grow rapidly, this creates the fear of a pending bubble that may burst, which could cause potentially significant financial losses to investors. As the market has emerged in a regulation loop hole, investors should be more be cautious of a potential crash in the sector, however this is not the case. Though less commonly discussed, there are concerns when businesses and markets grow too rapidly due to the potential for instability. Like the herding behavior in the bidding process, there may be a similar behavior occurring in the market as a whole. Lenders are “herding” to these sites as they expand. Rapid growth in and of itself is not necessarily a bad thing, however caution should be applied to a new market that has little history and minimal regulation. Lenders, it would appear, are attracted to the improved interest earning potential of the loans but may not be appropriately assessing the risk premiums associated with those loans. This could be related to the lack of data and history within the P2PL market. Hopefully as the market matures, more information will become available and potential problems will be discovered and corrected in a piece meal fashion, without a large market disruption.

### ***Future Research possibilities***

With the emerging P2PL market there are many research opportunities. From the perspective of the market at the time of this paper, the most pressing would be to develop more in-depth models for true risk premia calculations for lenders. The P2PL companies sell this concept by comparing the asset to that of a savings account. However, this is a very poor and inappropriate comparison. Savings accounts are federally insured and bank loans are a highly regulated market. P2P loans are completely

uninsured, and presently have very little regulation. In fact, this loan market exists in part because it is not being classified as a bank and therefore subject to the same banking rules and regulation.

Otherwise, banking regulation would prohibit some of the practices done by P2PL companies. P2PL could simply be a method of side stepping prohibitive regulations in the loan market to capture more rents. The 2008 financial crisis and added regulations post crisis do not apply directly to this market. Thus, comparing the 2008 financial crisis with the lack of proper screening for sub-prime loans to the P2PL market would be interesting and of research value. The potential for a future bubble in this market seems plausible given the incentive structures, where the loan companies themselves are simply an intermediary between lenders and borrowers. The companies are then shielded from losses and make profits based on total loans given, not on loan repayment. Assessing whether this business model and examining increases and or decreases in default rates would be of interest in future studies to better understand P2PL.

Currently, a lack of data in the industry is hampering research efforts. Much of the literature in this area is based on data from one P2PL company, (Prosper.com) which does not allow for many provider comparisons to be assessed or a reasonable level of validity in the findings in applying them to the P2PL industry as a whole. More incentive for companies to provide information for research, that can potentially help to improve profit or growth in this sector, is required. One could infer that data are being withheld presently as profitability of the few companies in the market is very high. This would lower any incentives to provide data to researchers as it may increase future competition with more companies joining the market. As there is no real benefit to companies to provide data at the present time, it does not seem likely that it will become available in the near future. Researchers need to find creative ways to encourage companies to share their data in order to allow for a better understanding of this growing area. The data also may not be universal. For example, Lending Club, which is the world's largest peer-to-peer lending platform offers generalized lending to all who apply. Where, Social Finance

(SoFi) offers similar loans, however these loans are generally to professionals, any of whom are in the early stages of their careers (wiki, 2015). Most of SoFi's loans are to early stage professionals (wiki 2015). Thus, data for repayment and default rates may vary depending on criteria of borrowers allowed to apply and unique screening practices of the lending platforms themselves. This would be difficult to model, perhaps gaging default rate standards for the industry and which platforms and screening practices tend to beat the industry average.

### ***Conclusion***

Since the 2008 financial crisis the P2PL market has been growing at a dramatic pace. The industry brings some potential market efficiencies for the loan market. Most notable of these is the elimination of banks as intermediaries, thus saving on cost and therefore being able to offer better interest rates to borrowers and higher returns for lenders than some other traditional investments. The P2PL also is directly connecting borrowers to lenders which allows for a variety of risk preferences to find loans that fits the respective needs of the individuals involved.

With this new and evolving market, comparisons to the 2008 financial crisis raises concerns to the similarities in incentives for screening on loans and what future problems this could bring. This paper has pointed out that unless this is somehow adjusted as the market evolves, either through regulatory practices or by market pressure from lenders, then there is reason to assume that this market bares a similar risk of collapse as the subprime mortgage market faced. As this market is growing so rapidly, potential losses from such a collapse are clearly growing and reaching significant amounts of funds. Regulations created for the banking loan markets should be used as a template to be implemented for the P2PL markets as well, but need to be specific to this industry and designed to allow the market to grow and create efficiencies. Future research exploring the advantages, potential problems and areas of reform is warranted to better understand P2PL role as a financial industry.



## References

- Upstart.com, (25 April, 2015). *Investing on upstart*. Retrieved from <https://www.upstart.com/invest>
- Wikipedia, Retrieved April 18, 2015 Retrieved from [http://en.wikipedia.org/wiki/Peer-to-peer\\_lending](http://en.wikipedia.org/wiki/Peer-to-peer_lending)
- Lending Club. (April 25, 2015). *How It Works*. Retrieved from <https://www.lendingclub.com/public/how-peer-lending-works.action>
- Diamond DW, Dybvig PH (1983). "Bank runs, deposit insurance, and liquidity". *Journal of Political Economy* **91** (3): 401–419. doi:[10.1086/261155](https://doi.org/10.1086/261155). JSTOR [1837095](https://www.jstor.org/stable/1837095). Reprinted (2000) *Fed Res Bank Mn Q Rev* **24** (1), 14–23.
- Freedman, Seth, and Ginger Zhe Jin. "Do Social Networks Solve Information Problems for Peer-to-Peer Lending? Evidence from Prosper.com." NET Institute Working Paper No. 08-43. (2008).
- Iyer, Rajkamal, Asim Ijaz Khwaja, Erzo F.P. Luttmer, and Kelly Shue. "Screening in New Credit Markets: Can Individual Lenders Infer Borrower Creditworthiness in Peer-to-Peer Lending?" HKS Faculty Research Working Paper Series RWP09-031, September 2009.
- Weiss, Gregor N. F. and Pelger, Katharina and Horsch, Andreas, Mitigating Adverse Selection in P2P Lending – Empirical Evidence from Prosper.com (July 29, 2010). Available at SSRN: <http://ssrn.com/abstract=1650774> or <http://dx.doi.org/10.2139/ssrn.1650774>
- Herzenstein, Michal, Rick Andrews, and Utpal M. Dholakia. "The democratization of personal consumer loans? Determinants of success in online peer-to-peer lending communities." Retrieved from <http://www.rice.edu/nationalmedia/multimedia/online>
- Lin, Mingfeng, Nagpurnanand R. Prabhala, and Siva Viswanathan. "Judging Borrowers by the Company They Keep: Friendship Networks and Information Asymmetry in Online Peer-to-Peer Lending". Western Finance Association 2009 Annual Meeting Paper. (2011).
- Lee, Eunkyong, and Byungtae Lee. "Herding behavior in online P2P lending: An empirical investigation." *Electronic Commerce Research and Applications* **11.5** (2012): 495-503.
- Ceyhan, Simla, Xiaolin Shi, and Jure Leskovec. "Dynamics of bidding in a P2P lending service: effects of herding and predicting loan success." *Proceedings of the 20th international conference on World Wide Web*. ACM, (2011).
- Neave, Edwin. "Why Does Bank Screening Matter? Private Information and Publicly Traded Securities". Retrieved from <http://www.edwards.usask.ca/centres/csfm/symposium1/2014Folders/Neave.pdf>
- Adair Morse, "peer to peer crowdfunding: information and the potential for disruption in consumer lending". National Bureau of Economic Research (2015).*

ConsumerReports. 17 August, 2013. "Eradicate credit card debt with peer-to-peer lending". Retrieved from <http://www.consumerreports.org/cro/news/2013/08/credit-card-debt-peer-to-peer-lending/index.htm>

Lending Club. (April 25, 2015). *How It Works*. Retrieved from <https://www.lendingclub.com/public/how-peer-lending-works.action>

Research and Markets. 25 April 2015. "US Alternative Lending Market Report: Peer-to-Peer (P2P) and Online Platform Based Business (OPB) Lending". Retrieved from [http://www.researchandmarkets.com/research/qhjr6v/us\\_alternative](http://www.researchandmarkets.com/research/qhjr6v/us_alternative)

Markovich, Steven. "The Dodd-Frank Act". Council on Foreign Relations. 10 December, 2013. Retrieved from [http://www.cfr.org/united-states/dodd-frank-act/p28735?cid=ppc-google-grant-dodd\\_frank&gclid=CJGfo6WUksUCFQiqQodnGMAbA](http://www.cfr.org/united-states/dodd-frank-act/p28735?cid=ppc-google-grant-dodd_frank&gclid=CJGfo6WUksUCFQiqQodnGMAbA)

Future resource

<http://www.lendacademy.com/p2p-lenders-2013-loan-volume/>