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SURVEYS AND CROSSOVERS

This section provides surveys of the literature in investment management or short papers exemplifying advances in finance that arise from the confluence with other fields. This section acknowledges current trends in technology, and the cross-disciplinary nature of the investment management business, while directing the reader to interesting and important recent work.

AN INTRODUCTION TO PEER-TO-PEER LOANS AS INVESTMENTS

Ethan Namvar [a]

This paper constitutes a discussion of the rise of Peer-to-peer loans as alternative investments. Peer-to-peer loans are being incorporated into portfolios in the interest of diversification. This paper outlines this strategy and provides a guided tour of this new alternative asset class along with the current risks and barriers.

1 Introduction

Peer-to-peer (P2P) or social lending is a relatively new practice which involves investors lending money to previously unrelated borrowers without the use of financial intermediaries such as banks. The recent growth of P2P lending is in large part due to the decreased barriers of entry facilitated by individuals connecting through the Internet and social networking.

P2P loans are usually personal unsecured loans utilized by individual borrowers. For investors, P2P lending can facilitate a predictable, high-yield income from a highly diversified portfolio of these loans. The low cost, nonbank model is P2P lending's competitive advantage. Through the Internet, large P2P portfolios of loans can be acquired, allowing both retail and institutional investors to profit, similar to a well-diversified bank, without having a bank as the intermediary.

This paper is organized as follows. In Sections 2 and 3, we provide an overview of the consumer lending market and peer-to-peer loan market. We review the current literature in Section 4. In Section 5, we describe the peer-to-peer microstructure. In Sections 6 and 7, we present the strategy drivers, risks, and barriers to investing in P2P loans. In Section 8, we summarize and provide conclusions.

2 Overview of the consumer lending market

Unsecured consumer loans are small due to the fact that they are uncollateralized by any asset(s).

[a]Haas School of Business, University of California, Berkeley, CA 94720-1900, USA. Email: namvar@haas.berkekley.edu.

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The average unsecured loan size is $7,300 (Prosper Marketplace, Inc., 2012). From a risk perspective, defaults are to be expected when dealing with uncollateralized loans. To compensate for this risk, interest rates are adjusted upward. Lender risk can be further reduced through the utilization of rigorous credit data analysis to narrow down the pool of borrowers who are creditworthy in tandem with risk reduction through larger populations.

The consumer lending market has grown tremendously over the past five decades. Parallel to this market's growth is the vast collection of consumer credit data including FICO, a credit score produced by Fair Isaac Corporation. Through FICO and other consumer attributes, populations can be grouped based on the risk factors that can serve as better predictors of credit risk. A larger population of consumer borrowers reduces credit risk by the law of large numbers. For example, an insurer covering a small population in contrast with a larger population would be exposed to greater risk as actuarial tables lose predictive accuracy. The same principle applies to consumer lending. Only until recently, commercial banks had the access and financial capability to utilize consumer credit data for developing risk analysis models. In addition, banks were the major acquirers of consumer loans. Thus, banks controlled the consumer lending market due to the fact that they were the only participants that had the ability to minimize credit risk and access large populations of borrowers. Approximately 90% of consumer loans are controlled by only 10 banks, a level of market domination not found in any other debt market (Prosper Marketplace, Inc., 2012).

3 Overview of the peer-to-peer loan market

The use of P2P lending goes back to the ancient Babylonian civilization. In fact, the P2P lending was the first form of financing by credit. Babylonians extended credit to individuals to develop agricultural projects. P2P lending use would continue to be the dominant form of financing for thousands of years. Banking as it is traditionally known, would only replace P2P lending as the central form of financing in the 1300s. The success and growth of the modern banking system was due in large part to the ability of being more diversified and spreading risk over larger populations.

The advent and proliferation of Internet use along with increased access to consumer credit data has virtually eliminated these barriers to entry and re-opened the doors for P2P lending. However, the risks were previously much greater due to investors' inability to quantify the credit risk of borrowers as well as their inability to diversify their investments, as almost all loans were limited to the geographical locale of both the borrower and the lender. The Internet allows investors to reach millions of borrowers and diversify portfolios across a wide geography. Furthermore, the online intermediary facilitates the loan, reduces the costs for both the borrower and the investor, and directs the profits to the investor in the loan, rather than a bank.

The opportunity for the growth of P2P lending at this time is due to two main factors. As mentioned previously, the domination of market share by large banks has restricted access to unsecured consumer lending. Over the past few decades, market competition has been dramatically reduced as large banks acquired consumer finance companies such as The Money Store and Beneficial Bank.

Also, the 2008 financial crisis has made it difficult for a large population of middle income, creditworthy borrowers to obtain loans with acceptable terms. Deutsche Bank reports that approximately 48 million consumer borrowers with credit scores between the 650 and 750 have less acceptable financing options than before the crisis. Thus,

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Table 1 Peer-to-peer lending organizations.

Name	Year established	Domicile	For-profit (FP)/ not-for-profit (NFP)
Funding circle	2010	United Kingdom	FP
Lending club	2006	United States	FP
Prosper loans marketplace	2005	United States	FP
Milaap	2010	India, Singapore	NFP
Rang De	2008	India	NFP
RateSetter	2009	United Kingdom	FP
Zidisha	2009	United States	NFP
Zopa	2005	United Kingdom	FP

there is a vast and untapped unsecured consumer lending market waiting to be serviced by P2P lending.

For the purpose of this paper, the P2P lending category is divided into two subcategories: for-profit entities and not-for-profit entities. Table 1 lists the current operational P2P lending organizations around the world.

4 Literature review

There has been a growing research interest in P2P loans over the past five years, particularly on how credit rating and trustworthiness function in P2P lending. Duarte *et al.* (2012) have observed that borrowers who are perceived as untrustworthy are significantly less likely to have their loan requests filled. Borrowers who are perceived as trustworthy, however, have a higher likelihood of being funded, and at a much lower interest rate. In another study, Iyer *et al.* (2009) have found that lenders in unsecured P2P lending use both hard and soft information from the borrower's loan application to infer a borrower's creditworthiness.

Other studies have focused on how a borrower's trustworthiness is gauged by a lender's perception of the borrower's Internet persona. Lin *et al.* (2011), for instance, study the importance of social networks in decentralized market systems, and how friendship becomes an index of creditworthiness. They found economic effects in the friendships which develop between borrowers and lenders over an intermediary's social network. The authors observe that loans which result from online friendships have both lower interest and lower default rates. Ravina (2012) even suggests that a borrower's age, race, and physical attractiveness impact the lending decision. However, a study by Herzenstein *et al.* (2008) suggests that while borrower's characteristics do indeed impact lending decision, "auction decision variables" such as the borrower's financial strength and initial effort (in listing and publicizing the loan auction) significantly mediate the perceived correlations between a borrower's identity and his or her capacity to meet loan obligations. In this regard, they find that P2P lending is substantially more democratic than traditional lending and financial institutions, which have documented instances of discriminatory practices.

5 Peer-to-peer lending microstructure

P2P lending is facilitated by an intermediary who creates and manages an online investment platform that allows borrowers to request a loan and investors to explore the various loans on the Web site in order to choose a loan to invest

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in that matches the lenders' investment criteria. Borrowers initiate the process by requesting a loan. All listings initiated by borrowers are individual consumer loans. Typically included in the listing are the following details: the desired loan amount, interest rate and corresponding yield percentage, the minimum amount of total bids required for the loan to fund, certain credit information from the borrower's credit report, the borrower's numerical credit score range, the borrower's self-reported annual income range, occupation, and employment status. The online intermediary sets the interest rate based upon the loan terms and its own risk management process that utilizes consumer credit reporting. The interest rate is fixed and the maturity of the loan is normally either three or five years.

Investors can choose which loans to invest in based on the investor's investment strategy. Investors, after choosing a loan to invest in, will bid on the loan listing. The bid is a commitment by the investor to purchase unsecured notes from the online intermediary in the principal amount of the investor's winning bid. The proceeds of the notes are designated to fund the loan. The investor will receive principal and interest on each series of notes in an amount equal to each *pro rata* portion of the principal and interest payments, if any. The online intermediary receives a 1–3% servicing fee. Typically, the minimum and maximum amounts to be borrowed range from $2,000 to $35,000. Borrower loans are funded by an FDIC insured bank. The expected return of the investment is similar to that of a traditional bank loan in that it is dependent upon the ability of the borrower(s) to fulfill the debt obligation. Hence, diversification of investments is an essential tool to minimize potential losses from borrower defaults.

The online intermediary bears no responsibility for borrower defaults. As the loan is unsecured, the investor bears the full risk of a borrower default. However, the online intermediary conducts its own risk assessment using consumer reports and past borrower performance, if any, for each individual borrower and groups them according to their credit risk factors. Borrower information is verified through an underwriting process. The online intermediary then estimates an expected loss rate for each loan. Applying this analysis to a large enough population facilitates better predicative results from the risk model. As well, the online intermediary continuously analyzes and updates borrower performance to improve its risk model.

Investing activities are regulated by the SEC. Online intermediaries issue securities in a continuous public offering governed by a Form S-1. P2P loans are exempt from state interest rate caps due to the relationship between the FDIC insured bank and the online intermediary. This provides a potential income advantage to the loan investor. The entire process is illustrated in Figures 1 and 2.

Unlike traditional lending institutions, emerging online P2P intermediaries have more operational

Figure 1 P2P lending overview.

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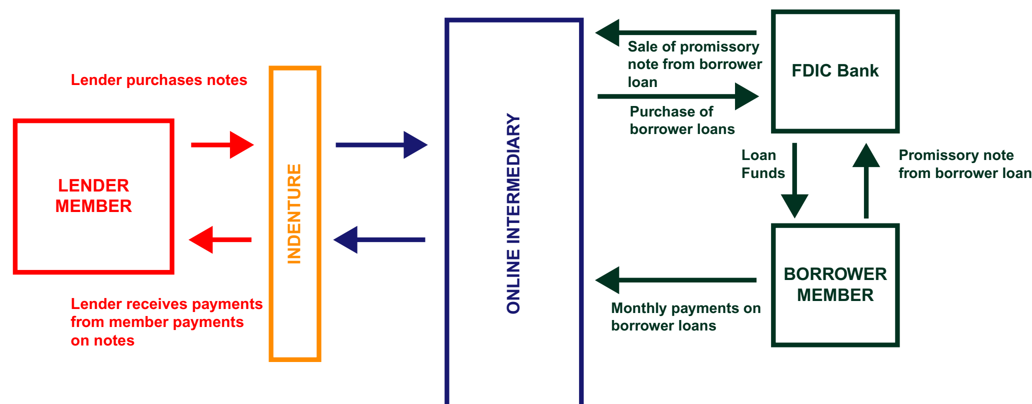

Figure 2 P2P microstructure.

flexibility, which can lead to more dynamic growth. Prosper, for instance, began in 2005 with a free market approach: anyone could post a loan listing, and lenders were determined through bidding and an auction system. After two to three years of volatile lender returns, in 2010, Prosper changed its business model to use pre-set rates based on a formula for evaluating each borrower's credit risk, thus Prosper no longer determines the loan rate via price discovery in an auction. Additionally, borrowers are currently required to hold at least a credit score of 640. This, in turn, resulted in impressive returns for P2P lenders, especially those accounts with a diverse loan portfolio.

6 Strategy drivers

The growth of P2P lending services reflects the changing conditions of the consumer lending market. The general strategy behind the growth of P2P lending services is to "disintermediate" the banking system in the consumer lending market. P2P lending companies compete with banks for a share of the consumer lending market by mitigating overhead costs through digital lending platforms. In effect, these platforms enable investors to lend to a large pool of borrowers, much like a traditional bank would. However, investors have a higher potential for returns, given that the P2P lending intermediaries neither assume any risk nor guarantee or insure the loans.

6.1 Demand for short-term consumer loans

Borrowers currently face a difficult lending environment, and this produces a demand for short-term consumer loans. Following the recent economic crisis, lending institutions such as banks have become more unwilling to take on necessary risks. This has led to limited access to investment capital for borrowers.

One of the advantages of P2P lending is that it provides borrowers access to an alternative source of capital: a consumer lending market which has grown and matured in the past five years. The U.S. consumer market lending currently stands at $2.4 trillion, equivalent to the world's sixth largest GDP.[1] More importantly, this market could provide consistent yields through periods of economic downturns, especially when credit markets are less accessible.

6.2 Portfolio diversification

Interest rates on P2P loans have remained durable throughout the economic cycles, and can provide a significant boost to portfolio income. This is perhaps due to the small loan size and the lack

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of collateral. Since the beginning of fixed income bull market in 1981, unsecured consumer lending rates have dropped very little. In fact, during this period, the yields generated by P2P loans were significantly higher than any other sector. Prosper, for instance, boasts that its borrowers, from 2009 onward, maintain an average credit score of 721, and an average income of $65,000.[2]

Furthermore, data from the Federal Reserve also suggest that despite the risks that accompany P2P loans, the loans have generated a net positive spread over the past 26 years (since 1985), averaging a positive 10.8% spread. Prosper reports that every investor with at least 100 notes has achieved positive returns for notes purchased since July 2009.[3]

Another advantage of P2P loans as an investment in a larger portfolio is its low correlation with other asset classes, allowing for greater portfolio diversification. P2P loan portfolios also exhibit a low standard deviation of returns, reducing overall P2P loan portfolio volatility. In addition, an investor's portfolio income can be supplemented and further diversified by the income generated from the P2P loan portfolio.

6.3 Technology and information systems

The current viability of P2P lending correlates with the growing repository of consumer credit data, and cost-effective access to this information. To state what may be obvious, these data allow P2P lenders and lending institutions to more accurately quantify risk and assess a borrower's credit. Previously, only banks had access and the means to analyze this information. Yet, the maturity of Internet and digital technologies has mitigated one of the significant weaknesses of P2P lending by making not only credit information, but also investment opportunities, much more easily available. This has made investors less dependent on traditional banking institutions for portfolio diversification, and for access to global investment opportunities.

7 Risks and barriers

There are considerable risks in investing through P2P loans, given that these loans are unregulated and highly speculative. Moreover, the online intermediaries have a limited operating history and may not comply with state and/or federal regulations. What follows is a general overview of the risks associated with P2P lending.

7.1 Adverse selection bias

When a borrower requires funds in a competitive marketplace, the borrower will choose the source with the lowest cost, ceteris paribus. Adverse selection bias refers to a market situation where undesired results occur when buyers and sellers have asymmetric information and thus the lower quality products or services are more likely to be selected. The adverse selection bias will exist in the P2P lending process due to the information asymmetry between the P2P lender and the borrower.

In particular, borrowers will possess information in which lenders do not have in terms of their own situation, borrowing history, and ability to repay the loan.[4] This asymmetry also occurs because P2P platforms keep individual borrowers and lenders anonymous to each other, so the information asymmetry is even more likely to be exaggerated.

Lower risk borrowers do exist in the P2P universe and many of these individuals opt for P2P loans over higher interest rate credit cards. Moreover, the fixed loan term can be appealing to borrowers because they can see how they pay off their loan in a relatively short period of time when compared with a credit card. Despite the existence of lower risk borrowers as well on P2P, the

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issues of information asymmetry still exist for the lender.

Interestingly, the P2P lending market was meant to create a personal connection between a borrower and a lender in order to make the borrower more likely to repay loans when compared with a large faceless bank. However, the adverse selection issues can be very difficult to overcome because, again, P2P borrowers usually can not borrow money through conventional channels like banks.

This is similar to the credit card industry where credit card companies prefer to market offers to consumers they have preselected versus waiting for individuals to approach them and ask for credit. This reflects the paradox of lending in that the people who are more likely to repay are those who do not need the money. In the P2P market, those who are more likely to borrow are those who are least likely to repay the loans.

7.2 Credit risk

While P2P intermediaries provide information on a potential borrower's credit from consumer reporting agencies (i.e., Experian, Equifax, or TransUnion), and assign these borrowers their own credit rating, they are under no obligation to verify this information. Available information provided to lenders by intermediaries may be outdated, and in some cases, fraudulent. This presents a high degree of risk for lenders, especially when the loans are not secured or guaranteed by the intermediary, governmental authority, and other third parties.

7.3 Default risk

Unsecured consumer loans are highly speculative investments, especially during periods of economic downturn. As such, they carry the high risk that borrowers may default on the loans. While interest rates for P2P loans have remained high, so have the default rates. In the event that a borrower defaults on his or her loan, P2P intermediaries, and their third-party debt collectors, have limited ability to enforce payment obligations. Moreover, collection fees are passed on to the lender, diminishing the returns from the full principal and interest.

P2P loans also do not have cross-default provisions (a clause in a loan agreement that allows the lender to declare the loan immediately repayable and to terminate any further extension of credit if the borrower defaults on any other debt), and borrowers are not prohibited from acquiring additional debt after the initial loan.

Payment of other types of debt can assume priority over P2P loan obligations, inhibiting the ability of the borrower to meet their obligations. Moreover, borrowers can also declare bankruptcy and receive debtor relief under federal and state laws, which can result in suspension of payment, or outright nonpayment of notes and interest.

7.4 Liquidity and option risk

P2P loans have limited transferability and there is currently no liquid secondary market for unsecured consumer lending notes.[5] Moreover, most P2P intermediaries have yet to develop an effective derivatives market on their lending platforms. Lenders are expected to hold the notes until they mature. While most intermediaries maintain a maturity rate of three to five years, they also allow borrowers to prepay their loans without any penalty, thereby diminishing the effective maturity of the loan. This can impact the expected rate of return since lenders can no longer receive interest on the prepaid portion of the loan.

7.5 Regulatory risk

Most P2P intermediaries have a limited operating history, and must continue to develop and

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grow their transaction volumes and revenue. A P2P intermediary's inability to maintain its rate of growth and its market share may result in its inability to service loan collections or to maintain its lending platform.

In some cases, to maintain a desired rate of return, these P2P intermediaries may not comply with borrower protection laws. Lending Club itself states that "Compliance with these requirements is also costly, time-consuming and limits their operational flexibility," and that they "may not always have been, and may not always be, in compliance with these laws".[6] As a result, P2P lending intermediaries that operate in noncompliance with regulations are vulnerable to class action lawsuits, financial regulatory reform, and civil and criminal liability. This in turn impacts their capacity and ability to provide service to its members.

8 P2P Loans and impact investing

Up to this point, the conversation and literature around P2P lending has focused on returns and defaults and there has been little tie to "impact investing" or investing in organizations, companies, or funds with the intent to generate measurable social and environmental impacts along with a financial return.

However, P2P lending is related to impact investing in some ways, although the two are distinct. Some investors are turning away from socially responsible mutual funds because many of these funds invest in large companies that some do not deem to be socially responsible.[7] These such investors have been turning to P2P lending not only just to make a return on their money, but also to have a social impact on their lending.

Such investors view P2P lending as helping others consolidate debts and pay off their credit cards at a more favorable rate or as helping businesses launch or grow. Some of these lenders state that they do not think of these investments as "loans, but as people."[8] But despite the growth in P2P lending, it is not directly tied to socially responsible investing.

9 P2P Investment Vehicles

More recently, some investment companies are beginning to offer SEC-compliant P2P mutual funds and private hedge funds. The fund manager typically selects whole loans and custodies the loan with a third-party custodian. Of course, the fund manager charges a management fee, and the case of hedge funds, a separate performance fee.

Moreover, although neither Prosper or Lending Club offers IRAs directly, they have begun to offer them through IRA custodians (Sterling Trust at Prosper and SDIRA Services for Lending Club). These custodians charge additional custodian fees such as annual fees, termination fees, wire fees, and withdrawal fees. Thus investors hoping to generate tax-free returns on their money needed to weigh how the additional fees may impact their returns.

10 Summary and conclusions

In this paper, we have presented P2P loans as a new alternative asset class. Unsecured consumer lending, through P2P lending intermediaries, offers investors a new substantive long-term opportunity to access a profitable consumer lending market. It appears that these loans can in fact provide predictable short-duration and high-yield portfolio income. Portfolio managers may find it worthwhile to consider and adequately assess this new emerging alternative asset class, with the caveat that there are potential risks as outlined in this paper.

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Notes

[1] Prosper Whitepaper, January 2012.
[2] *Ibid.*
[3] *Ibid.*
[4] For further discussions on adverse selection, see Freedman and Jin (2008), Berger and Gleisner (2009), and Horsch *et al.* (2010).
[5] Both Lending club and Prosper do offer illiquid secondary markets through third-party entities.
[6] Lending Club Borrower Member Loans Memorandum (January 24, 2012).
[7] http://www.forbes.com/2009/11/04/specialty-mutual-funds-intelligent-investing-women-execs.html.
[8] http://www.lendingmemo.com/socially-responsible-investing/.

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