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AMTD Equity Research **Sector Report**

CHINA ONLINE CONSUMER FINANCE INDUSTRY

Regulatory Scrutiny vs. Market Potential

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We would like to thank Yiyi Wang for her contribution to this report.

Executive summary

In this report, we try to analyze the China consumer finance industry's competitive landscape, explain how the payday loan lenders are different from P2P platforms in their business model and profit model, by looking at industry data as well as listed companies' financial data. Despite tightening regulations, we still believe online consumer lenders have big market potential through analysis of penetration rate and household debt level.

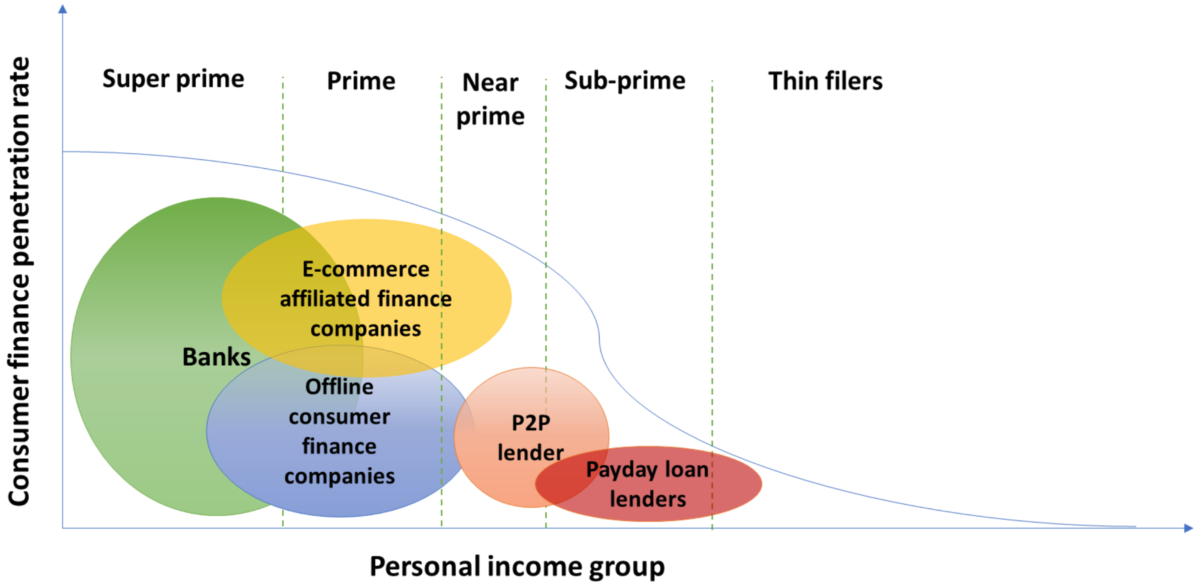
The online consumer lending industry in China has played an indispensable role in providing consumer finance to the underbanked population. We estimate that as of Sep-17, the total consumer loans outstanding has reached Rmb 10.1trn, +38% compared to Dec-16. In 9M17, the consumer finance penetration rate reached 30.7%, up from 14.7% in 2015, driven by the fast expansion of credit card installment loans provided by banks and proliferation of online lenders.

However, recently the fast-rising untamed payday loan lenders have caught regulators' attention. We see near term challenges for the payday loan lenders and P2P platforms that focusing on payday loan product. For the general P2P industry, growth may continue to slow down in the near term as the regulators are still focusing on cleaning up the incompliant businesses. This may give commercial banks and licensed consumer finance companies opportunities to take up market shares in the short run.

In the long run, we believe the leading P2P players are in good shape to resume growth once the P2P registration is completed by April 2018. We expect industry consolidation and increasing concentration after the cleanup. We still see big growth potential for the under-penetrated consumer finance industry driven by 1) strong consumption growth; 2) increasing consumer financing penetration.

Stock market sentiment is slowly recovering on this sector as the payday loan lenders/platforms (Rong 360, Paipaidai) started to report encouraging 3Q17 earnings. We may need to wait for another one or two quarters earnings to see how the new regulations would reshape the industry.

Figure 1: Consumer finance market segmentation



Source: AMTD Research

Regulatory scrutiny posing near term challenges on payday loan lenders

Recent regulatory clampdown is focusing on the untamed payday loan industry. We expect payday loan lenders especially the low quality ones to suffer from 1) a sharp decline of institutional funding; 2) a slowdown in new loans; 3) potentially fast rise in bad debt. This would include P2P platforms that focusing on payday loans. However P2P platforms that specilised on payday loans should be better off than the balance sheet lenders such as Qudian, as balance sheet lenders' institutional funding could be severely affected by the new rules.

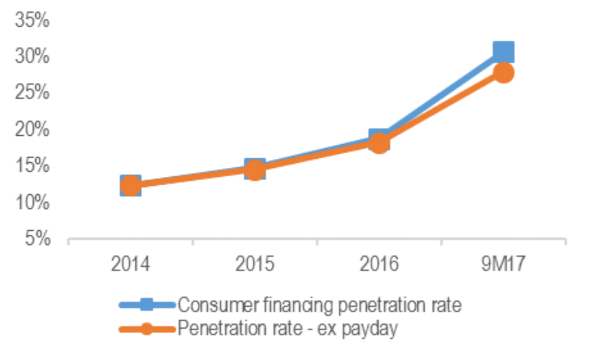
Going forward, the payday loan lenders will need to focus on installment loans and expanding their purchase scenes by working with both online and offline merchants. With the leverage cap, payday lenders may be limited by their own balance sheet and will have to act as a borrower acquisition channel for banks.

Consumer finance penetration rate is fast rising

We estimate the consumption penetration rate at 30%, which is not high. However, the penetration rate has increased significantly from 14.7% in 2016 to 30.7% in 9m17. This was driven by the fast expansion of consumer loans by commercial banks, and also driven by the fast growth of online consumer loan lenders. We see some of these growth may have be driven by a loosening of credit standards such as the emerging of payday loans. We expect consolidation in the payday loan segment.

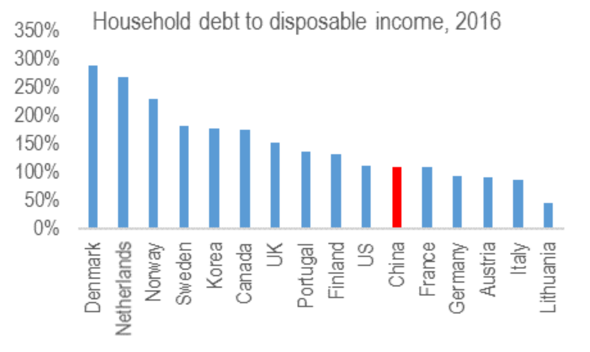
Compared to other developed countries, China's household debt level is not high, and majority of it was in the form of mortgages (**Figure 3**). We estimate that only 15-20% of the urban household have mortgage loans outstanding. This would leave room for growth in home equity loans for the higher income group and credit loans for the mid-low income group. The market growth going forward will be driven by 1) a fast growth in consumption; 2) a continued rise in penetration rate.

Figure 2: China consumer finance penetration rate – new consumer credit to national retail sales



Source: PBoC, China National Statistical Bureau, China UnionPay, Wangdaizhijia, AMTD estimates

Figure 3: China household debt level not high compared to other developed countries



Source: OECD, AMTD estimates

Winning strategy for online consumer loan lenders

We think online consumer finance industry does not change the nature of lending business, no matter it is a pure platform or balance sheet lender. A winning player ideally would have all of the following characteristics: 1) effective risk management and risk pricing capability; 2) cheap and stable funding; 3) self-owned retail ecosystem; 4) strong branding with user loyalty and repeating users; 4) effective cost management. Naturally this would point to lenders affiliated to e-commerce platforms or retailers. However, there will be room for specialized lenders focusing on a vertical segment such as auto, travel, education, entertainment, cosmetics and appraisal.

Market map of non-bank consumer finance lenders

Figure 4: Market map of non-bank consumer loan lenders – by institution type

Source: AMTD Research

Figure 5: Market map of non-bank consumer finance lenders – by product segment

Source: AMTD Research

Regulatory scrutiny targeting regulatory arbitrage

New regulation may bring structural changes to payday loan industry

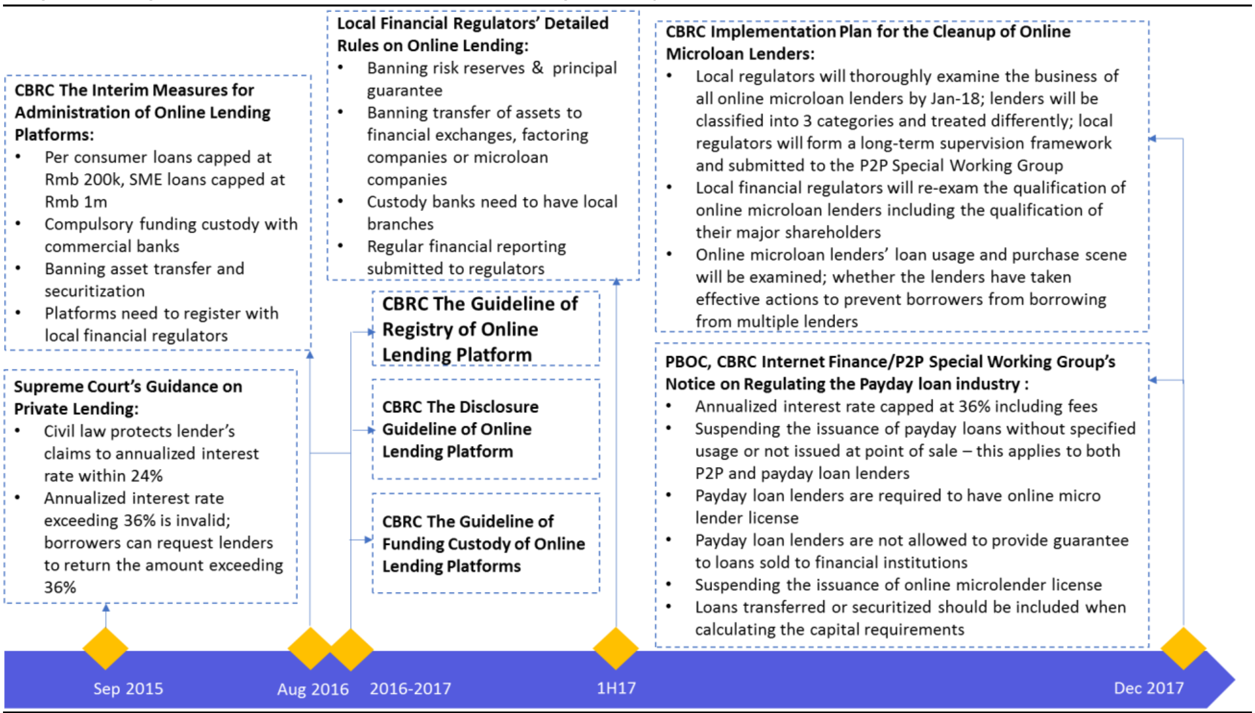
Recently, PBOC and CBRC initiated a new round of scrutiny on payday loan industry with the release of "**Notice on the cleanup of payday loan industry**" (**No. 56 Notice**). The notice, banned financial institutions' funding provided to payday loan lenders, emphasized the importance of specified usage and purchase scene, and target to reduce the APR to below 36%, while recognized the importance of online lending in facilitating consumptions. This is in line with recent financial regulation trend in China, which targets to remove regulatory arbitrage and reduce systematic risks in the financial system.

We expect payday loan lenders, especially the low-quality ones to suffer from 1) a sharp decline of institutional funding and P2P funding; 2) a slowdown of new loans; 3) potentially fast rise in bad debt. Financial institutions could over react by suspending all funding to payday loans. The payday loan lenders may need to focus on longer-term installment loans and expanding their purchase scenes by working with both online and offline merchants. With the leverage cap and inclusion of securitized assets in the leverage ratio, payday lenders may be limited by their own balance sheet and will have to act as a borrower acquisition channel for financial institutions.

P2P industry growth may continue to slow down in next 6 months as registration is scheduled to complete by April 2018

According to **CBRC's Interim Measures for the Administration of Online Lending Platforms (Aug-16)**, P2P platforms are required to register with local financial regulation office. However, none of the P2Ps have been registered so far as the regulators are still focusing on cleaning up the incompliant business. According to CBRC's recent guideline, the registration shall be completed by April 2018. We see the leading players in good shape to resume growth after that. The removal of implicit guarantee/risk reserve fund could bring in new dynamics to the industry.

Figure 6: Regulation timeline on China online lending industry



Source: PBOC, CBRC

Key messages from No. 56 Notice

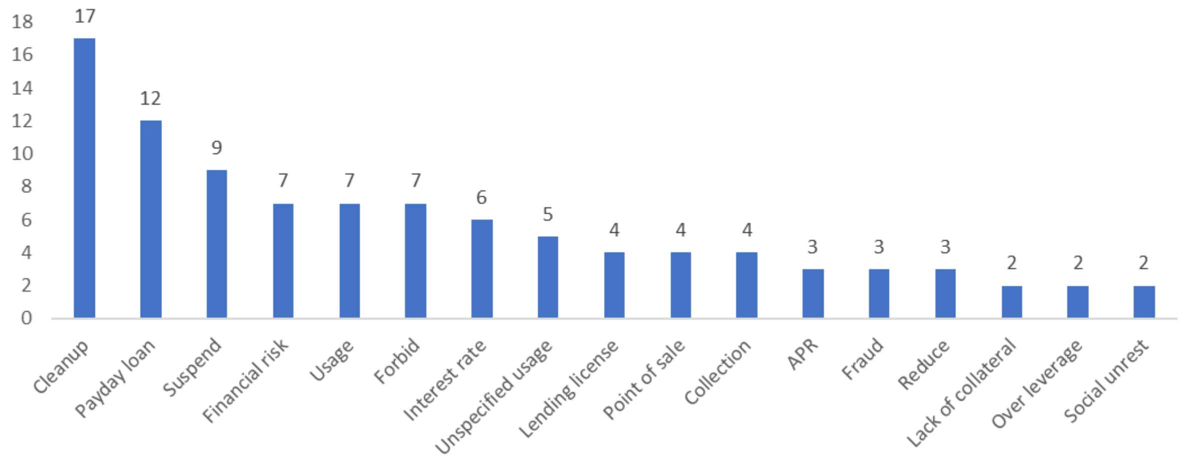
1) Payday loans without purchase scene, without specified usage must be suspended. Purchase scene and specified usage are deemed by the regulators as an effective way to manage risks and monitor funding usage; this could be extremely challenging for payday loan lenders as majority of the loans are not paid directly to the merchant at point of sale;
2) Payday loan lenders need to own online microloan lender licenses; new license approval will be suspended; majority top lenders own such license; this would cut off bottom players from the picture;
3) Annualized Percentage Rate (APR) including fees shall be capped within 36%; almost all lenders need to reduce their various fees. It would be especially challenging for payday loan lenders as the current fees they charge could translate into extremely high annualized rate;
4) The online lenders are forbidden to charge any interest or fees upfront. This may add near term pressure to the revenue of some payday loan lenders and P2P lenders;
5) Licensed microloan lenders' leverage ratio calculation shall include assets transferred or securitized; this would limit the funding source for non-P2P players such as Qudian, Jiebei of Ant Financial;
6) Financial institutions are forbidden to seek guarantee on assets purchased from microloan lenders; financial institutions are forbidden to participate on P2P platforms. This is to remove implicit guarantees provided by microloan lenders that are beyond their capability to repay. Going forward, at least in the next 12 months, the microloan lenders either use their own balance sheet or only act as a facilitator for financial institutions in acquiring new borrowers.
7) P2P platforms are forbidden to match loans without specified usage.

A few areas not clearly defined

A few things are still not well defined by the notice. Further detailed implementation guidelines may be published.

1) the notice emphasizes the importance of point of sale/or purchase scene and a specified usage, however, it doesn't articulate if the funding needs to be directly paid to the merchant at point of sale. In reality, significant portion of payday loan/cash advances and even P2P loans are not paid directly to merchants. It may not be practical to require all loans paid directly to merchants.
2) The effective APR is capped at 36%, however, if collection fees shall also be included, this could make overdue loans very expensive to the lenders.
3) Capital/leverage requirements vary in different provinces. If securitization and assets transferred need to be added back when calculating the leverage ratio, this would affect even the largest lenders affiliated to e-commerce platforms such as JD.com and Alibaba.
4) Financial institutions are still allowed to work with licensed payday loan lenders in borrower acquisition, however, the notice doesn't clearly define what type of cooperation is "pure cooperation".

Figure 7: Key word frequency from the "Notice on the cleanup of payday loan industry"



Source: PBOC, CBRC

Loosely regulated payday loan lenders triggered regulatory clampdown

The payday loan industry had been growing very fast in the past 12 months with funding support from financial institutions. According to Wangdaizhijia, in 9M2017, the payday loan volume reached Rmb 1trn, which was 6 times larger than that in 2016. We believe the industry triggered regulatory scrutiny due to the following common practices and hidden regulatory arbitrage:

1) Fast rising and hidden leverage through guarantees on loans transferred or securitized to financial institutions to bypass capital/leverage requirements. This may pose risks to banks and other financial institutions;
2) Unreasonably high interest rates – as high as 200% to cover high bad debt charges and expensive user acquisition costs;
3) Absence of proper risk management through credit analysis of borrowers;
4) The online micro lender license is issued by local financial regulator but can operate across the country; this put the regular microloan lender on an uneven play as they are only allowed to operate in local market;
5) Over leverage of subprime and thin-filer borrowers: borrowers borrow from multiple lenders at the same time or borrow new loans to pay down previous loans;
6) Unmonitored use of proceeds: Borrowers using payday loans to invest into stock market, to pay property down payment;
7) Wide existence of fraudulent borrowers;
8) Violent loan collection practice;
9) Abuse of customer data.

Since 2016, after a period of rapid growth for the online lending industry, China has been tightening the regulations on the industry. We believe regulations on online lending industry will be aiming at eliminating regulatory arbitrage between online lenders and financial institutions, lifting entry threshold, removing implicit guarantee, strengthening risk management, and enhancing consumer protection. Having said that, the regulators recognized the importance of online lending in inclusive finance. Therefore, we do not consider that the regulator's intention is to kill the industry.

A new super financial regulator

On 8th November 2017, China officially launched its new super financial regulator – China Financial Stability and Development Committee to safeguard financial stability. This new committee under the State Council aims to enhance the regulation coordination of the existing financial regulators namely PBOC, CBRC, CSRC and CIRC and reduce regulatory arbitrage activities. On 17th November 2017, PBOC, CBRC, CSRC, CIRC, SAFE jointly published a draft rule on the asset management schemes to clamp down on shadow banking activities which were loosely regulated previously. Unintended leverage had been built up in the economy and in the financial system from funding from wealth management products, asset management schemes of brokers, asset management schemes of mutual funds, trust products, and asset management schemes of insurers. This was the first financial rule that was product-oriented under the super financial regulator rather than institution-oriented under the previous separated regulatory framework. The goal was to remove the implicit guarantee by banks on various asset management directly or indirectly. For the P2P industry and payday loan industry, the removal of implicit guarantee to investors is unavoidable as well. This would put bank's wealth management product and P2P at an event play in front of investors.

Sizing the consumer loan market

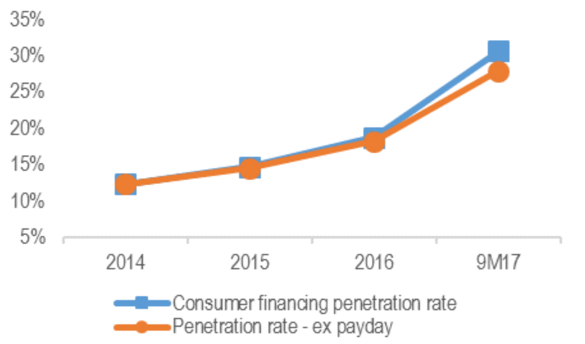
While the online consumer loan lenders experienced exponential growth unseen by traditional financial institutions in recent years, it is unclear whether they will be able to maintain such fast growth in the next few years. Is the market maturing? Who will be the winner? Therefore, it is important for investors to first assess the potential market size.

Consumer finance penetration rate fast rising

We estimate the consumption penetration rate is relatively low (**Figure 8**). However, the penetration rate has increased significantly from 14.7% at YE15 to 30.7% at Sep-17, meaning 30.7% of the retail consumption was paid on credit. This was driven by the fast expansion of consumer loans due to commercial banks' push for consumer loans, and also driven by the fast growth of online consumer loan lenders. While a significant portion of the online consumer loans are from microloan lenders affiliated to e-commerce platforms who can generate the consumer credit based on proprietary transaction data, we see some of these growths may have been driven by a loosening of credit standards such as the emerging of payday loan lenders. We expect consolidation in the payday loan segment. The market growth going forward will be driven by 1) fast growth in consumption; 2) a continued increase in penetration rate.

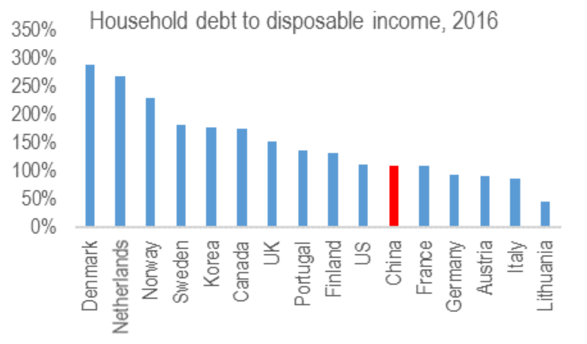
Compared to other developed countries, China's household debt level is not high, and majority of the debt was in the form of mortgages (**Figure 9Figure 3**). We estimate that only 15-20% of the urban household have mortgage loans outstanding. This would leave room for growth in home equity loans for the higher income group and credit loans for the mid-low income group. The market growth going forward will be driven by 1) a fast growth in consumption; 2) a continued rise in penetration rate.

Figure 8: China consumer finance penetration rate – new consumer finance to national retail sales



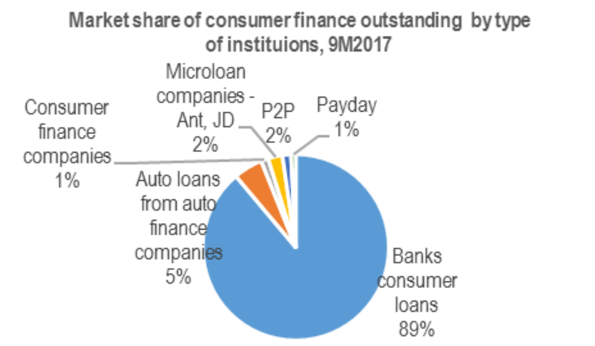
Source: PBoC, China National Statistical Bureau, China UnionPay, Wangdaizhijia, AMTD estimates; Note: For bank's consumer loans, we excluded the loans that are used to pay for property down payment (estimation).

Figure 9: China household debt level



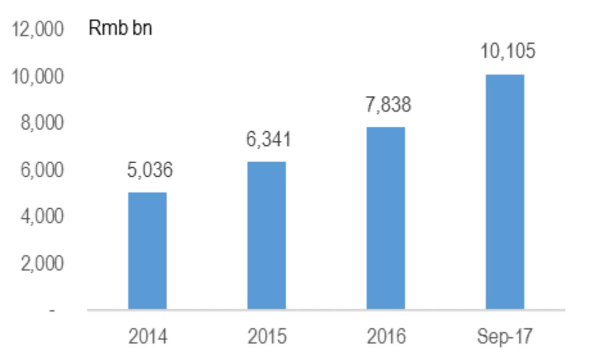
Source: OECD, AMTD estimates

Figure 10: Banks still dominate the consumer finance market



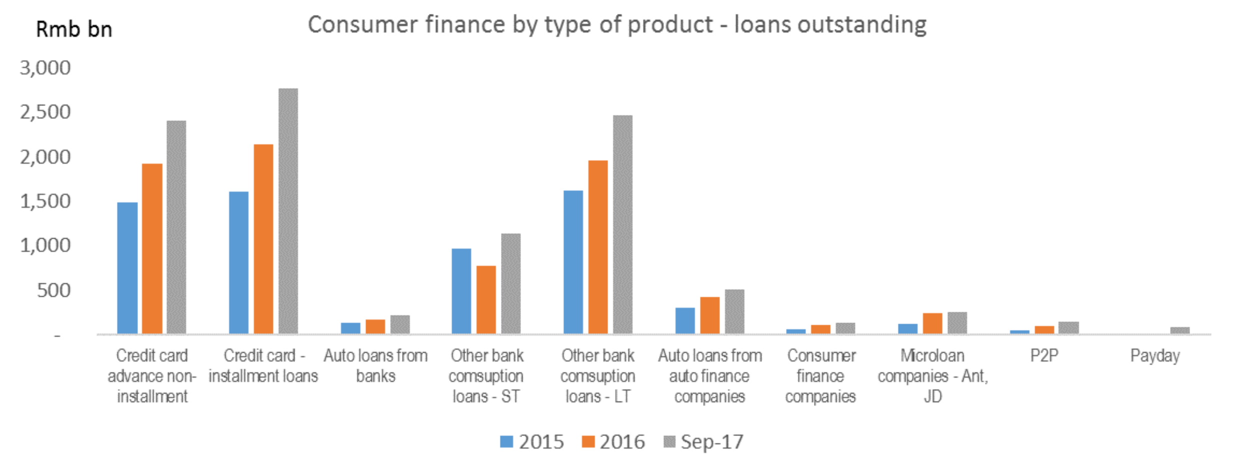
Source: PBoC, China National Statistical Bureau, China UnionPay, Wangdaizhijia, AMTD estimates

Figure 11: Fast rising consumer loans outstanding



Source: PBoC, China National Statistical Bureau, China UnionPay, Wangdaizhijia, AMTD estimates

Figure 12: New consumer credit was driven by banks' efforts in expanding installment loans, and loans provided by online consumer loan lenders



Source: PBoC, China National Statistical Bureau, China UnionPay, Wangdaizhijia, AMTD estimates

Current players in consumer loan market

There are mainly five groups of players in the market. They all have different target groups, while overlaps exist as well. Commercial banks with their wide spread branch networks and credit coverage, are dominating the best quality borrowers while payday loan lenders tend to focus on the sub-prime and thin filers group.

1) Commercial banks: Commercial banks are still the largest group of players. Their consumer finance product including credit card advances, credit card installment loans on consumptions, home-equity loans and other credit loans.

2) E-commerce and merchants affiliated finance companies: This category includes the microloan companies under the top e-commerce platforms such as Alibaba's microloan company, JD's microloan company.

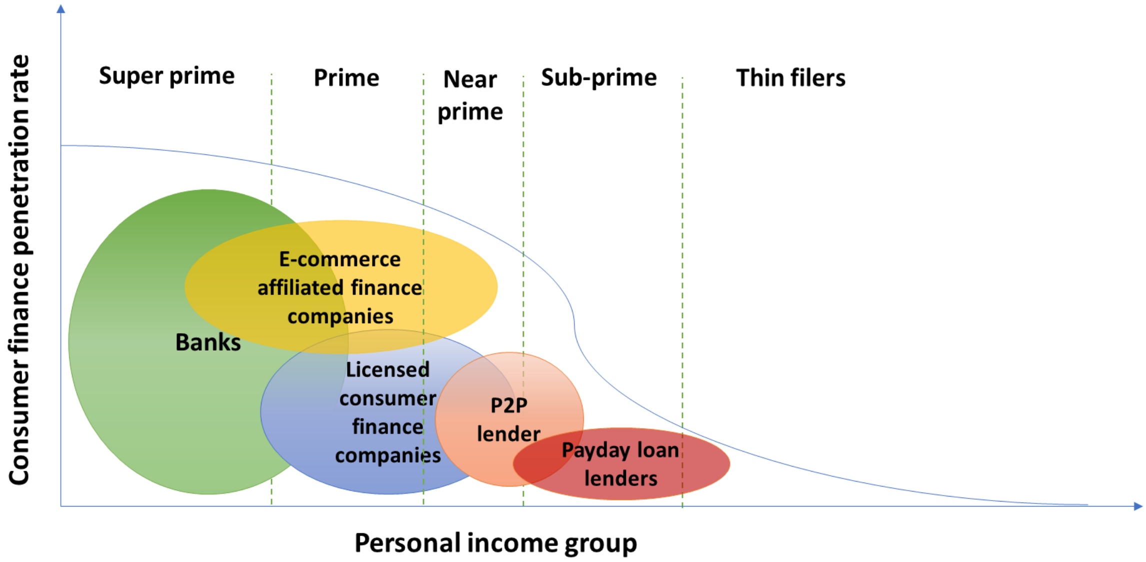
3) Specialized consumer finance companies: This would include licensed auto finance companies such as automaker affiliated auto finance companies, licensed consumer finance companies such as Home Credit. This category focused on working with offline merchants in acquiring customers.

4) P2P lenders: With the new regulation that caps the loan size, P2P platforms have been actively seeking consumer finance assets such as installment loans for

electronics & electrical appliance purchase, travel and education, expenses and payday loans.

5) Payday loan lenders: This category would include the non-P2P standalone payday loan lenders such as Qudian, Weshare, Xinjincard etc..

Figure 13: Consumer finance market segmentations



Source: AMTD Research

We believe the online consumer lenders are addressing consumer borrowing demand that is not satisfied by traditional financial institutions, in the following ways:

1) For the 200 million credit card holders which we define as prime borrowers: Average bank credit card limit is set too low at Rmb 20k per card. Non-bank lenders have the potential to provide additional revolving credit to this segment.

2) We estimate that around 50% of urban adults in China or 320 million consumers should be classified as near prime/prime/super prime borrower with equivalent FICO scores above 670. This segment leaves 120 million prime consumers without a credit card. The commercial banks have set very high standard for issuing credit card due to the lack of credit record of these consumers or due to unstable income, limited savings, lack of property proof, high job mobility, or weak credit history from personal credit bureau.

3) For the subprime borrowers, we believe they are the target market for smaller size consumption loans such as payday loans.

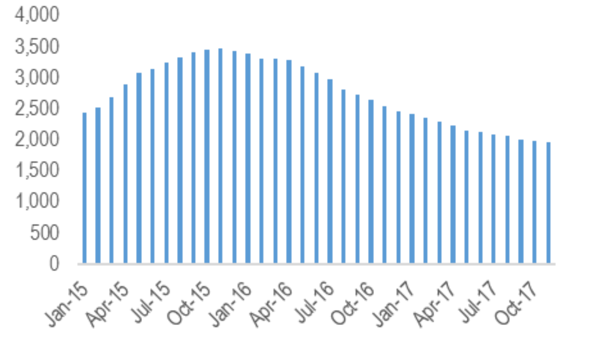
P2P industry competitive landscape fast changing

Compliance is top priority

14 months have passed since the Chinese regulators introduced the new regulatory framework for the P2P industry in August 2016. YTD the P2P industry continues to deliver strong growth, and has witnessed lower investor returns and shortened loan duration. The number of P2P platforms are still in operation continues to decline to 1,954 from the peak of around 3,400 at end of 2015. Majority of P2P platforms that failed in the past 14 months were self-initiated suspension of operation due to incompliance instead of runoffs.

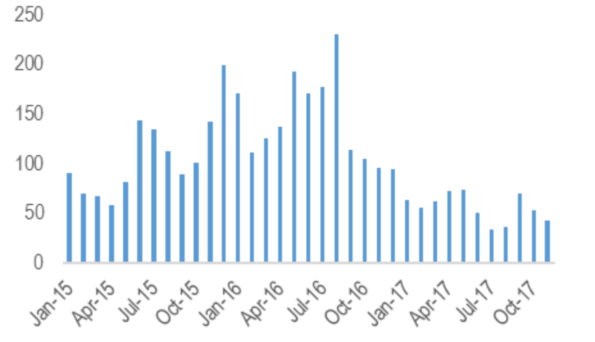
This new regulatory framework lifted industry entry barrier in four dimensions: 1) capping personal loan ticket size at Rmb 200k and SME loan ticket size at Rmb 1m; 2) requiring escrow account with commercial banks; 3) requiring ICP (Internet Content Provider) license; 4) banning asset transfer and funding pools.

Figure 14: Number of P2P platforms in normal operation continues to decline



Source: Wangdaizhijia

Figure 15: Number of platforms suspended operation peaked in August 2016 – when the new regulatory framework was introduced

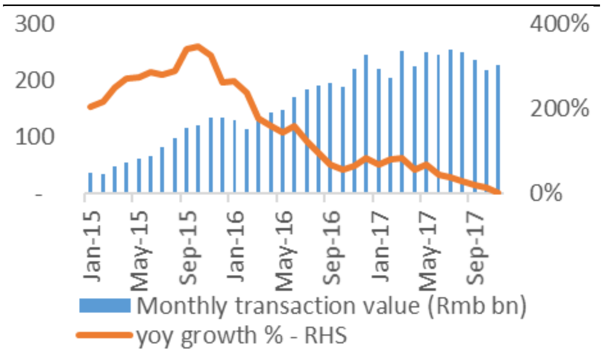


Source: Wangdaizhijia

Loan volume growth slowed down in recent months

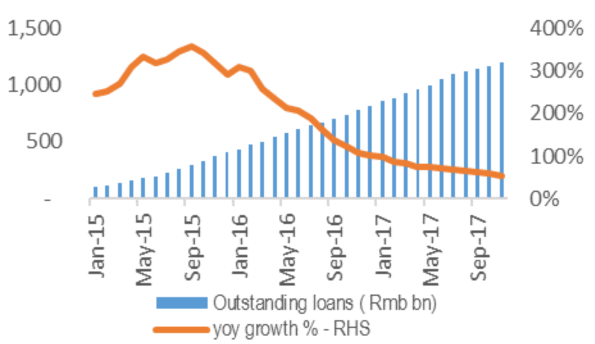
According to Wangdaizhijia's data, in 11M17, China P2P industry facilitated in total Rmb 2.6trn of loans, up by 42% yoy. The loans outstanding reached Rmb 1.2trn by Nov-17, up by 54% yoy. However, new loan growth has significantly slowed down in 2H17 likely due to window guidance from regulators to cap the outstanding loans in certain regions and the inspection on payday loan product.

Figure 16: Loan facilitated on P2P platforms (Rmb bn)



Source: Wangdaizhijia

Figure 17: Loans outstanding on P2P platforms (Rmb bn)

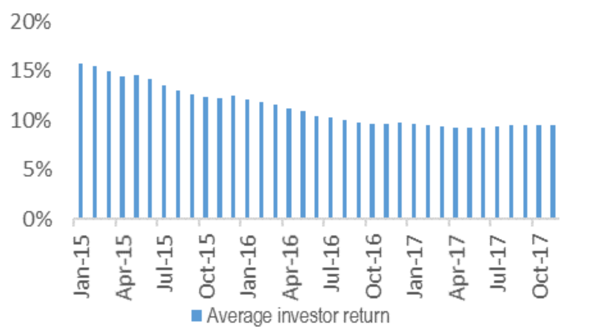


Source: Wangdaizhijia

Investor returns falling; loan duration shortened but rebound in Nov

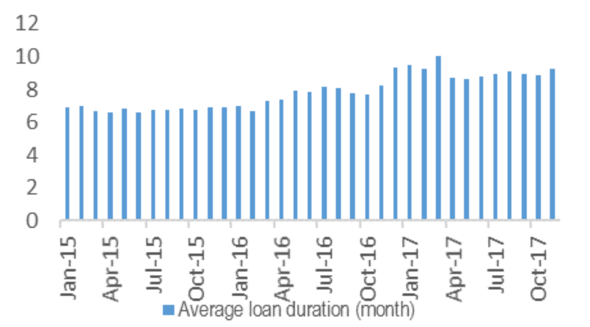
Average investor returns dropped in 1H17 due to tightened regulation reduced risk appetite and competition. But investor returns rebounded in 2H17 likely due to more promotional efforts. Average loan duration has dropped since April 2017 likely due to the shift towards payday loans and a general shift towards shorter loans to better manage risks. However, the loan duration extended in Nov-2017 likely due to the inspection on payday loan business.

Figure 18: Average P2P investor return



Source: Wangdaizhijia

Figure 19: Average loan duration

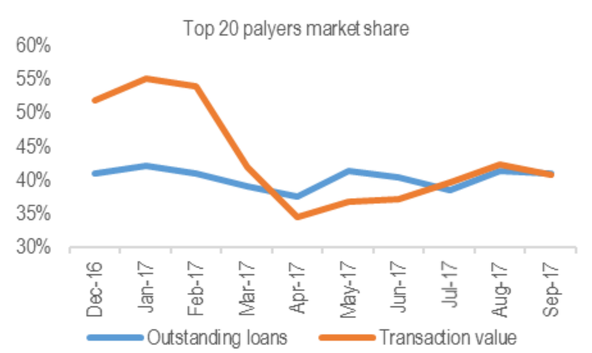


Source: Wangdaizhijia

Competitive landscape fast changing

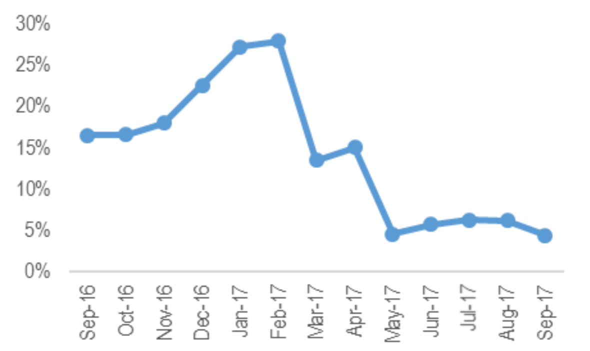
2017 proved to be a challenging year for the P2P industry. The new measures capped lenders' loan size and most larger SME loans became an incompliant segment. However, it is difficult to effectively manage the risk of smaller size SME loans at a cost-efficient way. Therefore, the P2P players aggressively entered the consumer loan market in 2017 with products such as installment loans and payday loans. We do not observe an overall increase in market share concentration as measured by the combined market shares of the top 20 P2P players. In fact, the combined market share of top 20 players in terms of loans facilitated declined from end of 2016 to April 2017. This is likely due to 1) the shrinking volume of leading players that were relying on large ticket loans such as Lufax and Hongling Capital; 2) a surge in payday loan volume from smaller players. The market concentration started to rebound after April 2017, likely driven by newly introduced regulations on payday loans, including capping the APR.

Figure 20: Loan volume market concentration fell



Source: Wangdaizhijia

Figure 21: Lufax loan volume market share trend



Source: Wangdaizhijia

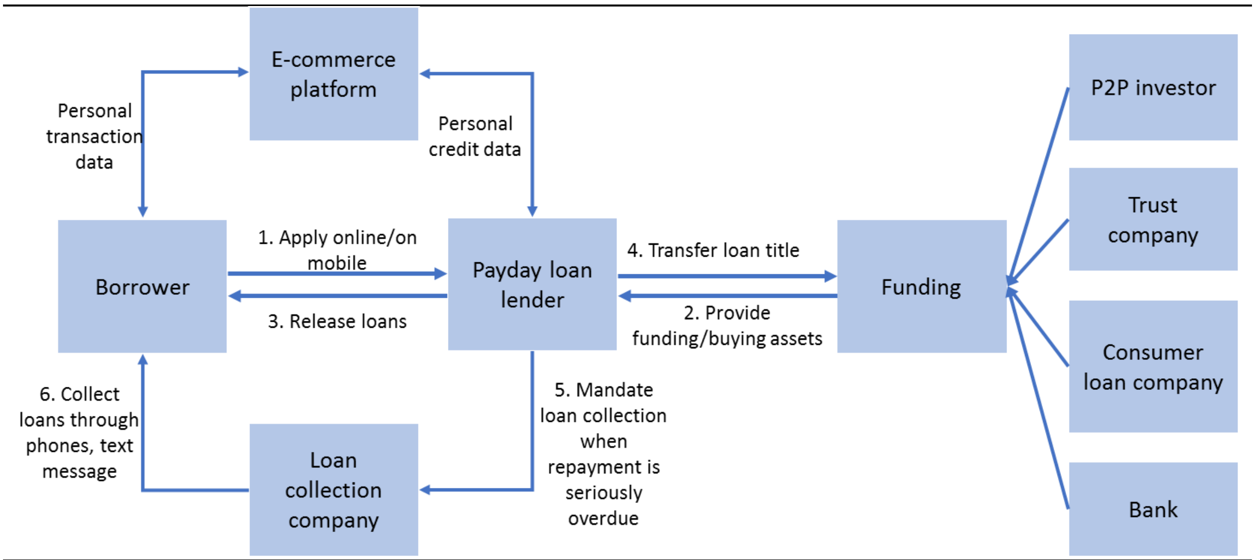
Payday loan market potential limited by new regulation

The current profit model of most payday loan lenders may not be sustainable. They rely on extremely high APRs to cover high user acquisition costs and high bad debt losses. The balance sheet risks shall not be underestimated as payday loan lenders normally provide guarantee on the loans they underwrite to financial institutions. The No. 56 Notice is likely to increase the entry barrier and spur industry consolidation. This would benefit leading players who comply with regulations, offer lower lending rates, have strong risk management, use P2P funding and have strong pricing capability. In addition, we noticed some banks are aggressively launching cash advances product with aggressive quota to take advantage of the situation.

Payday loan is different animal from P2P loan

Payday loans are defined as small amount unsecured personal loans with duration shorter than 30 days without specified usage. The average loan size is around Rmb 2,000. Pure payday loan lenders sprung up in 2016 and 2017. Some P2P platforms have shifted their focus into payday loans, including Paipaidai, etc. An online small loan license is required to conduct payday loan business as customers are acquired purely online.

Figure 22: Illustration of payday loan value chain



Source: Wangdaizhijia

We believe payday loans are different from typical P2P consumer loans in the following ways:

1) **Profit model:** Payday loan lenders rely on extremely high APR and high borrow frequency to offset high bad debt loss and expensive initial user acquisition cost. Payday loans' APR can be as high as 100-200%. However, due to the actual short duration, the interest and transaction fee may appear not very high to unsophisticated borrowers. The initial user acquisition cost could be as high as Rmb 100 for a Rmb 2,000 loans. Repeat borrowers could significantly reduce the average user acquisition cost per loan. The high APR can also cover the bad debt losses for most platforms.

2) **User acquisition:** Majority of payday loan borrowers are acquired online or through mobile apps, typically independent of any consumption scene. The usage of the fund is at the borrower's discretion. In contrast, P2P consumer loans

normally acquire customers from consumption scenes such as e-commerce platforms, online travel agencies and social media etc, and the fund usage is limited to a consumption scene. In a sense, P2P consumer loans operate more like bank credit card loans. Some P2P lenders are also introducing payday loan product to their existing customers.

3) **Smaller loan size and shorter duration:** Payday loans have significantly shorter duration and smaller size than P2P consumer loans. In theory, this will help the platform to better manage credit risks and offer better portfolio diversification.

4) **Funding source:** Different from P2P lending, payday loan lenders mostly rely on platforms' equity and institutional funding from trust companies, banks and consumer lending companies; some P2P lenders still use P2P funding to fund payday loans. Compared to P2P funding, institutional funding may have lower cost, and come in bulk size and can support faster asset acquisition. P2P lenders still mainly rely on P2P funding.

5) **Risk management:** The key to payday loans' risk management is fraud detection and prevention before approval and loan collection in the event of overdue. Credit analysis before and during the lending plays limited role as it could be very costly and time consuming for payday loan's short duration and small size. In contrast, credit analysis throughout a loan's duration is still emphasized for P2P consumer loans.

A deep dive into the listed online lenders

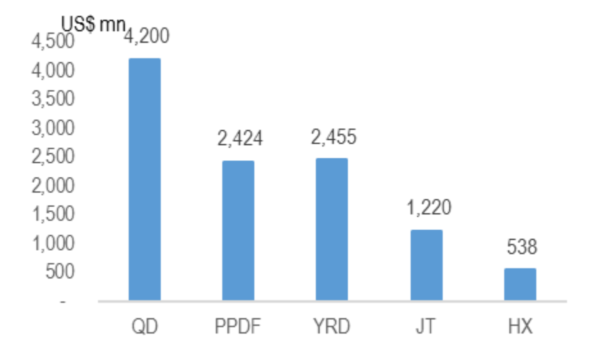
With increasing online lenders going public, we take a deep dive into the listed online consumer lenders based on their public filing information. We try to compare their valuation, business models, profitability and individual competitive strengthens and weaknesses. Our analysis includes Qudian (QD), Paipaidai(PPDF), Yirendai (YRD), Rong360 (JT) and Hexin (HX). Qudian is a typical balance sheet lender with payday loan product and installment loan product. Paipaidai is a leading P2P platform that specialized in payday loan product. Yirendai is a leading P2P platform that specialized in longer term personal loans. Rong360 is a loan supermarket which are used by payday loan lenders as user acquisition channel. Hexin is a small P2P platform that specialized in longer term home equity loans.

We need to emphasize that although the online lenders have moved part of their process online and introduced non-traditional data into their analysis, it won't change the winning ingredients of the lending business – a lender need to be competitive in 1) user acquisition; 2) risk management; 3) risk pricing; and 4) funding to outperform peers.

Valuation comparison

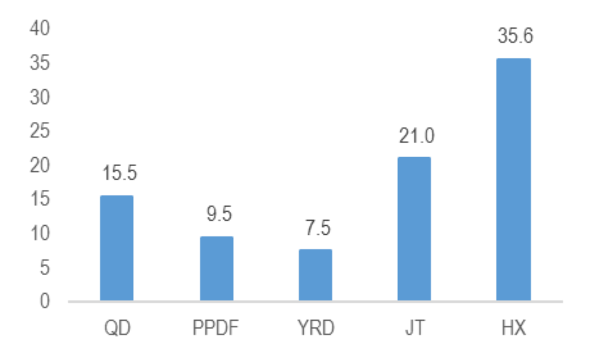
The sector is new to the investment community as most of them were listed in 2017. Share prices experienced big volatility in 2H17 as initial enthusiasm from investors met regulatory scrutiny in Nov-17. We compare the five companies' market cap relative to net revenue, valuation per active borrower and valuation relative to loan origination volume. Although long term loan lenders tend to make more profit on one single borrowers than short term payday loan lenders (we will explain this in more details), we believe payday loan lenders have the potential to extend their products to longer term. Therefore, we consider market cap per active user a useful indicator.

Figure 23: Market cap



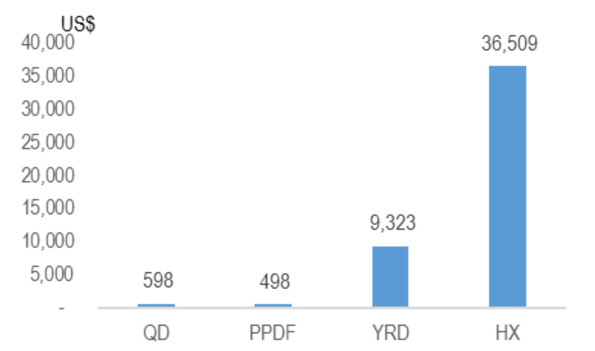
Source: Bloomberg, Company data; Note: Priced as of 15 Dec 2017

Figure 24: Market cap to 1H17 net revenue



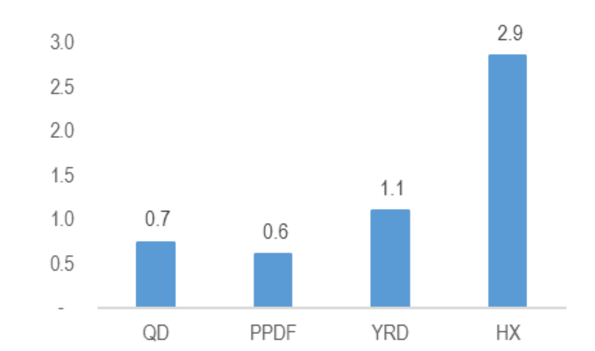
Source: Bloomberg, Company data; Note: Priced as of 15 Dec 2017

Figure 25: Valuation per active borrower (1H17)



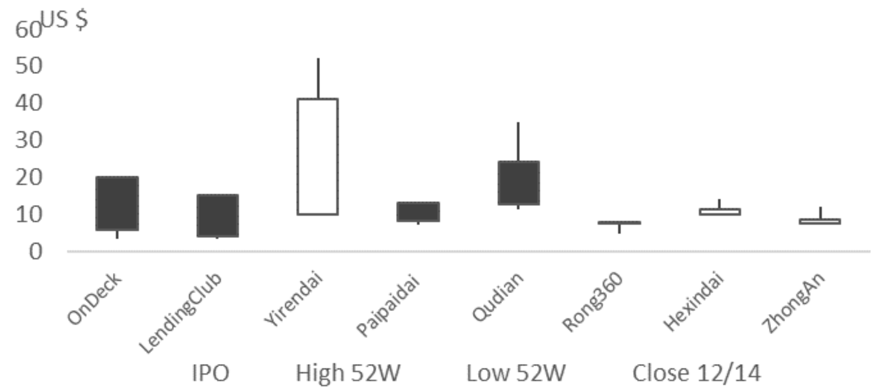
Source: Bloomberg, Company data; Note: Priced as of 15 Dec 2017

Figure 26: Market cap to 1H17 loan origination volume



Source: Bloomberg, Company data; Note: Priced as of 15 Dec 2017

Figure 27: Listed FinTech companies YTD/ post-IPO performance



Source: Bloomberg

Profit model

The payday loan lenders have very different profit models. We can tell from the differences between QD, PPDF vs YRD, HX in Figure 28

1) If looking at net income to loans facilitated, longer term loans tend to be more profitable. However, this is achieved over a much longer period (>12mths). Therefore, payday loan could deliver much bigger dollar amount of profit through fast churn of loans.
2) Payday loans make lower revenue on each loan due to its short period; however, they may have much higher APR as a small interest charge for a few days could translate into a very high APR.
3) Payday loan's user acquisition cost and operating costs are lower as much operations are online.
4) Payday loan borrowers are mostly acquired online, as offline cost tend to very expensive. However, online user acquisition could leave to low approval rate and borrower' personal information is harder to verify purely online. This would mean for a payday loan that have proper risk management process, the approval rate should be lower than the longer term loans.
5) Payday loans' user acquisition cost are averaged lower from repeat borrowers.
6) We are unable to tell from P&L which model has higher bad debt charge. We will take another look later.

Figure 28: Profitability as measured by as % of loans facilitated

1H2017	Net revenue to loans facilitated	User acquisition cost to loans facilitated	Other operating cost to loans facilitated	PBT to loans facilitated	Net income to loans facilitated
QD	4.8%	-0.4%	-1.4%	3.0%	2.5%
PPDF	6.4%	-1.2%	-2.2%	4.6%	3.9%
YRD	14.6%	-7.2%	-2.3%	5.4%	4.1%
HX	8.0%	-1.4%	-1.1%	5.5%	4.7%

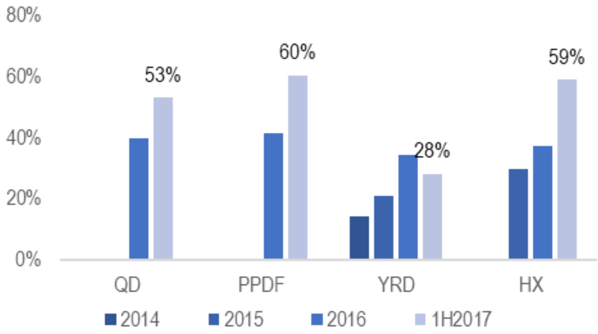
Source: Company data

Profitability & operating efficiency

Paipaidai, Hexin and Qudian enjoy much higher net profit margin

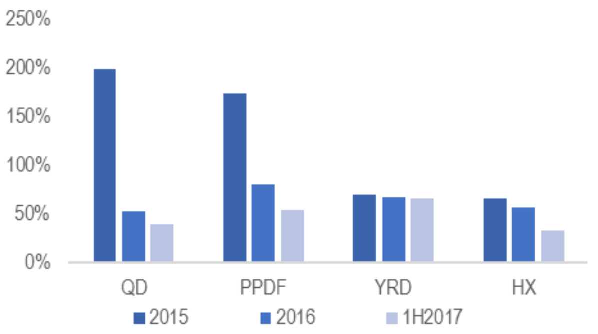
Paipaidai and Qudian's net profit much have have significantly improved mainly due to payday loan's rising popularity reduces average operating cost as reflected in cost-income ratio. Hexin also achieved good result due to their strategic shift from secured loans to credit loans, which generated higher loan facilitation fees.

Figure 29: Net profit margin



Source: Company data

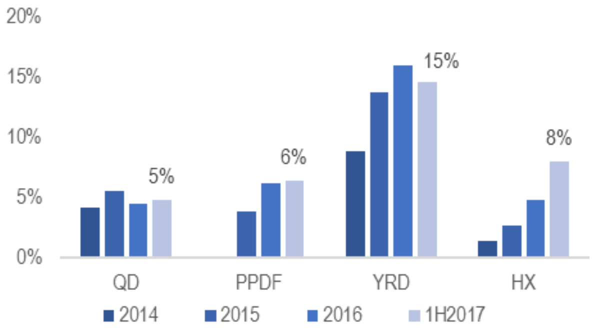
Figure 30: Cost-income ratio



Source: Company data

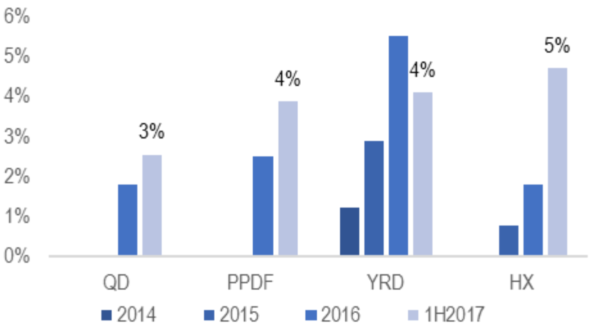
The net revenue to loans facilitated may not be comparable between payday loan lenders and longer term loan lenders as naturally longer term loans charge interests for a longer period of time. Also the existence of upfront fees charges by lenders such as YRD may have inflated the revenue. Going forward, as upfront fees are banned, YRD and HX's short-term profit may be affected.

Figure 31: Net revenue to loans facilitated %



Source: Company data

Figure 32: Net income to loans facilitated %

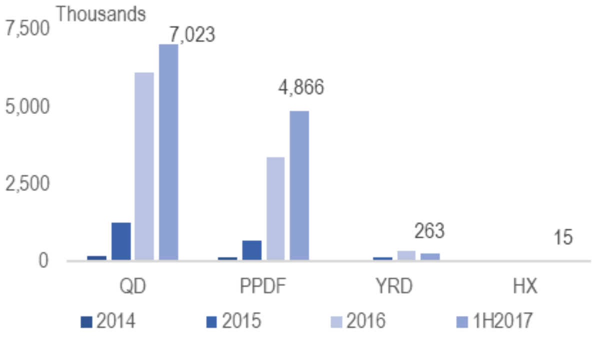


Source: Company data

QD, PPDF provide smaller loans while YRD and HX focus on large ticket loans

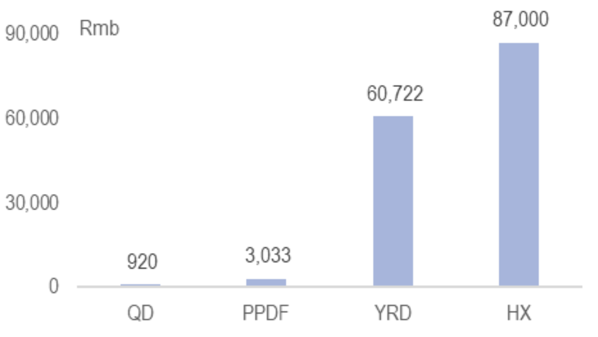
This can be reflected in YRD and HX's much smaller number of borrowers. According to Wandaizhijia's data, average loan size was Rmb 60,722 for YRD and Rmb 87,000 for HX while it was Rmb 920 for QD and Rmb 3,033 for PPDF IN 3q17.

Figure 33: Number of active borrowers ('000)



Source: Company data

Figure 34: Average loan size in 3Q17



Source: Company data, Wangdaizhijia

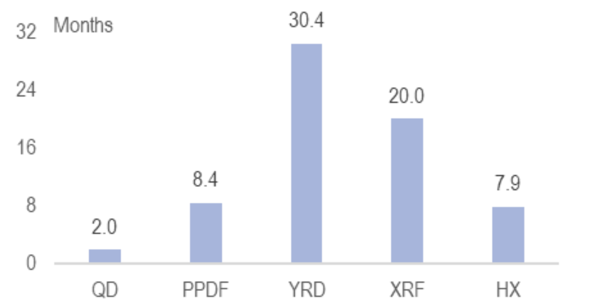
Loan duration

Companies feature loans with various durations catering to different financial needs. Qudian, Paipaidai primarily offer short-term loans, typically from one week to four weeks, up to 12 months. Yirendai mainly facilitates loans with longer durations ranged from 12 to 48 months. Qudian and Paipaidai's major products had average terms of approximately 2 months and 8.4 months, respectively.

Figure 35: Loan durations

Source: Company data

Figure 36: Average loan durations



Source: Company data, as of Oct 31, 2017 Wangdaizhijia

APR cap shall apply to interest, loan facilitation fee and payment channel fee

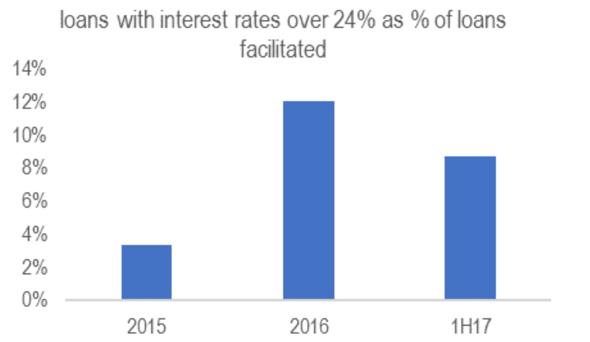
Although most lenders claim that majority of their loans are charging interest rate below the 36% cap for payday loans or 24% cap for P2P loans. However, we suspect their calculations don't include the loan servicing fees. Please see our APR calculation below for selective payday loan products.

Figure 37: APR of selective payday loan products

Product	APR	Fees included in APR	Additional overdue charges
A	36%	Loan servicing fees	0.5%/day of principal and interest overdue
B	108%	Information verification fees, loan matching service fees	0.6%/day of principal overdue
C	55%	Upfront and monthly loan servicing fees	0.2%/day of principal and interest overdue
D	59%	Loan servicing fees, payment channel fees	Rmb 1/day/Rmb 500 overdue

Source: Company data

Figure 38: Paipaidai's disclosure of loans with interest rate over 24%

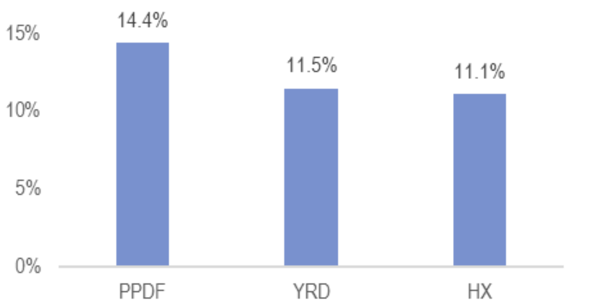


Source: Company data

Investor returns vary on P2P platforms

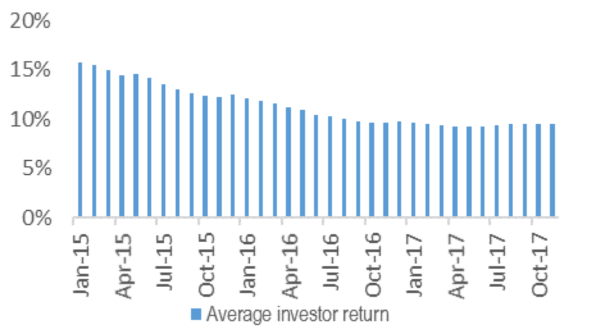
Paipaidai offers individual investors with an average expected return of 14.5% on an annualized basis, which beats other competitors' pricing by around 3%. Individual investors are not able to meet fast rising borrowing demands so all companies are actively expanding their investor base, especially to institutional investors including banks and other traditional financial institutions. Relatively low funding cost also drives this trend.

Figure 39: Average annualized expected investment return



Source: Wangdaizhijia (as of Oct, 2017)

Figure 40: P2P industry average investor returns

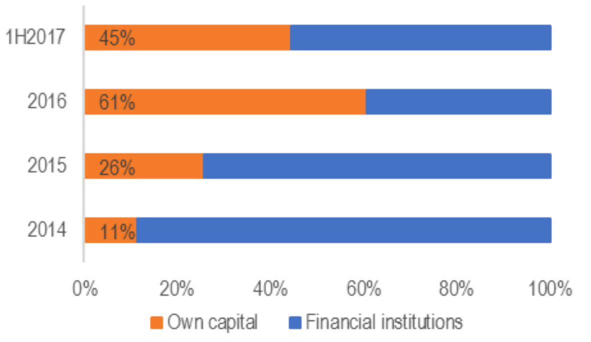


Source: Company data

Funding channels

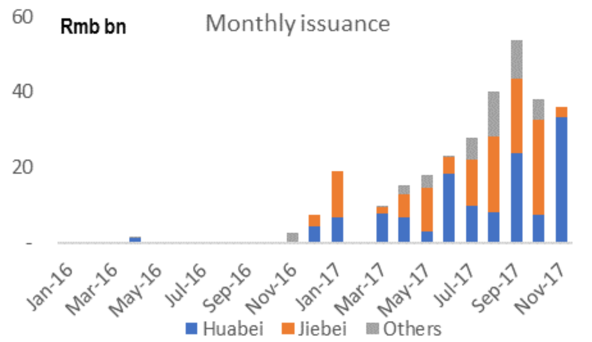
We expect institutional funding and ABS to shrink significantly for most payday loan lenders based on the No.56 Notice. Majority of payday loan lenders operate as Qudian i.e. they use their own balance sheet and transfer out a portion of loans to financial institutions or through issuance of ABS. It is not uncommon for payday loan lenders to provide guarantees on loans transferred out in order to reduce funding cost. For Qudian, more than 50% of funding came from financial institutions including traditional financial institutions such as banks, insurance companies, trust companies and consumer finance companies. It used to work with P2P platforms but discontinued the cooperation in April 2017 due to high cost.

Figure 41: QD funding sources breakdown



Source: Company data

Figure 42: China consumer loan ABS boom dominated by Alibaba's consumer loan products



Source: Wind; Note: Huabei is the installment consumption loan by Alibaba and Jiebei is the payday loan by Alibaba

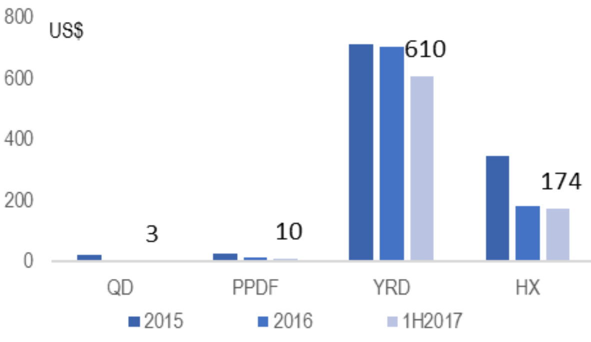
User acquisition

Most companies favor online marketing for user acquisition

Most companies actively adopt both online and offline marketing approaches to user acquisition. 3 out of 4 companies credit their growths mainly to online channels. Qudian even takes it further and currently solely relies on online platforms for borrower acquisition. Yirendai has traditionally rely on its parent company CreditEase's offline sales network to acquire new borrowers. However, it has been significantly shifted its strategy by increasing borrowers acquired online. Borrowers acquired from offline tend to be more expensive as shown in Yirendai's user acquisition cost to loans facilitated.

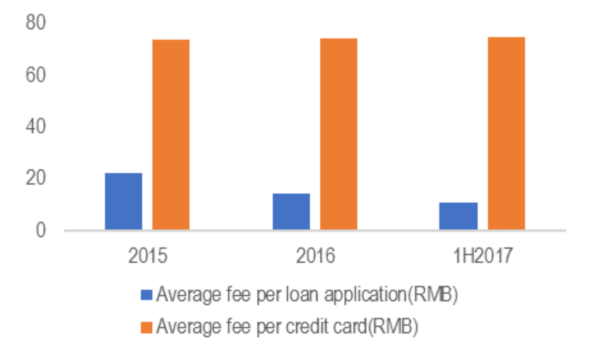
As competition significantly increased, the new borrower acquisition cost in general may have been increased significantly. However, as leading platforms cumulate repeat borrowers, per borrower acquisition cost can be significantly reduced. Interestingly, the per referral revenue recorded by Rong 360 has dropped over time, as we believe lenders that rely on Rong 360 tend to be lower quality ones without their own user acquisition channels. The per application cost at Rong 360 is significantly lower than acquisition cost per active borrowers at online lenders as the approval rate could be low on loans applied on Rong 360.

Figure 43: Acquisition cost per new borrower



Source: Company data; Note: Calculated as sales & market expense to active borrower

Figure 44: Revenue per loan application submitted from Rong 360



Source: Company data

Figure 45: User acquisition channels

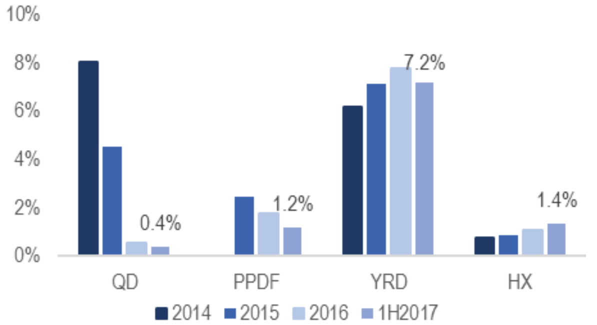
	Online	Offline
YRD	Gradually more from online, 70.9% of the borrowers reported acquired online in 2017Q2	Used to mainly from CreditEase's on-the-ground sales network
QD	Alipay	-
HX	Website, social media, search engine	Over 90% referred from Hexin Group
PPDF	Mainly online such as App stores, websites, search engine	Electronics stores

Source: Company data

Qudian enjoys very low cost customer referrals from Alipay

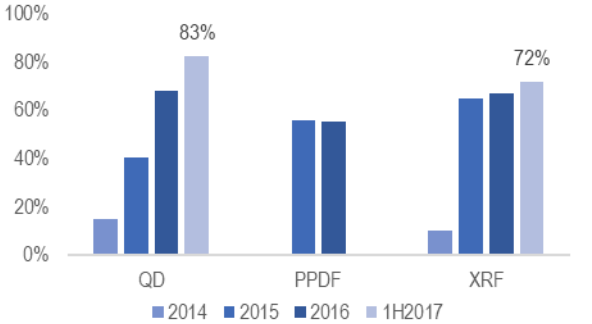
Qudian's partnership with Ant Financial has fueled Qudian's explosive growth and boosted user acquisition efficiency. In addition, repeat borrower rate is particularly high for Qudian. Alipay, operated by Ant Financial, granted Qudian access to their valuable user base in late 2015. The service is charged at a nominal cost as sales & marketing cost only accounted for 0.4% of Qudian's loans facilitated in 1H17 (**Figure 46**). Qudian therefore has been able maintain user acquisition cost at an extremely low level.

Figure 46: User acquisition cost % of loans facilitated



Source: Company data

Figure 47: Repeat borrower rate (*Repeat borrowing rate for PPDF)



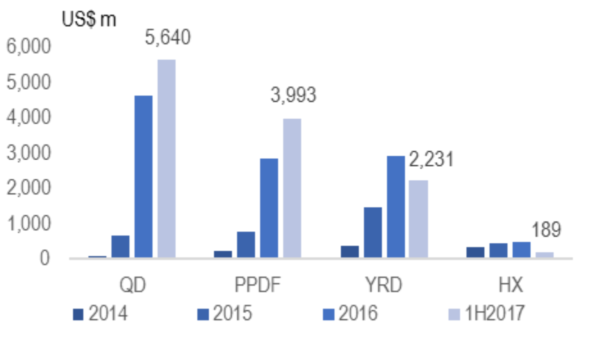
Source: Company data

User referrals from Alibaba support Qudian's fast expansion

Qudian and Paipaidai managed to pull ahead of the pack and furthermore to far outpace rivals. In 1H17, Qudian recorded the fastest growth among peers in the past 3 years, growing its loan volume facilitated to US$ 5.6 billion from US$ 94 million in 2014 and reaching a record high over 7 million active borrowers in 1H17. We believe Qudian's fast expansion is mainly attributable to 1) low cost user referral and personal credit data from Alibaba; and 2) low cost institutional funding backed by Alibaba Group's credit to support its fast asset acquisition.

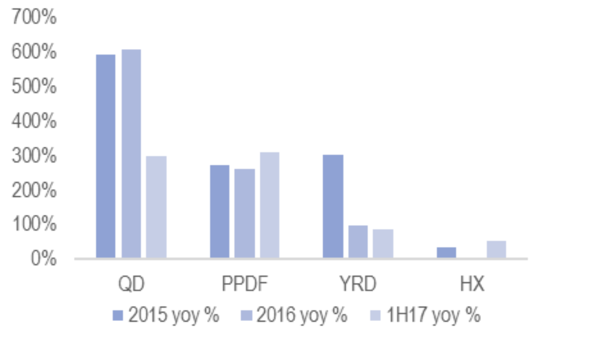
In contrast, HX had relatively slower growth in 2016 but picked up the momentum in 2017. YRD's loan growth has significantly slowed since 2016 but still maintained relatively fast growth of over 80% in 1H17. These two players were clearly affected by the new rules that caps loan size at Rmb 200k for personal borrowers.

Figure 48: Loans origination volume (USD mn)



Source: Company data

Figure 49: Loan origination growth slowing down



Source: Company data

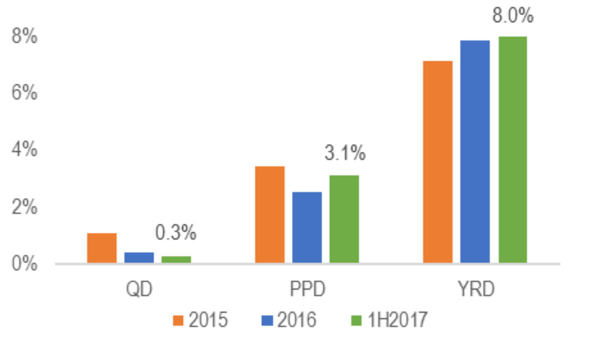
Asset quality

Risk reserve fund costs either on borrowers or investors – YRD has provided the highest level of risk reserves

Risk reserve fund is paid by each firm's own capital, borrowers or investors. In August 2016, CBRC issued the Interim Measures on Administration of the Business Activities of Peer-to-Peer Lending Information Intermediaries, which bans P2P platforms guaranteeing loan principal and interest for investors. Most companies therefore renew their risk reserve fund policy and only charge borrowers or investors and set aside the risk reserve fund off balance sheet. However, the No.56 Notice clearly banned such practice as well. Going forward, risk reserve fund may completely disappear in the P2P industry.

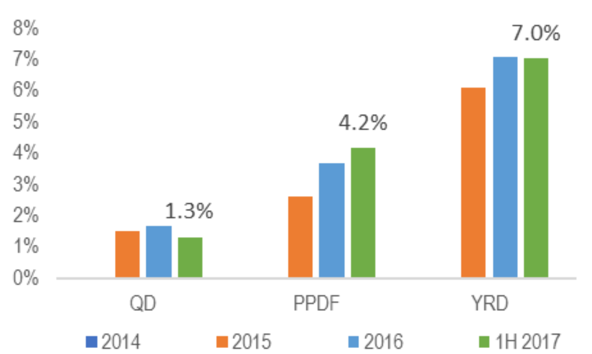
On average Qudian is only providing 30bps of provisions on new loans, while 310bps for Paipaidai and 800bps for Yirendai in 1H17. YRD has accumulated the largest pool of risk reserves as measured by outstanding risk reserves as % of loans outstanding. Qudian's provision allowance looks low even compared to commercial banks average of 2.0-2.5%.

Figure 50: New risk reserve additions to loans facilitated



Source: Company data

Figure 51: Risk reserves/provision allowance as % of loans outstanding

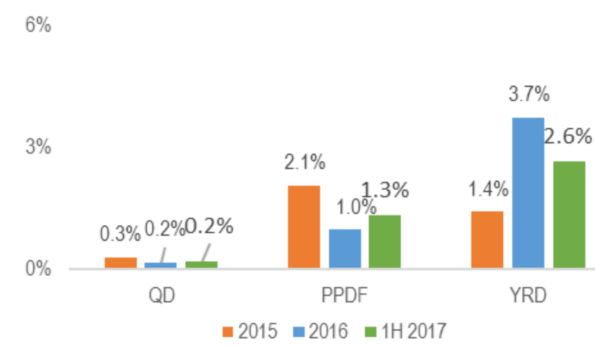


Source: Company data

The existence of risk reserve fund may have masked underlying asset quality – charge-offs/payout rates are trending higher for payday loans in 1H17

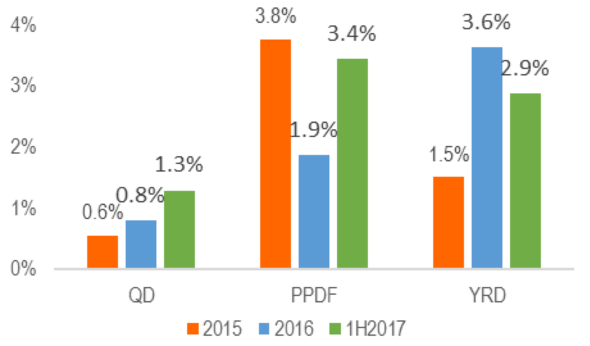
For balance sheet lenders, the charge-offs work as the same way as typical financial institutions. However, for P2P platforms, the movement of risk reserve fund, namely payouts to investors when loan losses incurred, to some extend helps reflecting the underlying of asset quality. In **Figure 52**, QD and PPDF's charge-offs/payouts to loans facilitated slightly increased in 1H17. In **Figure 53**, QD and PPDF's charge-offs/payouts notably increased as measured by loans outstanding. As the regulation tightens, the charge-offs and payouts could continue to increase and is worth monitoring on an ongoing basis.

Figure 52: Risk reserve fund payouts/charge-offs to loans facilitated



Source: Company data

Figure 53: Risk reserve fund payouts/charge-offs to loans outstanding



Source: Company data

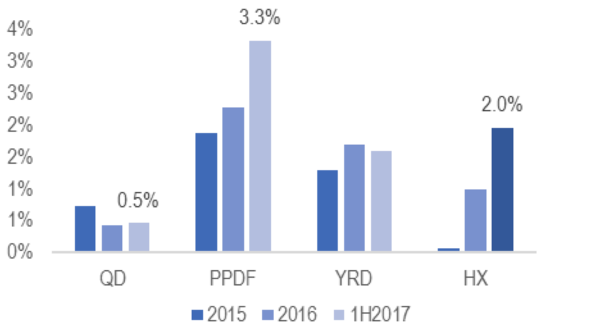
Unlike typical financial institutions that report bad debt charges on its P&L, the online lenders tend to keep an off-balance sheet risk reserves that were charged from either borrowers or lenders when loans are issued. We try to identify the asset quality trends from the delinquency rate reported (defined as <180day overdue), charge-off rate (overdue>180days or 90days are written off) and the movement of their risk reserves.

Qudian reports the lowest delinquency rate

Delinquency rate is defined as the past due loans divided by loan outstanding, before charge offs. Qudian reports the lowest delinquency rate as Qudian largely relies on Ant Financial-operated Zhima Credit to for risk pricing. Zhima Credit relies on Alibaba and AliPay's transaction data which could be the most reliable credit data apart from PBoC's personal credit bureau. However, it is unclear whether the loans transferred to third parties would cover some of the bad loans as the transfer prices are not disclosed.

In addition, the fast rising loans outstanding may have masked some of the delinquency rate as the denominators growing at much faster rate than the numerator.

Figure 54: Delinquency rate rising for most except for Qudian; fast rising loans outstanding may have masked the delinquent rate



Source: Company data; Note: QD's delinquency rate only reflects its on-balance sheet transactions; Overdue loans are charged off once reached individual lenders' criteria;

Figure 55: Different definition of delinquent loans

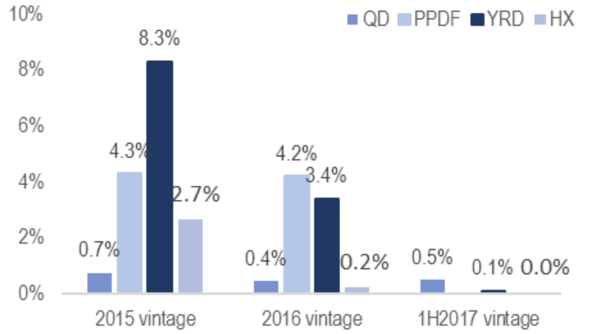
Company name	Definition
QD	Overdue for 1 -180 days
PPDF	Overdue for 15 -179 days
YRD	Overdue for 15-89 days
HX	overdue for 15 - 180 days

Source: Company data

Charge-off rate over different vintages – YRD's 2015 vintage M3+ charge-off rate reached 8.3% as of 1H17

Every company defines delinquency rates by vintage in slightly different ways as shown in **Figure 57** – some define delinquency when loans are overdue for 3mths, while others define delinquency when loans are overdue for 6mths. YRD's higher charge-off rate is partly due to its tighter charge off policy that writes off any loans that's overdue over 3mths.

Figure 56: Charge-off rate of 2015/2016/1H17 vintage as of June 30, 2017



Source: Company data

Figure 57: Different loan charge-off policies

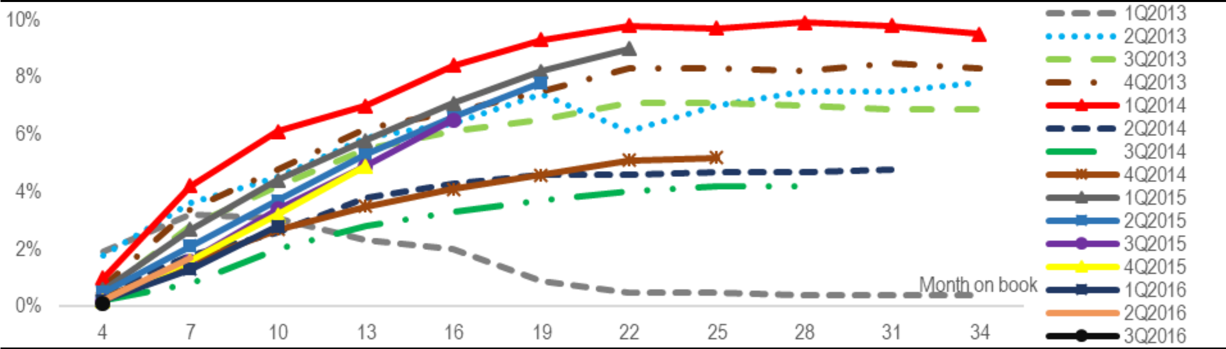
	Overdue for	Charge-off amount
YRD	3 months	Delinquent principal - (recoverd principal+interest)
HX	3 months	Delinquent principal + remaining interest
PPDF	6 months	Delinquent principal - recoverd principal
QD	6 months	Delinquent principal + remaining interest

Source: Company data

Underwriting quality improved over time – vintage curves flattening

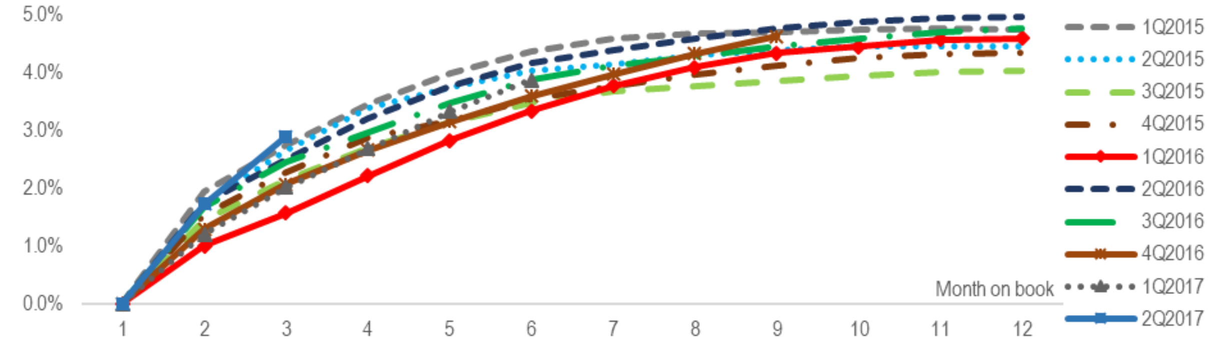
It is however still obvious that loans facilitated later generally maintained better credit quality at each individual firm. Companies appear to have improved their risk management skills by accumulating massive amounts of firsthand data through their own operation and subsequently optimizing credit assessment system as the developing market heading towards maturity.

Figure 58: YRD M3+ net charge-off rate – underwriting quality improved



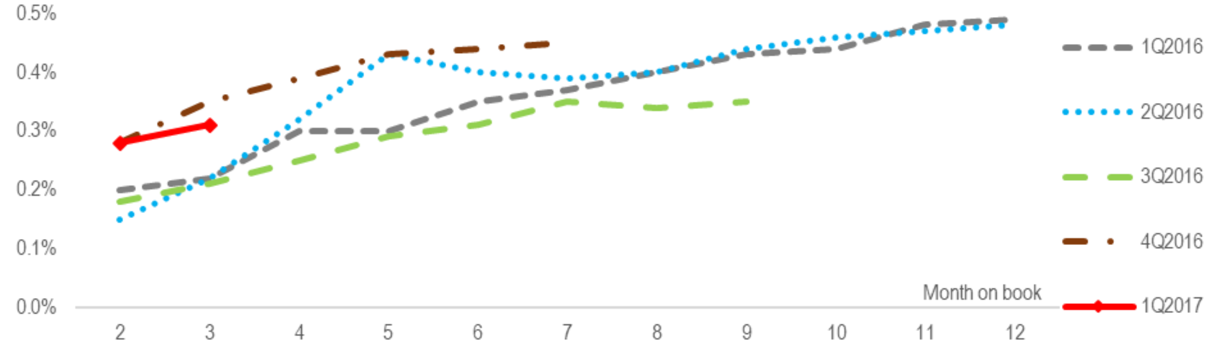
Source: Company annual reports

Figure 59: PPDF delinquency rate by vintage



Source: Company data; Note: Vintage delinquency rate as (i) the total amount of principal for all loans in a vintage that become delinquent, less (ii) the total amount of recovered past due principal for all loans in the same vintage, and divided by (iii) the total amount of initial principal for all loans in such vintage. Loans that have been charged-off are included in the calculation of vintage delinquency rates.

Figure 60: QD M1+ Delinquency Rate by Vintage



Source: Company data; Note: "M1+ Delinquency Rate by Vintage" is defined as the total balance of outstanding principal of a vintage for which any installment payment is over 30 calendar days past due as of a particular date (adjusted to reflect total amount of recovered past due payments for principal and before charge-offs), divided by the total initial principal in such vintage.

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