

Research Report

The Business Models and Economics of Peer-to-Peer Lending

Alistair Milne
Paul Parboteeah



European
Credit
Research
Institute

No. 17
May 2016



The Business Models and Economics of Peer-to-Peer Lending

Alistair Milne and Paul Parboteeah

No. 17 / May 2016

Abstract

This paper reviews peer-to-peer (P2P) lending, its development in the UK and other countries, and assesses the business and economic policy issues surrounding this new form of intermediation. P2P platform technology allows direct matching of borrowers' and lenders' diversification over a large number of borrowers without the loans having to be held on an intermediary balance sheet. P2P lending has developed rapidly in both the US and the UK, but it still represents a small fraction, less than 1%, of the stock of bank lending. In the UK – but not elsewhere – it is an important source of loans for smaller companies. We argue that P2P lending is fundamentally complementary to, and not competitive with, conventional banking. We therefore expect banks to adapt to the emergence of P2P lending, either by cooperating closely with third-party P2P lending platforms or offering their own proprietary platforms. We also argue that the full development of the sector requires much further work addressing the risks and business and regulatory issues in P2P lending, including risk communication, orderly resolution of platform failure, control of liquidity risks and minimisation of fraud, security and operational risks. This will depend on developing reliable business processes, the promotion to the full extent possible of transparency and standardisation and appropriate regulation that serves the needs of customers.

Key words: Marketplace lending, financial regulation, credit risk, credit markets, liquidity risk, standardisation, digital economy, banking competition, credit availability, small business lending, consumer credit

JEL numbers: G21, G28, L21

The **European Credit Research Institute (ECRI)** is a research institution based in Brussels. Established in 1999 for the study of banking and credit in Europe, ECRI focuses on institutional, economic and legal aspects related to retail finance and credit reporting. The institute provides expert analysis and academic research for a better understanding of the economic and social impact of credit. ECRI supports and funds independent academic research projects. The institute monitors markets and regulatory changes and looks at their impact nationally and internationally.

Alistair Milne, Corresponding author. Professor, School of Business and Economics, University of Loughborough, UK (a.k.milne@lboro.ac.uk)

Paul Parboteeah, Research Associate, School of Business and Economics, Loughborough University, UK (p.parboteeah@gmail.com)

We are grateful for seed corn research money that supported the writing of this paper from the NEMODE network.

This version is available for free downloading from the ECRI website (www.ecri.eu).

ISBN 978-94-6138-526-0
© Copyright 2016, European Credit Research Institute

**EUROPEAN CREDIT
RESEARCH INSTITUTE (ECRI)**
Place du Congrès 1
B-1000 Brussels, Belgium
Tel.: +32-2-2293911
Email: info@ecri.eu
Web: www.ecri.eu

All rights reserved. Disclaimer: The European Credit Research Institute is a research institute operating within the Centre for European Policy Studies (CEPS). This report does not reflect the opinion of any institution or member associated with CEPS or ECRI.

Table of Contents

1.	Introduction.....	1
2.	Peer-to-peer in finance	2
2.1	The origins of peer-to-peer	2
2.2	The history of peer-to-peer finance	3
2.3	The competitive advantages of peer-to-peer lending platforms	4
3.	The recent growth of P2P lending.....	5
3.1	The United Kingdom.....	6
3.2	The European Union	13
3.3	The United States	14
3.4	China.....	18
3.5	Other countries.....	18
4.	An assessment of the business models and economics of P2P lending.....	18
4.1	The business models of conventional banking.....	19
4.2	The potential for P2P disintermediation of banking.....	20
4.3	Platform transparency and the risks of P2P intermediation.....	22
4.4	Regulation and public policy	24
5.	Summary and conclusions	25
	References.....	28

List of Figures and Tables

Figure 1.	The £3.2 billion UK alternative finance market, 2015 (£ mn).....	6
Figure 2.	Annual growth rates of UK alternative finance, 2015 on 2014	7
Table 1.	P2P lending volumes by platform and compared with other credit markets in the UK.....	8
Table 2.	Projected default and return for Zopa investments, March 2016	11
Table 3.	Operating performance of LendingClub.....	17

1. Introduction

A wide range of ‘peer-to-peer’ (P2P) financial platforms have emerged in the recent years, supporting personal loans (Zopa, Prosper, Lending Club), small business lending (First Circle, Kabbage), invoice discounting (The Receivables Exchange, Market Invoice) and foreign exchange transactions (Currency Cloud, Currency Fair, Transferwise). The volume of these activities has grown rapidly from a relatively low base. For example P2P lending in the UK has doubled every year in the past four years with the stock of loans exceeding £1 billion in 2014 and £2 billion in 2015 (Peer-to-Peer Finance Association, 2015d). Incumbent financial institutions are paying attention, investigating the possibility of developing their own ‘in house’ P2P platforms (Jenkins & Alloway, 2015).

Much commentary has focused on the possibility that the development of these new P2P platforms will overturn the existing organisational and institutional structure of banking. Much has already occurred, for example, in recorded music distribution, in telephony or in air and travel reservations (King, 2010). The perception that P2P lending can ‘reinvent’ the bank has prompted ambitious projections of P2P lending growth over the next five-to-ten years (with suggestions that the stock of lending taken from banks by P2P platforms could be as high as \$1 trillion dollars globally). This is not, however, the only possible outcome. Different business models may co-exist – as for example in booking of holiday rooms, where Airbnb supports a C2C (consumer-to-consumer) exchange as an alternative to more traditional B2C (business-to-consumer) provision; or instead incumbents may adapt their business models to the new technology as has already happened in personal and household insurance markets and household utility services, such as gas and electricity.

This report has been prepared with two principal objectives. First to provide an overview of P2P lending, explaining what it is and comparing it with other forms of P2P finance (section 2) and documenting its development in the UK and other countries (section 3). Our second objective (pursued in section 4) is to assess the business model and the economics of P2P unsecured personal lending.

As we discuss in section 2, P2P platforms offer major competitive advantages over established banks in bringing together lenders and borrowers. These advantages include: extremely low interest margins because of their low administrative costs and because the platforms do not themselves assume any risk exposure; the ability to offer loans to some customers who may be turned down for loans by established banks; and their innovative use of technology to provide much greater transparency, flexibility and rapid and a more convenient service for customers.

Nevertheless, we urge caution about the prospects of P2P supplanting conventional banking. As we show in section 3, the amount P2P lending remains very small relative to conventional bank lending, even in those jurisdictions such as the US and the UK where P2P lending has developed the most rapidly. Our analysis in section 4 of the business models and economics of P2P lending suggests that rather than disrupting banking, P2P lending is best viewed as complementary to conventional bank business models, allowing banks to economise on risk capital and concentrate on the provision of liquidity services, which are the fundamental core of their business models. For this reason we expect that banks will either cooperate closely with third party P2P lending platforms (this is already happening in the US) or offer their own proprietary platforms, in order to provide both loan and investment services to their customers. We also argue that while there is scope eventually for a substantial proportion of lending to be provided through P2P platforms, and this could lead to large gains, both private

and social, the full development of the sector requires much further work to address the risks and the business and regulatory issues in P2P lending. We argue that much greater standardisation of loan, credit performance and operational metrics will be key to supporting effective P2P lending.

Similar challenges of standardisation arise in many other areas of banking and other financial services, where new financial technologies hold out the promise of reducing costs and risks and improving the value for money and quality of service to customers. Incumbent institutions may resist standardisation, and it can therefore be argued that regulatory and public policy intervention will be needed to ensure that the full potential of financial innovation is achieved.

In short the extent to which P2P lending platforms are successful in capturing credit activity depends largely on meeting the challenges of amending and adapting existing business processes, including the adoption of industry-wide standards, in order to support this new form of intermediation and only to a much more limited extent on exploiting technological innovation. As in many other areas of financial technology, the issues are as much as 80% business process and as little as 20% technological. Current speculation about the growth of P2P lending is simply that and nothing more. Everything depends on the strategies of new entrants and their implementation and on the response of both incumbents and public authorities and their willingness to cooperate on the development of the sector. It is simply too early to make any reliable judgements on how large P2P lending will become in a few years from now.

2. Peer-to-peer in finance

This section provides an overview of the development of peer-to-peer finance with a focus on peer-to-peer lending.

2.1 The origins of peer-to-peer

The term 'peer-to-peer' describes the interaction between two parties without the need for a central intermediary. The term originated in the field of computer networking, to describe a network where any one computer can act as either a client or a server to other computers on the network without having to connect to a centralised server. The internet is itself a P2P network.

The growth of the internet and its ability to facilitate disintermediation between users has given rise to a range of more specific P2P activities. The first such activity to become widely adopted (around the turn of the millennium) was peer-to-peer file sharing, where users could, by installing the necessary software on their computers, connect directly to other users on the network who had similar software, in order to share files such as photos, music, movies and games.

The widespread adoption of P2P file sharing, through services such as Napster, Gnutella, Kazaa, LimeWire and more recently BitTorrent, has had a massive impact on the music and film industries, particularly on the sales of physical products such as CDs and DVDs (although ultimately delivery has moved away from P2P models to streaming services such as Spotify or NetFlix). Whether the overall impact on these industries has been positive or negative is open to debate and depends on one's point of view, but these industries have been fundamentally transformed since Napster first appeared in 1999, as noted by Grassmuck (2010):

What has clearly emerged is that there are a number of different dynamics at work, yielding a mixed result with respect to album sales, a likely positive result for the music industry as a whole through gains in concert and merchandising revenues, and a clearly positive effect on social welfare through improved market chances for non-star music, greater cultural diversity and increased consumer surplus.

One question addressed in this paper is whether the financial services industry could see equally fundamental shifts from the adoption of P2P lending.

2.2 The history of peer-to-peer finance

The history of P2P in finance can be traced back to the launch of two companies, the UK-based Zopa in 2005 and the US-based Prosper in 2006. Both facilitated peer-to-peer lending, whereby borrowers and lenders could bypass banks and deal directly with each other through a central marketplace. Chris Larsen, co-Founder of Prosper, described his company's offering as an "eBay for Credit" (Business Wire, 2006).

To date, Prosper claims more than 2 million members and total lending of \$6 billion of lending (Prosper, 2016). Zopa reports that it has supported a cumulative total of £1.4 billion of P2P loans and that it currently has some 53,000 investors lending to its 114,000 borrowers (Zopa, 2016a). In the years since Zopa and Prosper were first launched, a number of other companies have successfully launched their own marketplaces. For example, in the UK there are now eight members of the Peer2Peer Finance Association (see the following section 3 for a more detailed description of developments in the UK and other countries).

There has also been an expansion of several other novel alternative financial services operating outside of conventional banking and capital markets. These include: i) crowdfunding, which is where a sum of money is raised for a specific project (the funding) by lots of smaller contributions from individuals (the crowd). At the time of writing, some 39 UK crowdfunding platforms were members of the UK Crowd Funding Association (see UK Crowd Funding Association, 2016); ii) alternative foreign exchange platforms, where individuals and businesses exchange foreign currencies without using banks; iii) non-bank invoice discounting, where small firms can improve their cash flow by securing advances from investors against invoices due; and iv) cryptocurrencies, such as Bitcoin and LiteCoin, which support instant, online payments in digital currencies without any central issuer.

A number of these other alternative forms of finance also have 'peer-to-peer' features. The independence of financial institutions, governments and central banks is a defining feature of cryptocurrencies (but also a limitation because to date they exchange only on relatively limited networks). Crowdfunding is also P2P by design. Other forms of alternative finance can be P2P. MarketInvoice, the leading UK invoice discounting firm is a member of the Peer-to-Peer Finance Association and offers a P2P platform for invoice finance. As they emphasise on their webpages, however, their P2P platform is *not* open to retail investors.

Non-bank foreign exchange services such as Transferwise, CurrencyFair and CurrencyCloud are often described as "peer-to-peer" but this is not always accurate. CurrencyFair offers an internal platform where clients can transact with each other – P2P – at current 'mid-market rates' (the average of buying and selling rates offered by the major international foreign exchange dealers). CurrencyCloud also offers direct exchange at mid-market rates between customers, but this is for business clients (larger corporate and financial institutions), not retail customers or small businesses. Transferwise is not really a P2P service at all. Instead, all customers exchange with Transferwise for a fixed fee at an exchange rate set at the time of the transaction. It is able to do this for a relatively low fee because the large majority of their transactions net out internally – e.g. exchanges from euro to sterling matched by exchanges

from sterling to euro. Transferwise then uses CurrencyCloud to exchange any final net imbalances from its customer orders (see Käärmann, 2016).

It is questionable whether the ‘peer-to-peer’ nature of P2P lending is important, in the same way that it is in platforms such as Airbnb or Uber. The diversification of loans means that there is never a personal relationship between borrower and lender in the same way that is created by an Airbnb booking. Ratings of borrowers and lenders are not an important quality-control mechanism as they are for example on EBay. While some individual P2P lending platforms may promote their personal or community orientation, this is not a fundamental feature of the business model.

2.3 The competitive advantages of peer-to-peer lending platforms

The rapid growth of P2P lending platforms, doubling their business annually in recent years, and their perceived cost and other advantages relative to established banks, have led a number of commentators to make quite ambitious projections about the extent to which P2P lending can capture market share in banking lending markets.¹ There are several reasons for expecting continued rapid growth of P2P lending. The exploitation of new technology, e.g. the fact that the Internet can facilitate disintermediation by allowing parties to communicate directly with one another, is of course a fundamental reason. But the potential for growth is also because of a number of competitive advantages of P2P lending platforms over the incumbent suppliers, i.e. the banks.

These advantages can be grouped into four categories: i) offering better rates of return than are available on bank deposits together with relatively low fees for borrowers; ii) provision of credit to some categories of borrowers unable to access bank lending; iii) a perception that P2P lending is more responsible and of greater social value than conventional banking; and finally iv) technical innovation improving the quality and speed of service to both borrowers and lenders.

Lenders on P2P platforms have over the past five years have achieved substantially better returns than could have been obtained from investing their money in conventional bank savings deposits. This is in part because of the cost advantages of P2P platforms compared to traditional banks. The focused nature of their activities ensures that the administrative and overhead costs required for setting up a P2P platform are relatively low. Platforms are also able to match borrowers and lenders (because they are not holding any of the loans themselves) without any interest margin. While lenders on P2P lenders are exposed to greater risk (there is no deposit insurance and no promise of returns), these risks have at least to date been substantially compensated by much higher rates of return.

A second reason for the growth of P2P lending has been that they provide greater access to credit. Since the onset of the global financial crisis, banks and traditional lenders have been more reluctant to provide credit to borrowers. Some individuals and small businesses that do not satisfy the more stringent criteria that banks now place on granting loans can, through peer-to-peer lending services, find alternative lenders who are willing to take on the risk of providing such loans or to offer them at lower rates of interest.

¹ Three reports from 2015 are relevant in this context: PWC (2015a) projects that P2P lending could grow by 2025 to capture 10% of the \$800 billion US market for revolving consumer debt and 4% of the \$1.4 trillion of non-revolving consumer debt held by US financial institutions; Moldow (2015) projects global P2P lending to rise to \$1 trillion by 2025, on the assumption that it captures 10% of consumer and other lending markets; and Morgan Stanley Research (2015) projects that P2P lending will capture 10% of US lending by 2020 and reach a stock of \$150-\$490 billion globally.

Another factor in the initial growth of P2P lending is the perception that – by directly linking individual borrowers and lenders – it offers a more socially beneficial form of finance, without the concerns sometimes levelled at banks and other conventional financial intermediaries that they exploit their market power and pursue profit without adequate regard to the interests of their own customers. This perception, however, has been somewhat eroded by the increasing presence of institutional investors as lenders on P2P lending platforms.

The final advantage of P2P lending is technological. Banks spend a great deal of money on technology, but the majority of that goes towards maintaining existing systems, rather than on innovating new ones. According to a report published by research and consulting firm Celent in January 2012, banks planned to spend 77.6% of their 2012 technology budgets on maintenance (Celent, 2012) . Banks – particularly retail banks – tend to have large, legacy systems that are difficult to replace because of the infrastructure that has been built around them.

Start-up firms – P2P lenders but also ‘challenger banks’ seeking to compete with established banks in a fuller range of banking services using new technologies – can design and implement operational systems that take advantage of the latest Web 2.0 technologies, without being hindered by the need for continuity with older legacy systems. This in turn can allow them to offer better quality service both to borrowers (a simple loan application process with a rapid decision and a transparent and flexible portal for monitoring their repayments and outstanding commitments) and lenders (for managing their lending and tracking the current status of their investments).

In addition, modern technology allows P2P intermediaries to provide new approaches to intermediation not available with traditional bank business models. Thus, to take a UK example, the minimum investment in the P2P lender FirstCircle of £100 is spread over more than 100 borrowers with a maximum of 1% exposure to each. The investor can see all the available information such as credit rating, location and business sector on each business they invest in.

While all P2P lending platforms employ similar methods of diversification, they have used technology to pursue two different approaches to matching lenders and borrowers. One is an online auction approach in which borrowers indicate the maximum interest rate they are willing to pay on their loans and lenders indicate the minimum rate they are looking to obtain for specified categories of risk. As new borrowers come onto the platform, they are matched with bidders looking to provide loans on the platform. The platform then conducts an automatic ‘reverse auction’, gradually increasing the interest rate payable on the loan until there are sufficient bids to fully fund the loan (subject to the diversification requirement limiting the magnitude of individual loan exposures). Provided this interest rate is at or below the maximum rate the borrower is willing to pay, then the loan is funded at this interest rate. If not, it is then rejected.

Another approach – somewhat easier for borrowers and lenders to understand – is an automatic matching of borrowers and lenders at announced market rates of interest set by the platform for each risk category. This can mean delays in matching – since there are typically imbalances with more borrowers than lenders or more lenders than borrowers – but the platform can adjust interest rates over time to eliminate these imbalances.

3. The recent growth of P2P lending

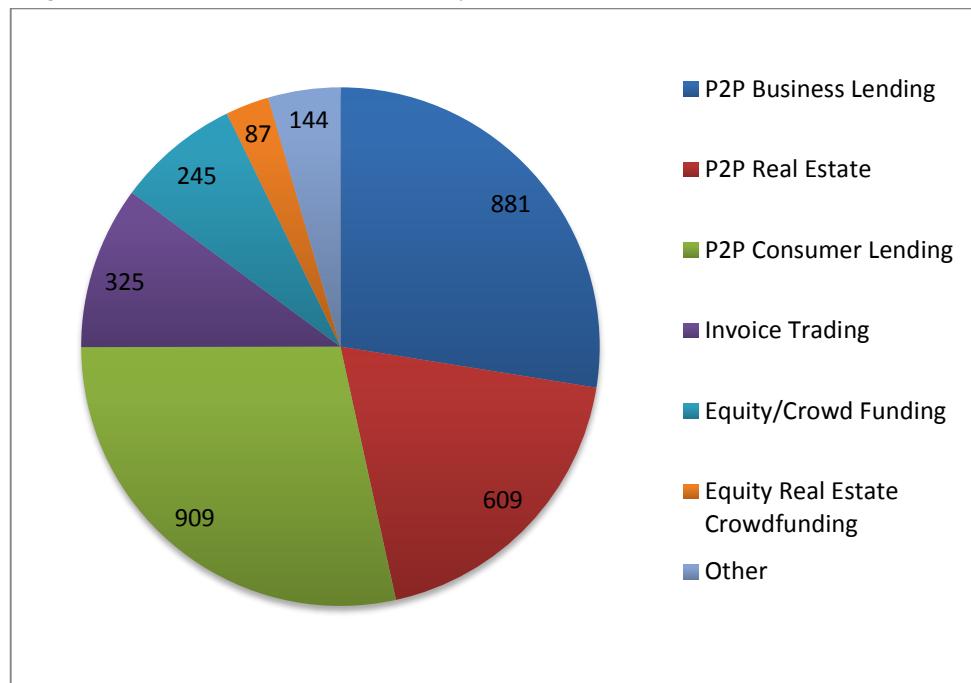
This section provides a detailed review of the UK P2P lending market and some comparisons with P2P in other jurisdictions – the US, China and the rest of the EU. We highlight the

relatively limited share of total lending that the markets have achieved to date, despite rapid growth, the wide range of different business models and the major differences in economic and regulatory institutions that have resulted in substantially different development paths of P2P lending platforms in different jurisdictions.

3.1 The United Kingdom

P2P lending has grown rapidly in the UK. It now makes an important contribution (13% in 2015) of the supply of new loans to small enterprises (those with turnover of £1 million or less). There is also a large and growing volume of P2P unsecured consumer lending, but this still accounts for only a small share of the total UK market for unsecured consumer loans.

Figure 1. The £3.2 billion alternative finance market in the UK, 2015 (£ million)



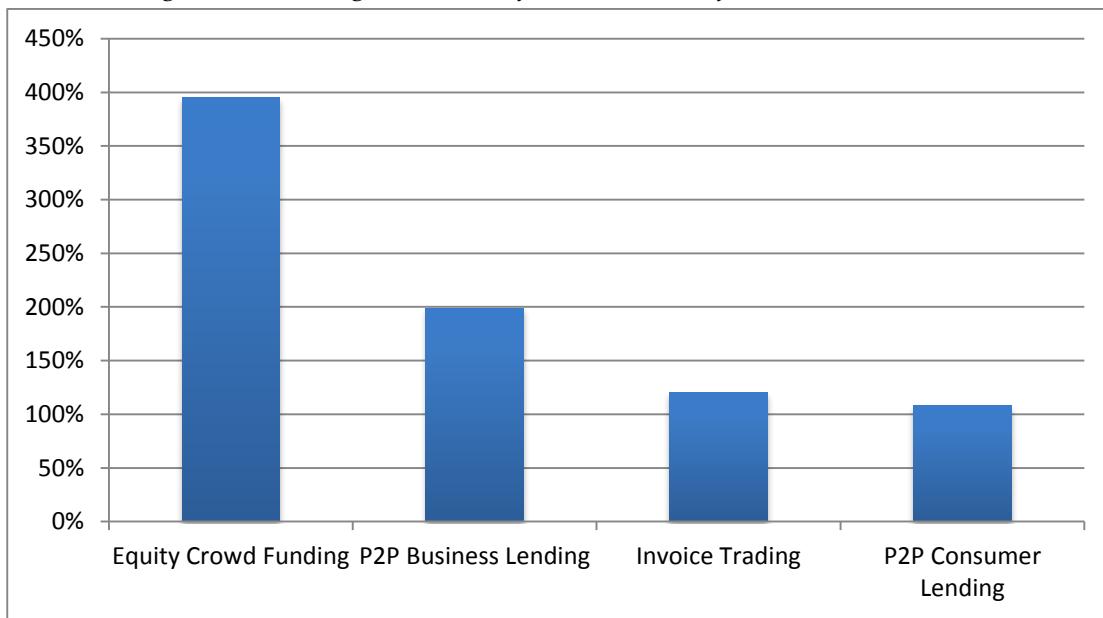
Source: Authors' configuration based on data on the end-year stock of financing from Zhang et al. (2016a).

Figure 1 shows a breakdown of this alternative finance. P2P consumer lending is the largest category, followed by P2P business lending and P2P real estate lending (primarily for buy-to-let residential mortgages).

This is part of the larger alternative finance market reported in Zhang et al. (2016). They find total funding of £3.2 billion raised in the UK 'alternative finance' market during 2015 of, of which £2.4 billion of gross lending was attributable to peer-to-peer lending (debt finance in which the platform or intermediary takes on no risk or open positions).

Figure 2 shows 2015 growth rates of the principal segments of UK alternative finance reported by Zhang et al. (2016). Comparing the gross provision of funding in 2015 over the previous year, the fastest growth was in equity crowd funding which grew by nearly 400% (following similarly rapid growth in 2014 compared to 2013). P2P business lending was the second-largest growth area of 2014. P2P consumer lending and invoice trading grew more slowly but still more than doubled in 2015 compared to 2014.

Figure 2. Annual growth rates of UK alternative finance, 2015 on 2014



Source: Authors' configuration based on data from Zhang et al. (2016). Figures for Equity crowd funding and P2P Business Lending combine real-estate lending and non-real estate business lending.

The series of reports on alternative finance from NESTA and the Cambridge Centre for Alternative Finance provide a wealth of further details about alternative finance and P2P lending in the UK. They document, for example, participation both by gender and by region. Baecck et al. (2014) report that in 2014 the average size of a P2P business loan was £73,222 and these loans were sourced from an average of 796 investors. In the same period the average P2P consumer loan was £5,471. The median investment by P2P lenders was in excess of £5,000. Some 46% of P2P consumer loans in the UK in 2014 were used to purchase a vehicle.

(Zhang et al., 2016) report a growing share of investment in UK P2P lending platforms from institutional investors. They report that in 2015 institutional investment accounted for 32% of gross lending in peer-to-peer consumer lending, 26% of peer-to-peer business loans and 25% in peer-to-peer lending secured on real estate, with all these proportions rising steadily through the year; i.e. by end year about *one-third* of all P2P lending in the UK was from institutional investors (see their Figure 18, p. 29). They also provide information on a wide range of other forms of alternative finance (community shares, reward-based crowdfunding, pension-led funding, donation-based crowdfunding, debt-based securities together providing only a little over £100 million of finance in 2015, but growing fast from their low initial base).

There are eight established P2P lending platforms in the UK, all members of the UK Peer-to-Peer Finance Association, which states on its website that it represents over 90% of the UK peer-to-peer and invoice trading market.² Their business models vary considerably, as illustrated by the sums on their net lending flows to different categories of borrowers in Table 1 below.

Zopa – launched in 2005 as the first peer-to-peer lending platform in the world – offers only unsecured consumer lending (including small sole-proprietor businesses). The smaller platform LendingWorks also supports only unsecured consumer lending. Funding Circle – launched in 2010 and now by a small margin the largest UK P2P platform – is not involved in

² For more information on P2PFA, see <http://p2pfa.info/>

consumer lending at all, supporting instead only unsecured lending to small business and lending secured on residential property. The smaller platform ThinCats also supports unsecured business lending and lending secured on residential property. Two other platforms – LendInvest and Landbay – support only lending secured on property. RateSetter is the only platform supporting lending to all three categories of lending – unsecured consumer, unsecured small business and real estate lending.

Table 1. P2P lending volumes by platform and compared with other credit markets in the UK

Platform	Balance End- 2015 (£mn)	Net Lending Flow, 2015 (£mn)				Number of:	
		Consumer	SME	Secured on Property (mainly buy- to-let)	Total	Lenders '000	Borrowers '000
Funding Circle	657	-	243	89	332	42.9	15.4
Zopa	625	293	-	-	293	53.0	113.6
RateSetter	517	154	68	24	245	26.5	138.5
Lendinvest	195	-	-	108	108	2.2	1.0
Thincats	89	-	21	6	27	1.8	0.3
Market Invoice	36	Annual lending of £264mn to businesses				0.2	1.6
Landbay	21	-	-	19	19	0.8	0.1
LendingWorks	14	10	-	-	10	1.1	2.9
Total P2P	2,155	456	332	246	1,033	128.3	273.6
All lenders	522,620	14,606	2,294	6,784	21,380		
P2P (% of total)	0.4%	3.0%	12.6%	3.6%	4.8%		

Notes. All P2P data were calculated from tables in the press releases of the UK Peer-to-Peer Finance Association (2016b, 2015c, 2015b and 2015a). The data on other lenders are from the Bank of England: BankStats Table 5.2 for stock and flow of consumer credit from monetary financial institutions (banks and building societies); BankStats Table A8.1 for the stock and flow of lending to small- and medium-sized enterprises (SMEs) by monetary financial institutions. Lending secured on property is calculated using Bank of England MLAR Table 1.33 to compute stock and flow for buy-to-let residential mortgage lending only and deducting P2P (we restrict comparison in this way because most UK P2P lending secured on property goes into the buy-to-let market, itself about 15% of total UK stock and flow of residential mortgage lending). The figures given here on lending flows are net of repayments and so are not directly comparable with the gross lending figures reported by Zhang et al., (2016) and illustrated in Figure 1.

These seven platforms all provide a simple and easy-to-understand portal for retail investors (we describe three of these in more detail below). The eighth member of the Peer-to-Peer Finance Association, Market Invoice, has yet another business model, entirely different from any of the other seven. It provides business lending secured on invoices (note there are a number of other invoice-lending finance companies in the UK that are not members of the P2P Finance Association. Also, as Market Invoice makes clear on its website, they do not accept investment from retail lenders – instead all their investment comes from a variety of sophisticated, i.e. institutional, investors who are expected to understand fully the risks of this form of lending).

There are a number of other UK P2P platforms that are not, as yet, members of the P2P Finance Association. Interest has been encouraged by a government decision that from April 2016 UK savers will be able to include money placed into P2P lending as part of their allowance for

investments in 'ISAs' (tax-exempt savings vehicles). The UK regulator, the Financial Conduct Authority, reports that in the UK:

As at 30 March 2016, eight firms have been fully authorised to operate P2P platforms. There are a further 86 firms awaiting a decision, of which 44 have interim permission. Firms with interim permission were previously licensed by the Office of Fair Trading, which regulated consumer credit before the FCA, and are able to continue carrying out consumer credit activities until we decide whether to fully authorise them. Only P2P loans on platforms operated by firms with full authorisation will be eligible investments for the Innovative Finance ISA.

We have conducted a brief web search, uncovering a few of these other firms. At the end of March 2016, SavingsStream (<https://savingstream.co.uk>) reported £121 million of P2P lending in bridging loans for property development. Verus360 (www.verus360.com) supports P2P lines of credit (overdrafts). Their website does not report any figures on their total lending. According to their website, Wellesley and Co (www.wellesley.co.uk) has loaned (by end March 2016) some £310 million to business customers investing in property. Assetz Capital (www.assetzcapital.co.uk) supports lending to SME businesses, property developers and buy-for-let lending, reporting cumulative lending to March 2016 of £80 million. Proplend is a smaller platform supporting loans on commercial and residential property (www.proplend.com) with loans at end March of £11 million. FolktoFolk (www.folk2folk.com) provides business loans secured on property, with a focus on local communities. They say they have loaned to date some £90 million without any defaults. PlatformBlack (www.platformblack.com/) is an invoice trading company with an online presence, which reports having supported to date some £124 million of invoice financing. Some of these platforms – for example Wellesley – invest their own money in the loans they support, along with the money of platform lenders.

Table 1 (final rows) compares total P2P lending, using the data from the Peer-to-Peer Finance Association, with the total amount of credit provided by other providers of loan finance the UK. Such comparisons are not entirely straightforward. There are at least three different possible measures of market size – the end-period stock of loans outstanding, the gross amount of lending during the period before loan repayment and the net amount of lending after deducting loan repayments. Each can yield different outcomes for the market share of P2P lending. Another problem is comparing 'like with like' – there are several different sub-markets for lending, including consumers of different credit standing and businesses of different size and credit worthiness; and also different types of loan product. Some – such as lending secured on property, is paid back relatively slowly with principal outstanding for several years; others such as unsecured consumer lending are paid back over shorter periods often between two and five years; yet other products are flexible lines of credit, e.g. overdraft facilities which are usually comparatively expensive, but drawn down for short periods and repaid relatively quickly. Calculations of market share can vary substantially depending on which measures are used.

Our figures (Table 1, bottom row of column 2) indicate that on a stock basis P2P at end 2015 was less than one-half of 1% of the total stock of UK lending of more than £500 billion in the loan markets where P2P platforms are active. We have not been able to find a breakdown of the total stock of P2P lending into the three main submarkets (consumer, SME and secured on property) Assuming this breakdown is in proportion to the share of net flows in our Table 1, then we find that P2P accounts for 0.53% of total unsecured consumer lending in the UK while P2P SME lending is 0.45% of total SME lending in the UK.

It is more difficult to obtain reliable figures for the share of P2P in UK lending secured on property. Even making allowance for P2P lenders that are not members of the P2P Finance

Association, the stock of P2P lending secured on property is only around 0.05% of the total £1.5 trillion stock of UK on property, including owner-occupied, buy to let and commercial property.³ This percentage, however, is clearly too low since P2P lenders compete only in the sub-markets for buy to let and smaller commercial and residential property developments. UK regulations do not currently allow P2P loans for purchase of an owner-occupied dwelling (the primary residence of the borrower) at all. Larger commercial properties are too 'lumpy' to be able to exploit the diversification of risk needed for P2P lending to operate.

For this reason our figures for total lending on property in Table 1 (both on stock and a net flow basis) are for buy to let lending only, excluding lending secured on other forms of property. The resulting percentage (0.29%) is closer to that we obtain for consumer and SME lending, although still a rather arbitrary number and probably an overestimate since it excludes lending to property developers.

The shares of both small business and consumer P2P platforms in flows of UK lending are higher than these stock shares (either on a gross basis before repayments or on a net basis after deducting repayments). Zhang et al. (2016) report gross 2015 P2P consumer lending in the UK of £909 million, which works out at 1.4% of the £69.9 billion of total gross unsecured consumer lending in the UK.⁴ Our Table 1, column 3, making the same comparison on a net flow basis, reports a higher share of 3%. The gross calculation, however, is probably the more accurate representation of the market share captured by P2P. (The gross percentage is artificially boosted by comparatively low repayments of P2P consumer lending in 2015 based on lower volumes of P2P gross lending in earlier years; we report this figure because the P2P Finance Association reports a breakdown by customer group for net and not gross lending.)

The share of UK P2P in smaller business lending is rather harder to pin down than that for unsecured consumer loans, because of the wide variety of different business borrowers. Looking at the broadest possible definition of the market, including lending secured on property and invoice financing yields slightly higher estimates of the P2P share of small business lending compared to that for unsecured consumer lending. Zhang et al. (2016) make this comparison on a gross basis, reporting that total P2P debt finance in 2015 for smaller business (lending secured on property, invoice financing and debt securities) was £1.8 billion and amounted to 3.43% of the total £53 billion of gross lending to SMEs reported by the Bank of England for 2014. We note, however, that total 2015 gross lending to SMEs by all monetary institutions (excluding overdrafts) has since been published as £57.9 billion, reducing this percentage to 3.1%.⁵

The market share of P2P lending is considerably higher, however, when looking at unsecured loans to the smallest companies, i.e. excluding invoice financing and loans secured on property. Our Table 1 reports that P2P lenders were responsible for 12.4% of this market (lending to small- and medium-sized businesses) on a net flow basis, even when excluding invoice finance and debt securities. This is a somewhat uncertain figure since, in recent years since the global financial crisis, smaller businesses in the UK have been repaying lending to banks faster than they have been accessing new lending, i.e. the total net lending flow has been negative. 2015 was the first year in which the aggregate net lending flow has turned positive

³ Bank of England BankStats Table 5.3 reports end-2015 lending secured on residential property of £1.28 trillion. The De Montfort University reports on commercial property lending estimate a stock of lending secured on commercial property of over £0.25 trillion.

⁴ Data series LPQB4TX from the Bank of England interactive database.

⁵ Bank of England figure from BankStats Table 8.2, which includes all business lending, including for property development and property investment.

and net flows may well in subsequent years grow substantially (hence reducing the share of P2P lending platforms in net lending flows).

A similarly high and probably more reliable figure for the share of P2P lending in small business lending is reported by Zhang et al. (2016) , p. 19. They find that gross P2P platform lending to SMEs (£881 million excluding invoice finance and debt securities) was 12% of total new loans to the smallest companies (those with turnover of less than £1-2 million, the precise threshold varying from one reporting bank to another) as reported in the quarterly survey conducted by the British Bankers Association (BBA) of lending to smaller- and medium-sized business. The most recent BBA survey (British Bankers Association, 2016), published since Zhang et al. (2016) , indicates total new lending to smaller companies in 2015 of £6.7 billion; so this figure can be updated to 2015 (£881 million/£6.7 billion) to the slightly higher 13.1%.

We now provide some further description of the three largest P2P lending platforms in the UK.

Zopa (www.zopa.com)

The first online service that brought together individual savers and borrowers was Zopa.com, launched in the UK in February 2005 as a marketplace for peer-to-peer lending. Zopa uses credit scores provided by the credit bureau Equifax (and also sometimes additionally information from CallCredit) to allocate borrowers into one of six 'marketplaces' (A*, A, B, C, D or E). The borrowers are individuals and very small businesses (sole traders). Borrowers obtain loans with repayment of interest and principal over periods of between one and five years.

On average borrowers in the A* and A categories have incomes well above the national average and strong credit ratings. B and C borrowers have incomes closer to the national average and clean credit histories. D and E borrowers have incomes close to the national average and chequered credit histories. The following table shows Zopa's calculations for expected annual default rates and projected annual net return within these six different markets.

Table 2. Projected default and return for Zopa investments, March 2016

%	A*	A	B	C	D	E
Expected annual default in current economic environment	0.0-1.0	0.5-2.5	2.5-4	4.5-6.5	9-11	10-12
Projected annual return after expected defaults	2-4	2-5.5	4-6	5-7	7-9	10-14

Data source: www.zopa.com (March 2016).

The mechanism for lending on the Zopa platform is described by the 'Zopa principles' on their webpages (Zopa, 2016b). The underlying mechanism, used by institutional investors, is as follows. Lenders decide how much to lend and their lending criteria ("the amount you wish to lend, the markets in which you wish to lend, the rate you are prepared to lend at and the period over which you are prepared to lend"). The loan is allocated randomly and amongst borrowers queued in the chosen 'markets'. The interest rate paid by borrowers is determined at a level to match the amount of investment with the amount of borrowing sought in each of these markets. The default setting on the platform is automatic lending, meaning that the interest and principal repaid by borrowers are automatically loaned again to new borrowers in the nominated markets.

Zopa charges a servicing fee that is paid monthly by the borrower, before the payment of interest and principal to lenders. With this fee, as described on its website, "Zopa maintains a safeguard fund to protect its lenders against borrowers who default (fail to repay their loans). Additionally a small proportion of the fee is an admin fee that is paid to Zopa." Contributions to the safeguard fund are based on average expected defaults according to Zopa's own risk models, with the aim of maintaining the fund at a minimum of 110% of projected annual defaults (currently, in March 2016, the fund is reported to be 120% of projected annual defaults).

Retail investors, who provide the majority of investment on Zopa, are presented with a simplified version of the mechanism used by institutional investors, their choice of a broad investment product determining their lending criteria. Since March of 2016, Zopa has offered three different retail investment products, each providing different risk exposure and projected returns: Zopa Access, Zopa Classic and Zopa Plus. Access and Classic are limited to loans in marketplaces A*- C and are protected by the Safeguard fund. Plus also allows investment in categories A* - E and there is no protection from the Safeguard fund.

In Zopa, as in all other UK P2P lending platforms, the lending is a legal contract between lenders and borrowers. The platform is not itself exposed to borrower credit risk. Also, in contrast to a conventional bank deposit, the Zopa loan account does not allow investment to be withdrawn on demand or at the end of a fixed term. Zopa lenders can withdraw, however, either by taking back interest and principal, as these are repaid (by turning off the default automatic relending option), or by selling their existing loans on the platform to other lenders (paying a 1% fee with the Zopa Classi and Zopa Plus products or without a fee with Zopa Access).

Zopa's annual balance sheet and income and expenditure accounts can be found via UK Companies House (company number 05197592, documents currently available via <https://beta.companieshouse.gov.uk/>). These reveal accounting losses of £1.4 million in 2011, £1.8 million in 2012, £2.6 million in 2013 and £5.6 million in 2014. These are relatively large in comparison to the amount of lending supported by the platform; for example, the 2014 loss is around 2% of the average stock of lending supported on the platform during the course of that year. Section 4 discusses the significance of these continuing losses for the Zopa business model.

Funding Circle (www.fundingcircle.com)

Funding Circle was the first UK-based P2P lending service to focus on business funding, i.e. where savers lend directly to small businesses through an online marketplace. Since its launch in August 2010, it has expanded internationally to offer similar lending platforms in the US, the Netherlands, Spain and Germany as well as in the UK.

Similar to other P2P lending marketplaces, Funding Circle uses a many-to-many approach, whereby lenders set their amount and interest rate, borrowers set the amount they want to borrow, and the online auction process determines how those amounts are distributed between borrowers and lenders.

Borrowers are credit-checked through Experian and categorised into one of six risk bands (A+, A, B, C, D or E). Lenders pay a one-off fee that varies with risk band and is added to the loan amount. This varies from 2% for shorter maturity borrowing by A+ borrowers to 5% for longer maturity (4-5 year) loans in the higher risk bands. A 5% fee is also paid for secured lending with a title to assets. All property-related lending pays a 2% fee.

Lenders can allocate their funds to individual businesses in one of two ways:

- *Using the autobid tool, for chosen risk categories and lending maturities.* This is similar to the approach used by Zopa for its consumer lending. The lender's deposit is automatically allocated, across a large number of companies applying for funding. The lender chooses a maximum proportion of its lending (e.g. 1%) that will go to individual borrowers.
- *Making manual bids for loans on the Funding Circle marketplace* (current borrowers looking for funding can be viewed via www.fundingcircle.com/lend/loan-requests/). This allows the lender to use her own judgement about which borrowers she wishes to fund. Loans are then activated when they attract sufficient funding (including any allocations from autobidding).

Funding Circle's annual balance sheet and income and expenditure accounts can be found via UK Companies House (company number 06968588, documents currently available via <https://beta.companieshouse.gov.uk/>). These reveal accounting losses of £1.1 million in 2011, £3.8 million in 2012, £4 million in 2013 and £10.8 million in 2014. These are relatively large in comparison to the amount of lending supported by the platform; for example the 2014 loss is around 4% of the average stock of lending supported on the platform during the course of that year. Section 4 discusses the significance of these continuing losses for the Funding Circle business model.

Rate Setter (www.ratesetter.com)

RateSetter was launched in October 2010. Like Zopa, it offers a 'provision fund' for bad debt (the 2013 launch of Zopa's safeguard fund seems to be a response to RateSetter). This is funded out of the borrower's credit fee and serves to reimburse lenders in the event of a late payment or default.

As we have described in our discussion of Table 1 above, RateSetter is the only major UK P2P platform that lends to all three major categories of borrower – consumers, SMEs and lending secured on property.

RateSetter also differs from other P2P lending companies in that it does not categorise borrowers by credit rating; instead it only accepts what it calls "prime" borrowers. Lending rates are then set based on the term of the loan rather than the credit rating of the borrower.

RateSetter allows lenders either to invest at market rates (similar to Zopa or Funding Circle autobid) or to specify their minimum lending rates and the platform automatically allocates at the maximum rate that can be found above this minimum. The difference between these choices is that with a minimum rate, funds may remain uninvested (investing at market rate is effectively setting no minimum rate).

We have been unable to find income and expenditure accounts for RateSetter via company house. The only accounting statements we found are balance sheets for RateSetter Trustee Services Ltd (company number 08090884), which uses the small companies exemption, which means it need not report an income and expenditure account. We have found press reports stating that RateSetter has announced an accounting profit of £0.6 million for the year ending 31 March 2015 and was also profitable in the previous year, but no further information to substantiate these reports.

3.2 The European Union

We complete this section by making some brief comparisons of the UK with the development of P2P lending in other jurisdictions. Using data from (Wardrop et al., 2015), it is clear that the UK is the clear leader in the alternative finance market in the EU. For the year 2014, €2.9 billion was the size of the entire alternative finance market in the EU, but only €620 million was

outside the UK. Alternative finance as a whole, however, grew 144% in 2014 in the EU other than in the UK, compared with 2013. The UK is home to the highest number of alternative finance platforms, followed by Spain, France, the Netherlands and Germany.

There are as yet no standard statistics for the development of European P2P lending. There is a European P2P Lending Finance Association, but from what we can see this has only a few members. It does appear, however, that interest in P2P lending is spreading rapidly across much of the European Union. One indicator of this is the index of P2P lending constructed by the website AltFi. According to this index, 2015 P2P loan volumes across continental Europe (other than the UK) amounted to some €674 million (Shoker, 2016). These figures seem to involve some underreporting, when compared to the data cited in Wardrop et al. (2015), but they suggest rapid growth of more than 100% per annum with many new platforms being established.

3.3 The United States

The United States along with the UK has been the pioneer in the development of P2P lending (although terminology is different, in the US it is described as 'market place lending'). As we now discuss, there are several institutional and regulatory differences between P2P lending in the US and the UK.⁶ Compared to the UK, US P2P lending is much more focused on consumer credit.⁷ The US industry has evolved further away from the original concept of directly linking individual lenders and borrowers, becoming instead largely a mechanism for the sale of loans to institutional investors. Despite this rather different approach and orientation, US P2P or 'marketplace' lending still represents, as it does in the UK, a relatively small share of total unsecured consumer lending.

To mention some of the most prominent platforms in the US, the oldest and largest platforms Prosper and Lending Club were established to offer consumer lending and refinancing of student loans. Other well established platforms focusing on consumer lending are Avant (focusing on personal loans) and SoFi (specialising in refinancing of student loans). The leading providers of market place loans for small business are OnDeck, CAN Capital and Kabbage. GroundFloor and LendingHome provide short-term bridge mortgage finance.

Figures for P2P lending have not been as conveniently available for the US as for the UK or EU. Morgan Stanley Research (2015) puts the level of marketplace lending (the usual term in the US for P2P lending) at \$12 billion at the end of 2014. As in the UK, this was still only a very small fraction – 0.36% – of total US unsecured consumer lending of \$3.3 trillion.⁸ This is fairly similar to the 2014 share of unsecured consumer lending taken by P2P lending platforms in the UK. A recent report from the Cambridge Centre for Alternative Finance finds a cumulative \$25.7 billion at end 2015, suggesting the overall lending is somewhat greater than in the UK.⁹

A difference from the UK is that US marketplace lending involves an even-greater share of investment from banks and institutional investors. For example, in 2015Q3, only 15% of the originations of Lending Club, the largest US marketplace lending platform, were financed by

⁶ US Treasury (2016) and Wardrop et al. (2016) provide an overview of US market place lending.

⁷ Wardrop et al. (2016) report that the amount of consumer market place lending in the Americas (predominantly in the US) is about ten times the amount of small business market place lending, whereas the figures from Zhang et al., (2016a) discussed above reveal that the amounts of P2P consumer lending and P2P SME lending in the UK are nearly the same.

⁸ Figure taken from Frame (2015), who also provides a succinct overview of the development of marketplace lending in the US.

⁹ See Wardrop et al. (2016).

individual investors, and 85% were taken by institutional investors such as banks, asset managers and hedge funds.¹⁰ US marketplace lenders are also much more associated with leveraged investment strategies than their UK counterparts – either because they themselves accept balance-sheet risk or because institutional investors use leverage to support their exposure to online loans.¹¹

Many of the US platforms have also developed partnerships with US banks.¹² Marketplace lending is increasingly seen in the US not as competition to banks but rather as an opportunity, providing a new source of investment assets for banks with surplus funds, as an alternative way of financing loan assets for those in need of funds, and as a model for improved technology offering to both deposit and loan customers.

Another distinguishing feature of US marketplace lending – not used to the same extent by UK P2P platforms – is its reliance on ‘big data analytics’, using sophisticated methods of data collection, from social media and other sources, and analysis in order to improve on standard US metrics of consumer-credit standing, such as the Fair-Isaacs FICO score.¹³ Many US marketplace lenders claim substantial improvements in understanding and pricing credit risk from these sophisticated methods.

Despite its small market share and the increasing extent of partnerships between marketplace lending platforms and banks, the growth of marketplace lending has caused some concern amongst some banks in the US.¹⁴ This may in part be because the borrowers – both consumers and smaller businesses – are those who previously would have approached smaller US ‘community’ banks for loans. So while the US banking industry as a whole is not yet greatly threatened by marketplace lending, some individual institutions are much more worried about potential loss of customers, prompting a lively discussion of the rise of marketplace lending in the US banking periodical *The American Banker*.

The laws and regulations applied to P2P lending are of course different in the US than in the UK. One challenge is regulatory limits on consumer loan interest rates applicable in many states. To deal with these controls, US marketplace lenders work with partner banks, who formally grant loans once they are agreed on the P2P lending platform (for example Lending Club works with WebBank, a Utah-chartered financial institution) before selling them back to the platform investors. This practice, however, has been thrown into doubt by rulings on a case currently before the US Supreme Court and the industry awaits clarification of its legal position.¹⁵

There has also been a somewhat greater concern in the US compared to the UK with the need for consumer and prudential regulation. The US Consumer Financial Protection Bureau is increasingly involved in the oversight of marketplace consumer lending, including a well-publicised enforcement action against Lending Club for lack of clarity on interest rates paid by one group of borrowers.¹⁶ The FDIC has stated that it wishes to keep a close watch on developments in marketplace lending, including potential risks to insured bank partnerships

¹⁰ Figure reported in Wack (2015b).

¹¹ See Wack (2015a).

¹² For a discussion of this trend see PWC (2015b) and Aranoff (2016).

¹³ FICO is an acronym for the Fair Isaac Corporation, the creators of the FICO score. Wikipedia (2016) describes the construction of the FICO score.

¹⁴ See for example the interviews reported in Kline (2015).

¹⁵ See Wack (2016b).

¹⁶ See Adler (2015)

with marketplace lenders. The US Treasury has conducted a 'request for information' in order to assess US regulatory policies.

Another institutional difference between marketplace lending in the US and P2P lending in the UK is the well-established US practice of third-party servicing of bank loans. It is standard practice for US banks to outsource such servicing of the banks. This outsourcing plays an important role in the securitisation of US lending, allowing loans to be sold between institutions with no impact on the process of collection. This in turn means that there is a clear identification of servicing costs for platforms. As we suggest below, in section 4, achieving similarly clear identification of servicing costs may be a potential challenge for UK P2P lenders.

We can complete this brief discussion of US marketplace lending with a closer look at the operations of Lending Club, the leading US marketplace lender, which went public through an IPO in December 2014. The post IPO stock price performance has disappointed investors, declining steadily from around \$25 at the time Lending Club went public to less than \$10 per share in early 2016. Being a public company, however, means that Lending Club puts a great deal of information about its performance into the public domain.

In 2015, Lending Club originated \$8.3 billion dollars of loans, nearly double the \$4.3 billion originated in 2014. Of its total originations since Lending Club started operations, only 1.2% are business loans. Their lending is almost all consumer loans, with 68.5% used to refinance existing lending or credit cards (see <https://www.lendingclub.com/info/statistics.action>).

A major difference between Lending Club and the P2P platforms operating in the UK is that all Lending Club investments consist of investments (called "member notes") in individual loans with a minimum investment amount of £25. Thus, in order to diversify an investment across 100 different loans, it is necessary to invest \$2,500 and hold 100 member notes. This is in sharp contrast to UK platforms such as Zopa where the automated lending allocates even the minimum investment of £10 across a large number of loans.

Its operating revenues and operating costs, from the December 2015 10-K are reproduced in Table 3 below. As indicated, a large proportion of its revenues are transaction fees paid by borrowers when loans are originated. It also obtains servicing fees from investors, deducted from interest and loan repayments.

Lending Club recorded a substantial net loss of \$32.9 million in the year ending 31 December 2014, amounting to around 0.4-0.5% of the stock of loans originated by Lending Club outstanding at end 2014. As can be seen from Table 3, Lending Club was in 2015 still pursuing an expansionary strategy with large expenditures on sales and marketing and engineering and product development, but transaction fees grew substantially and, as result, there was a much smaller loss of \$5 million in the year ending 31 December 2015.

The 2016Q1 results, announced on 9 May 2016, revealed a further growth in loan originations to \$2.8 billion in the first quarter of 2016, an increase of 68% over the first quarter of 2015. The consequent growth of revenues enabled Lending Club to report its first quarterly profit of \$4.1 billion. This positive result, however, was overshadowed by the announcement in the first quarter results statement of the resignation of Renaud Laplanche as Chairman and CEO:

His resignation followed an internal review of sales of \$22 million in near-prime loans to a single investor, in contravention of the investor's express instructions as to a non-credit and non-pricing element, in March and April 2016 (Lending Club, 2016b).

These financial statements highlight one concern about Lending Club and other marketplace lenders. The high levels of transaction fee revenues, relative to the servicing and origination costs, are an outcome of the high rates of growth of loans originated. As

their business matures and this growth slows, they will then have to engage in substantial cost reductions to remain profitable (indeed, they were only barely profitable in 2015, even with rapid rates of origination growth). Such cost reduction should be possible, as Lending Club has very high levels of sales, marketing and administrative costs relative to revenues suggesting considerable scope for cost reduction as the business matures. Still, the prospective long-run level of profitability, relative to the stock of originated loans, remains unclear and the volatility of their stock prices should not be viewed as in any way surprising.

Table 3. Operating performance of Lending Club (\$ '000)

Years ended 31 December	2015	2014	2013	2012
	(audited)	(audited)	(audited)	(unaudited)
Statement of Operations Data				
Transaction fees	\$ 373,508	\$ 197,124	\$ 85,830	\$ 30,576
Servicing fees	32,811	11,534	3,951	1,929
Management fees	10,976	5,957	3,083	824
Other revenue (expense)	9,402	(1,203)	5,111	716
Total operating revenue	426,697	213,412	97,975	34,045
Net interest income (expense) and fair value adjustments	3,246	(2,284)	27	(238)
Total net revenue	429,943	211,128	98,002	33,807
Operating expenses:				
Sales and marketing	171,526	85,652	37,431	18,201
Origination and servicing	61,335	37,326	17,978	7,589
Engineering and product development	77,062	38,518	15,528	4,855
Other general and administrative	122,182	81,136	19,757	10,024
Total operating expenses	432,105	242,632	90,694	40,669
Income (loss) before income tax expense	(2,162)	(31,504)	7,308	(6,862)
Income tax expense	2,833	1,390	—	—
Net income (loss)	\$ (4,995)	\$ (32,894)	\$ 7,308	\$ (6,862)

Source: Lending Club 10K 2015 (Lending Club, 2016a).

In recent months there have been growing investor concerns about the ability of Lending Club and other US marketplace lenders to maintain the past rapid rate of growth in loan originations, which have supported their strong revenue growth. The rapid influx of institutional investment funds is leading to declining rates of interest on marketplace loans; this combined with a small rise in default rates is causing investors to have serious doubts about future growth.¹⁷ Still, given that market share still remains relatively small, rapid future growth is still possible.

¹⁷ Wack (2016a).

3.4 China

We complete this section with a very brief discussion of P2P lending in China. We mention China at all only because P2P platform lending in China, mainly to small businesses, is reported to have nearly quadrupled to a staggering \$150 billion in 2015, more than ten times the size of US marketplace lending originations.¹⁸ There are apparently more than 2,000 online P2P lending platforms in China.¹⁹ At the same time, however, there are substantial concerns about fraud, especially since the early 2016 failure of the platform Ezubo, which lost some \$11 billion of investors' money.²⁰

Chinese P2P lending illustrates how differently online P2P lending can evolve in a distinct and relatively undeveloped regulatory and legal environment. The lending supported is very much riskier than in the US or the UK, with no fully developed system of credit referencing. Most Chinese P2P platforms are providing business loans financed out of investment by Chinese households. This is a response to the limited opportunities open to smaller businesses for borrowing from banks and the low returns offered to savers. The Chinese P2P platforms themselves vary considerably; many are not true P2P platforms without their own risk exposure, but rather take positions themselves or claim to offer guarantees to investors.²¹

The Chinese regulatory authorities are now taking action to impose closer oversight of P2P lending. It remains to be seen how the sector develops, especially in the challenging situation of structural change in the Chinese economy towards growth that is less reliant on investment and exports than it has been in the past.

3.5 Other countries

The only other country for which we have found much reference to growth of P2P lending is Australia. We have not conducted a detailed review of Australian P2P lending platforms, although what has emerged from a brief review of online sources is that while at least eight P2P platforms are now licensed in Australia, including two – RateSetter and ThinCats – that also operate in the UK, the Australian market is still somewhat behind the level of development reached in the UK or the US. We have not investigated developments in other jurisdictions.

4. An assessment of the business models and the economics of P2P lending

This paper is completed with a critical discussion of the business models and economics of P2P lending, the prospects for its continuing growth and the risks and regulatory and economic policy issues resulting from the emergence of this new form of intermediation.

A basic question running through the discussion of this section is why, before the emergence of P2P lending, was lending – especially to individuals and smaller companies unable to borrow on securities and money markets – provided by institutions (banks) offering a combination of credit, deposit and payment services. This section therefore begins with a

¹⁸ See Xinhua (2016).

¹⁹ A useful overview of this market is provided by Williams-Grut (2015). A more detailed description is provided by Deer et al. (2015).

²⁰ See Wu (2016).

²¹ See Deer et al. (2015).

discussion of the business models of conventional banking and the synergies that lead banks to combine these services.

It then discusses to what extent the technologies that support P2P lending could potentially lead to an ‘unbundling’ of banking, separating credit provision and term deposits from payment services and the provision of liquidity. Finally, it discusses the risks of P2P lending, arguing that these can be addressed by promoting the greatest possible platform transparency, and priorities for regulation and public policy.

4.1 The business models of conventional banking

There are several explanations why banking services – deposits, payments and lending as well as a range of other financial services, such as off-balance sheet guarantees and securities trading – are provided together by banks and not to any substantial extent by other firms. In order to analyse the prospects that P2P lending will take away loan and deposit business from banks, it is first necessary to explain why banks have dominated the provision of loans, deposits and payment services and why these services are provided together and not independently.

The perspective adopted here is that the critical defining feature of banks, which in turn leads them to jointly offer both deposit, payment and lending services, is the provision of liquidity to customers.²² Bank deposit customers have a right to draw deposits on demand, either by withdrawing cash or by using a bank payment instrument. Time deposits offer a future guarantee on repayment. Bank borrowers also value flexibility in their use of loan facilities, both in drawing down on loans when they are needed and repaying at a time of their choice in order to avoid unnecessary interest costs. Customers are willing to accept lower rates of return on deposits/higher costs of borrowing in return for these liquidity services; but there are economies of scale in liquidity provision.

Uncertainty of these flows is reduced substantially at the bank portfolio level and even more so at the level of the whole economy. Banks can exploit these economies of scale, lowering their cost of funding and boosting their returns on lending by providing liquidity services on deposits and flexibility in loan contracts to a large pool of customers. They can obtain further economies of scale at industry level by borrowing and lending in money markets to manage temporary surpluses or shortages of liquidity.

The provision of payment services is also closely associated with bank liquidity provision. It is possible for means of payment, including nowadays card payments and electronic credit transfers that are executed nearly instantaneously, to be provided via third parties (and some payment instruments e.g. credit cards indeed are quite often offered in this way), but technological economies of scale generally support the bundling of payment services into transaction deposit accounts.

There are further economies of scale in credit risk assessment and loan portfolio management reinforcing the synergies of bank liquidity provision.²³ In order to use their advantages in the

²² This same viewpoint can be found, amongst others, in Lewis (1992 and Kashyap et al. (2002).

²³ Much of the banking research literature focuses on the role of banks in overcoming information asymmetries in credit provision and other financial contracts, especially through the screening and monitoring of borrowers and the enforcement of loan contracts. According to this perspective, the employment of specialised technologies to overcome information asymmetries is the key feature that distinguishes banks from other firms, and not, as we argue, liquidity provision. This perspective on bank intermediation is emphasised, for example, in many textbooks and reviews of the literature, e.g. Bhattacharya & Thakor (1993).

supply of liquidity to offer flexible credit products, such as lines of credit (overdrafts), banks must also be expert in assessing a borrower's creditworthiness, and therefore also have a competitive advantage in providing fixed-term loans. Bank provision of payment services, allowing observation of otherwise private customer cash flows, can also be an important part of the screening of bank borrowers and the monitoring of borrowers' behaviour (although the costs of analysing payment flows to support credit assessment may only be worthwhile for larger borrowers).

While the discussion here emphasises the liquidity provision as the core defining feature of banks, explaining why payments, deposit, lines of credit and fixed-term loans are provided together, other aspects of banking can also play an important role at least for some institutions and in some contexts. Another view of banking emphasises 'banking relationships', i.e. banks may have implicit commitments to support customers, perhaps rooted in connections through a local community or expectations of ongoing long-term commercial relationships. This may be important for some institutions (examples where such relationship banking still appears to play a substantial role are US community banks and German savings banks). Relationships also matter in providing banking services to larger corporations, both non-financial and financial.

Discussion of competition to banks from P2P must also take account of specialised bank skills in managing particular assets - for example, the knowledge needed to extend loans to particular industrial sectors or particular categories of borrowers (screening), in monitoring borrower behaviour (when for example imposing loan covenants) and in managing exposure following default (through claiming collateral, pursuing legal redress or supporting borrower workout or repayment efforts). State supervision and support of banking - through detailed regulation, state-backed deposit insurance and the provision of the broader bank safety net - is also a potential further barrier to entry and may be a major determinant of banking market shares and pricing.

This is not at all to deny the possibility that new technology may dramatically shift the 'boundaries' of the bank. Despite the widespread adoption of computerised storage of banking records and introduction of a variety of electronic payment methods, many basic banking operations are still rooted in the previous era of paper-based transactions. The possibility to link deposit liabilities directly to specified loan assets, as is done in P2P lending platforms, was simply not available 15 or 20 years ago. It remains to be seen the extent to which the P2P business model and the associated level of transparency to support indirect (off balance sheet) lending become a standard part of the services offered by banks and offered by them to their own customers rather than by competing non-bank P2P platforms.

4.2 The potential for P2P disintermediation of banking

With this theoretical and conceptual background, we now consider the scope for P2P platforms capturing business from established banks. For such disintermediation to be truly 'peer-to-peer', simultaneously taking both borrower and depositor business away from banks, there must both be sufficient benefits (in terms of pricing, improved customer service) to attract both borrowers and depositors and also a willingness on the part of these customers to forgo the liquidity services (flexibility in use of credit/withdrawal of deposits) provided by banks.

The experience of P2P platforms from both the US and the UK shows that it has been much more difficult to persuade depositors, rather than borrowers, to participate on P2P platforms. Hence, these platforms have had to attract institutional investment in order to maintain platform growth.

This is not so surprising. Many existing bank customers, both consumers and smaller firms, should be willing to agree fixed-term loans from P2P platforms in order to gain from comparatively low interest rates or simply to access otherwise unavailable credit. To persuade them to do so, these rates do not need to be much lower than what is on offer from banks. The main constraint is on the investor side. Lending on a P2P platform rather than making a bank deposit involves for personal customers the loss of deposit insurance protection and the need to acquaint themselves with an unfamiliar product. Despite the transparency of P2P platforms and their strong track record of recent performance, it is difficult for retail depositors to understand the risk involved and therefore to be comfortable about lending on P2P platforms. ISA (limited tax exempt status) in the UK will help attract new retail depositors, but it is difficult to believe that this will lead on its own to a transformative increase in retail lending via P2P platforms.

As our analysis of the share of P2P of the total stock of lending in section 3 reveals, the process of capturing borrowers from banks has not proceeded very far to date, even in the US or the UK. Returns on offer, however, are very attractive and so continued institutional investment could support further growth of P2P lending at recent rapid rates (roughly doubling every year) for some time to come. In order for them to continue to commit funds to P2P platform lending, however, institutional investors are likely to want even greater transparency than is already offered by P2P platforms (see our discussion of P2P risks and standardisation below). Not the least of the reasons is the lack of consistency and comparability in credit assessment criteria across platforms, making it difficult to quantify risks over the business cycle, and also concerns about the impact of any platform failure.

Suppose these challenges of risk-monitoring and risk assessment are overcome, can the development of P2P platforms then lead to the end of banking as we know it? Not at all, at least not if it is correct as suggested in this section that the core banking activity is liquidity provision rather than intermediation. The customers, both lenders and depositors, most easily attracted by the better rates on offer through P2P platforms, will be those customers with the least need for the liquidity services of banks. These are the customers who are already able to take advantage of the best rates on offer from banks, for term deposits or term loans, not the higher rates for lines of credit or instant access deposits. As we have already argued, banks themselves are also likely to seek to retain these customers through providing their own P2P platforms. The impact on bank net income will therefore be much smaller than the impact on bank assets (while assets will be reduced, bank return on assets will increase).

Most P2P platforms do offer some liquidity services, for example Funding Circle in the UK allows its business customers to repay loans early, with their automated bidding re-investing funds in new loan applications. Most platforms, for example Zopa Classic, also allow investors to sell loans they hold for a fee. P2P platforms, however, are at a competitive disadvantage relative to banks in providing such liquidity services, as they do not have access to money market funding or to central bank liquidity.

The impact of P2P lending should therefore be viewed as complementary to rather than competitive with bank offerings, taking off-balance sheet lending that would otherwise consume relatively large amounts of bank capital. Banks can therefore be expected, as is already happening in the US, to either set up their own P2P platforms or work with existing platforms, allowing them to market P2P borrowing to their existing customers as well as improving the availability of credit to some customers who do not easily qualify for conventional bank lending (as appears to have been the case in the UK in P2P lending to small businesses).

In turn, the development of P2P appears to be a promising way of promoting the stability of banks and of the banking system as a whole, by providing additional loss-absorbing funding

for customer loans. This is of course provided that the institutional investment supporting P2P lending is long-term and from outside the banking system. Financial stability could instead be undermined by P2P lending if a large share of institutional investment came from domestic or international banks investing in illiquid P2P loan portfolios re-financing their positions using short-term money market borrowing. Funding of P2P lending in this manner would parallel the unstable short-term repo and ABCP money market funding of subprime mortgage-backed securities (MBS) and other US dollar-structured credit securities held by US and international banks that triggered the global financial crisis of 2007-08 (although that experience should make both banks and regulators alert to the dangers of employing maturity mismatch to invest in P2P loans).

4.3 Platform transparency and the risks of P2P intermediation

In this sub-section we note a number of potential risks to which we believe the industry will need to pay greater attention in the future and argue, further, that industry standardisation provides the most effective response to these risks.

The risks we have in mind are the following:

1. The industry already provides high levels of disclosure on historical loan default and projections of future performance. These are in many cases accompanied by loan loss reserve funds – such as those provided by Zopa and RateSetter in the UK – to offer lenders compensation for default. This work, however, has largely focused on expected default and as yet does not provide much quantification of the critical dimensions of *variability of default* or of *loan loss recovery*.²⁴ With regard to variability of default, diversification across a large number of borrowers already provides lenders with substantial protection against expected levels of default and loss. What remains unprotected, even with diversification, is the variability of default and loss over the business cycle – losses can jump substantially in a major economic downturn and could easily exhaust a default fund based on offering protection up to the average annual level of defaults. The industry has a lot still to do to quantify the risks of loss in a business downturn and to educate investors about these risks.
2. There are similar challenges in developing greater levels of transparency and best practice operational processes in relation to recovery of lost loans. One problem – which may be a particular concern for lending secured on property – is that recovery levels depend to an important degree on the role of lenders in contract enforcement, to obtain maximum recovery in the event of loan default through exercising claims on security or reaching agreement with borrowers on loan rescheduling. Banks have specialised units to carry out such tasks, but it remains unclear how much activity of this kind will be carried out by P2P lenders to minimise post-default loan losses. Most P2P platforms will emphasise that they have very high standards of credit assessment and that they lend only to high-quality borrowers where anticipated default rates are extremely low, so this is not a significant issue. But achieving the full potential future growth of the industry will require extending lending to higher-risk borrowers, especially if P2P lending is to provide credit to borrowers who have been refused bank credit, so this is still a key issue to be addressed in the future.
3. The industry also needs to openly confront the risks of platform failure, either bankruptcy following large financial losses or the possibility of operational failure. As we have discussed in section 3, a number of the largest P2P platforms, including Zopa, First Circle and Lending Club, are loss-making. Much of these losses can be attributed to the needs of

²⁴ These are basic concepts of credit risk, discussed in standard textbooks such as Servigny & Renault (2004) and Bouteille & Coogan (2013).

system development and of the active marketing of their services to new customers, but still it is clear that platform viability depends on achieving sufficient scale to cover the fixed costs of operation. As the industry matures, it can be expected that a number of platforms will fail to achieve sufficient scale and be forced to close. This raises the question of what happens to the lending on a discontinued platform, which should be answered before such an eventuality transpires with potentially damaging consequences for P2P platforms that remain.

4. Investors also need to be aware of the possibility of falling P2P loan prices resulting from a self-reinforcing withdrawal of funds by institutional investors subject to 'mark-to-market' valuation of their P2P investments. One attraction of P2P loans to institutional investors, and a factor behind the substantial increase in institutional lending on US P2P platforms, is the possibility of readjusting their exposure by selling loans to other investors. However, this liquidity -- while useful for individual investors -- may not always be reliably available. A decline in the returns anticipated on P2P lending – triggered for example by a rise in default rates -- or simply a desire to readjust investment portfolios and shift them into safer assets because of some economic shock unrelated to P2P lending, could cause investors to seek to liquidate their exposures and lead to a sharp rise of P2P rates and decline of P2P loan valuations. With mark-to-market valuation, especially if some investments are highly leveraged or subject to binding short-term portfolio performance metrics, this could in turn trigger further sales and price falls. Over time, such instability should decline, as investors become more familiar with this new asset class and less constrained market participants become willing to commit capital to stabilise prices during episodes of price volatility. But until the market matures in this way, investors should expect episodes of relatively large price instability.
5. Finally there are the ever-present dangers of fraud, cybercrime and operational outages (although we do not claim any particular expertise on these issues).

An effective means of addressing all of these risks is industry standardisation. The UK Peer-to-Peer Financing Association is already playing a leading role in promoting transparency and data standards.²⁵ But more can be done.

Agreed standardised metrics of various loan characteristics, such as borrower credit standing, industry and purpose of loan are needed to allow the migration of loan contracts from one platform to another, for the development of comparable risk measures and for allowing risk to be assessed using combined data from many platforms. Such metrics can also help support the timely determination of losses on defaulted loans, either through outright sale or through management of recovery of retained loans using collection agencies.

Platforms also need to offer much greater transparency about their own operational and financial performance. In the case of the UK, we have had to rely for our research on the very limited statutory disclosures made through Companies House. Even the SEC submissions of the publicly listed P2P platform Lending Club provides only limited insight into the costs and revenues of their business model. As we have noted, Zopa, Funding Circle and Lending Club have all reported substantial losses over the past two years. While we have no reason to doubt their long-term viability, they simply do not provide sufficient publication information to work out their ongoing costs such as loan servicing and distinguish these from expenditure devoted to the development of their customer base and operational systems.

We note that with respect to operational oversight the US P2P industry has one substantive advantage over that in the UK, with the routine of loan servicing (such as collection of

²⁵ See Peer-to-Peer Finance Association (2015b and 2016a).

payments) often outsourced to operational specialists. This provides benchmarking of servicing costs for the entire industry. We see benefits for the UK P2P industry of the development of similar outsourcing arrangements, which could be used by both banks and non-banks to provide and facilitate the sale of loans amongst investors and their transfer across platforms.

Greater standardisation, both the ability to transfer loans from one platform to another and full business transparency, will challenge P2P platforms. The pertinent question is what ultimately is their competitive advantage? Will they themselves become commoditised low-return utilities through standardisation of their credit assessment and operational processes? As a result, individual P2P platforms may be reluctant to adopt industry standards, because of the fear of losing control over their own 'secret sauce'.

Our view is that individual platforms need to accept and not resist standardisation. The key distinguishing feature of P2P lenders is not the platform they operate, but rather the interface they provide to that platform, any distinguishing features of their customer base (not just type of borrower, but also for example social or community orientation that may affect loan performance and characteristics) and the different services they offer their customers for portfolio allocation and risk assessment and management. Standardisation at industry level is critical to the long-term growth and stability of the P2P industry and therefore is in the interests of the leading industry participants.

4.4 Regulation and public policy

We complete our analysis with a brief discussion of regulatory and public policy issues in P2P lending, distinguishing i) operational risk and customer protection, ii) prudential safety and systemic risk and iii) the promotion of competition and efficiency in credit markets. We argue that industry-wide standardisation is key to achieving these regulatory goals and should therefore also be a priority for regulatory oversight of P2P lending.

We have summarised the key sources of risk in P2P lending in the previous sub-section. Regulators in the US, the UK and in other jurisdictions are now looking carefully at this newly emerging form of financial intermediation.²⁶ The stated objective of both US and UK regulators is to ensure appropriate oversight without blocking financial innovation and the use of P2P platforms to provide credit to borrowers who are unable to borrow from banks.

An issue for regulators is prioritisation – they cannot address all regulatory concerns over P2P lending at once. The immediate priority in regulatory oversight is appropriately on operational risks and customer protection. The Financial Conduct Authority (FCA) in the UK, for example, has paid close attention to the segregation of client money. There are, however, many other operational issues. We have already discussed orderly platform closure (UK regulators now require all P2P platforms to have plans for orderly resolution) and the management of arrears and default. Another is appropriate communication of risks to retail investors.

From a prudential perspective, P2P platforms, provided they are operationally sound, should pose much lesser prudential risks than traditional banks. Lenders on these platforms absorb loan losses directly and the loan losses pose no threat to the viability of the platform. Moreover, as we have documented, the market for P2P lending is still a long way from posing substantial systemic financial risks. Nevertheless, regulators should pay close attention to prudential and systemic risks. We emphasise the following three points, which do not yet seem particularly prominent in regulatory thinking:

²⁶ See US Treasury (2015), Financial Conduct Authority (n.d.) and Financial Conduct Authority (2016).

- i) Prudential safety can be promoted by ensuring that there are no barriers to the possibility of banks reducing their risk exposures by putting their own loan books on P2P platforms (whether run by themselves or by a third party) and that banks receive appropriate reduction in capital requirements for such transfers (allowing for any differences in credit quality between transferred and retained loans).
- ii) The most likely source of systemic risk in P2P platforms is from liquidity – not credit risks – in particular the possibility discussed above of withdrawal of investor funds leading to a self-reinforcing collapse of prices. Regulators will have to pay careful attention, however, if the growth of P2P institutional investment continues, to ensure this does not replicate the same kind of systemic risks that materialised in the global financial crisis of 2007-08, for example if banks were to use short-term money market funding to invest in the P2P loans originated by other institutions.
- iii) Close attention is warranted to the role of P2P lending in property markets, and the possibility that they could exacerbate systemic risk in both commercial property and buy-to-let residential property (we find it somewhat surprising that P2P property lending qualifies for the new ISA tax exemption status, introduced in the UK from April 2016).

Finally, as regulators are already doing, proper attention should be paid to achieving the potential for P2P lending by overcoming barriers to access to credit. In this respect, the initial experience in the UK, in which P2P lending is providing a substantial share now exceeding 13% of new lending to small businesses, is encouraging. This aspect of P2P lending in the UK seems to us to argue for particular attention being paid to the P2P lending elsewhere in the European Union, where the promotion of small-business lending is a stated priority of the effort to promote “capital markets union”.

We believe that all these tasks will be helped by the greatest possible degree of standardisation of loan conditions and credit and performance metrics. The argument is much the same as already made in relation to platform transparency and P2P platform risks. The greatest possible degree of standardisation will help limit operational risks, promote customer protection and enhance prudential safety (especially through allowing the fullest possible participation including participation by banks in P2P platforms).²⁷ Pursued at the EU level, standardisation of P2P business processes appears to be particularly promising for supporting capital markets union and allowing flows of investment capital across national borders to where they can be most efficiently employed.²⁸

5. Summary and conclusions

This paper has reviewed peer-to-peer (P2P) lending, its development in the UK and other countries, and assessed the business and economic policy issues surrounding this new form of intermediation.

Section 2 describes P2P lending. This employs similar information technologies to those that have supported other internet-based commerce, in order to allow direct investment in consumer and small business loans, both by individuals and institutional investors. The

²⁷ We note in the UK the related initiative (HM Treasury, 2014) to develop standardised APIs (application programming interfaces) for SME data so that transaction information can be shared by all potential lenders, and not only the bank providing a business with payment and bank account services. This standardisation could be a further support for the growth of P2P lending.

²⁸ See Milne (2015) for a more general discussion about the importance of financial technology and the setting of financial standards at European level for achieving European policy objectives.

technology allows diversification over a large number of borrowers without the loans having to be held on an intermediary balance sheet. These platforms can also allow the interest rates on loans to be determined by competition between lenders and for lenders to realise their investments by selling their loans (with a charge) to other lenders on the platform (although for retail investors a much simpler interface with automatic allocation of investments to different borrowers is usually employed). These liquidity and price-setting features, together with the large scale of funding from institutional investors, have led to the use in the US of the term 'marketplace lending' rather than 'peer-to-peer' lending to describe these platforms.

Section 3 reviews development in the UK and other countries. P2P lending has developed rapidly in both the US and the UK, more than doubling annually for several years, but from a very small base. Even today, it represents a small fraction, less than 1%, of total bank lending. In most other countries, development of P2P lending is behind even that of the US and the UK.²⁹ In the UK, however, P2P lending has become an important source of loans for smaller companies, amounting to 13% of new conventional bank loans to firms with turnover of less than £1-£2 million per year (but it does not appear to have achieved the same importance in small-company finance in any other jurisdictions). 2015 data suggest that P2P lending captured a rather smaller share (around 1.4%) of the gross flow of unsecured lending in the UK and appears to be at around a similar proportion in the US.

P2P or marketplace lending has developed along a slightly different path in the US compared to the UK, with a much greater emphasis on consumer finance and an even greater involvement of institutional investment funds. We also observe the emergence of greater cooperation between banks and P2P platforms in the US, although this is a development that may follow in time also in the UK.

Section 4 has argued that P2P lending is fundamentally complementary to, and not competitive with conventional banking. This argument is based on our view that the fundamental core of most bank business models is the provision of liquidity services. Synergies in liquidity explain the co-existence of loan, deposit and payment services in banks. We therefore expect banks to adapt to the emergence of P2P lending, either by cooperating closely with third-party P2P lending platforms or offering their own proprietary platforms to serve their existing customers. We also argue that while there is scope eventually for a substantial proportion of lending to be provided through P2P platforms, and this could lead to large gains, both private and social, especially through widening access to credit for example by smaller companies, the full development of the sector requires further work addressing the challenge of risk management and risk communication, and a cooperative industry-wide approach to addressing the various business and regulatory issues in P2P lending.

We have highlighted five areas of risk to the future development of P2P lending: i) adequate development and communication of risk measures, especially the possibility of substantial increase of default in a major business downturn; ii) the related problem of enforcement of contracts following loan default and ensuring maximum possible loan loss recovery; iii) the need to deal with potential platform failures without losses to lenders; iv) potential liquidity risks, especially from involvement of institutional investors subject to 'mark to market'

²⁹ With the exception of China where, as a result of the structural limitations of established banks, a variety of forms of non-bank lending using the Internet have grown at an extraordinary pace over the past few years; but the business models of these non-bank lenders varies considerably and is often very different from P2P lending in other jurisdictions. For this reason China's experience is not really comparable with that of the US and the UK.

valuations who are unable to absorb short-term losses; and v) fraud, cryptographic security and operational risks.

We argue that much greater standardisation of loan, credit performance and operational metrics will be key to addressing these risks and supporting the fullest development of P2P lending. Cooperation on the further development of business and technical standards for the industry should therefore be a priority for both industry participants and regulators. While such standardisation could be pursued on a national level, the challenge arises in many countries and so where possible it may be better to set standards at EU or other supranational level.

To conclude, we suggest a 20%:80% rule of thumb applies to the prospects of P2P lending, much as it does in other applications of financial technology. That is to say, the future of P2P lending will be determined only to a relatively minor degree (20%) by technological developments and will depend to a much greater extent (80%) on successfully developing reliable business processes, standardisation and appropriate regulation that serves the needs of customers.

References

- Adler, J. (2015). CFPB Makes LendingClub Unit Repay \$700K to Customers. *American Banker*. Retrieved from <http://www.americanbanker.com/news/law-regulation/cfpbs-hits-lendingclub-unit-with-700k-fine-1076169-1.html>
- Aranoff, A. (2016). Line Between Banks and Marketplace Lenders Thinner than You Think. *American Banker*. Retrieved from <http://www.americanbanker.com/bankthink/line-between-banks-and-marketplace-lenders-thinner-than-you-think-1079840-1.html>
- Baeck, P., Collins, L., & Zhang, B. (2014). *Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014*. London: Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2014-uk-alternative-finance-benchmarking-report.pdf
- Bhattacharya, S., & Thakor, A. V. (1993). Contemporary banking theory. *Journal of Financial Intermediation*, 3(1), 2–50.
- Bouteille, S., & Coogan, D. (2013). *The Handbook of Credit Risk Management: Originating, Assessing, and Managing Credit Exposures*. Wiley Finance. Retrieved from http://www.amazon.co.uk/Handbook-Credit-Risk-Management-Originating/dp/1118300203/ref=sr_1_11?s=books&ie=UTF8&qid=1459848987&sr=1-11&keywords=credit+risk
- British Bankers Association. (2016). Bank support for SMEs – 4th Quarter 2015. Retrieved April 3, 2016, from <https://www.bba.org.uk/news/statistics/sme-statistics/bank-support-for-smes-4th-quarter-2015/#.VwGTbOLhDIU>
- Business Wire. (2006). Introducing America's First People-to-People Lending Marketplace: Prosper. Retrieved February 19, 2016, from <http://www.businesswire.com/news/home/20060221005082/en/Introducing-Americas-People-to-People-Lending-Marketplace-Prosper-E-LOAN>
- Celent. (2012). IT Spending in Banking: A Global Perspective.
- Deer, L., Mi, J., & Yuxin, Y. (2015). *The rise of peer-to-peer lending in China: An overview and survey case study*. Retrieved from <http://www.accaglobal.com/uk/en/technical-activities/technical-resources-search/2015/december/p2p-lending.html>
- Financial Conduct Authority. (n.d.). Project Innovate: Next Steps. Retrieved November 10, 2015, from <https://innovate.fca.org.uk/innovation-hub/project-innovate-next-steps>
- Frame, W. S. (2015). Marketplace Lending's Role in the Consumer Credit Market -. Federal Reserve Bank of Atlanta. Retrieved from <https://www.frbatlanta.org/cenfis/publications/notesfromthevault/1509>
- HM Treasury. (2014). Competition in banking: improving access to SME credit data - Consultations. Retrieved January 31, 2015, from <https://www.gov.uk/government/consultations/competition-in-banking-improving-access-to-sme-credit-data>
- Jenkins, P., & Alloway, T. (2015, January 29). Democratising Finance: Big banks eye peer-to-peer lending push. *Financial Times*. Retrieved from <http://www.ft.com/cms/s/0/93837c4a-a6db-11e4-9c4d-00144feab7de.html?siteedition=uk#slide0>
- Käärman, K. (2016). Transferwise Case Study. Retrieved from <https://www.currencycloud.com/case-study/transferwise/>

- Kashyap, A. K., Rajan, R., & Stein, J. C. (2002). Banks as liquidity providers: An explanation for the coexistence of lending and deposit-taking. *The Journal of Finance*, 57(1), 33–73.
- King, B. (2010). *How Customer Behavior and Technology Will Change the Future of Financial Services*. Marshall Cavendish International Asia Pte Ltd.
- Kline, A. (2015). Midtier CEOs Fret Over Thinning Ranks, Marketplace Lenders. *American Banker*. Retrieved from <http://www.americanbanker.com/news/national-regional/midtier-ceos-fret-over-thinning-ranks-marketplace-lenders-1077730-1.html>
- Lending Club. (2016a). 10K 2015. Retrieved from <http://ir.lendingclub.com/doc.aspx?IID=4213397&DID=35479355>
- Lending Club. (2016b). *Lending Club Reports First Quarter 2016 Results*. Retrieved from <http://ir.lendingclub.com/file.aspx?iid=4213397&fid=1001210147>
- Lewis, M. K. (1992). Modern banking in theory and practice. *Revue Economique*, 203–227.
- Milne, A. (2015). *Achieving European Policy Objectives through Financial Technology*. Retrieved from <https://www.ceps.eu/publications/achieving-european-policy-objectives-through-financial-technology>
- Moldow, C. (2015). *A Trillion Dollar Market, by the People for the People: how Marketplace Lending Will Remake Banking as We Know It*. Retrieved from https://foundationcapital.com/assets/whitepapers/TDMFinTech_whitepaper.pdf
- Morgan Stanley Research. (2015). *Global Marketplace Lending: Disruptive Innovation in Financials*. Retrieved from <http://www.morganstanley.com/ideas/p2p-marketplace-lending>
- Peer to Peer Finance Association. (2015). Strong Growth Continues in Peer to Peer Lending Market.
- Peer-to-Peer Finance Association. (2015a). £500 million new P2P loans in last three months. Retrieved from <http://p2pfa.info/500-million-new-p2p-loans-in-last-three-months>
- Peer-to-Peer Finance Association. (2015b). P2PFA unveils new transparency standards. Retrieved from <http://p2pfa.info/p2pfa-unveils-new-transparency-standards>
- Peer-to-Peer Finance Association. (2015c). Strong growth continues in peer-to-peer lending market. Retrieved from <http://p2pfa.info/500-million-new-p2p-loans-in-last-three-months>
- Peer-to-Peer Finance Association. (2016a). Record Growth for Peer to Peer Lending in 2015. Retrieved April 1, 2016, from <http://p2pfa.info/record-growth-for-peer-to-peer-lending-in-2015>
- Peer-to-Peer Finance Association. (2016b, March 15). Data Of P2PFA Members. Retrieved April 5, 2016, from <http://p2pfa.info/data>
- Prosper. (2016). About. Retrieved October 19, 2015, from <http://www.prosper.com/about/>
- PWC. (2015a). *Peer Pressure: How Peer to Peer Lending Platforms are Transforming Consumer Finance*. Retrieved from <http://www.pwc.com/us/en/consumer-finance/publications/peer-to-peer-lending.html>
- PWC. (2015b). *Where traditional and tech meet: How banks and marketplace lenders can partner up*. Retrieved from <http://www.pwc.com/us/en/consumer-finance/publications/marketplace-lenders-banks.html>
- Servigny, A. De, & Renault, O. (2004). *Measuring and Managing Credit Risk*. Standard & Poor's Press. Retrieved from <http://www.amazon.co.uk/Measuring-Managing-Credit->

Standard-

Poors/dp/0071417559/ref=sr_1_8?s=books&ie=UTF8&qid=1459848987&sr=1-8&keywords=credit+risk

Shoker, S. (2016). 2016: A Booming P2P Market for Continental Europe. Retrieved from http://www.altfi.com/article/1648_2016_a_booming_p2p_market_for_continental_europe

The Financial Conduct Authority. (2016). PS16/8: FCA Handbook changes regarding the segregation of client money on loan-based crowdfunding platforms, the Innovative Finance ISA, and the regulated activity of advising on peer-to-peer agreements. Retrieved April 5, 2016, from <http://www.fca.org.uk/news/ps16-08-crowdfunding-innovative-finance-isa-handbook-changes>

UK Crowd Funding Association. (2016). Members. Retrieved February 19, 2016, from <http://www.ukcfa.org.uk/members>

US Treasury. (2015). *Public Input on Expanding Access to Credit through Online Marketplace Lending*. Retrieved from <https://www.federalregister.gov/articles/2015/07/20/2015-17644/public-input-on-expanding-access-to-credit-through-online-marketplace-lending>

US Treasury. (2016). *Opportunities and Challenges in Online Marketplace Lending*. Washington DC. Retrieved from https://www.treasury.gov/connect/blog/Documents/Opportunities_and_Challenges_in_Online_Marketplace_Lending_white_paper.pdf

Wack, K. (2015a). Rise of Leverage in Online Lending Rekindles Old Fears. *American Banker*. Retrieved from <http://www.americanbanker.com/news/marketplace-lending/rise-of-leverage-in-online-lending-rekindles-old-fears-1078551-1.html>

Wack, K. (2015b). Shift Away from Retail Investors Heightens Risks in Online Lending. *American Banker*. Retrieved from <http://www.americanbanker.com/news/marketplace-lending/shift-away-from-retail-investors-heightens-risks-in-online-lending-1078534-1.html>

Wack, K. (2016a). Marketplace Lending's Big Investors Grow Anxious. *American Banker*. Retrieved from <http://www.americanbanker.com/news/marketplace-lending/marketplace-lendings-big-investors-grow-anxious-1079585-1.html>

Wack, K. (2016b). Supreme Court Throws Curveball in Big Case for Online Lenders. *American Banker*. Retrieved from <http://www.americanbanker.com/news/marketplace-lending/supreme-court-throws-curveball-in-big-case-for-online-lenders-1080015-1.html>

Wardrop, R., Rosenberg, R., Zhang, B., Ziegler, T., Squire, R., Burton, J., ... Kieran Garvey. (2016). *Breaking New Ground: The Americas Alternative Finance Benchmarking Report*. Retrieved from <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/breaking-new-ground/#.VzOAKvkrK70>

Wardrop, R., Zhang, B., Rau, R., & Gray, M. (2015). *Moving Mainstream: The European Alternative Finance Benchmarking Report*. Retrieved from <http://www.jbs.cam.ac.uk/index.php?id=6481#.VwGcZ-LhDIU>

Wikipedia. (2016). Credit score in the United States. Retrieved from https://en.wikipedia.org/wiki/Credit_score_in_the_United_States#FICO_score

Williams-Grut, O. (2015). There's another Chinese market growing explosively — and Beijing wants to take control before it "blows up." *Business Insider UK*. Retrieved from <http://uk.businessinsider.com/china-regulate-peer-to-peer-and-internet-finance-2015-8>

- Wu, W. (2016). Risky business of P2P lending and a “battle we must not lose.” *South China Morning Post.* Retrieved from <http://www.scmp.com/news/china/economy/article/1899808/risky-business-p2p-lending-and-battle-we-must-not-lose>
- Xinhua. (2016). China’s online P2P lending almost quadrupled in 2015: report. *Xinhua.* Retrieved from http://news.xinhuanet.com/english/2016-01/02/c_134970571.htm
- Zhang, B., Baeck, P., Ziegler, T., Bone, J., & Garvey, K. (2016a). *Pushing Boundaries: the 2015 UK Alternative Finance Industry Report.* Retrieved from https://www.nesta.org.uk/sites/default/files/pushing_boundaries_0.pdf
- Zhang, B., Baeck, P., Ziegler, T., Bone, J., & Garvey, K. (2016b). *Pushing Boundaries: The 2015 UK Alternative Finance Industry Report.*
- Zopa. (2016a). About. Retrieved from <http://www.zopa.com/about>
- Zopa. (2016b). Zopa’s principles. Retrieved March 31, 2016, from <https://www.zopa.com/principles>

About ECRI & CEPS



Founded in 1999 by a consortium of European banking and financial institutions, the European Credit Research Institute is an independent, non-profit research institute based in Brussels. ECRI provides in-depth analysis and insight into the structure, evolution and regulation of retail financial services markets in Europe. It derives its expertise from an interdisciplinary team of in-house researchers and a network of academic partners based throughout Europe. ECRI keeps its members and the wider public up-to-date on a wide range of topics related to retail financial services, credit reporting and consumer protection at the European level. Its operations and staff are managed by the Centre for European Policy Studies (CEPS).

The Centre for European Policy Studies (CEPS), founded in 1983, is among the most experienced and authoritative think tanks operating in the European Union today. CEPS serves as a leading forum for debate on EU affairs, drawing from its strong in-house research capacity, complemented by an extensive network of partner institutes throughout the world.

EUROPEAN CREDIT RESEARCH INSTITUTE (ECRI)
at the CENTRE FOR EUROPEAN POLICY STUDIES (CEPS)
1 Place du Congrès
1000 Brussels, Belgium
Tel: +32 2 229 39 11 • Fax: +32 2 219 41 51
info@ecri.eu • www.ecri.eu • www.ceps.eu