

October 2024



CODE ENCOUNTERS SUMMARY BRIEFING 3:

Credit risk decisions, mortgage lending and technological possibilities

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The Code Encounters Nuffield Foundation funded project was undertaken by the University of York and the University of Bristol to examine the digital risk profiling tools that shape access to housing. These tools are increasingly adopting new sources of data and algorithmic processing and include tenant referencing tools in the private rented sector, affordability assessments in social housing and credit risk decisions in mortgage lending. The project ran from 2022 to 2024 and the findings are based on 122 in-depth interviews with people who produce, operate and are impacted by these various digital processes. This is the first UK study to gather multiple perspectives on the construction, operation and impact of digital risk profiling tools in housing. This briefing highlights key findings from 31 interviews with technology firms involved in aspects of credit risk decision making, mortgage lenders, brokers, consultants and borrowers.

Summary

- Credit reference agencies or bureaus collect data relevant to assess a person's creditworthiness but the data resources have changed over time. Data used in these assessments has moved from community reputation, to income, status and default histories, but can now include new resources such as current account turnover, utility bills, stability of mobile phone numbers and email addresses, banking transaction data and digital footprint analysis.
- Large parts of the mortgage lending sector are already highly data driven and automated with mainstream lending using credit bureau information to verify customer supplied data and automated property valuations to make lending decisions.
- New technologies like Open Banking, where customers give permission for lenders to access banking account transactions, are evidently becoming increasingly common in other credit lending scenarios but to a lesser extent in mortgage lending,
- The interviews revealed that there are significant barriers to further automation and using new data resources that include large legacy IT systems, regulation, professional resistance and the importance and cost effectiveness of human oversight to detect fraud or assess lending in non-standard circumstances.
- The drive to automate lenders' back office operations was clear and may improve customer experience, increase speed, create efficiencies and the quality of decision making. There were, however, mixed views on the strength of the business case for change and some lenders in niche mortgage markets made a virtue of human oversight and manual processes at the margins.

What is the background to the study?

The credit industry has adopted sophisticated data technologies for over a century as city populations grew and personal community reputation alone was insufficient to support business with strangers. This turned qualitative 'soft' insights into hard quantitative data. Drawing on this expanded credit information, mortgage lending notably embraced data driven decisions and automated processes when credit scoring was adopted in the 1980s/1990s, aggregating insights from vast digital resources that reflected a person's creditworthiness.

Modern credit scoring technologies contributed to the growth of the subprime mortgage market by enabling lenders to offer higher interest rates to high-risk borrowers. This approach expanded homeownership opportunities but also led to

increased defaults, particularly among low-income and minority groups.

Now the sector stands at a new turning point with increasing digital data sources and artificial intelligence (AI) changing what is possible. While credit scoring aimed to reduce bias in lending, historical practices such as redlining and ongoing issues with economic discrimination demonstrate that algorithmic models can still reinforce structural inequalities.

This briefing highlights findings from the Nuffield Foundation-funded Code Encounters study that provides an in-depth qualitative analysis of digital risk-profiling tools that govern access to the housing market. It is the first UK study to appraise these systems from multiple perspectives.

How are mortgage lenders using new data resources?

The interviews suggested that compared to other forms of credit, such as small business loans or short term lending, the adoption of alternative sources of digital data to inform mortgage lending decisions is currently limited. Credit reference agencies reportedly continue to expand the data resources available to lending institutions but lenders need the capacity to analyse and deploy the data.

The introduction of these new digital data sources, notably banking transaction data from Open Banking, aims to enhance credit assessments by providing a fuller picture of an individual's financial situation. Open Banking technology provides detailed and near-real-time insights into income and spending, potentially improving credit assessments, particularly for individuals with limited credit histories. Despite its potential, Open Banking faces challenges such as managing multiple accounts, accurate transaction categorization, and consumer trust, which may limit its widespread adoption. There are also alternative ways for lenders to gain similar insights from extracting data from bank statements to categorise and analyse, as well as using turnover data supplied by bureaus.

The credit industry continues to grapple with data quality issues, including errors and duplications, which can impact credit risk assessments. Efforts

to improve data quality through de-duplication and advanced analytics are ongoing. Lenders increasingly use direct data sources like Companies House, Land Registry, and HMRC, while traditional spatial data and behavioural data from cookies are less commonly used.

While consumers generally accept the trade-off of detailed credit scoring and financial surveillance for access to credit, the interviews across the piece highlighted persistent concerns about privacy, data quality, and transparency, and the mandatory or discretionary nature of some data collection. These issues underscore the need for improved consumer awareness of how various data are used, regulatory oversight and consumer protection.

'So, we got to see the inside of how lenders operate. Day to day again, traditionally online lenders because the mortgage lenders, they, even now they're very old school, underwriting manually, different decisions depending on who put the case of the same hazards [...] I think the bigger the client, the slower they move, the less often they change their platforms.' **(Credit software firm 1)**

How is the mortgage market adopting further automation?

The mortgage industry faces a technological crossroads, struggling to fully embrace advancements due to legacy IT systems. An early adopter of automated decision making in the 1990s now these systems act as a break on the rapid uptake of more recent technologies. Despite the significant impact of credit scoring innovations, recent efforts focus on improving customer journeys and automating administrative tasks. AI is increasingly used to streamline processes and reduce costs, though complex or unique situations still require human intervention. The integration of Open Banking and other innovations, such as Open Finance - sharing data on a wider range of financial products - and digital conveyancing, holds the potential to enhance credit risk assessments and the customer experience.

The current market is dominated by a few large lenders who leverage automation, while smaller lenders focus on niche markets and personalised

customer support. Fintech firms are exploring alternative lending areas due to difficulties in engaging with mortgage lenders. Regulatory requirements and competitive pressures are shaping the pace of technological adoption, with delays in the home-buying process attributed to slow conveyancing and other external factors.

'The banks have spent their investment dollars on making things slick for customers, not making things slick for bank employees. So, the bank. So as a bank employee trying to deal with this, there will be system support. But a lot of these systems are a bit rubbish, you know [...] And it's not uncommon [to] actually sort of manually key between systems and all this kind of thing.' **(Lending consultant 4)**

Who are the winners and losers in a digital mortgage market?

The global financial crisis underscored the importance of considering affordability in lending. Stricter regulations introduced in 2014 have made homeownership more challenging for lower-income individuals but have improved market sustainability and reduced the risk of financial shocks. Open Banking, which analyses transaction data beyond traditional credit history, has the potential to expand mortgage access for individuals with thin credit files, such as young people and migrants, but may also exclude those with poor financial management despite having sufficient income.

While automated systems and Open Banking technology can streamline lending processes, they may inadvertently exclude marginal borrowers or those with complex financial situations, leading to higher costs or more challenging terms. Addressing

biases in algorithmic models and ensuring fairness in lending decisions are crucial to preventing the replication or amplification of existing inequalities. A balanced approach that combines technological efficiency with human discretion is essential for fair lending practices.

'There is no standard around the classification of Open Banking data. [...] I don't think it's a concern, because ultimately, it's just an interpretation of the raw underlying data. [...] Yes, so even if you were to standardise the classifications, the lender would interpret the classifications differently.' **(Credit software firm 6)**

Conclusion

The credit assessment landscape is undergoing significant change due to advancements in technology and data integration. Automation and Open Banking are reshaping lending practices, presenting both opportunities and challenges. The industry's evolution towards more data-driven and automated processes must be managed with careful attention to fairness, transparency, and consumer protection to achieve positive outcomes.

However, the integration of granular data and automated profiling into mortgage lending

introduces several ethical concerns. Privacy, fairness, and bias are major issues, as new classifications based on digital footprints can embed moral judgments into financial decision-making. This could disadvantage certain groups and exacerbate social inequalities, raising concerns about people's limited awareness of the need for people to actively manage their digital data profiles. These issues highlight the need for careful consideration of the implications of using detailed behavioural rather than just payment history data for credit assessments.

Recommendations

Across the Code Encounters project we identified themes that must be addressed, including the following that are relevant to Government, those responsible for financial education, risk profiling technology firms, lenders, landlords and agents.

1. To make visible how data and algorithms have been used in each decision
2. To establish agreed guidelines on the appropriate use of algorithms for stakeholders within the sector and tenures
3. To produce guidance on the use of data and algorithms for tenants and borrowers
4. To retain human oversight in decision making
5. To ensure the explainability of decision making
6. To ensure the retention of flexibility and individually tailored decision-making

These recommendations are discussed in more detail in our *Overarching summary report 1*.

Further information

The Code Encounters research that informed this brief was funded by the Nuffield Foundation. The findings are based on a large qualitative dataset with 50 drawn specifically from the private rented sector, offering insights from firms who make software or platform technology to support digital risk profiling, private landlords, letting agents, national stakeholders and private tenants. More information about the study and its methods is available in our report:

Wallace, A., Beer, D., Burrows, R., Ciocănel, A. and Cussens, J. (2024) *Housing and Algorithmic Risk Profiling in England- Report of overarching findings- Code Encounters Report 1*. York/ Bristol, University of York/University of Bristol.

Wallace, A., Beer, D., Burrows, R., Ciocănel, A. and Cussens, J. (2024) *Credit risk decisions, mortgage lending and technological possibilities - Code Encounters Report 4*. York/ Bristol, University of York/University of Bristol.

Findings from this study have already been published in peer-review journals and all reports, papers and briefings are available to download from the project webpages <https://www.york.ac.uk/chp/housing-markets/code-encounters/>

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The project has been funded by the Nuffield Foundation, but the views expressed are those of the authors and not necessarily the Foundation. Visit www.nuffieldfoundation.org



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