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Staff Working Paper No. 598

Peer-to-peer lending and financial innovation in the United Kingdom

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Peer-to-peer lending and financial innovation in the United Kingdom

Ulrich Atz[(1)] and David Bholat[(2)]

Abstract

Peer-to-peer (P2P) lending — direct lending between lenders and borrowers online outside traditional financial intermediaries like banks — first emerged in the United Kingdom and the world with the launch of Zopa in 2005. Our paper provides a quantitative analysis of nearly 14 million loan agreements. We lay bare the history of P2P lending from its beginning, showing the regional geography of P2P lending in the United Kingdom. We suggest that the history of P2P lending can shed light on financial innovation in general. We base our conclusions on four semi-structured interviews with the founders of the three most significant UK P2P platforms (Zopa, RateSetter, and Funding Circle).

Key words: Peer-to-peer lending, crowdfunding, innovation, fintech, big data.

JEL classification: G23, L26, O30.

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Since 2007, the world has grown accustomed to believing we are experiencing a global economic crisis. Some distinguished economists such as Robert Gordon have even gone so far as to predict permanent stagnation.(2) This pessimism has been acute among financial sector commentators because of numerous scandals and crises that have beset the industry. Former Federal Reserve Chairman Paul Volker captured the mood well when, in 2009, he famously quipped that the only useful financial innovation in the previous quarter century had been the invention of the ATM.(3) Volker's not-so-subtle suggestion was that many of the products and services marketed by financial firms in the run up to the crisis had been "fool's gold."(4) Since Volker, some scholars have found empirical support for the view that efficiency and innovation in finance has been disappointing and downward trending.(5)

However, the post-crisis period also has seen a wave of financial innovation, especially in the UK. New mechanisms for making payments have evolved and proliferated, such as contactless cards. New currencies also have been established, such as Bitcoin and the Brixton pound.(6) And most relevant to the focus of this paper is the growth in sources of credit beyond banks. At the level of wholesale finance, the post-crisis period has seen the continued growth in the size of the shadow banking sector (Figure 1). And at the level of retail finance, there has been a boom in Britain in short term, often high interest, lending companies, both on the high street, in the form of pawnshops, and online, the most famous being Wonga.

(2) **Gordon, R (2012)**, 'Is US Economic Growth Over? Faltering Innovations Confronts the Six Headwinds', *NBER Working Paper No. 18315*.
(3) **WSJ London (2009)**, 'Volcker Praises the ATM, Blasts Finance Execs, Experts', *Wall Street Journal*, 8 December 2009, http://blogs.wsj.com/marketbeat/2009/12/08/volcker-praises-the-atm-blasts-finance-execs-experts/.
(4) **Tett, G (2010)**, 'Fool's Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets and Unleashed a Catastrophe', Abacus, London.
(5) At least in the United States. **Philippon, T (2015)**, 'Has the US Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation', *The American Economic Review,* Vol 105, No. 4, pages 1408-1438.
(6) On local currencies like the Brixton pound, **Naqvi, M and Southgate, J (2013)**, 'Banknotes, local currencies and central bank objectives', *Bank of England Quarterly Bulletin 2013 Q4,* Vol 53, No. 4, pages 317-325.

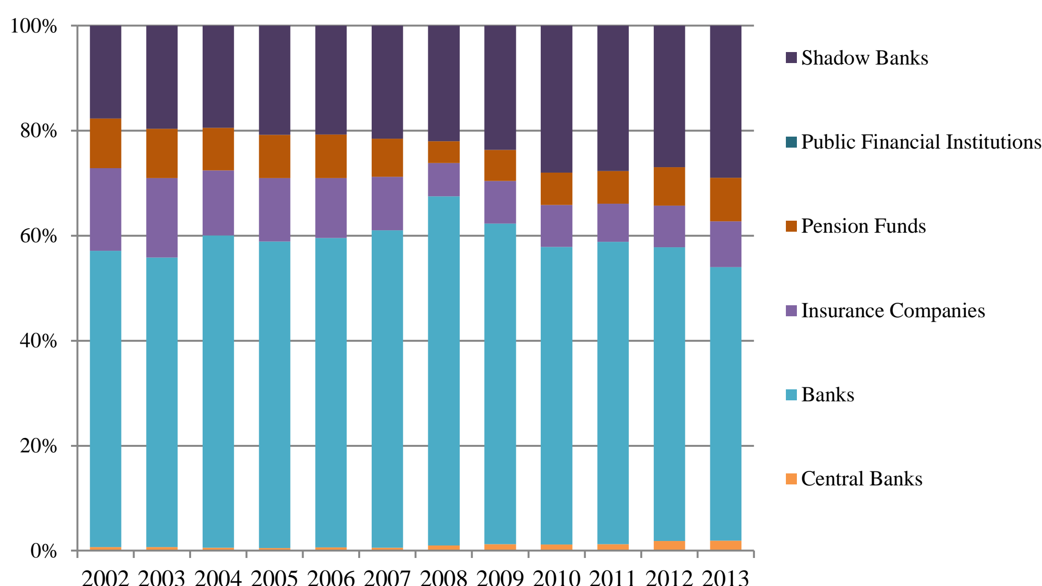

Figure 1: Percentage of assets held by various financial subsectors in the UK. The chart shows that the share of financial assets held by shadow banks such as hedge funds and money market mutual funds has grown over time.
Source: Financial Stability Board 2014.

In this paper, we focus on one instance of new financial providers in the UK, namely peer-to-peer (P2P) lending platforms. These are websites where borrowers can solicit funds from investors. Although the exact business model differs from platform to platform, and changes across time, they all roughly work as follows. The platforms act as a broker between borrowers and lenders. Each borrower requests a sum of money—a loan. In most cases, the loan requested by the borrower will be funded by multiple investors. So each loan is comprised of multiple loan agreements with each of the investors. This kind of syndicated lending means P2P is a species of a larger genus of online 'crowdfunding' that involves individuals, or 'the crowd,' pooling their contributions into a larger 'fund.'[7] Generally, loans run between 12 and 60 months, though loan agreements often can be sold before maturity in secondary markets operated by platforms. The platforms typically make their profits by charging various transaction fees at origination.

[7] For a general overview of crowdfunding see **Neiss, S, Best, J and Cassady-Dorion, Z (2012),** 'Getting started with Crowdfund Investing In a Day for Dummies', John Wiley and Sons, Hoboken, NJ; and **Frutkin, J (2013),** 'Equity Crowdfunding: Transforming Customers into Loyal Owners', SterlingFunder, Atlanta. While P2P lending are debt-based transactions, other crowdfunding models are donation, reward or equity based. Donation-based crowdfunding involves individuals pooling their funds online and making a charitable contribution. Reward-based crowdfunding involves individuals pooling funds and prepaying for goods and services. Equity crowdfunding involves the online issuance of equity, usually in start-ups. **Baeck, P, Collins, L and Zhang, B (2014)**, 'Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014', Nesta, London, page 9.

The core of this paper is based on a report we wrote in 2013 that, at that time, provided the most comprehensive snapshot of the then £378 million P2P loan market.[8] Our report received widespread press coverage.[9] Using loan-level data from the three largest platforms in the UK, it revealed the geography of P2P lending for the first time. For example, we showed which regions and postcodes were net lenders and borrowers, and overall lending terms and prices. Among our key findings as of July 2013:

- Four regions lent more than they borrowed: London, the South East, the South West and the East of England. All four regions lie in the South of the UK.
- While there was substantially more lending in London and the South of the UK, borrowers were more evenly distributed across the country. Scotland, the North East and the North West of England registered similar figures in terms of pounds per person borrowed as regions in the South of the UK. Lending per person ranged from £1.40 to £11.80 for UK regions, while the range for borrowing went from £3.90 to £7.30 per person.

Besides restating our original empirical results, this paper provides further commentary on P2P lending not contained in our earlier report. For example, we explain the origins and factors responsible for the growth of P2P lending in the UK, including how platform entrepreneurs got the idea to start them.

Our description here is based on interviews conducted in 2015 with the current CEOs and/or co-founders of Funding Circle, RateSetter, and Zopa. Our discussion may interest those seeking to understand economic entrepreneurship and financial innovation more generally. Rather than depicting innovation as an exogenous shock, as many models in economics do, we show how the P2P lending idea arose endogenously, in the course of considered reflection by financial professionals about the fundamentals of the banking business. Our paper also explains why borrowers and

[8] **Open Data Institute (2013)**, 'Show me the Money: Opening up Big Data in Finance', Open Data Institute, London. Parts of this paper are taken from that report.
[9] For example, the front-page of the *Financial Times*. See **Moore, E (2013)**, 'Digital finance lending set to hit £1 billion', *Financial Times,* 15 July 2013, http://www.ft.com/cms/s/0/28bf596c-eafb-11e2-bfdb-00144feabdc0.html#axzz45WIjwUuk.

lenders participate in the P2P market, and speculates about the impact P2P lenders may have on the conventional banking sector in the near future.

In the context of the scholarly literature on P2P lending, we see our research contribution as three-fold.(10)

First, building on the pioneering work of Agrawal, Catalini and Goldfarb, who investigated the geography of the US crowdfunding industry in 2011,(11) we provided the first map of the UK P2P lending market in 2013. Like Agrawal and his co-authors, we find that proximity plays little role in the investment decisions made by lenders. By design, with Zopa and RateSetter, investors cannot make investments based on the geographical location of the borrower.

Second, our paper lays stress on subjective factors, notably the motives animating lenders, borrowers and P2P operators creating this new market.(12) These factors are often neglected in accounts of the market, relative to the emphasis typically placed on technology and other structural changes in the economy that have made P2P lending possible. However, technology as such does not cause economic change. It is rather how technology is used. And this is determined by what matters to people.(13)

Finally, we flesh out the implications of P2P lending for the conventional banking sector. Here we sharpen observations made by early commentators in detailing which products and business strategies are most likely to be impacted.(14)

(10) For general overviews of the academic P2P literature see **Bachmann, A, Becker, A, Buerckner, D, Hilker, M, Kock, F, Lehmann, M and Tiburtius, P (2011),** 'Online Peer to Peer Lending - A Literature Review', *Journal of Internet Banking and Commerce,* Vol 16, No. 2, pages 1-18; **Morse, A (2015),** 'Peer-to-Peer Crowdfunding: Information and the Potential for Disruption in Consumer Lending', *NBER Working Paper No. 20899*; **Bouncken, R B, Komorek, M and Kraus, S (2015)**, 'Crowdfunding: The Current State Of Research', *International Business & Economics Research Journal,* Vol 14, No. 3, pages 407-416.

(11) **Agrawal, A K, Catalini, C and Goldfarb, A (2011)**, 'The Geography of Crowdfunding', *NBER Working Paper No. 16820*; **Agrawal, A K, Catalini, C and Goldfarb, A (2013)**, 'Some Simple Economics of Crowdfunding', *NBER Working Paper No. 19133*.

(12) Cf. **Bruton, G, Khavul, S, Siegel, D S and Wright, M (2015)**, 'New Financial Alternatives in Seeding Entrepreneurship: Microfinance, Crowdfunding, and Peer-to-Peer Innovations', *Entrepreneurship: Theory & Practice,* Vol 39, No. 1, pages 9-26; **Einav, L, Jenkins, M and Levin, J (2013)**, 'The impact of credit scoring on consumer lending', *RAND Journal of Economics,* Vol 44, No. 2, pages 249–274.

(13) For example, the Romans famously developed the steam engine but used it as a toy rather than to power industry. **Baumol, W (1990)**, 'Entrepreneurship: Productive, Unproductive and Destructive', *Journal of Political Economy,* Vol 98, No. 5, pages 893-921.

(14) **Haldane, A (2013)**, 'Andy Haldane: Banking may be on the cusp of an industrial revolution', *Wired,* 29 August 2013, http://www.wired.co.uk/magazine/archive/2013/09/ideas-bank/a-financial-forecast-from-the-bank-of-england.

P2P lending: a short history

Online P2P lending began in 2005 with the public launch of Zopa in the UK. Like other types of financial innovation in modern history, from the overdraft to the creation of credit default swaps, the UK was precocious. Zopa was also the first P2P platform in the world. Although it is difficult to say with certainty why the UK is continually at the forefront of financial innovation, one explanation is economies of learning. This concept refers to the fact that economic efficiency and the capacity for innovation improves with experience. The implication is that early innovation provides the basis for long-term competitive advantage. The geographic corollary is that innovation in particular industries often clusters in parts of the world— IT in Silicon Valley, for example. In the case of the UK, its history as a financial centre may give it a comparative advantage in generating financial innovation.

The existence of economies of learning mean that innovation should be conceived less as an exogenous shock and more as an embedded process. As we note below, this view of innovation corresponds to how entrepreneurs describe their experience of it. Like comparative advantage among countries, individual skill develops from learning in the course of doing.[15] Innovation is the fruit of sustained reflection and involvement in existing commercial practice rather than a radical break from it.

When we interviewed Rhydian Lewis, CEO of RateSetter, and Andrew Mullinger, Global Head of Credit and Co-Founder of Funding Circle, both confirmed that Zopa provided the baseline business model that inspired their own.[16] So understanding the origins of P2P lending to some extent involves understanding the early origins of Zopa.

Before launching Zopa, its three founders—Richard Duval, James Alexander and David Nicholson—worked for Egg, an online bank created by Prudential in 1998. Egg was innovative on a number of fronts. For example, it introduced the UK's first

[15] **Grant, R (2013)**, 'Contemporary Strategy Analysis', Wiley, Chichester, page 123.
[16] Lewis also mentioned Betfair, a company he worked at early in his career, as an important influence on his thinking about the P2P model. Betfair is an online gambling site started in the UK in 2000. Rather than punters betting against the bookmaker, as is conventional, Betfair allows them to bet against each. In other words, P2P betting.

end-to-end online application for credit cards, and created the UK's first online fund supermarket. The fact that Egg enjoyed early commercial success, despite exclusively interacting with its customers online, later instilled confidence in Zopa's founders in the prospects for a purely online intermediary. Also, the fact that Duval, Alexander and Nicholson focused on unsecured personal loans while working at Egg goes a long way towards explaining why it was in this asset class, rather than another, that P2P first developed.

Of the three founders, Nicholson is largely regarded as the father of the P2P idea. As Giles Andrews, Executive Chairman of Zopa and, until recently, its CEO, told us: "Zopa was Dave's idea." When we interviewed Nicholson, we asked him to reflect on the train of thought that led him to imagine P2P lending:

> "I was one of the strategy managers on the strategy team and one of the things I started thinking about, not particularly in a structured way, but just sort of a 'what if?' sort of way, was actually trying to get my head around what's a bank for, what does a bank really do and therefore what opportunities are there to think about how that could change and what's really important to a bank. Obviously, banks do a huge number of things, but for a retail bank, a lot of it's quite simple. It's about matching up deposits with loans and actually acting as an intermediary, between somebody with a deposit and somebody with a loan…But actually that sort of got me starting to think around, well, what if there are other places that could act as that intermediary? Why does it have to be a bank that sits in-between depositors and people who are borrowing money?"[17]

Nicholson's recollection of the early part of the thought process that led him to conceive of P2P lending is notable. Rather than, in the first instance, trying to imagine the future of finance, Nicholson started by casting his mind back to the past and to first principles:

> "I sort of was building a deeper understanding of what's really going on here, and what's really going on in a bank and sort of reading a little bit about where banks came from and how banking has moved over the years and actually understanding that really, although a lot of stuff looks very complex, there's actually some pretty simple basic building blocks underneath. Then, if you go

[17] The depiction of banks as intermediaries is not without its critics. **Jakab, Z and Kumhoff, M (2015)**, 'Banks are not intermediaries of loanable funds—and why this matters', *Bank of England Staff Working Paper No. 529*; **Bholat, D (2013)**, 'Money, bank debt and business cycles: between economic development and financial crises', *Availability of Credit and Secured Transactions in a Time of Crisis*, Akseli, N ed, Oxford University Press, Oxford, pages 11-32.

> back and look at those building blocks, you understand why banks have been the institutions that have been capable of doing those because, you wind back 100 or 200 years, you didn't have any of the information, or the systems, or the technology, that would enable anybody else to do that intermediary function."

Nicholson's reflections about what banks fundamentally do led him to think of them as the union of "two markets": a borrowers' market (loans) and a lenders' market (deposits). He and his colleagues at Egg spotted opportunities in both. In the borrowers' market, they projected that a growing part of the population would become what they dubbed "free formers"—contract workers not in full-time employment—who were creditworthy but unable to access credit from banks. In the lenders' market, they thought they could win over two groups. First, those who would see "a social angle" and feel that by lending directly, instead of indirectly, they had "some real connection to where their money would end up." And second, that they could cater to savvy financiers who would see in P2P loans a new asset class through which to reduce risk by diversifying their portfolios.

Conceiving of banks in these terms, Nicholson and his colleagues scoured the horizon for techniques that could enhance the functioning of both. They envisioned the lending market operating along the lines of an eBay auction, with lenders bidding to fund part or the whole of a loan requested by borrowers, with 'winning bids' going to those who offered the best terms (the lowest interest rate). On the borrowers' side, their source of inspiration was the corporate bond market. In particular, they envisioned assigning individuals *public* credit ratings, just as corporations are assigned public grades by credit rating agencies.

Starting at Egg, and then later as part of a start-up consultancy called New Barns Studios, Duval, Alexander and Nicholson pitched the rudiments of the P2P concept to colleagues, but without much success. Setting out on their own in 2004 "on the back of a [small support] team and a PowerPoint presentation," they pitched their idea to various venture capitalists in the City. Although they were successful in raising funds to launch Zopa in 2005, Nicholson described the early years of the company as "very, very tough" because there were few interested lenders and many un-creditworthy would-be borrowers.

The financial crisis marked a turning point. On the credit supply side, new lenders entered the market, attracted by the higher rates (and risk) available from exposure to P2P assets, relative to those offered on conventional banking products.[18] In addition, on the credit demand side, a wider and more creditworthy pool of potential borrowers appeared as banks deleveraged.[19] Zopa's newfound success encouraged the entrance of competitors. RateSetter, like Zopa, a P2P platform providing unsecured personal loans, launched in 2010. Funding Circle, the world's first P2P platform to fund business loans, started that same year.

"Show me the money": its background and rationale

One of the more innovative features of many UK P2P platforms is the extent of their data disclosure. While conventional banks' loan portfolios are sometimes opaque,[20] those of the up-start P2P sector are often less so and, in some instances, 'open by default.'[21] For example, Funding Circle has made its data publicly available through its website on a loan-by-loan basis since it started trading in 2010.[22] The dataset is available for download and contains every loan Funding Circle has intermediated, whether outstanding or already paid off. It includes a wide range of information on these loans that is regularly updated.

In 2013, we conducted research that built on Funding Circle's precedent with the inclusion of loan-level data from RateSetter and Zopa. Our resulting research report,

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(18) At the time we conducted our research, there was also much discussion that the rate of return on P2P investments exceeded equity returns from investing in small companies. See **Moules, J (2013)**, 'Peer lending beats equity returns', *Financial Times,* 25 June 2013, http://www.ft.com/cms/s/0/318cd08e-dd8f-11e2-892b-00144feab7de.html#axzz45FTMWJ6Z. It is also difficult for many ordinary individuals to have the opportunity to directly invest in small, early-stage enterprises via the equity market. This is because investment banks distribute shares in newly listed companies mostly to institutional and high net worth individuals.

(19) In 2013, there was a great deal of concern that the demand for external investment by businesses exceeded supply, with small and medium enterprises (SMEs) facing particular difficulty. See **Department for Business, Innovation and Skills (2012)**, 'Boosting Finance Options for Business', Department for Business, Innovation and Skills, HM Treasury. Also **Cosh, A, Hughes, A, Bullock, A and Milner, I (2009)**, 'SME Finance and Innovation in the Current Economic Crisis', Centre for Business Research, University of Cambridge, and **Lee, N, Sameen, H and Martin, L (2013)**, 'Credit and the crisis: Access to finance for innovative SMEs since the financial crisis', Big Innovation Centre.

(20) **Kohn, D (2011)**, 'Enhancing financial stability: the role of transparency', *speech at the London School of Economics,* 6 September 2011. Not surprisingly, greater transparency is a key part of post-crisis banking regulation. Thus, the very first policy recommendation of the UK's Financial Policy Committee in June 2011 advised micro-prudential regulators to make public disclosure of sovereign and banking sector exposures by major UK banks a permanent part of their reporting framework. Bank of England, 'Record of the interim Financial Policy Committee meeting', June 2011. The importance of data disclosure is a regulatory lesson often learned following financial crises. For example, following the failure of the City of Glasgow Bank in the nineteenth century, Parliament passed the 1879 Companies Act mandating that banks publish externally audited balance sheets. **Koeholer, B (2006),** 'History of Financial Disasters, 1763-1995', Routledge, London, Vol 2, page 148.

(21) **Starks, G (2013)**, 'Open is the new default', Open Data Institute, London, 3 July 2013, https://theodi.org/blog/open-new-default.

(22) See also the highly granular data available for download from the largest American P2P platform Lending Club: https://www.lendingclub.com/info/download-data.action.

titled “Show me the money,” published their combined portfolios online on an anonymised basis— nearly 14 million loan contracts. At the time, these three P2P platforms’ portfolios constituted over 92 percent of the UK market.[23] We then contracted with a third party firm named iconomical, who created an interactive visualisation showing the geography of UK P2P lending in our sample frame spanning from October 2010 to May 2013. Their dynamic visualisation allows users to drill down and see the P2P market, as it was then, at different levels of geographical analysis. Figures 2 and 3 are snapshots of the visualisations at a national level. Figure 4 depicts a more granular cut of the data, showing the London region, specifically P2P lending activity in the EC postcode that, among other parts of central London, comprises nearly the whole of the City.

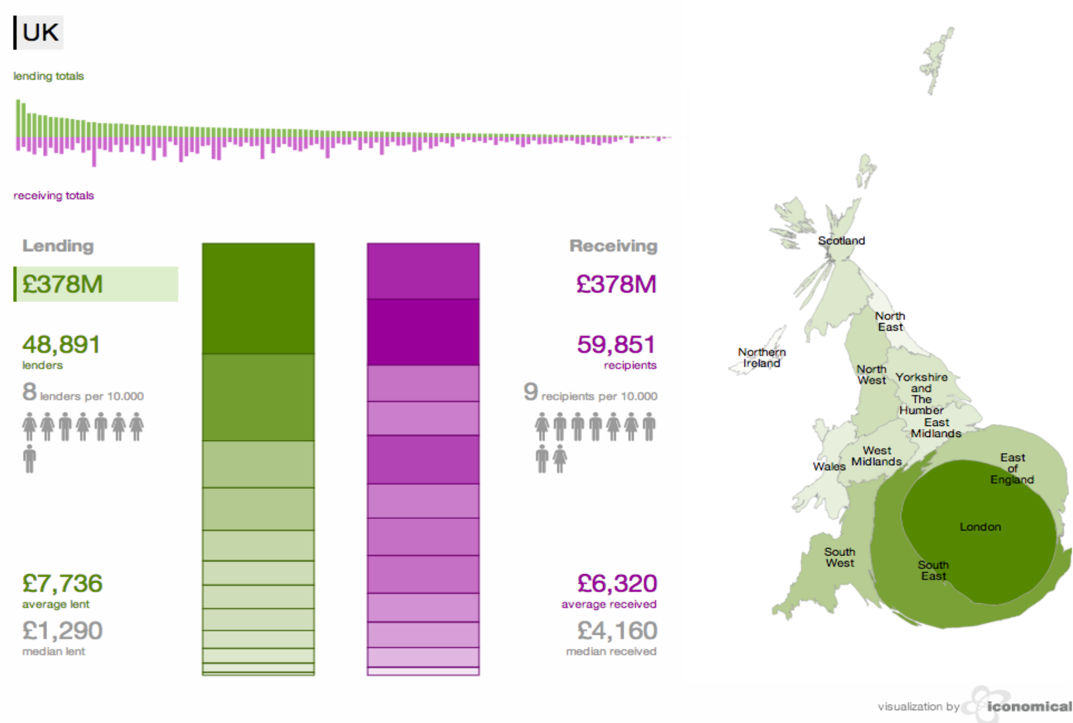


Figure 2: Lending activity in the UK P2P market. The map, or cartogram, on the right shows lending activity in regions. Darker green areas are regions with higher gross lending volumes in our sample.

[23] Comparison of the three platforms combined loans to date against the whole of the UK P2P market (as at 19 June 2013). See http://www.p2pmoney.co.uk/companies.htm for details.

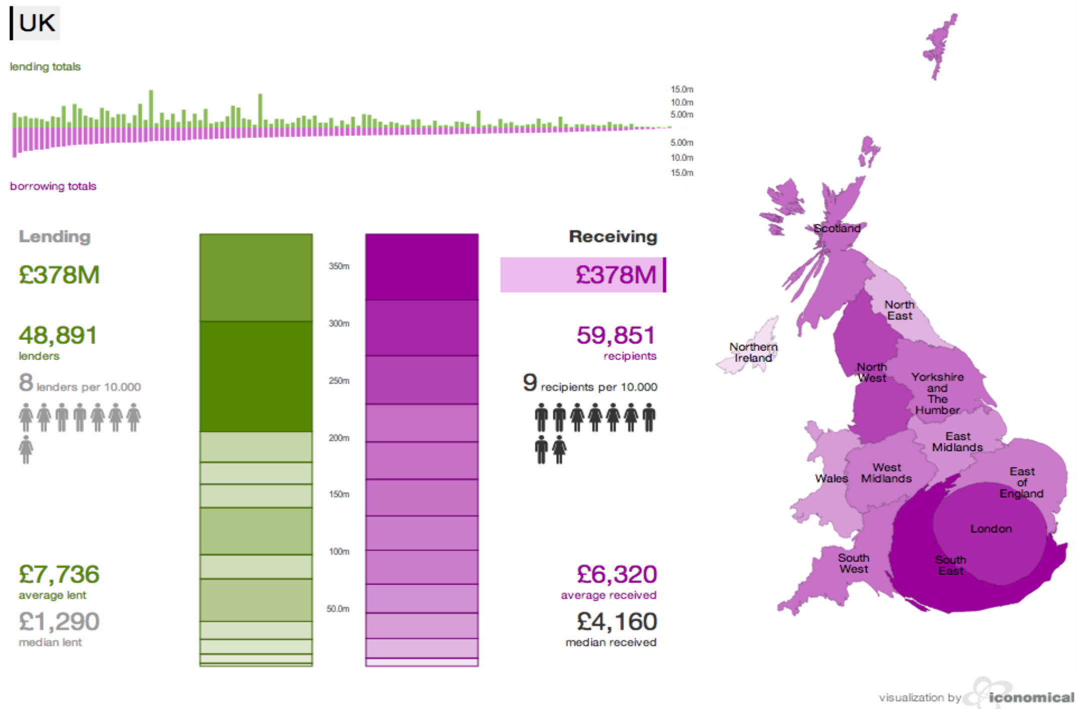


Figure 3: Borrowing activity in the UK P2P market. The map on the right shows lending activity in regions. Darker magenta areas are regions with higher gross borrowing volumes in our sample.

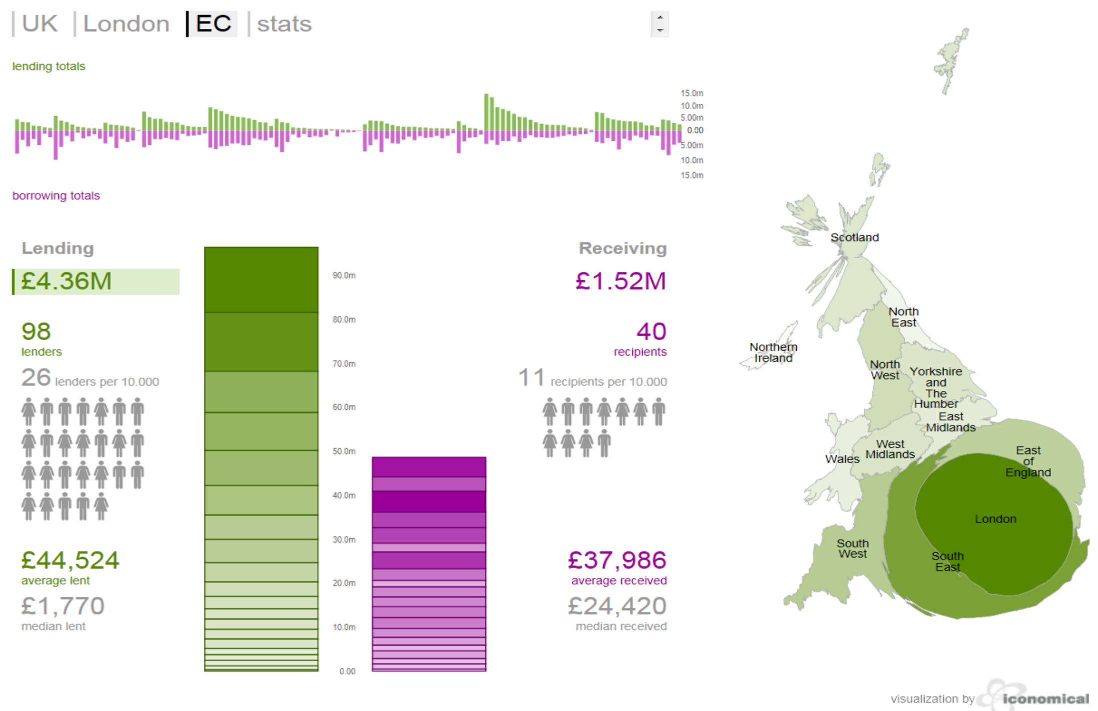


Figure 4: P2P activity in EC postcode. The stacked graph on the left allows users to discover regional details such as the average and median amounts lent and received. The bar graph at the top gives a high-level overview of loans funded and received by postcode. As of May 2013 in the EC postcode, the median amount borrowed (received) was £24,000 but the postcode as a whole was a net creditor, lending £4.36 million against £1.52 million contracted as debt.

We wanted our project to make three key contributions to academic and policy discussions happening at the time.

The first was to contribute to a growing economics literature exploiting massive micro-level datasets.[24] A key message of our project was that these 'big data' are analytically tractable with the right statistical and visualisation tools.[25]

Second, we wanted our project to benefit consumers by giving them a more comprehensive picture of market prices to aid their financial decision-making.

Finally, we hoped our project would encourage banks to disclose similar data. And they did. Following calls by the Government at around the same time, they started disclosing postcode-level lending data.[26]

The regional geography of P2P lending in the UK

Our research focused on the geography of lending for two reasons. First, there are longstanding concerns in the UK about a perceived 'North-South' divide along many dimensions including access to finance, with the North perceived to be at a disadvantage when compared to regions in the South, particularly London.[27] Hence we were interested in understanding how, if at all, P2P platforms were bridging this perceived regional funding gap.

Our second reason for focusing on the geography of the market was more pragmatic. Although all the P2P platforms in our sample provided loan-level data with a number of attributes, their definition was not the same across platforms. For example, while all three P2P platforms documented the purpose of the loan, these descriptions were

[24] For example, **Jiménez, G, Ongena, S, Peydró, J L and Saurina, J (2014)**, 'Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk-Taking?', *Econometrica: Journal of the Econometric Society*, Vol 82, No. 2, pages 463-505.
[25] **Bholat, D (2015)**, 'Big data and central banks', *Bank of England Quarterly Bulletin 2015 Q1*, Vol 55, No. 1, pages 86-93.
[26] See **Community Development Finance Association (2012)**, 'Government commits to disclosure of 'postcode level' lending data', Community Development Finance Association, 15 November 2012, http://responsiblefinance.org.uk/2012/11/government-commits-to-disclosure-of-postcode-level-lending-data/.
[27] See, for example, **Smith, D (1989)**, 'North and South: Britain's Economic, Social and Political Divide', Penguin, London, or 'The north of England: The great divide', *The Economist,* Vol 404, No. 8802, 15 September 2012, http://www.economist.com/node/21562938.

free text fields that varied across platforms so were not easily comparable.[28] Focusing on geography meant working with data that was already standardised in terms of postcode.

An important limitation of our study is that we did not focus on defaults and rates of recoveries because the industry was still in its infancy. Recently some commentators, including Lord Adair Turner, have warned that P2P lenders may manifest significant losses in the near future.[29] No reliable inferences about the riskiness of the industry can be made from our study.

Our empirical results now follow.

Overall statistics for nearly 14 million loan agreements

The data contained all loans intermediated by Zopa, Funding Circle and RateSetter over 32 months, from October 2010 to May 2013. This sample reflects the earliest date on which all three platforms were in operation, up to the date when we conducted our research. As this was the first time a combined analysis had been produced, we spent substantial effort harmonizing the datasets.

The basic unit of analysis in the data was loan agreements rather than loans because of the nature of P2P lending. Many different lenders can fund each loan. Equally, lenders may subdivide their investment into loans to many different borrowers. In total, there were 13,924,547 loan agreements in the combined dataset. We excluded an additional 20,916 observations, amounting to 0.15% of the sample. Most of these exclusions were made when the observation was missing the postcode, or the postcode was not valid. We also excluded loan agreements with postcodes from the Isle of Man (IM), the British Forces (BF), Guernsey (GY) and Jersey (JE), as these areas are not formally part of the UK jurisdictionally. The median loan agreement was

[28] This example evidences why the financial industry needs to develop a common data classification system, as discussed in-depth in **Bholat, D (2013)**, 'The future of central bank data', *Journal of Banking Regulation*, Vol 14, Nos. 3-4, pages 185-194.
[29] **Farrell, S (2016)**, 'Former City regulator warns of potential peer-to-peer lending crisis', *The Guardian,* 10 February 2016, http://www.theguardian.com/money/2016/feb/10/former-city-regulator-warns-peer-to-peer-lending-lord-turner.

£10. Once aggregated, the nearly 14 million loan agreements represented 59,851 distinct loans with an aggregate value of £378.3 million.

	Lender	Borrower
Mean loan	£7,737	£6,320
Median loan	£1,290	£4,160
Standard deviation	£29,369	£11,060

Table 1: Measures of central tendency and dispersion in our data

Table 1 presents measures of central tendency and dispersion in the data.[30] One feature we found is that lenders were more skewed towards granting large value loans than borrowers were to receive them. The salient difference in mean and median loan values, and the large standard deviation, suggests a few lenders lending large sums, whilst most borrowers were borrowing amounts between £3,000 and £6,000. This makes intuitive sense because lenders, with a surplus of funds, may have more financial freedom than borrowers, who have a deficit they are seeking to cover.

We identified 48,891 lenders and 59,851 borrowers in the data. These are estimates. We interpreted each loan ID and counterparty postcode to be distinct agents. However, there may have been cases where two different lenders lived in the same postcode or instances where the same person or company took out more than one loan.

Geographic flows show four regions were investing more than they borrowed

Each loan agreement in the dataset had a postcode for the lender and the borrower. Therefore, we could calculate regional flows at different geographical levels. These were geographical flows *at origination*. We emphasize this point because certain P2P platforms have secondary markets that allow the original lender to sell their rights to the remaining repayments from the borrower to other investors. Thus, the recipient of cash flows from a loan part at a later point in its lifecycle may not be the original lender. Since loan agreements often change hands, we focused on the original lenders'

[30] All R code is available on GitHub: https://github.com/theodi/R-projects/tree/master/peer-to-peer.

postcodes rather than where cash flows were flowing at the point in time when we conducted our study.

Region	As lender	As borrower	Net	Population	Lending per person	Borrowing per person	Net per person
London	96,535,000	48,725,000	47,810,000	8,204,000	11.80	5.90	5.80
South East	76,353,000	57,602,000	18,751,000	8,653,000	8.80	6.70	2.20
South West	41,144,000	32,076,000	9,068,000	5,301,000	7.80	6.10	1.70
East of England	37,243,000	29,748,000	7,495,000	5,862,000	6.40	5.10	1.30
West Midlands	21,207,000	29,978,000	-8,771,000	5,609,000	3.80	5.30	-1.60
East Midlands	15,665,000	25,239,000	-9,574,000	4,537,000	3.50	5.60	-2.10
North West	26,803,000	42,434,000	-15,631,000	7,056,000	3.80	6.00	-2.20
Yorkshire and The Humber	20,584,000	32,756,000	-12,172,000	5,288,000	3.90	6.20	-2.30
Northern Ireland	2,527,000	6,993,000	-4,466,000	1,807,000	1.40	3.90	-2.50
Scotland	19,219,000	33,108,000	-13,889,000	5,255,000	3.70	6.30	-2.60
Wales	12,880,000	22,355,000	-9,475,000	3,064,000	4.20	7.30	-3.10
North East	8,104,000	17,250,000	-9,146,000	2,596,000	3.10	6.60	-3.50

Table 2: Regional P2P statistics. Monetary figures in pounds.

Table 2 aggregates postcode data at a regional level. Unsurprisingly, London was the biggest lender by value. It was also the second biggest borrowing region, after the South East. We found four regions were investing more than they borrowed: London, South East, South West and the East of England. All four regions are in the South of the UK. However, it is important to bear in mind that the regional allocation of funds is *not* a deliberate decision made by investors for Zopa and RateSetter. Therefore, the resulting regional allocation of funds may reflect other variables.

We then combined the loan-level P2P data with other available sources. For example, population estimates from the UK census for each region allowed us to normalize the regional figures. London still topped the lenders' list with £11.80 per person. However, there was great regional diversity. The range of lending per person went from £1.40 to £11.80. The regional range for borrowers went from £3.90 to £7.30 per person. In sum, there was substantially more lending in London and the South of the UK, while borrowers were more evenly distributed across the country.

We found variation in loan terms between regions to be surprisingly low. On average, interest rates on the loans in our dataset were between 6.1% and 6.7% and had a term of 37 to 41 months. We did not find any obvious pattern when it comes to the interest rates paid by borrowers. By contrast, the lowest rates received by lenders were in the East of England. This stems from the fact that, for whatever reason, the term length of an average loan in this region was shorter than in other parts of the UK. Figure 5 displays a histogram of loan rates for each of the regional flows. Figure 6 displays a histogram of the term length of the loans.

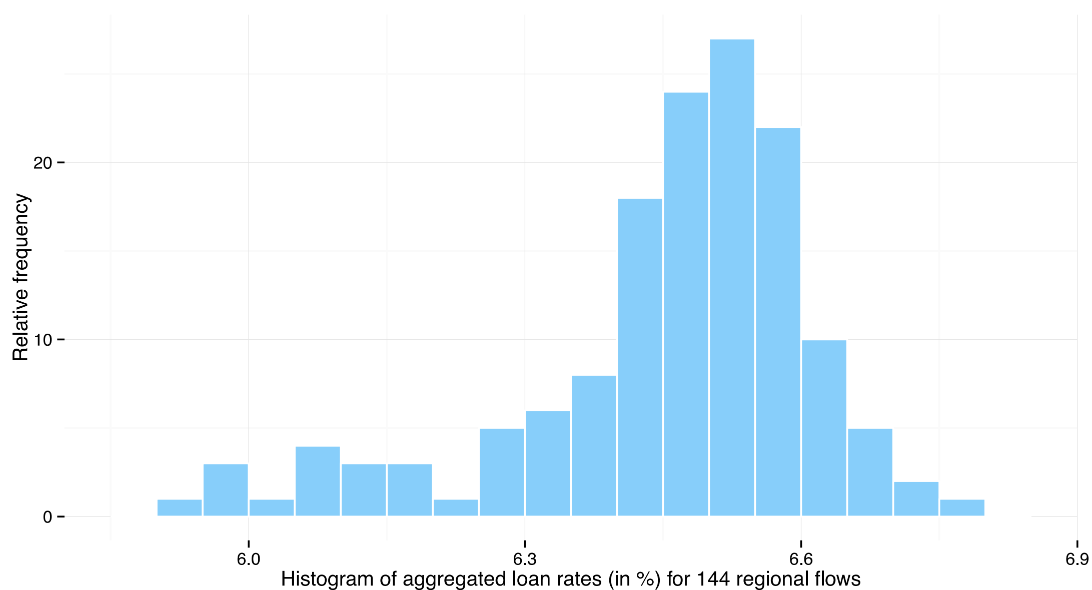


Figure 5: Histogram of loan rates for each regional flow. There are 12 regions in the UK and each lends to eleven others and itself. This creates 144 regional flows. The chart above shows the count (y-axis) of loan rates (x-axis) across the 144 regional flows in our sample.

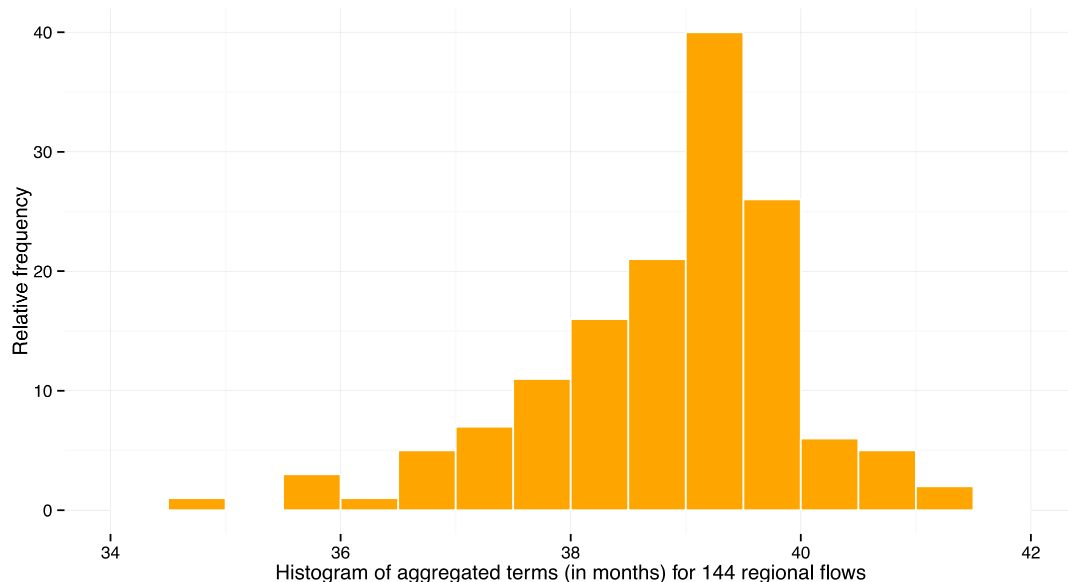


Figure 6: Histogram of terms for each regional flow. There are 12 regions in the UK and each lends to eleven others and itself. This creates 144 regional flows. The chart above shows the count (y-axis) of the average terms in months (x-axis) across all 144 regional flows in our sample.

Why and how P2P lending matters in the UK

The UK P2P market grew rapidly from practically nil before the financial crisis to over £500 million in cumulative gross lending as of May 2013 when we conducted our research.[31] Figures 7 and 8 plot the growth in lending and borrowing from 1 October 2010 to 30 June 2011 (left hand panel) and 31 May 2013 (right hand panel). Growth has continued since. According to the Peer 2 Peer Finance Association, a trade body representing many of the largest P2P platforms in the UK including Zopa, RateSetter and Funding Circle, new gross lending facilitated by its members in Q2 2015 totaled £450 million. This brings the total lending intermediated by its member platforms from their origins to nearly £3 billion.[32]

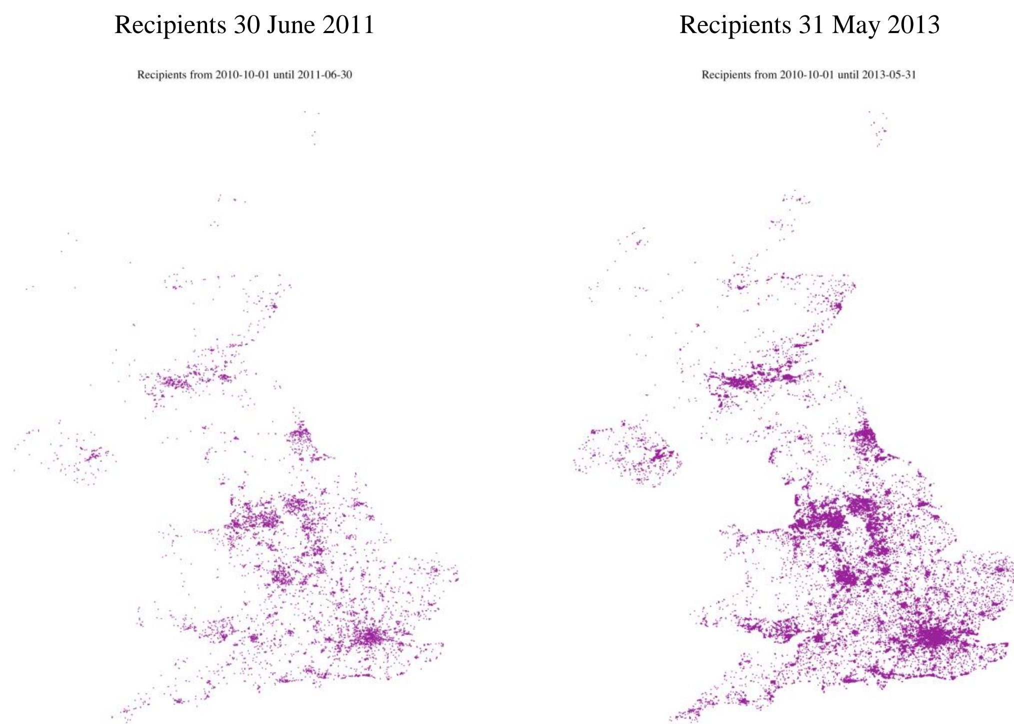
[31] See www.P2Pmoney.co.uk/companies.htm for details.
[32] See http://P2Pfa.info/data. We exclude MarketInvoice from their headline figures because it is not in the P2P lending business.

Figure 7: Growth of P2P lending over time

Dots represent lenders in postcodes. The greater number of dots on the map in 2013 (right hand side) visually attests to the growth of the UK P2P lending market.

Figure 8: Growth in P2P borrowing over time

Dots represent borrowers in postcodes. The greater number of dots on the map in 2013 (right hand side) is visual evidence of the growth in borrowing in the UK p2p market.



Two factors explain the increased public prominence of P2P lending in the UK. First, there is the extraordinary growth rate of the market relative to the rate of net bank lending recently. Second, there is the direct and indirect support for the industry from the public sector and regulatory bodies. Let us take these in turn.

The first point to note is the growth rate of the sector. Nesta, a UK-based think-tank, has estimated that in recent years the growth rate of P2P lending has been triple digits, while during the same period *net* bank lending, that is, gross lending minus repayments, has been volatile and sometimes negative. Here the growth of P2P lending has been driven by supply and demand factors. On the supply side, when it comes to lending, some sector enthusiasts claim that the main drivers have been ideological. In the memorable rhetorical pitch of the crowd-funding platform BnkToTheFuture.com, "Who gets funded? You decide." No doubt that empowering promise, of giving individuals control over how their monies are invested, has resonance in some circles post-financial crisis.

However, results from a survey conducted by Nesta in 2014 suggest that the main motivation for lenders is pecuniary. When asked why they were participating in the P2P market, 82% of surveyed lenders on peer-to-business lending sites ticked "To make a Financial Return" as very important, while only 35% ranked "To have control over where my money goes" of similar significance.(33) Likewise, while 78% of lenders supplying funds through P2P consumer lending sites cited the interest rate available as very important, just 35% of those surveyed ranked "supporting an alternative to the big banks" of equal significance.(34) Shifting focus from supply to demand factors, the Nesta survey found that borrowers' main motivations mirrored those expressed by lenders. For example, surveyed borrowers using P2P consumer lending sites ranked the interest rate available as their major motivation for participating in the market.(35)

(33) **Baeck, P, Collins, L and Zhang, B (2014)**, 'Understanding alternative finance: The UK Alternative Finance Industry Report 2014', Nesta, London, page 34. That said, another 46% of surveyed lenders said that 'to have control over where my money goes' was important. Another 17% said 'to make a financial return' was important. Responses where the majority of those surveyed responded that the factor was either 'neither important nor unimportant', or 'unimportant/very important' included 'supporting the SME sector'; 'lending to industries I know/care about'; 'doing social or environmental good'; 'lending to local businesses/enterprises'; 'curiosity'; 'supporting a friend or family members'; 'to help increase housing stocks'.
(34) Ibid, page 44.
(35) Ibid, page 55.

A second factor responsible for the increased prominence of P2P lending in the UK is interest and encouragement from public sector and regulatory bodies. The UK Government Department for Business, Innovation and Skill and, latterly, its subsidiary, the British Business Bank, have invested nearly £200 million in P2P platforms, often by topping up the remaining unfunded portion of near-fully funded loans.(36) Such funding is not only financially but also symbolically important. Arguably, it has boosted public confidence to participate in the market.(37)

The same can be said of the fact that the Financial Conduct Authority started to regulate the sector from 1 April 2014. Broadly speaking, the regulation sets minimum standards for the equity P2P platforms must raise and maintain in order to operate. It also stresses the importance of platforms making honest disclosures about the risks to which investors are exposed.(38) Arguably, P2P regulation, like regulation in general, has had the effect of 'crowding in' participants because it gives them the perception that markets are fair and orderly.(39) The announcement by the Government that interest from P2P loans can be shielded from tax as part of tax-free individual saving accounts (ISAs) from 6 April 2016 is likely to boost P2P business.(40)

The impact of P2P lending on conventional banks

Looking ahead, we envision two key impacts the P2P lending sector may have on the conventional banking sector:

1. reduced rates on unsecured personal loans brought about by competition from P2P platforms, putting downward pressure on bank profitability in this product line; and
2. a model for banks as they shift their distribution channels from brick-and-mortar branches to internet and mobile services.

(36) **Bounds, A (2014)**, 'Government interference risks distorting UK P2P market, say lenders', *Financial Times,* 26 October 2014, http://www.ft.com/cms/s/0/feb9bc5e-5afa-11e4-8625-00144feab7de.html#axzz45FTMWJ6Z.
(37) For an overview of related developments in the US see **Stanberry, K (2014)**, 'Crowdfunding and the Expansion of Access to Startup Capital', *International Research Journal of Applied Finance.* Vol 5, No. 12, pages 1382-1391.
(38) **Financial Conduct Authority (2014)**, 'PS14/4: The FCA's regulatory approach to crowdfunding over the internet, and the promotion of non-readily realisable securities by other media', http://www.fca.org.uk/news/ps14-04-crowdfunding.
(39) **Friedman, M (1962)**, 'Capitalism and Freedom', University of Chicago Press, Chicago.
(40) **Boyce, L (2015)**, 'New kind of ISA will accept peer-to-peer investments from next year', *This Is Money*, 8 July 2015, http://www.thisismoney.co.uk/money/saving/article-3153630/New-kind-Isa-accept-peer-peer-investments-year.html.

Although there is P2P lending to fund businesses and real estate, we think consumer credit is the area where banks will face most competition from online platforms. In part, this is because it is the asset class in which P2P emerged and is most mature. For example, one striking fact to emerge from Nesta's survey of the industry is the difference in the credit profile of individual and business borrowers on P2P platforms. In the P2P market for personal loans, 59% of respondents sought funding from banks at the same time they applied for a P2P loan, and 54% were granted it but chose to fund themselves via the platforms. By contrast, in the market for P2P business loans, 79% sought funding from banks but only 22% were granted it.[(41)] One interpretation of these results is that, while banks and P2P platforms are operating with different credit risk and lending models when it comes to business loans, P2P platforms are actually competing away some customers from banks in the unsecured personal loans market.

Looking ahead, unsecured personal loans are the market where P2P platforms are likely to continue to make inroads against banks. In contrast to the retail mortgage and deposit market, no British bank has a dominant position in consumer credit.[(42)] In addition, British banks' unsecured lending is typically a small component of their overall balance sheet.

The results of this competition could be good for consumers, increasing the availability of unsecured personal credit while lowering its price. This would amplify recent trends. Last year, UK banks increased their issuance of unsecured personal loans, and quoted interest rates on these fell sharply.[(43)] However, we caution that P2P platforms still trail banks by some distance in terms of their share of the unsecured personal loans market. For example, in Q4 2014, the net lending flow to individuals through P2P platforms was just over £70 million, while those from UK banks and building societies topped £2 billion.[(44)]

[(41)] **Baeck, P, Collins, L and Zhang, B (2014)**, 'Understanding alternative finance: The UK Alternative Finance Industry Report 2014', Nesta, London, page 34.
[(42)] **Napier, J and Lock, D (2014)**, 'Bank to the Future: UK Retail Banking 2014', Deutsche Bank Markets Research, page 74.
[(43)] **Bank of England (2015)**, *Financial Stability Report*, Issue 37, July 2015.
[(44)] Data sources are the Bank of England and the P2P Finance Association. The P2P figures also may include secured lending to individuals, and factoring and discounting. Both P2P and bank figures exclude student loans.

A second, longer term, less direct but still important impact we expect P2P lenders will have on banks is in how they interact with consumers. Over the last two decades, banks have taken steps to move their customers online to reduce costs from operating physical branches. By some estimates, 30 to 40 percent of retail banks costs in the UK come from running physical branches, even though footfall in them has been falling at 10 percent per annum in recent years, possibly because younger generations are more comfortable doing business just online.[45] This means banks are likely to accelerate the transition of their customers from brick and mortar branches to Internet browsers.[46] As this happens, we anticipate banks will look to P2P platforms for inspiration in how to redesign their websites, as these are often noted for being slick and speedy because, for example, they incorporate videos, pictures and communication channels for investors to interact with borrowers.[47]

Conclusion

P2P lending—direct lending between lenders and borrowers online outside traditional financial intermediaries like banks—first emerged in the UK and the world with the launch of Zopa in 2005. We have shown how P2P lending evolved in the UK based on four semi-structured interviews with the founders of Zopa, RateSetter and Funding Circle, with an eye toward understanding the sources of economic entrepreneurship. We have presented qualitative evidence that innovation in finance often evolves through reconsideration by entrepreneurs of its foundations, rather than enacting a break from these. We also discussed the geography of lending and borrowing created through these platforms based on a quantitative analysis of nearly 14 million loan agreements. Finally, we offered some reflections on the reasons why P2P lending has risen to prominence, and speculated on the impact the sector may have on the conventional banking sector. Competition from the P2P sector may benefit consumers over the long-term by reducing the price for unsecured personal loans, and by encouraging banks to enhance their digital offer.

[45] **Napier, J and Lock, D (2014)**, 'Bank to the Future: UK Retail Banking 2014', *Deutsche Bank Markets Research,* page 106.
[46] For example, in autumn 2014, the front page of London's *Evening Standard* announced the closing of 200 Lloyds branches and its renewed push to drive their business digitally. See **Lawson, A (2014)**, 'Lloyds to axe 9,000 jobs and close 200 branches as it eyes digital growth', *Evening Standard*, 28 October 2014, http://www.standard.co.uk/business/business-news/lloyds-to-cut-9000-jobs-and-close-150-branches-9822362.html.
[47] **Jeffery, P and Arnold, D (2014)**, 'Disrupting Banking', *Business Strategy Review*, Vol 25, No. 3, pages 10-15.

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At least in the United States. **Philippon, T (2015)**, 'Has the US Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation', *The American Economic Review,* Vol 105, No. 4, pages 1408-1438.

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For a general overview of crowdfunding see **Neiss, S, Best, J and Cassady-Dorion, Z (2012),** 'Getting started with Crowdfund Investing In a Day for Dummies', John Wiley and Sons, Hoboken, NJ; and **Frutkin, J (2013),** 'Equity Crowdfunding: Transforming Customers into Loyal Owners', SterlingFunder, Atlanta. While P2P lending are debt-based transactions, other crowdfunding models are donation, reward or equity based. Donation-based crowdfunding involves individuals pooling their funds online and making a charitable contribution. Reward-based crowdfunding involves individuals pooling funds and prepaying for goods and services. Equity crowdfunding involves the online issuance of equity, usually in start-ups. **Baeck, P, Collins, L and Zhang, B (2014)**, 'Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014', Nesta, London, page 9.

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For example, the front-page of the *Financial Times*. See **Moore, E (2013)**, 'Digital finance lending set to hit £1 billion', *Financial Times,* 15 July 2013, http://www.ft.com/cms/s/0/28bf596c-eafb-11e2-bfdb-00144feabdc0.html#axzz45WIjwUuk.

For general overviews of the academic P2P literature see **Bachmann, A, Becker, A, Buerckner, D, Hilker, M, Kock, F, Lehmann, M and Tiburtius, P (2011),** 'Online Peer to Peer Lending - A Literature Review', *Journal of Internet Banking and Commerce,* Vol 16, No. 2, pages 1-18; **Morse, A (2015),** 'Peer-to-Peer Crowdfunding: Information and the Potential for Disruption in Consumer Lending', *NBER Working Paper No. 20899*; **Bouncken, R B, Komorek, M and Kraus, S (2015)**, 'Crowdfunding: The Current State Of Research', *International Business & Economics Research Journal,* Vol 14, No. 3, pages 407-416.

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Cf. **Bruton, G, Khavul, S, Siegel, D S and Wright, M (2015)**, 'New Financial Alternatives in Seeding Entrepreneurship: Microfinance, Crowdfunding, and Peer-to-Peer Innovations', *Entrepreneurship: Theory & Practice,* Vol 39, No. 1, pages 9-26; **Einav, L, Jenkins, M and Levin, J (2013)**, 'The impact of credit scoring on consumer lending', *RAND Journal of Economics,* Vol 44, No. 2, pages 249–274.

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Lewis also mentioned Betfair, a company he worked at early in his career, as an important influence on his thinking about the P2P model. Betfair is an online gambling site started in the UK in 2000. Rather than punters betting against the bookmaker, as is conventional, Betfair allows them to bet against each. In other words, P2P betting.

The depiction of banks as intermediaries is not without its critics. **Jakab, Z and Kumhoff, M (2015)**, 'Banks are not intermediaries of loanable funds—and why this matters', *Bank of England Staff Working Paper No. 529*; **Bholat, D (2013)**, 'Money, bank debt and business cycles: between economic development and financial crises', *Availability of Credit and Secured Transactions in a Time of Crisis*, Akseli, N ed, Oxford University Press, Oxford, pages 11-32.

At the time we conducted our research, there was also much discussion that the rate of return on P2P investments exceeded equity returns from investing in small companies. See **Moules, J (2013)**, 'Peer lending beats equity returns', *Financial Times,* 25 June 2013, http://www.ft.com/cms/s/0/318cd08e-dd8f-11e2-892b-00144feab7de.html#axzz45FTMWJ6Z. It is also difficult for many ordinary individuals to have the opportunity to directly invest in small, early-stage enterprises via the equity market. This is because investment banks distribute shares in newly listed companies mostly to institutional and high net worth individuals.

In 2013, there was a great deal of concern that the demand for external investment by businesses exceeded supply, with small and medium enterprises (SMEs) facing particular difficulty. See **Department for Business, Innovation and Skills (2012)**, 'Boosting Finance Options for Business', Department for Business, Innovation and Skills, HM Treasury. Also **Cosh, A, Hughes, A, Bullock, A and Milner, I (2009)**, 'SME Finance and Innovation in the Current Economic Crisis', Centre for Business Research, University of Cambridge, and **Lee, N, Sameen, H and Martin, L (2013)**, 'Credit and the crisis: Access to finance for innovative SMEs since the financial crisis', Big Innovation Centre.

Kohn, D (2011), 'Enhancing financial stability: the role of transparency', *speech at the London School of Economics,* 6 September 2011. Not surprisingly, greater transparency is a key part of post-crisis banking regulation. Thus, the very first policy recommendation of the UK's Financial Policy Committee in June 2011 advised micro-prudential regulators to make public disclosure of sovereign and banking sector exposures by major UK banks a permanent part of their reporting framework. Bank of England, 'Record of the interim Financial Policy Committee meeting', June 2011. The importance of data disclosure is a regulatory lesson often learned following financial crises. For example, following the failure of the City of Glasgow Bank in the nineteenth century, Parliament passed the 1879 Companies Act mandating that banks publish externally audited balance sheets. **Koeholer, B (2006),** 'History of Financial Disasters, 1763-1995', Routledge, London, Vol 2, page 148.

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See also the highly granular data available for download from the largest American P2P platform Lending Club: https://www.lendingclub.com/info/download-data.action.

Comparison of the three platforms combined loans to date against the whole of the UK P2P market (as at 19 June 2013). See http://www.p2pmoney.co.uk/companies.htm for details.

For example, **Jiménez, G, Ongena, S, Peydró, J L and Saurina, J (2014)**, 'Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk-Taking?', *Econometrica: Journal of the Econometric Society*, Vol 82, No. 2, pages 463-505.

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See www.P2Pmoney.co.uk/companies.htm for details.

See http://P2Pfa.info/data. We exclude MarketInvoice from their headline figures because it is not in the P2P lending business.

Baeck, P, Collins, L and Zhang, B (2014), 'Understanding alternative finance: The UK Alternative Finance Industry Report 2014', Nesta, London, page 34. That said, another 46% of surveyed lenders said that 'to have control over where my money goes' was important. Another 17% said 'to make a financial return' was important. Responses where the majority of those surveyed responded that the factor was either 'neither important nor unimportant', or 'unimportant/very important' included 'supporting the SME sector'; 'lending to industries I know/care about'; 'doing social or environmental good'; 'lending to local businesses/enterprises'; 'curiosity'; 'supporting a friend or family members'; 'to help increase housing stocks'.

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Bounds, A (2014), 'Government interference risks distorting UK P2P market, say lenders', *Financial Times,* 26 October 2014, http://www.ft.com/cms/s/0/feb9bc5e-5afa-11e4-8625-00144feab7de.html#axzz45FTMWJ6Z.

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Data sources are the Bank of England and the P2P Finance Association. The P2P figures also may include secured lending to individuals, and factoring and discounting. Both P2P and bank figures exclude student loans.

Napier, J and Lock, D (2014), 'Bank to the Future: UK Retail Banking 2014', *Deutsche Bank Markets Research,* page 106.

For example, in autumn 2014, the front page of London's *Evening Standard* announced the closing of 200 Lloyds branches and its renewed push to drive their business digitally. See **Lawson, A (2014)**, 'Lloyds to axe 9,000 jobs and close 200 branches as it eyes digital growth', *Evening Standard*, 28 October 2014, http://www.standard.co.uk/business/business-news/lloyds-to-cut-9000-jobs-and-close-150-branches-9822362.html.

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