Peer - to - Peer Lending : Bridging the Financial Inclusion Gap by Leveraging Technology

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Abstract

With Indian banks grappling with asset quality issues leading to capital-constrained low credit growth, there remains a large gap between credit demand and supply for 'retail' individual borrowers and small businesses under the MSE sector. Alternate financing channels identified this void and have started making their presence felt in the recent years. Within the alternate financing options, peer-to-peer (P2P) lending platforms are best suited to cater to the credit needs of retail customers and micro and small enterprises (MSEs). This paper tried to estimate the credit demand for six major segments (across 'retail' sector and MSEs) and compared it with the trend in credit supply in order to estimate the demand - supply gap. Annual data from 2004 to 2016 was used for the forecast as reliable data for some of the above variables is not available after that. The credit demand was forecasted at the end of fiscal year (FY) 2022. Subsequently, the current P2P landscape in India was explored along with the regulatory structure in place. Whether P2P platforms will be able to fill the credit gap left by traditional banking channels or not will depend on how different stakeholders, that is, leading industry players and banking and capital market regulators provide a nurturing environment to the sector. With active participation from key stakeholders, P2P lending has the potential to create a sustainable, complementary market to the traditional credit intermediation instruments.

Keywords : **peer-to-peer lending, P2P, alternative financing, credit demand forecast**

JEL Classification Codes : C33, G23, O32

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Alternative finance is a complex terminology covering a broad spectrum of financing options which have become increasingly accessible with myriad technical and financial innovations. While the scope and operations of entities involved in alternative financing models outside of traditional financing options (banks, non - banking finance companies, and capital markets) are currently limited in India, the imperative of an alternative finance industry is all but paramount.

Traditionally, alternative finance caters predominantly to 'retail' customers and small businesses having difficulty in accessing the traditional banking channels. On similar lines, such segments of the population mix are deprived of bank credit in India on account of banks primarily catering to long-term infrastructure projects to fuel an emerging economy's primary demand, that is, robust infrastructure to supplement growth. Furthermore, while India has come a long way in the fundamental metric of financial inclusion, there is still a significant portion of the

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population who are under-banked. With the banks struggling with their capital levels to support credit growth for the economy due to asset quality deterioration in recent years, it is of vital importance that an emerging economy like India looks towards alternative financing modes to support its vast number of small and medium enterprises and retail borrowers who find it increasingly difficult to access traditional banking channels. While banks have tried to shift focus to this credit-starved market during the last 3 years, the credit supply may not be able to supplement the credit demand of these sectors. This provides a unique opportunity to alternate finance platforms to fill in a void.

This paper tries to estimate this funding gap which alternate financing can fulfil by forecasting the credit demand for various segments of the retail sector, that is, housing loans, consumer durables loans, credit card borrowings, education loans, vehicle loans, and loans availed by micro and small enterprises (MSEs). Annual data from 2004 to 2016 has been used for the forecast as reliable data for some of the above variables is not available after that. The credit demand has been forecasted at the end of fiscal year (FY) 2022. Within alternate financing, there are a number of channels of credit intermediation. However, as the paper focuses on credit requirements of a sector which can be deemed as 'personal loans' for individuals and small-scale businesses, the paper is primarily concerned with the peer-to-peer (P2P) lending platforms. Consequently, the paper explores the current P2P landscape in India, including the regulatory structure and suggests how private players and regulators can create a robust and well-regulated alternative finance system in India.

Review of Literature

Peer-to-peer lending is a recent phenomenon and information on P2P lenders is not readily available owing to the primary distinction of such companies to traditional balance sheet lenders who are under more scrutiny from governments and regulators alike. Further, the regulators are still adapting their stance to this segment of lenders due to the disruptive business potential inherent to the players. As a result, much research has not been conducted on the topic as the segment is still evolving and data availability is an issue.

Lenz (2016) argued that there isn't an 'easy way' to tackle P2P lenders by modifying existing regulations as crowd-funding and P2P lending challenges the very model in which balance-sheet lenders like banks operate, warranting a fresh regulatory approach towards the segment from regulators.

Jagtiani and Lemieux (2017) looked at the robustness of the alternative lending model as a whole in terms of the efficacy of the data streams used for arriving at credit decisions by such lenders and whether such alternative lending channels benefit the end borrowers who are not getting access to credit from traditional channels.

On the business model and economics of P2P lending, Milne and Parboteeah (2016) put forth the idea that P2P lending actually complements the traditional lending channels and does not compete with them, suggesting that the success of P2P lending platforms will in turn depend on co-operation with traditional lenders.

The idea that Indian bank lending to retail space could be constrained was explored by Gautam (2017), wherein it was argued that the banking system would have to diversify the retail lending to keep the asset quality at a better rate than corporate lending. If the banks failed to do so, the lending to the sector could come down. The idea was buttressed by Singh and Singh (2016), who argued that the motivators for market penetration for Indian banks had changed and that their lending to various sectors could decline, and this is where the opportunity for P2P lending lies.

Objective and Hypothesis

The objective of the paper is to find out if there is a credit gap in the retail sector arising due to constrained credit intermediation by banks and rising demand, and explore how alternate financing options, and specifically P2P

lending, can bridge this gap. The paper also examines the current market structure of P2P lending in India, what it can learn from other countries, and what regulatory changes, if any, can help make P2P lending the channel, which would fill the credit gap that may exist in the retail sector in the coming periods.

The null hypothesis of the problem is that no credit gap exists in the retail sector and that the credit supply through traditional intermediation channels of banks, NBFCs, and capital markets is enough to meet the growing credit demands of the sectors covered in this paper. The alternate hypothesis is that such a credit gap does exist or is likely to exist in the coming periods, and new alternate financing methods will have the opportunity to fill that space.

The paper first delves into the structure of the Fintech universe, the various components, and then discusses the niche of 'alternate financing platforms' and P2P lending channels. Subsequently, the methodology and estimation of the credit gap in the short-term horizon across various retail-oriented sectors is provided along with the present conditions prevailing in the Indian P2P market, regulatory framework, and the challenges ahead for the sector.

Cogs of Fintech – Where Does 'Alternate Finance' Fit

Financial tech platforms (FinTech) and 'alternative finance platforms' are often used as interchangeable terms. However, FinTech covers a much broader paradigm of which 'alternate finance' is a part. The entire FinTech system can be thought of as a structure depicted in Figure 1.

Figure 1. Structure of FinTech System

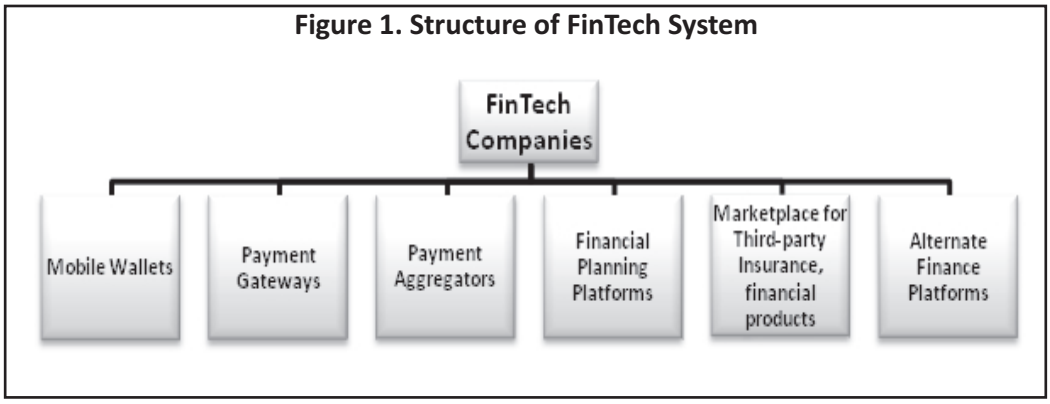
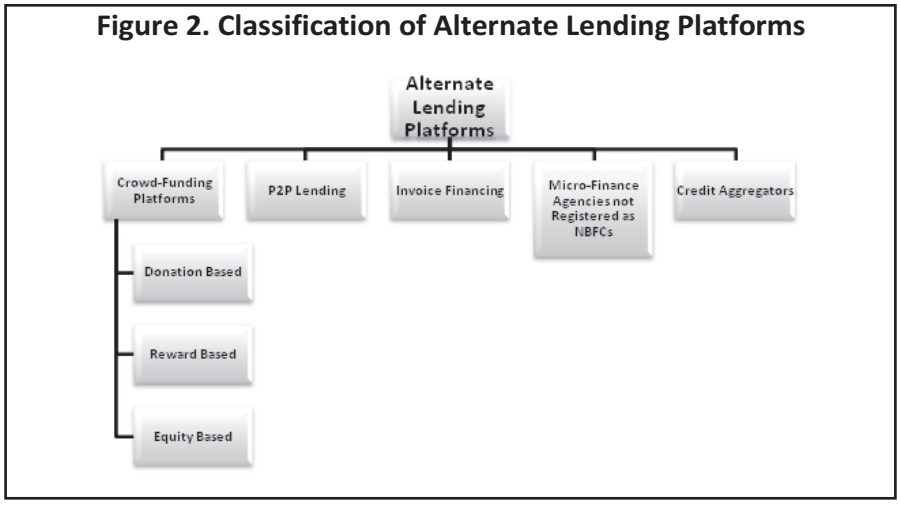
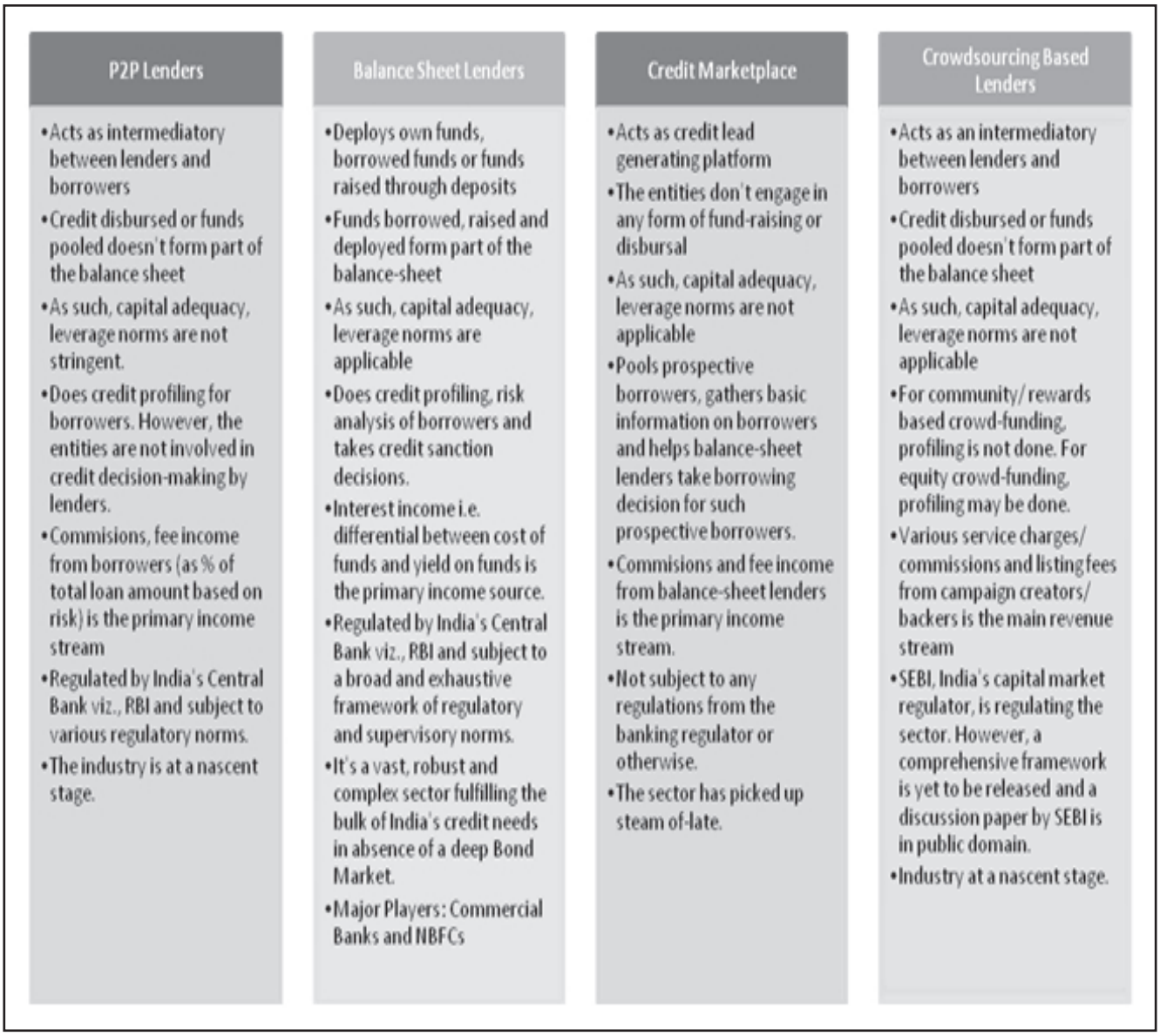


Figure 2. Classification of Alternate Lending Platforms



Broadly speaking, alternative financial companies can be classified into three groups, that is, payment services companies (viz., Alipay globally or PayTM in India's context), wealth/ asset management companies, online lending companies, and other fintech companies (viz., online insurance, search engines, and financial product/ services comparison platforms, etc). However, the scope of this paper is limited to understanding the alternative lending platforms in the context of peer-to-peer lending. Alternative lending platforms can also broadly be classified into several different sectors, that is, (a) community based crowd-funding platforms, (b) peer-to-peer (P2P) lending platforms, and (c) equity based crowd-funding platforms (Figure 2).

As the paper focuses on credit requirements in a sector which can be deemed as 'personal loans' for individuals and small-scale businesses, it is primarily concerned with the P2P platforms. Overview of business model vis-à-vis banks, NBFCs, and other online lending platforms (i.e marketplaces or credit lead generation platforms) is depicted below.



Estimation of Credit Gap Through Traditional Channels – Methodology

In order to identify the scope of the alternative finance industry in India, the paper has primarily concentrated on sectors lacking access to traditional banking channels, that is, retail borrowers and small & medium enterprises. While 'agriculture' remains another important sector potentially having credit demand - supply mismatch, owing to the specific credit structures in place for the sector [1], this paper has excluded 'agriculture' from the scope of the study. The banking regulator, Reserve Bank of India, provides break-up in terms of sectoral credit flow to various sectors under its public database, that is, Database on Indian Economy. For the scope of the study, the following segments have been chosen : (a) micro & small industries - under industries segment and (b) consumer durable loans, housing loans, credit card loans, education loans, vehicle loans - under the 'retail' sector. It may be noted that the remaining sectors (barring 'agriculture') primarily correspond to medium and large business enterprises and have various options in the forms of debt financing, bank borrowing, merchant banking services to meet their financing needs. On the other hand, the sectors considered for the study have limited reach in terms of obtaining credit from the traditional sources.

Analysis and Results

(1) Estimated Demand for Credit in Various Retail Segments : This paper tries to estimate the demand for credit in various segments of retail loans, that is, housing, consumer durables, credit card, education, vehicle, and micro and small enterprises (MSEs).

The credit demand for each of the sub-segments has been estimated by linear multi-variable regression of the credit outstanding to the segments with sector-specific variables. The variables listed in the Table 1 are used for forecasting the credit demand for the sub-sectors:

The variables mentioned in the Table 1 have been used as independent variables and the current credit outstanding to each segment has been used as the dependent variable. Annual data from 2004 to 2016 has been used for the forecast as reliable data for some of the above variables is not available after that. The credit demand has been forecasted at the end of the fiscal year (FY) 2022.

Correlation between the variables is first examined and then linear multi-variable regression is run to establish the credit demand (*Ycd*) in terms of independent variables (X_1, X_2, etc.) in the form of $Ycd = \acute{a} + \hat{a}_1 * X_1 + \hat{a}_2 * X_2 + \ldots$. (where, $\hat{a}_i$ are the regression coefficients for the variables of individual sub-sectors and á is the regression intercept).

Table 1. Variables Used for Forecasting Credit Demand

Sub -Sector	Variables Used
Housing	Population, JLL REIS Capital Value Index, Per capita income
Consumer Durables	Population, unemployment percentage, electrification percentage, per capita income
Credit Card	Working age population, unemployment percentage, per capita income
Vehicle	Population, petrol prices, per capita income
Education	Population, number of colleges in India
MSE	USD-INR rate, GDP, small scale industries (SSI) production at factor cost

[1] a) Regional Rural banks with majority ownership of sponsor commercial banks, State govt., b) District central co-operative banks and a system of Co-operative banks under DCCBs, c) Co-operatives and agriculture societies

Table 2. Correlation Coefficients for Housing Sector Demand

Correlation Coefficient	Population	JLL REIS Capital Value Index	Per Capita Income
Housing Credit	0.96	0.96	0.98

Table 3. Regression Coefficients for Housing Sector Demand

	Coefficients	*t* - Stat
Intercept	4869035	5.30
Population	-0.00563	-5.81*
JLL REIS Capital Value Index	1975.33	4.54*
Per Capital Income	1747.20	8.02*

Note. * significant at 90% confidence level.

(i) Credit Demand for the Housing Sector : The credit demand for the housing sector is forecasted using the independent variables, population, JLL REIS capital value index, and per capita income. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in the Table 2.

It is observed that housing credit is highly positively correlated with all the three independent variables used. Results of the multi-variable regression of housing credit with the above independent variables are as depicted in Table 3.

Using the forecasted estimates of population, JLL REIS capital value index, and per capita income for 2022, the housing credit at FY2022 has been estimated. This comes to ₹ 43.15 trillion. This can be taken as the demand for advances in the housing sector by 2022. However, it is observed that at the end of Mar-17, the housing credit for the Indian banking system was only ₹ 8.6 trillion, witnessing a compounded annual growth rate (CAGR) of 16.72% over the last 5 years. If the bank credit grows at a similar rate, housing loans at the end of FY22 would work out to ₹ 18.63 trillion while having a substantial shortfall of ₹ 24.52 trillion between the credit supply and the estimated demand.

(ii) Credit Demand for the Consumer Durables Sector : The credit demand for the consumer durables sector is forecasted using the independent variables : population, unemployment percentage, electrification percentage, and per capita income. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in Table 4.

It is observed that credit to the consumer durables sector is positively correlated with population, electrification percentage, and per capita income, while being negatively correlated with unemployment percentage. The results of the multi-variable regression of consumer durables credit with the above independent variables are as depicted in the Table 5.

Using the forecasted estimates of population, unemployment percentage, electrification percentage, and per capita income for 2022, the consumer durables credit at FY2022 has been estimated. This comes to ₹ 1.23 trillion. This can be taken as the demand for advances in the consumer durables sector by 2022. However, it is observed that at the end of Mar-17, the credit to the consumer durables sector for the Indian banking system was only ₹ 208

Table 4. Correlation Coefficients for Consumer Durables Sector Demand

Correlation Coefficient	Population	Unemployment %	Electrification %	Per Capita Income
Consumer Durables Credit	0.59	-0.32	0.68	0.65

Table 5. Regression Coefficients for Consumer Durables Sector Demand

	Coefficients	*t* - Stat
Intercept	74,888	0.86
Population	-0.000141	-1.75*
Unemployment %	9,509	2.73*
Electrification %	156.72	1.11
Per Capita Income	52.54	2.97*

Note. * significant at 90% confidence level.

billion, witnessing a CAGR of 23.86% over the last 5 years. If the bank credit grows at a similar rate, consumer durables loans at the end of FY22 would work out to ₹ 606 billion, giving rise to a shortfall of ₹ 624 billion between the credit supply and the estimated demand.

(iii) Credit Outstanding for Credit Cards : The credit outstanding for credit cards is forecasted using the independent variables : working age population, unemployment percentage, and per capita income. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in Table 6.

It is observed that credit cards outstanding is highly positively correlated with per capita income, while being negatively correlated with working age population and unemployment. The results of the multi-variable regression of credit cards outstanding with the above independent variables are as depicted in the Table 7.

Using the forecasted estimates of working age population, unemployment percentage, and per capita income for 2022, the credit cards outstanding at FY2022 has been estimated. This comes to ₹ 2.26 trillion. This can be taken as the demand for credit cards outstanding by 2022. However, it is observed that at the end of Mar-17, the credit cards outstanding for the Indian banking system were only ₹ 521 billion, witnessing a growth of 20.60% over the last 5 years. If the bank credit grows at a similar rate, credit cards outstanding would work out to ₹ 1.33 trillion at the end of FY22, resulting in a shortfall of ₹ 930 billion between the credit supply and the estimated demand.

Table 6. Correlation Coefficients for Credit Cards Outstanding

Correlation Coefficient	Working Age Population	Unemployment %	Per Capita Income
Credit Card Outstanding	-0.31	-0.76	0.84

Table 7. Regression Coefficients for Credit Cards Outstanding

	Coefficients	*t* - Stat
Intercept	-1156382	-2.39
Working Age Population	0.0014533	2.35*
Unemployment %	22,871	1.79*
Per Capita Income	76.31	3.47*

Note. * significant at 90% confidence level.

(iv) Credit Demand for Education Loan : The credit demand for education loan is forecasted using the independent variables : population and number of colleges in India. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in the Table 8.

It is observed that education loan credit is highly positively correlated with both the variables. Results of the

Table 8. Correlation Coefficients for Education Loan Demand

Correlation Coefficient	Population	Number of Colleges in India
Education Loan	0.99	0.99

Table 9. Regression Coefficients for Education Loan Demand

	Coefficients	*t* - stat
Intercept	-110562	-3.28
Population	0.00018	2.65*
Number of Colleges	1.38725	2.71*

Note. * significant at 90% confidence level.

multi-variable regression of education loan with the above independent variables are as depicted in the Table 9.

Using the forecasted estimates of population and number of colleges in India for 2022, the education loan demand at FY2022 has been estimated. This comes to ₹ 1.88 trillion. This can be taken as the demand for advances in the educational loan sector by 2022. However, it is observed that at the end of Mar-17, the education loan outstanding for the Indian banking system was only ₹ 701 billion, witnessing a growth of 7.02% over the last 5 years. If the bank credit grows at a similar rate, then the education loan portfolio would grow to ₹ 984 billion, resulting in a huge shortfall of ₹ 896 billion between the credit supply and the estimated demand.

(v) Credit to the MSE Sector : The credit outstanding for micro & small enterprises is forecasted using the independent variables : USD-INR rate, GDP, and small scale industries (SSI) production at factor cost. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in the Table 10.

It is observed that credit to the MSE sector is highly positively correlated with all the three independent variables. Results of the multi-variable regression of credit to the MSE sector with the above independent variables are as depicted in the Table 11.

Using the forecasted estimates of USD-INR rate, GDP, small scale industries (SSI) production at factor cost for 2022, the credit to the MSE sector at FY2022 has been estimated. This comes to ₹ 17.95 trillion. This can be taken as the demand for credit to the MSE sector by 2022. However, it is observed that at the end of Mar-17, the credit to

Table 10. Correlation Coefficients for MSE Loan Demand

Correlation Coefficient	USD - INR Rate	GDP	SSI Production
Credit to MSE Sector	0.93	0.96	0.91

Table 11. Regression Coefficients for MSE Loan Demand

	Coefficients	*t* - Stat
Intercept	-1,40,496	-8.49
USD-INR Rate	11,977	5.81 *
GDP	0.0000003	2.30*
SSI Production	1.8769	0.61

Note. * significant at 90% confidence level.

the MSE sector for the Indian banking system was at ₹ 9.01 trillion, witnessing a growth of 12.59% over the last 5 years. If the bank credit grows at a similar rate, MSE at end of FY2022 may grow to ₹ 16.31 trillion, resulting in a shortfall of ₹ 1.64 trillion between the credit supply and the estimated demand.

(vi) Credit Demand for the Vehicle Loan Sector : The credit demand for the vehicle loan sector is forecasted using the independent variables : Population, petrol prices, and per capita income. Correlation of the dependent variable with these variables for the dataset from 2004 to 2016 is tabulated in the Table 12.

It is observed that credit to credit demand for vehicle loan sector is positively correlated with population, petrol prices, and per capita income. The results of the multi-variable regression of credit demand for the vehicle loan sector with the above independent variables are as depicted in the Table 13.

Using the forecasted estimates of population, petrol prices, and per capita income for 2022, the credit demand for the vehicle loan sector at FY2022 has been estimated. This comes to ₹ 7.15 trillion. This can be taken as the demand for advances in the vehicle loan sector by 2022. However, it is observed that at the end of Mar-17, the credit to vehicle loan sector for the Indian banking system was at ₹ 1.7 trillion, witnessing a growth of 13.87% over the last 5 years. If the bank credit grows at a similar rate, vehicles loans at end of FY22 may grow to ₹ 3.3 trillion resulting in shortfall of ₹ 3.85 trillion between the credit supply and the estimated demand.

Table 12. Correlation Coefficients for Vehicle Sector Loan Demand

Correlation Coefficient	Population	Petrol Prices	Per Capita Income
Vehicle Loan Credit	0.95	0.83	0.97

Table 13. Regression Coefficients for Vehicle Sector Loan Demand

	Coefficients	*t* - stat
Intercept	482807	1.02
Population	-0.00060	-1.19
Petrol Prices	192.20	0.39
Per Capita Income	281.95	2.40 *

Note. * significant at 90% confidence level.

(2) Results of the Forecasting Exercise - Demand / Supply Gap : Based on the results of the forecasting exercise, the paper predicts that the credit requirement for the sectors stands at an aggregate amount of ₹ 73.62 trillion. In comparison, the aggregate credit to these sectors as at the end of FY17 (as per Reserve Bank of India's data on sectoral credit allocation) worked out to ₹ 20.76 trillion, necessitating a compounded annual growth rate of 28.81% across the sectors when aggregated to meet the credit demand. However, the actual CAGR observed across these sectors has been flat along the years, with 9-year CAGR and the last 5-year CAGR working out to 14.20% and 14.34%, respectively, somewhat higher than system level growth in advances of 13.87% and 10.59% across the same 9-year and 5-year horizon, respectively. It may not be possible for the banks to increase their lending at such a rate over the forecasted horizon in light of Indian banks being affected with high volume of non - performing loans, increased provisioning requirements, and eroding capital base.

Narayanaswamy and Muthulakshmi (2016) argued that less efficient and less productive banks may not increase their lending anytime soon. The result was also supported by Annapurna and Manchala (2017), who argued that declining asset quality had a direct relationship with capital adequacy. As a result of which, banks may become risk averse and lending flow would decline, which was the result obtained by Pillai (2018). Thus, it may

not be possible for the banks to cater to this high demand for fresh advances along the short term horizon of 5 years. During the period since FY16, post RBI's Asset Quality Review of banks, banks have become highly risk averse and fresh lending has come down significantly. With Basel-III implementation and Ind-AS implementation along the horizon for banks, it may not be possible for them to scale up fresh lending significantly, even if the demand from such sectors is there.

Non-banking financial companies' (NBFCs) credit to the sectors at ₹ 1.90 trillion made up for just 8.34% of credit to the sectors from formal credit delivery channels (Reserve Bank of India, 2017). Further, the NBFC sector witnessed significant liquidity pressures starting in the second half of FY19, with many NBFCs not being able to service their borrowings. While the NBFC focused retail asset financing was in a much better position, they too rely on banks for a significant part of their source of funds. As a result of overall liquidity constrained situation and banks' being cautious towards loaning of funds to NBFCs for on-lending, even the retail-focused NBFCs may find it difficult to fund the gap between credit demand and supply computed above.

As such, it may be construed with relative ease that there remains a large credit demand-supply mismatch across these sectors covered under the study and in view of the above, the null hypothesis - no credit gap exists in the retail sector and that the credit supply through traditional intermediation instruments of bank credit and capital market instruments is enough to meet the growing credit demands of the sector - can be rejected.

(3) Comparative Analysis vis-à-vis Other Topical Research in the Area : Our study identifies certain key sectors, that is, housing, credit card, education, retail, and MSE as key demand-drivers in the emerging P2P lending marketplace. Further, using linear regression models, the study establishes that there remains huge scope for growth in the P2P lending landscape, which can supplement traditional lending in these credit-starved sectors. Other studies on the P2P lending framework indeed support the idea that there remain large growth opportunities, which will benefit both the P2P industry and the end borrowers.

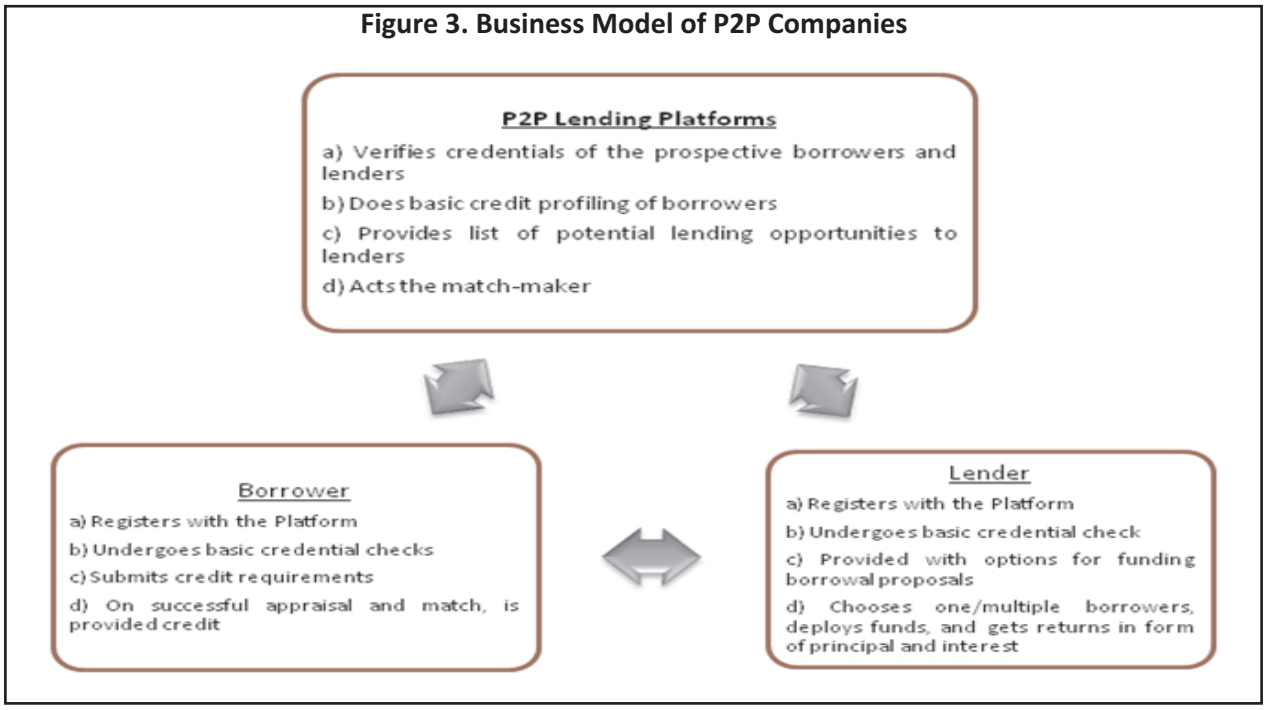
Aveni (2015) opined that as the P2P market matures, there will be clear segregation between traditional lenders (viz., commercial banks) and host of traditional and non-traditional/ data driven P2P lenders. The benefactor on account of this changing lending landscape will be borrowers who will benefit from the competition and new diversity in investing options. The study further states that the industry may go through some consolidations leading to formation of super-sized P2P companies.

One important sector identified in our study as the direct beneficiary on account of growth in the P2P lending segment is the MSME sector. Previous studies in this topical area have supported similar hypothesis that P2P lending does support MSMEs directly. In the context of other developing economies, that is, Indonesia, Rosavina and Rahadi (2018) showed that SMEs can indeed benefit from the P2P lending framework and also identified a few key factors, that is, loan process, interest rate, process cost, amount of loan, and loan application flexibility that influence the choice of SMEs for adopting a P2P lender.

(4) P2P Lending Landscape in India : As observed through the forecasting exercise, credit availability from banks remains insufficient. Sensing the large demand - supply mismatch, there has been an emergence of 'alternative finance platforms' in India. However, barring P2P platforms, the other alternate financing models do not solve the problem of supplying credit to credit-starved sections of the society. With the objective of understanding the P2P lending landscape of India, the paper tries to analyze the present industry landscape, regulatory and other challenges, and the way forward for the sector, as discussed in the succeeding paragraphs.

(i) Dissecting the Peer-to-Peer Lending Model : The primary business model employed by P2P companies works as depicted in the Figure 3.

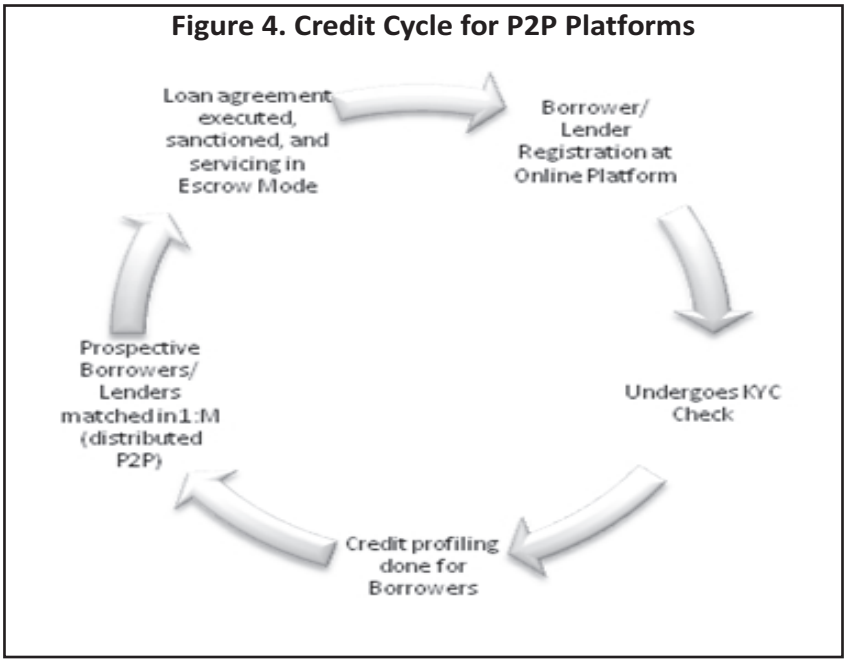
Figure 3. Business Model of P2P Companies



(ii) P2P Credit Cycle : A typical P2P credit cycle for the dominant Indian companies covered under the study will be of the nature as depicted in the Figure 4.

(iii) Indian P2P Lending Sector - Present Standing vis-à-vis Other Markets : The Indian P2P market is at a nascent stage when compared to other countries. For instance, China's P2P market-size (in terms of loans outstanding)

Figure 4. Credit Cycle for P2P Platforms



aggregated to a staggering $202 billion (University of Cambridge & Monash University, 2017), while that of the USA and UK worked out to $24 billion (University of Cambridge, 2017b) and $2.45 billion (University of Cambridge, 2017a), respectively at end of FY17. In comparison, P2P lenders aggregated to around ₹ 3 billion or around $45 million (Faircent, 2017). Moreover, the sector has only picked up pace in India very recently since when there has been a large amount of venture capital influx into the sector. In this context, it may be stated that it was only in April 2016 when RBI came out with a consultation paper with a proposed framework to regulate P2P lending entities, while October 2017 saw the release of the final framework for the P2P sector.

Data availability pertaining to the sector in terms of funds pooled and advances disbursed is a challenge in India's perspective owing to several factors, that is, (a) nascent stage of the sector, (b) no reporting/ filing requirements, (c) still evolving regulatory framework. Therefore, it is difficult to gauge or find an estimate of the P2P market in India. Further, there are just three players currently licensed by RBI in the space.

In absence of any regulatory returns or public filing, the paper has tried to understand the Indian P2P market through a quarterly report published by Faircent, the first RBI-licensed P2P lender. The report estimated the Indian P2P market's aggregate loan-book at ₹ 3 billion while having a gross NPA ratio of 4%, which appeared to be on the higher side relative to miniscule gross NPA ratio in the 'retail' loan-book of banks or other NBFCs. However, the higher ratio is probably on account of comparatively small loan portfolio. The report also stated that GNPA ratio for retail individuals was at 5%, while for small businesses, the GNPA ratio for the sector worked out to just 3%. This was in complete contrast to commercial banks or NBFCs where-in businesses were more responsible for loan delinquencies compared to retail borrowers. The relatively high GNPA ratio for the sector may also be due to lack of enforceability of any recovery mechanism as is available in case of formal loan contracts executed by banks or NBFCs with their prospective borrowers.

(5) The Regulatory Landscape : Subsequent to its consultation paper on P2P lending companies, RBI introduced a regulatory framework governing such companies in October 2017. Some salient features of the regulatory framework are as under :

(i) P2P companies shall come under the NBFC ambit, be designated as a NBFC - P2P as per the Central bank's guidelines.

(ii) All P2P companies will have to apply with the Central bank to obtain a Certificate of Registration to carry out their businesses. The necessary condition in order to obtain a CoR is that the company should be incorporated in India and should comply with various other legal, documentary, and reporting requirements of the Central bank.

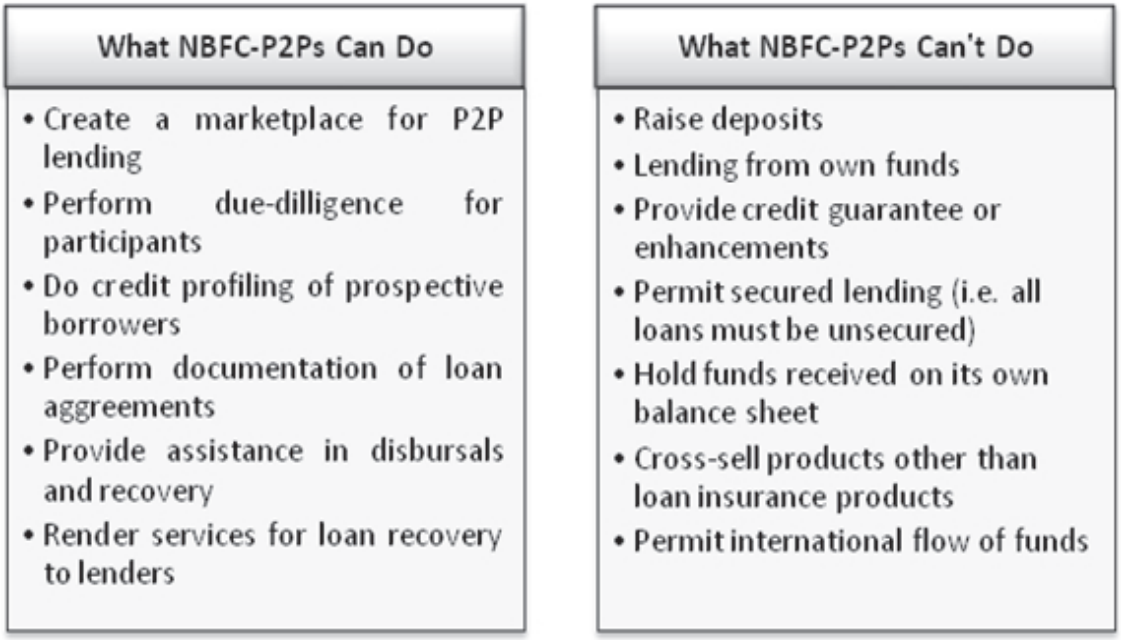
(iii) The company should have minimum net owned funds of ₹ 20 million and the company's leverage ratio (outside liabilities/ net owned funds) shall not exceed 2.0.

(iv) Aggregate exposure to a borrower across all NBFC - P2P companies shall not exceed ₹ 1 million, while aggregate loans taken by a borrower across all such companies cannot exceed ₹ 1 million. Further, exposure of a single lender to the same borrower across all such companies shall also not exceed ₹ 50,000. Maturity of the loans should not exceed 36 months.

(v) The regulations also entail using of 2 Escrow accounts, that is, one for disbursals and another for collecting loan installments by such companies. Further, NBFCs should also become members of credit information companies (viz., Transunion, Equifax in global context, or CIBIL in India's context) as well as submit periodic and accurate data to the CICs.

(vi) Also, NBFC - P2P companies are subject to various other transparency and disclosure requirements towards

Figure 5. Activities Allowed and Prohibited for P2P Companies



the public/ users of the platform at large and the Central bank. Also, the regulations define the technological requirements, management fitness, and the Central bank's powers over the entities in the regulatory framework (Figure 5).

Some shortcomings of the regulatory framework are :

↳ **High Barriers of Entry :** Typically, P2P lenders are leaner organizations leveraging technology to create a viable alternate lending mechanism. However, the high barrier of entry at ₹ 20 million required for companies to register as NBFC-P2P companies may deter some start-ups with capital constraints to follow this route.

↳ **Definition of Leverage Ratio :** RBI mandates maintaining a leverage ratio (defined by outside liabilities / net owned funds) at two times for P2P companies to be able to obtain a registration from the Central bank. In this context, we assume that the outside liabilities translate to total debt/ funds borrowed by the NBFC - P2P. This assumption is based on the premise that the Central bank mandates that loans originated through the platform do not form a part of the balance sheet of the entities. However, in such a case, owing to the fact that such P2P lenders are actually lean organizations having relatively nil debt on their books and instead use technology to create a market-place would mean that a P2P lender can have a substantial volume of loans originated through their platform while only maintaining a paltry NOF requirement of ₹ 20 million. This, in turn, defeats the purpose of the leverage ratio mechanism adopted by the Central bank for P2P companies in the first place.

↳ **Upper Limit/ Cap on Lenders :** The regulations impose a system-wide cap of ₹ 1 million on users registering on such platforms as lenders. However, P2P lending is based on the principle of distributed lending/ borrowing, thereby reducing concentration risk by distributing the risk emanating. Besides, the decision to invest funds in

such companies is the decision of investors alone who predominantly are high-risk taking, savvy investors. Imposing such a cap will not only increase the borrowing costs for loans originated through the platform, but will also effectively deter high net worth investors from investing large sums of money, thereby curtailing growth opportunities for the sector at a nascent stage.

(6) NBFC - P2P Lenders – Challenges and Way Forward : P2P lending is a relatively new global financial innovation that uses technology as the enabler for addressing arbitrage enjoyed in the financial market by commercial banks, credit unions, NBFCs, and other lenders. In India's context, the innovation is newer still with even the biggest players in the market being dwarfed by probably the smallest of registered NBFCs. However, to keep the India growth story intact, credit requirement in the select sectors highlighted in the study would be imperative. As such, there has been and will emerge a requirement for such alternate financing platforms. P2P lending platforms which do not depend on bank/ NBFCs / borrowed funds to lend can be a very attractive alternative for India's large growing middle class and micro and small businesses. RBI, a prudent regulator, has aptly understood the requirement to regulate such a market in view of the disruptions the P2P segment is capable of creating. While the sector is at a nascent stage and it is difficult to arrive at the potential size of the market in the short or medium term, the outlook is optimistic in view of the global trend. Some independent estimates (Faircent, 2017), for instance, see the P2P market growing to about $4 billion over 2023. However, the regulatory framework for the sector is still evolving and the same pattern can be observed in India's case as well. While RBI has come out with a framework on P2P companies, the capital market regulator is yet to form a framework for crowd-funding platforms. There are other factors which may adversely impact these companies. As such, a strength-weakness-opportunity-threat (SWOT) analysis has been presented for the sector in view of the factors favoring or impacting the growth of P2P lenders in India.

The future of Fintech companies comprising of payment aggregators, mobile wallets, online marketplace for BFSI products, alternate lending platforms are bright in wake of fast adoption of technology, and payment

Strengths :

(i) Lean organizations with solid technological foundation.

(ii) Globally proven attractive business model.

(iii)Introduction of regulatory purview will accentuate growth.

(iv)Higher returns and efficient credit profiling attracting investors.

(v) Fast and easy appraisals translate to borrower loyalty.

Opportunities :

(i) An already existing large untapped market having difficulty in obtaining credit easily.

(ii) Much cheaper alternative to the NBFC sector in India's context.

(iii) Substantial credit requirement in retail/ MSE sector as projected in the study.

Weaknesses :

(i) Relative unfamiliarity with the credit marketplace.

(ii) Long-term viability of the model yet to be tested ; P2P lending is a new phenomenon.

(iii) Higher dependence on venture capital funds/ angel investors to turn profitable.

(iv) No deposit insurance framework deters retail investors or investors with low risk appetite.

(v)No legal recovery framework in case of loan delinquencies/ defaults.

Threats :

(i) Regulatory landscape.

(ii) Evolving technological framework and incremental leveraging of tech by established players, that is, banks and NBFCs.

(iii) Higher cost of funds compared to banks and NBFCs.

(iv) Credit cycle downturns/ demand moderations.

services/ aggregators have already caused innovative disruptions. However, it will be the lending platforms that will cause the most disruptions due to direct competition with traditional players, that is, banks and NBFCs and their apparent advantage owing to leaner, faster, and more effective small organizational structures which leverage technology highly. How the impact of such lenders play out for the traditional banking system will pave the ground for sustainability for P2P lenders in India's context.

Conclusion

The forecasted credit demand for the six sub-segments of 'retail' sector is found to be much greater than the expected credit supply based on the trend of bank loan growth to the sector. As a result, a significant credit gap is expected in the sector. In the past, such a credit gap has been met by informal credit intermediation channels, however, the disadvantages related to high interest rate charged by such channels means that consumers are open to more suitable alternative financing options. Identifying this credit gap, the P2P lending platforms started operations in recent years. While the industry is still at a nascent stage, the upside potential is huge if given proper regulatory support. RBI has made a significant amount of progress in this regard, however, a lot is still desired. Further, the capital market regulator will also need to play an active role in the future, and work in tandem with the banking regulator and the industry players. With active participation from key stakeholders, P2P lending has the potential to create a sustainable, complementary market to the traditional credit intermediation instruments.

Research Implications, Limitations of the Study, and Scope for Further Research

The paper provides an insight into the credit demand scenario for various sub-sectors of the retail sector. A growth in this sector provides an indication regarding the economic growth and macro-economic outlook for the country. It also indicates the scope for specialized or differentiated lenders to enter the space and cater to the credit demand gap that could arise due to bank / NBFCs loan growth being lower than demand growth. The paper also provides comprehensive literature about a still nascent P2P industry focusing on various facets of the regulatory landscape, outlook, growth prospects, and opportunities & challenges for the sector.

The computed credit gap for various sub-sectors between the forecasted demand and bank credit supply is based on the assumption that banks will not be able to increase their credit disbursals at a higher rate if the demand is there due to high impairment levels and to preserve their capital. However, large capital raising by the banks from different sources may result in banks increasing their loan books, which may diminish the computed credit gap and the scope for P2P lending to grow at a high rate. Also, the P2P lending industry is still at a very nascent stage, and the regulatory landscape could change drastically in the next few years. Some tight regulations for the sector could result in low growth of the sector.

The major scope for further research in the industry would revolve around the scope for entry of new market players and how they scale up their operations while at the same time maintaining credit quality standards. The potential regulatory initiatives for the growth of the industry can also be examined.

Conflict of Interest Statement

The authors state that there is no conflict of interest.

References

Annapurna, V., & Manchala, G. (2017). Balanced scorecard evaluation of the performance of Indian public sector banks. *Indian Journal of Finance, 11*(9), 7 - 21. DOI : 10.17010/ijf/2017/v11i9/118085

Aveni, T. (2015). *New insights into an evolving P2P lending industry: How shifts in roles and risks are shaping the industry.* Positive Planet. Retrieved from https://www.findevgateway.org/sites/default/files/publication_files/new_insights_into_an_evolving_p2p_lending_industry_positiveplanet2015.pdf

Faircent. (2017). *Research & analytics report.* Retrieved from https://www.faircent.com/research_analysis_q1_2017

Gautam, V. (2017). Appraisal of retail lending in DCCBs based on loans, NPAs, and diversification. *Indian Journal of Finance, 11*(2), 35 - 51. DOI: 10.17010/ijf/2017/v11i2/110233

Jagtiani, J., & Lemieux, C. (2017). *Fintech lending: Financial inclusion, risk pricing, and alternative informtion* (Federal Reserve Bank of Philadelphia Working Paper No. 17). Retrieved from https://www.philadelphiafed.org/-/media/research-and-data/publications/working-papers/2017/wp17-17.pdf

Lenz, R. (2016). Peer - to-peer lending - Opportunities and risks. *European Journal on Risk and Regulation, 7*(4), 688 - 700. DOI: 10.1017/S1867299X00010126

Milne, A., & Parboteeah, P. (2016). *The business models and economics of peer-to-peer lending.* DOI : http://dx.doi.org/10.2139/ssrn.2763682

Narayanaswamy, T., & Muthulakshmi, A. P. (2016). Productivity and cost efficiency of commercial banks in India. *Indian Journal of Finance, 10*(1), 8 - 27. DOI: 10.17010/ijf/2016/v10i1/85839

Pillai, K. R. (2018). Temporal and institutional essence of non - performing assets in banks : An Indian scenario. *Indian Journal of Finance, 12*(3), 58 - 68. DOI: 10.17010/ijf/2018/v12i3/121998

Reserve Bank of India. (2017). *Report on trend and progress of banking in India.* Mumbai : RBI.

Rosavina, M., & Rahadi, R. A. (2018). Peer - to - peer (P2P) lending platform adoption for small medium enterprises (SMEs): A preliminary study. *International Journal of Accounting, Finance and Business, 3*(10), 1-14.

Securities and Exchange Board of India (SEBI). (2014). *Consultation paper on crowd funding in India.* Retrieved from https://www.sebi.gov.in/sebi_data/attachdocs/1403005615257.pdf

Singh, D., & Singh, H. (2016). Market penetration by Indian banks : Motives and motivators. *Indian Journal of Finance, 10*(3), 28 - 42. DOI: 10.17010/ijf/2016/v10i3/89020

University of Cambridge & Monash University. (2017). *Cultivating growth : The 2nd Asia - Pacific region alternative finance industry report.* Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-09-cultivating-growth.pdf

University of Cambridge. (2017a). *Entrenching innovation : The 4th UK alternative finance industry report.* Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-12-21-ccaf-entrenching-innov.pdf

University of Cambridge. (2017b). *The Americas alternative finance industry report : Hitting stride.* Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-05-americas-alternative-finance-industry-report.pdf

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