

FinTech, relationship banking and lending to SMEs: survey-based evidence for Wales

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Summary

In this report the Welsh Economy Research Unit explore the impact of financial technology (FinTech) on SME access to credit and its influence on the significance of relationship banking, with a specific focus on Wales.

Research has explored the relationship between new technology (including FinTech) and bank lending, but there is a paucity of work examining how technological changes could affect relationship banking. This is important given that relationship banking has been an important factor determining SME credit provision.

The findings of this report are based on the results of a survey of Welsh SMEs undertaken by Opinion Research Services, supported by staff from the Development Bank of Wales and Cardiff Business School. The survey questions focused on the relationship that SMEs had with their main business bank and how this had changed in the period after the Covid-19 pandemic. The survey examined the nature of communication between SMEs and their business bank; the processes through which they gained external finance, and business perceptions of the strength of the relationship with their main business bank. The survey received 206 responses from SMEs in Wales.

The survey revealed that the four largest UK clearing banks were reported as the main business bank by close to 85% of the respondents. For over 50% of respondents, the length of time they have had a relationship with their main bank was in excess of 20 years and with a further 30% of respondents having been with their main bank for a period of between 10 and 20 years. Over 95% of SMEs had their current account with their main business bank with around half having a business credit card with their main business bank. Some 22% of respondents had loan facilities and one third had overdraft facilities with their main business bank.

The survey revealed a sharp increase in on-line communication post- Covid-19 between banks and their SME clients. Use of online chat/video conference has also seen a sharp increase with around 6.5% of respondents describing this as their primary means of communication. Face-

to-face meetings at branches were noted as the primary means of communication by just 1.3% of the respondents. Post- Covid-19 there has been an increase in banks communicating with their clients every 2-3 months, or every six months.

Loans were the main source of external funding for respondents both pre- and post- Covid-19. Prior to Covid-19, around 45% of respondents applied for loans face-to-face, whereas at the time of the survey this percentage had fallen to 21%. There was a sharp increase in the percentage of respondents applying online with their main business bank, increasing from around 5% to 25%. Very few of the survey respondents used peer-to-peer lending facilities or crowdfunding initiatives to gain external finance.

The largest loan received by a responding SME since Covid-19 was £3m with a mean loan received of around £421,000 (median £75,000). The amount of loan applied for by the SMEs ranged from £30,000 to £3m, with a mean value close to £342,000.

The analysis in the report went on to reveal that:

- Loan amounts applied for and received were larger where SMEs applied through branch as opposed to through online means, and with SMEs subject to credit constraints more likely to use online banking (particularly in the case of smaller loans).
- The degree of relationship banking is important in explaining whether SMEs receive the loan amounts they were expecting to, and with larger loans more likely to be achieved where there was evidence of stronger relationship banking.
- The use of online banking works to reduce the effects of relationship banking in alleviating SME financial constraints i.e. whether they received the amount of loan funding that they expected as online applicants saw loans received being lower than the amount they applied for.

Summary

- The presence of stronger relationship banking was associated with SME satisfaction with loans received. But online banking served to reduce the impact of this by offering an alternative avenue for small loan applications.

A series of policy-linked recommendations arose from the report. First, the descriptive analysis reveals that there is some degree of inertia in terms of SMEs changing their main business banks (Figure 3.1a). There can be good reasons for this. While a long-term association could indicate a strong firm-bank relationship to the advantage of the firm, it might also indicate the hold-up problem where banks hold on to customers by exploiting their information advantage to increase switching costs – an advantage to the bank. Either way there may be lost opportunities when the services of alternative providers are not evaluated. **SME interventions in Wales in terms of business advice might at the very least signal the value of reviewing the main business bank periodically and exploring the market for financial services.**

Second, changes in the way banks communicate with users and innovation in communication channels means that SMEs who are less digitally mature might struggle to engage. **There is an overarching challenge in interventions which seek to improve the digital maturity of Welsh SMEs to show the importance of digital technology adoption for accessing financial services in particular.** This is more acute in more rural areas where the physical bank infrastructure has been depreciated and where the maintenance of a relationship will be more dependent on online video resources.

Third, the report provides evidence of an increase in the importance of online application processes for main loans after Covid-19, while relationship banking is revealed to be important in terms of the size of loan received. The report reveals evidence that online banking is bypassing the traditional route of relationship banking for small size loans. **In terms of policy development for the business banks there**

remains value in relationship banking in leveraging the types of business information needed to confirm larger loans. Ultimately there is a balance to be struck here between the lower costs for banks in approving through online processes set against the greater risks of not engaging more closely with applicants. Our research was not able to pick up on statistically significant threshold effects and here more work is needed. The survey was not designed to capture the role of relationship banking in aiding the transition of loan applications from small online application to larger applications that entailed physical interaction. While this may be an avenue for future research, it would be prudent for banks to not lose sight of the value of relationship banking in this transition. **The main recommendation was for business banks to maintain different routes for loan application and with continued value in relationship banking.**

The research pointed to some rapid changes since the Covid-19 pandemic. The trends in technology use outlined in this report will likely continue at pace. The report concludes that more needs to be understood in terms of the relationship between SME ICT use (perhaps in terms of digital applications, E-commerce and E-trading), SME ICT resources (in terms of infrastructure, skills, capabilities), and the way in which the same SMEs make use of services of the financial services sector. There was also seen to be value in monitoring how general technology and FinTech development is affecting external financing processes for SMEs and whether patterns in Wales diverge from those in other parts of the UK.

As part of the Economic Intelligence Wales research programme, the Welsh Economy Research Unit developed a proposal to explore the impact of financial technology (FinTech) on SME access to credit and its influence on the significance of relationship banking, with a specific focus on Wales.

The research sits in a historical context which reveals that SMEs face limits and deficiencies in the supply of finance and with this situation hindered by issues of information asymmetry, adverse selection risk and moral hazard. These same limits can work to hinder the development of SMEs. Faced with difficulties in accessing finance, SMEs have exhibited a series of coping mechanisms including: using innovative financing methods such as venture capital, angel investment or crowdfunding; strengthening internal management and financial planning; and supporting government policy which improves bank credit support.

However, FinTech may also play a role in overcoming credit constraints to small firms. For example, in a Welsh economy context, there has been strong Welsh Government support for SME adoption of superfast broadband resources; this technological improvement coupled with more general digitalization of the Welsh economy could have affected the financial sector and the SME loan acquisition process through the ability to access FinTech.

There is already a fast-growing international research literature that examines the interaction of FinTech with SME bank lending. However, little has been studied on the specific role of FinTech in displacing relationship banking. Relationship banking played a pivotal role in bank credit provision for SME firms in Wales during the global financial crisis of 2008-9 where it was shown that closer firm-bank relationships acted as an insurance against premature credit withdrawals by the bank in times of financial stress (Degryse et al, 2017).

Some of the research questions that are posed in this report for Wales have been answered in research on other economies. FinTech has emerged as an efficient vehicle to close the

funding gap faced by SMEs in the USA (Cornelli et al., 2024) and has addressed the issue of substitution whereby FinTech credit provision has displaced bank credit provision (Tang, 2019). Similarly, research has shown that FinTech provision has reached previously unbanked and riskier borrowers in Germany (De Roure et al., 2022) and in the USA (Dolson and Jagtiani, 2024).

In their study of SME financing in Zhejiang province China, Lu et al. (2025), investigated the impact of digital finance (as measured by a firm's predominant settlement channel) on lending to SMEs. This research showed that the impact of FinTech on relationship banking is nonlinear and depends on loan size. Specifically, FinTech effectively replaces the role of relationship banking in the case of small loans by providing more convenient financing channels. However, for large loans, relationship banking remains an important means of gaining financing. The research highlighted the key role of soft information obtained through relationship lending in better meeting the major financing needs of small and medium-sized enterprises.

However, there are questions on how far such findings can be generalised to places with very different business and finance contexts. Chinese SMEs frequently encounter difficulties securing bank loans, as financial institutions exhibit a pronounced lending preference for state-owned enterprises. These are perceived as lower-risk borrowers. This institutional bias, compounded by banking sector risk aversion and stringent liquidity and capital regulations, systematically disadvantages smaller firms (Allen et al., 2005; Ayyagari et al., 2019). Conversely, the UK economy's reliance on SMEs has driven its banking system to develop more sophisticated mechanisms for assessing and managing risks associated with small business lending (Berger and Udell, 2006; Zhao et al., 2022).

Specifically, the Welsh research summarised in this report considers the following questions:

- To what extent do historical bank credit constraints associated with SME financing drive the use of FinTech/digital loan applications? For example, Welsh SMEs that are constrained by banks' historical credit limitations may prefer to use online banking, and this could then be an effective strategy to alleviate financing constraints.
- How far does the bank-Welsh SME relationship change following the use of FinTech? For example, there is a question on how far FinTech can help boost the likelihood that an SME will be able to obtain a loan, with lower interest rates and the probability of not needing to provide collateral, but then might the use of FinTech work to significantly reduce the size and term of the loan?
- What is the effectiveness of online banking in meeting funding gaps, and how far does FinTech provide a more efficient route to loan finance for Welsh SMEs?
- How far is FinTech a viable substitute for relationship banking, or does FinTech work to undermine the principle of relationship banking in the Welsh SME case?

The research questions identified link closely to Economic Intelligence Wales' research agenda in terms of better understanding factors affecting SME access to credit and the role of technology in improving SME finance outcomes.

In seeking to address these research questions, the authors in association with staff at the Development Bank of Wales and Opinion Research Services developed a survey tool. The main questions in the survey instrument related to:

- Main business bank and duration of relationship
- Services which the SME uses at the main business bank
- Strength of relationship with main business bank (measured in a variety of ways)

- Primary means of communication with bank and frequency/initiation party of communications (pre- and post- Covid-19)
- SME perception of strength of bank relationship; ease of approach to bank
- Nature of SME external funding (and primary source of external funding) including loans, equity, grant, or borrowing from family or friends
- Method of obtaining external financing
- Changes in nature and methods of obtaining external funding pre- and post- Covid-19
- Details of main loans applied for post- Covid-19, loan conditions and outcome (refused or taken-up), and satisfaction with loan application process, outcome and terms
- Reasons for SMEs not accepting loan terms post- Covid-19
- SME perceptions of strength of relationship with main finance provider post-Covid-19
- How far SMEs had (or had not and why) applied for a loan from Peer-to-Peer (P2P)/ Crowdfunding networks
- Main reasons for choosing to apply for Peer-to-Peer (P2P)/Crowdfunding, instead of other sources of funding
- Details of external finance gained from Peer-to-Peer/Crowdfunding networks.

In what follows, Section 2 provides some of the descriptive analysis from the survey. Section 3 provides further analysis from the survey in terms of issues relating to the changing relationship between banks and SMEs in Wales and the ways in which SMEs use new technology to access finance. Section 4 summarises the findings from an econometric analysis that explored the links between relationship banking, online banking processes and SME financing. Section 5 provides some overarching conclusions and policy implications resulting from the analysis of the survey findings and the econometric analysis.

2.1 Responses

In this section of the report, we provide some descriptive analysis of the findings from the survey. The main questionnaire is found in Appendix 3. The survey undertaken by Opinion Research Services (ORS) in the period October-December 2024 gained a total of 206 responses. The objective was to gain a set of responses that were representative in terms of business

size, location and industry sector. Table 2.1 reveals the nature of the data (business contact data) which was purchased by our partners ORS from which to gain survey responses. Table 2.2 reveals the preliminary targets in terms of response by business sector and business employment size.

Table 2.1
Contact data - business counts



UK SIC 2007 Groups	Employment size					Total
	5 to 9	10 to 19	20 to 49	50 to 99	100 to 249	
Section B: Mining and quarrying	3	5	3	0	2	13
Section C: Manufacturing	146	125	108	61	43	483
Section D: Electricity, gas, steam	3	1	2	1	0	7
Section E: Water; sewerage, waste	9	12	10	5	2	38
Section F: Construction	78	61	52	16	6	213
Section G: Wholesale and retail	484	259	179	41	22	985
Section H: Transportation	56	44	52	22	10	184
Section I: Accommodation and food service	140	150	134	26	7	457
Section J: Information and communication	52	42	26	11	5	136
Section K: Financial and insurance	45	33	16	5	5	104
Section L: Real estate activities	53	21	12	3	0	89
Section M: Professional, scientific, technical	158	132	111	27	9	437
Section N: Admin. and support	101	71	57	18	11	258
Section Q: Human health and social	107	125	182	67	30	511
Section R: Arts, entertainment etc.	83	62	74	16	12	247
Total	1518	1143	1018	319	164	4162

Findings from the survey: respondents

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Table 2.2

Preliminary targets for survey responses



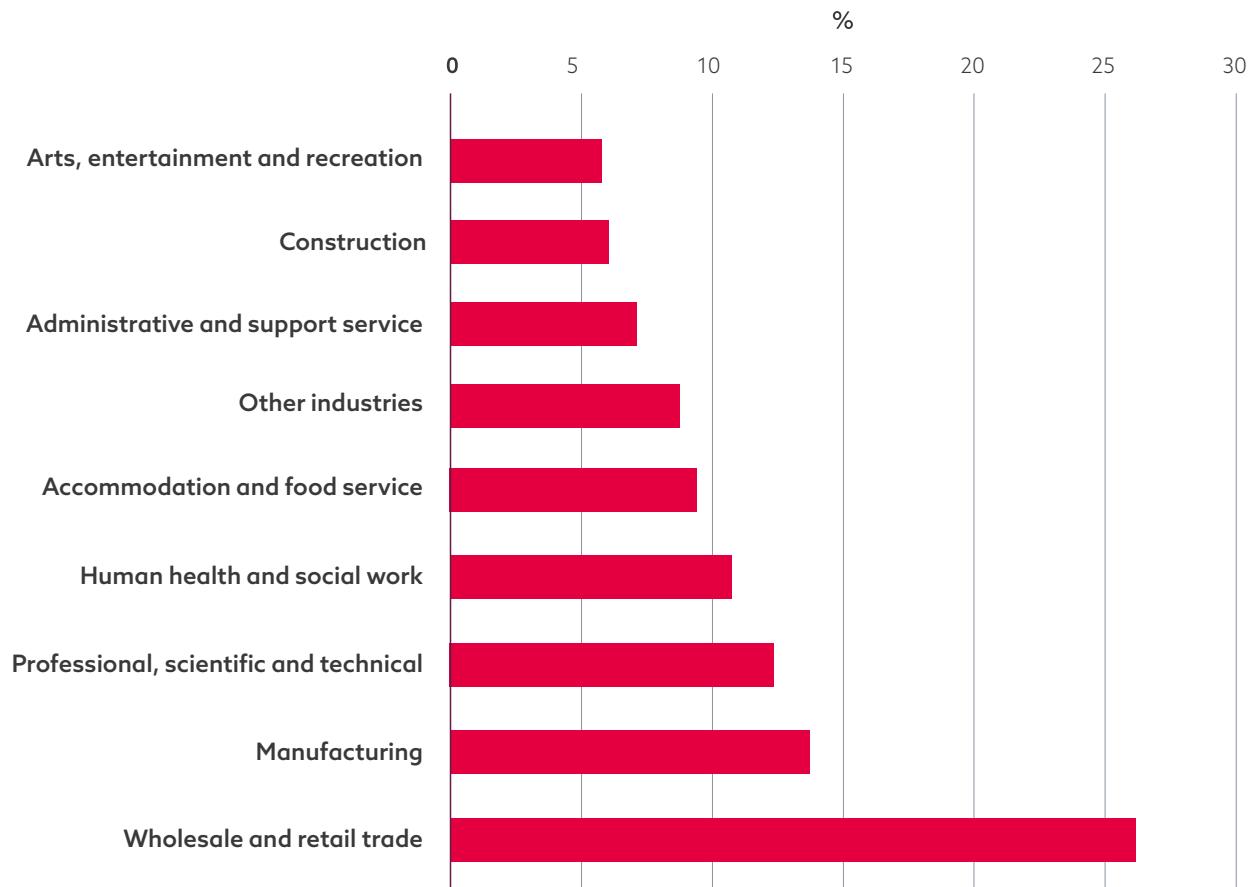
UK SIC 2007 Groups	Employment size					Total	Target proportion by industry
	5 to 9	10 to 19	20 to 49	50 to 99	100 to 249		
Section B: Mining and quarrying	0.1	0.2	0.1	0.0	0.1	1	0.3%
Section C: Manufacturing	7.0	6.0	5.2	2.9	2.1	23	11.6%
Section D: Electricity, gas, steam	0.1	0.0	0.1	0.0	0.0	0	0.2%
Section E: Water; sewerage, waste	0.4	0.6	0.5	0.2	0.1	2	0.9%
Section F: Construction	3.7	2.9	2.5	0.8	0.3	10	5.1%
Section G: Wholesale and retail	23.3	12.4	8.6	2.0	1.1	47	23.7%
Section H: Transportation	2.7	2.1	2.5	1.1	0.5	9	4.4%
Section I: Accomm and food service	6.7	7.2	6.4	1.2	0.3	22	11.0%
Section J: Information and comm	2.5	2.0	1.2	0.5	0.2	7	3.3%
Section K: Financial and insurance	2.2	1.6	0.8	0.2	0.2	5	2.5%
Section L: Real estate activities	2.5	1.0	0.6	0.1	0.0	4	2.1%
Section M: Prof, scientific, technical	7.6	6.3	5.3	1.3	0.4	21	10.5%
Section N: Admin. and support	4.9	3.4	2.7	0.9	0.5	12	6.2%
Section Q: Human health and social	5.1	6.0	8.7	3.2	1.4	25	12.3%
Section R: Arts, entertainment etc.	4.0	3.0	3.6	0.8	0.6	12	5.9%
Total	73	55	49	15	8	c. 200	
Target proportion by business size	36%	27%	24%	8%	4%		c. 100%

2.2 Industry group and location of respondents

Figure 2.1 shows the distribution of the respondents in terms of broad industry group and their location in terms of regions within Wales. This reveals that close to 40% of respondents were either in manufacturing or the wholesale and retail trade. We note here that the survey was targeted so as to gain a representative sample of businesses from each broad industry sector (see Table 2.2), and with the 206 respondents distributed largely in line with expectations at the start of the surveying process.

Figure 2.1 also reveals that 35% of respondents were in the southeast region of Wales and 29% in the southwest region of Wales. Perhaps more informative is the distribution of the respondents by Welsh local authority area. Figure 2.2 reveals that 12.6% of respondents were located in the Cardiff area, 11.2% in Carmarthenshire and 8.7% in Powys. Importantly Figure 2.2. reveals that there were survey responses received from each local authority area, although for areas such as Blaenau Gwent, Denbighshire, Anglesey, Torfaen and Vale of Glamorgan the number of responses in each local authority case are fewer than 4.

Figure 2.1(a)
Industry sector respondents (n=206)



Findings from the survey: respondents

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Figure 2.1(b)

Welsh region of respondents (n=206)

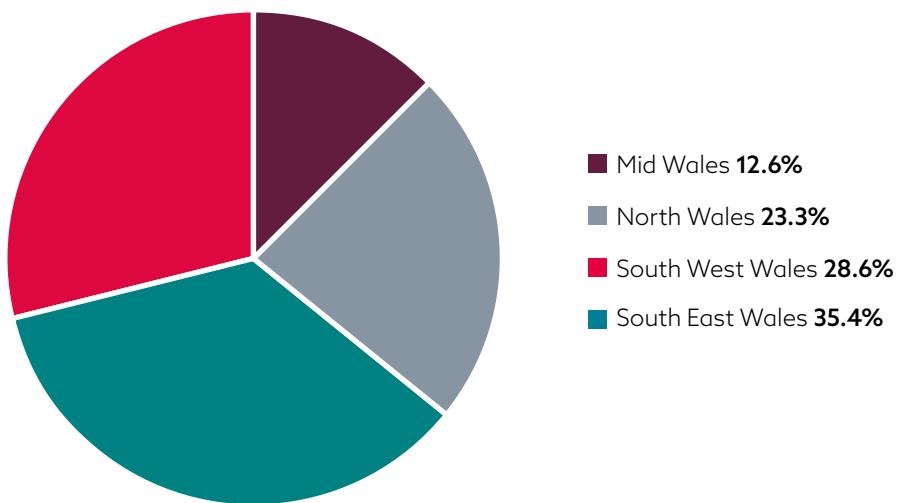
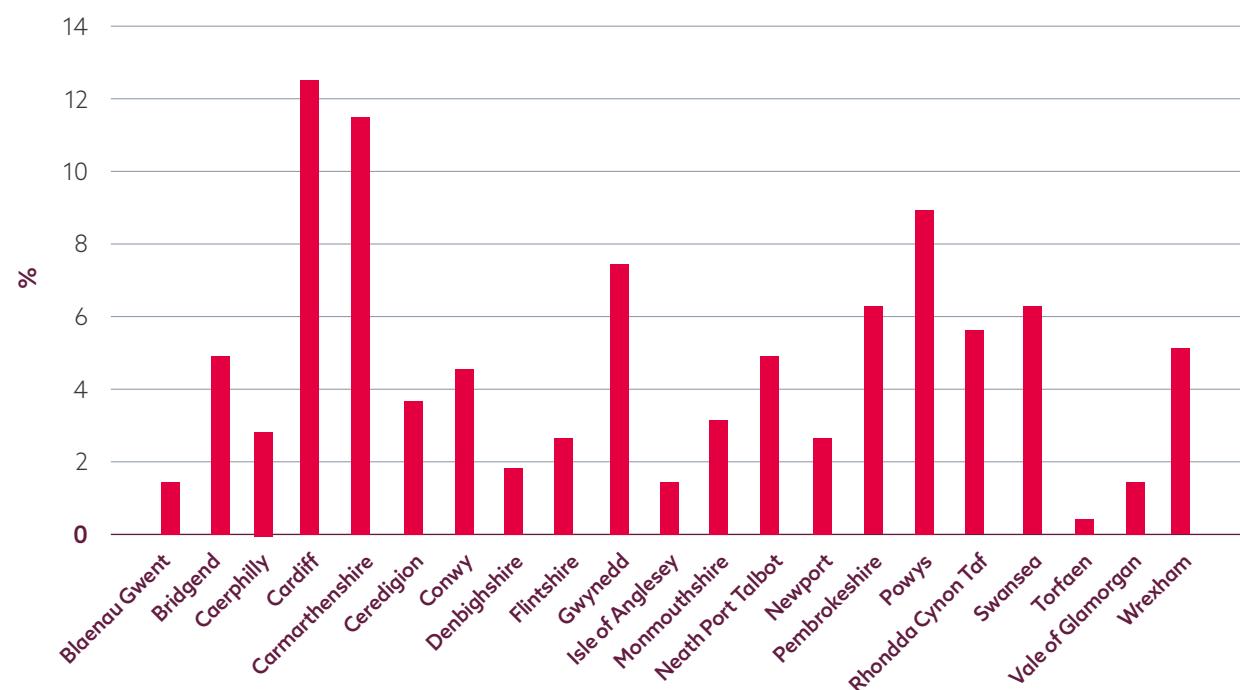


Figure 2.2

Local authority location of responding business (n=206)



2.3 Age and size of responding businesses

The survey also collected information in respect of the age of the respondent company. Figure 2.3 reveals that 35.4% of the companies responding were over 40 years old; indeed, over half of the company respondents were over 30 years old. It is important to recognise that the survey was focused on businesses that were more than six years old. This was to pick up on

changes in the relationship between businesses and their banks pre- and post- the Covid-19 pandemic. Age information is one signal of the stability of the businesses, and with additional interest in how far the age of businesses might relate through to experiences with the main business bank.

Figure 2.3
Age distribution of responding company (n=206)

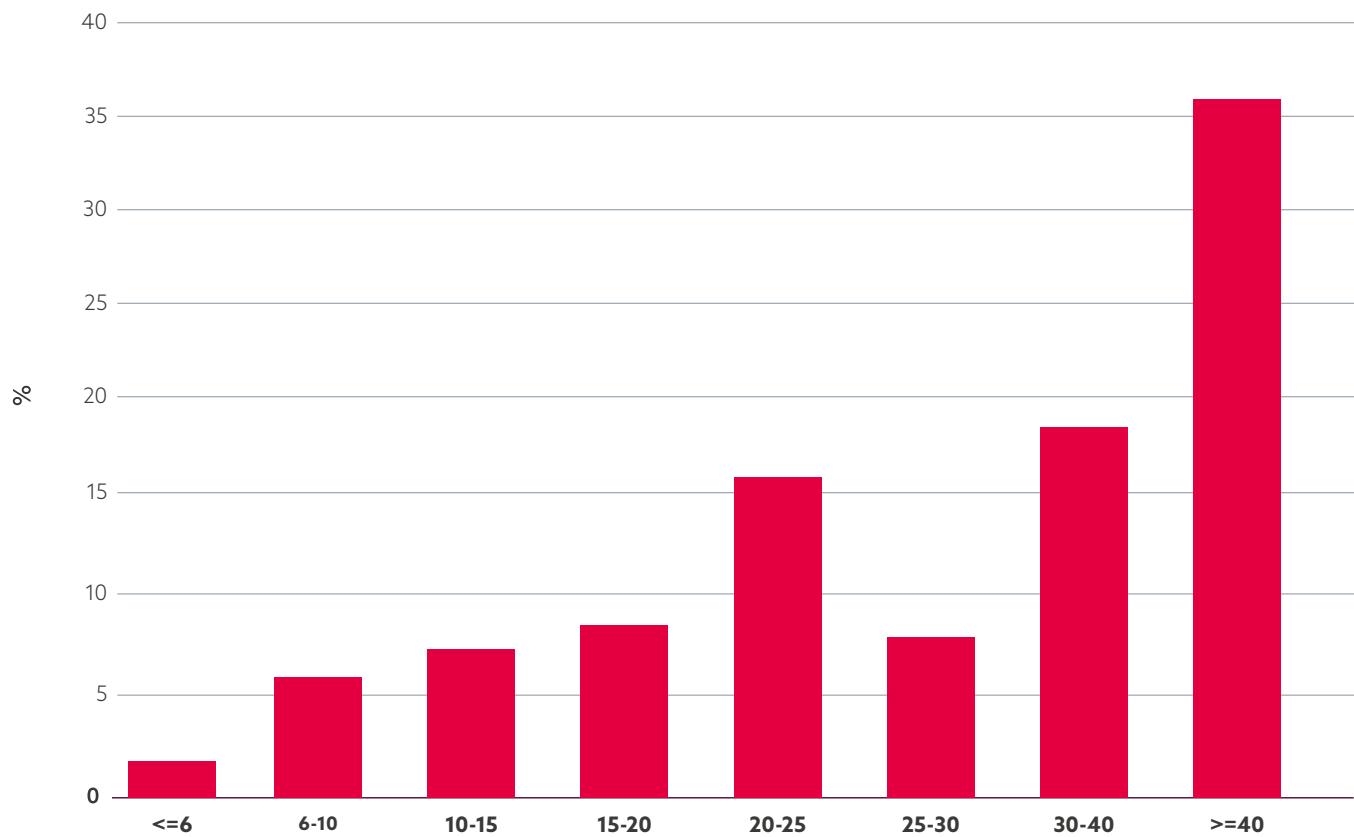


Figure 2.4 describes the employment size, asset size and turnover size of responding companies. The survey was focused on small and medium-sized enterprises. In terms of employees, Figure 2.4 reveals that 40.3% of the responding companies employed between 5 and 9 people and with 26.7% of respondents employing from 10 to 19 people. Clearly this distribution by employment size is not reflective of the overall distribution of businesses by employment size in Wales, with a very large number being either owner-only enterprises or employing just one person. However, the objective here was to target businesses with employment, rather than the self-employed and very small firms i.e. the focus was to survey well-established firms of a certain size with a developed relationship with their main financial provider.

Figure 2.4 reveals that 15.8% of respondents had a total asset base of £100,000 or less and with 47.5% having an asset base of between £100,000 and £1m. Just 7.9% of the respondents had assets valued at over £10 million. Finally, Figure 2.4 reveals the turnover size of the responding companies. Here 43.5% of responding companies had a turnover of between £100,000 and £1m and with just 2.7% of respondents having a turnover of £100,000 or less. At the other end of the turnover distribution, 10.2% of respondents had a turnover which was in excess of £10 million. In terms of the employment size of firms surveyed, the proportions gained were very much in line with our initial targets as summarised in Table 2.2.

Figure 2.4(a)
Distribution of Employment size (n=206)

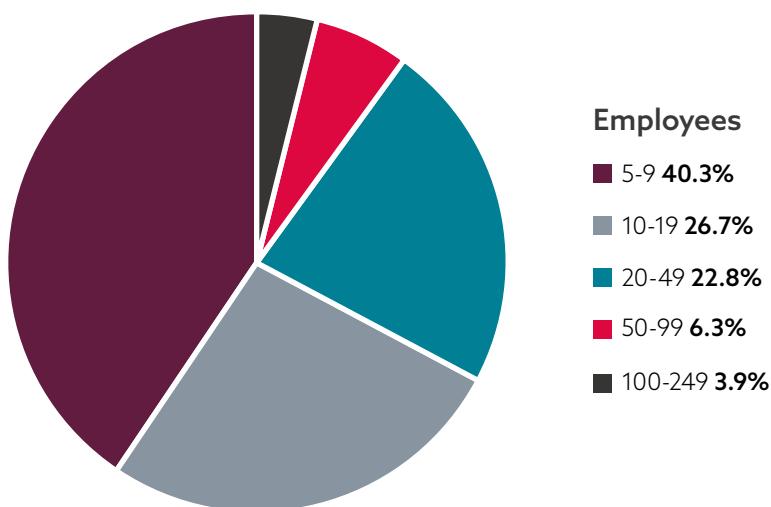


Figure 2.4(b)
Distribution of Asset base (n=177)

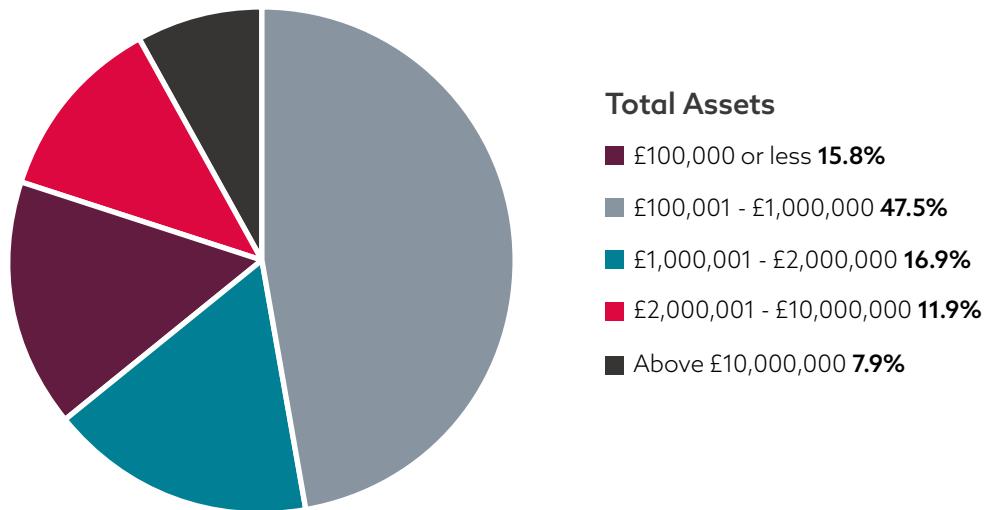
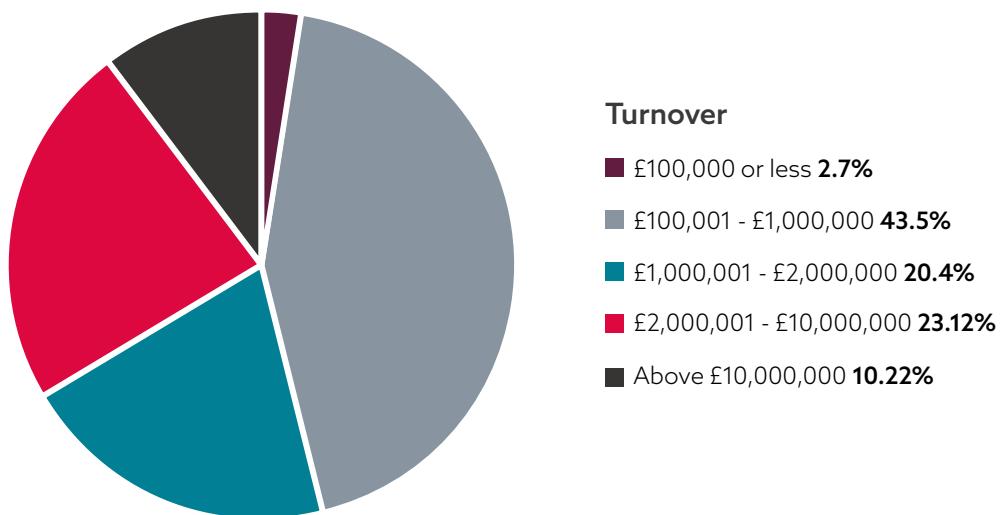


Figure 2.4(c)
Distribution of Turnover of respondents (n=186)



The next section focuses on what the survey revealed about the relationships of SMEs with their main business bank.

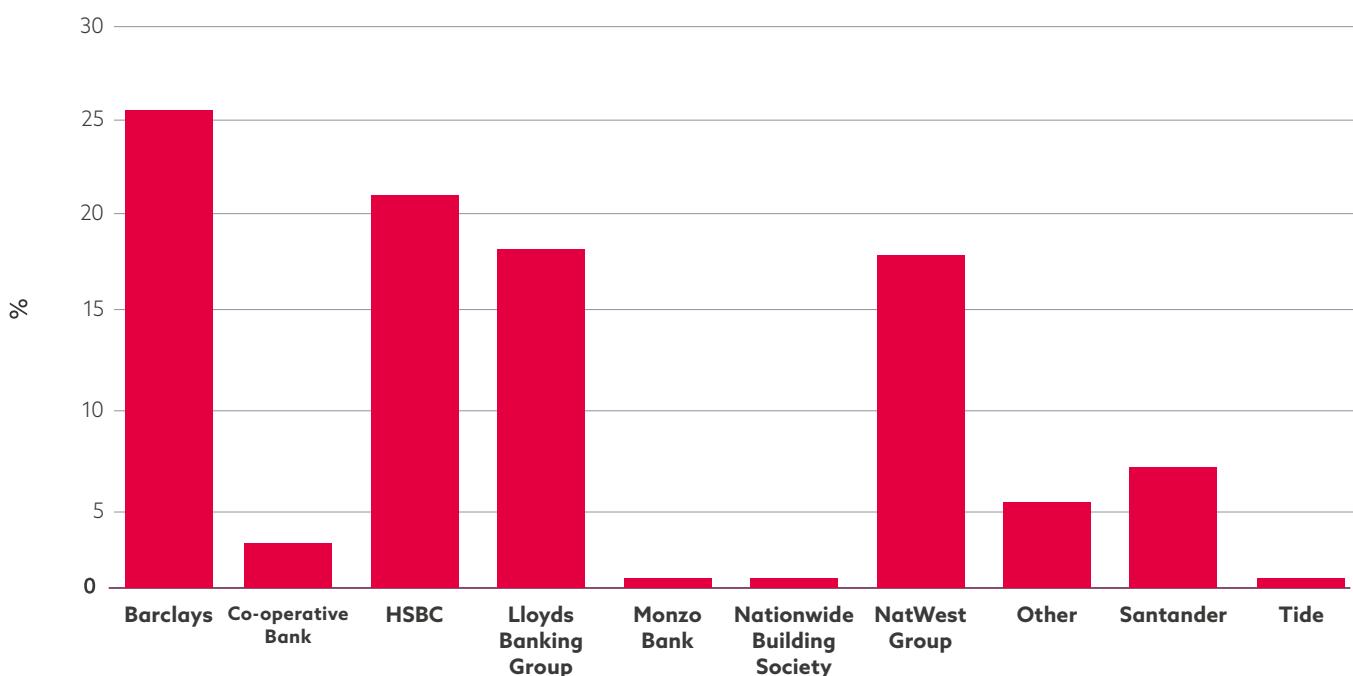
3.1 Main business bank and length of relationship

Figure 3.1 reveals the main bank of the respondent and the strength of the relationship of the respondent business with their main bank. Here we describe the strength of the relationship in terms of the length of time that the respondent has had a relationship with its main bank.

In terms of the main bank, Figure 3.1a reveals that just over one quarter of respondent businesses had Barclays as their main bank, with 22% citing their main bank as HSBC.

The four largest clearing banks were reported as the main business bank by 84% of the respondents. Smaller numbers of respondents revealed their main bank as Monzo or Tide. For half of the respondents (see Figure 3.1b), the length of time they have had a relationship with their main bank was in excess of 20 years and with a further 30% of respondents having been with their main bank for a period of between 10 and 20 years. Just 1.9% of respondents had been with their main bank for a period of less than three years.

Figure 3.1(a)
Main bank of respondent (n=206)

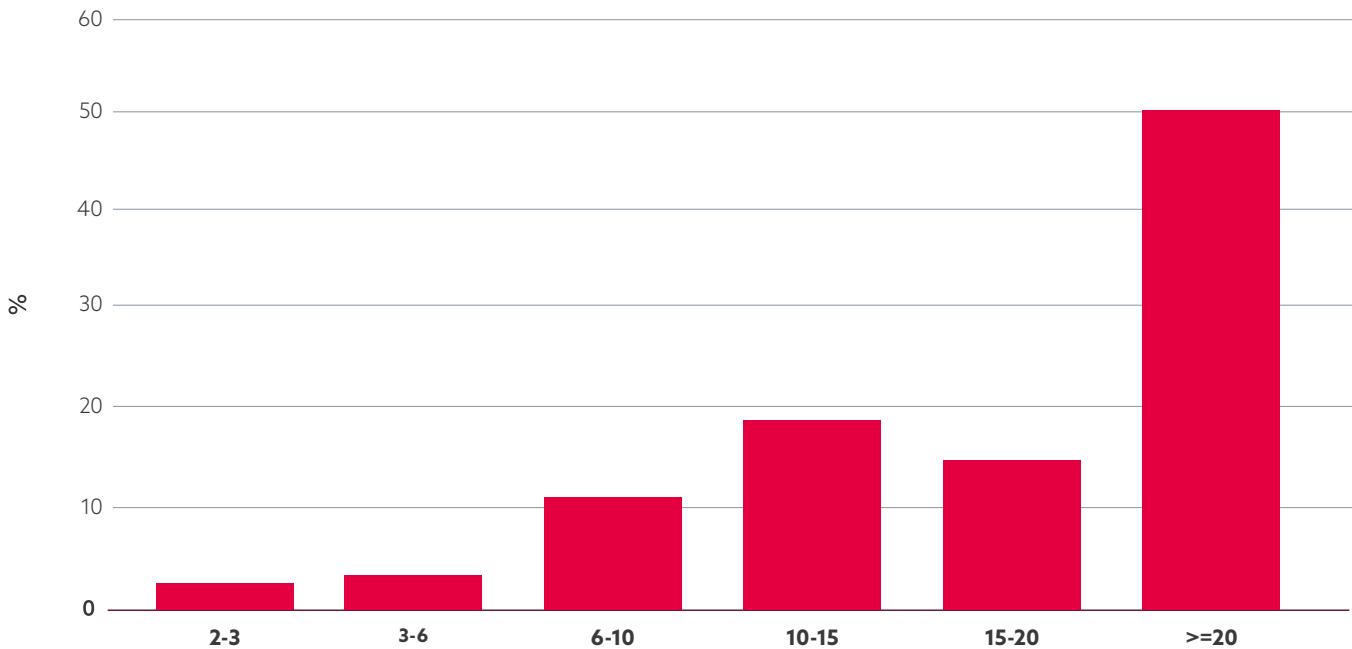


Findings: respondent relationship with main business bank

3

Figure 3.1(b)

Strength of relationship with main bank (n=196)



3.2 Services from the main business bank used by respondents

Clearly the length of time that respondents had been with their main bank was not necessarily an indicator of the depth of relationship. Figure 3.2 provides indicators of the depth of relationship between respondents and their main bank in terms of the number of services supplied by the bank to the business (3.2b), and the types of services accessed (3.2a). Figure 3.2a reveals that 22% of respondents used just one service from their main bank, with 26% of firms revealing that they used two defined services. Figure 3.2a also shows that over 95% of SMEs had their current account with their main business bank with around half having a business credit card with their main business bank. Some 22% of respondents had loan facilities and one third had overdraft facilities with their main business bank.

It is worth reflecting on the relationship between the survey data summarised in Figure 3.2a and the findings from the SME Finance Monitor published in September 2024.¹ The latter found that in Wales, the percentage of SMEs using some form of business finance increased during 2024Q2 to 59%, up from 47% during 2024Q1.² During 2023, 46% of UK SMEs had used some form of external finance compared with 43% in Wales. Of those SMEs in Wales using some form of external finance 16% had used overdrafts, 14% leasing/hire purchase, 13% bank loans or commercial mortgages, and 12% had used credit cards during 2024H1.

1 <https://www.bva-bdrc.com/wp-content/uploads/2024/09/SME-charts-Q2-2024-presentation-pack-FINAL.pdf>

2 Data for Wales is derived from an extract of the SME Finance Monitor provided by the Development Bank of Wales.

Findings: respondent relationship with main business bank

Figure 3.2(a)

Main business bank: depth of relationship in terms of services received (percentage of respondents who used the service, n=205)

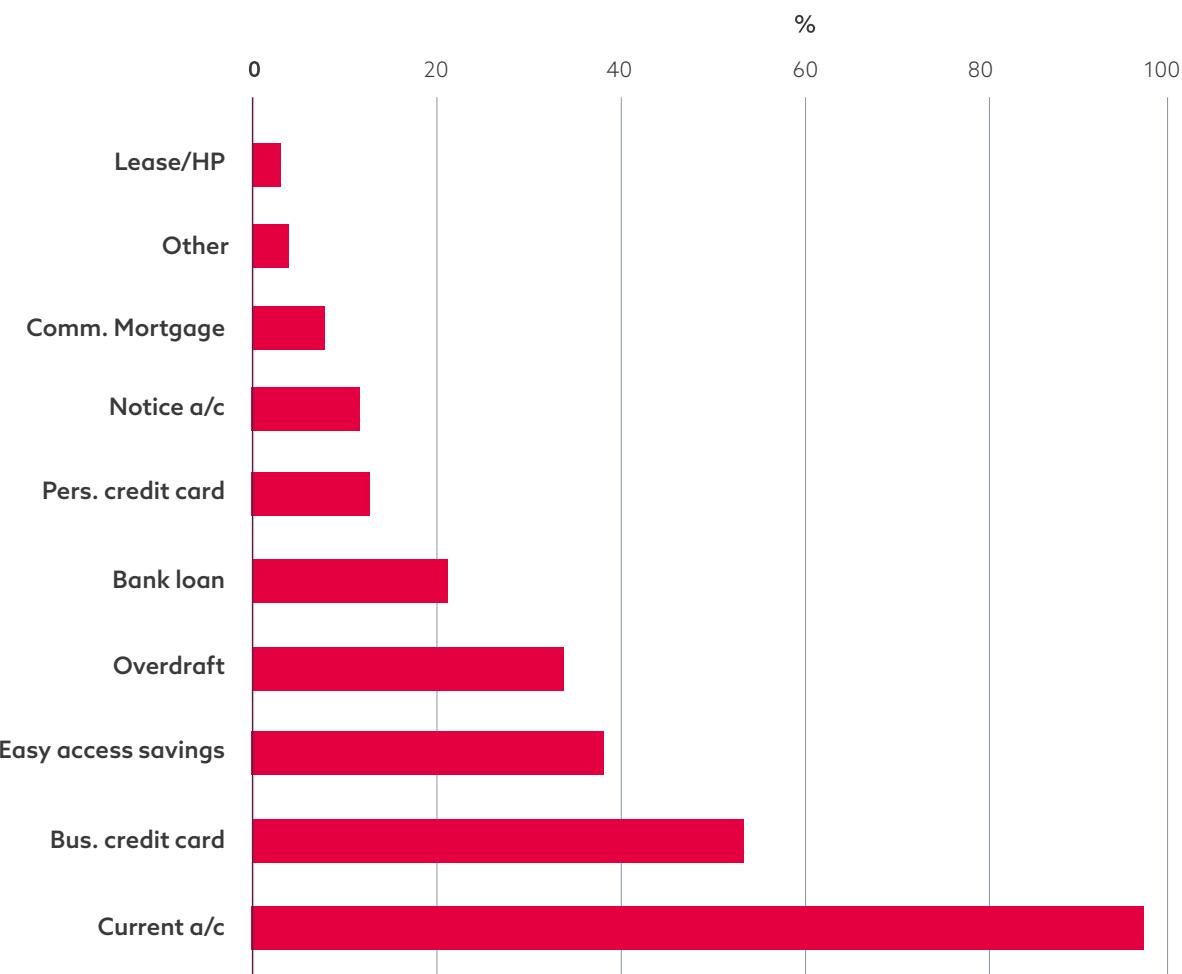
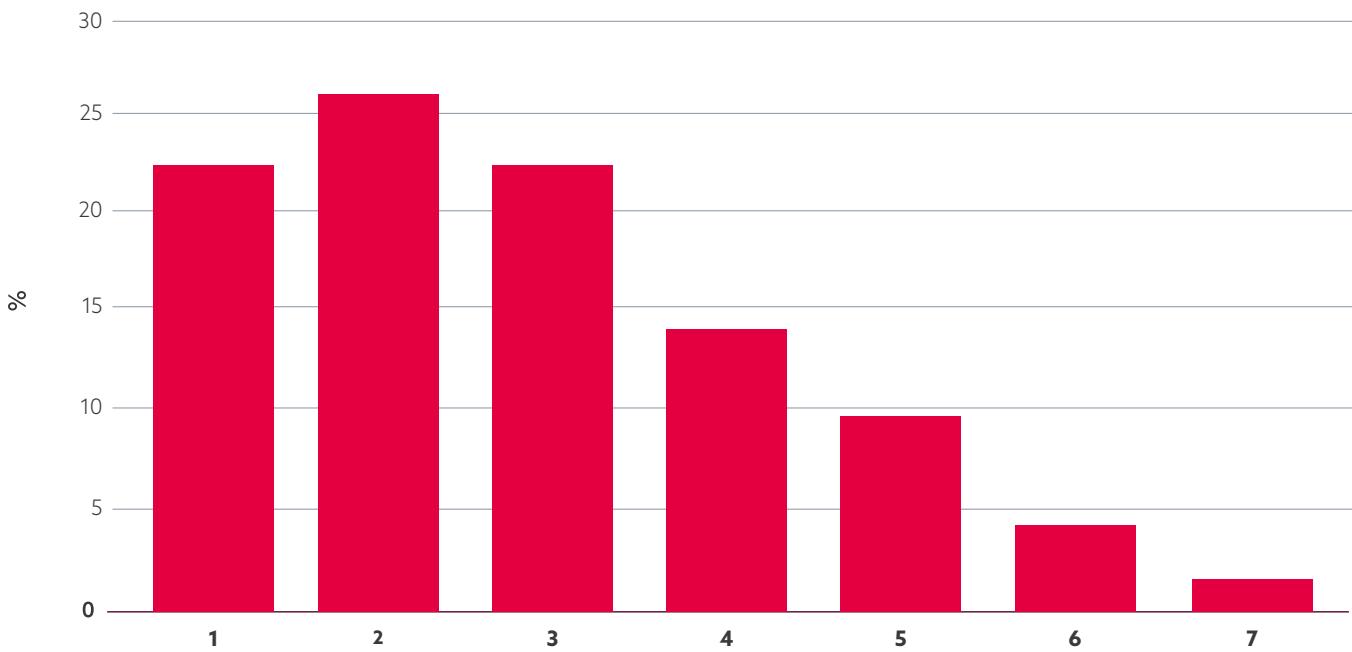


Figure 3.2(b)

Percentage of respondents from 3.2(a) and number of services used (n=205).



3.3 Nature and frequency of communication between businesses and their main bank

Figure 3.3 reveals the primary method of communication between the respondent business and their main bank. Importantly here the survey sought to pick up on changes in the primary method of communication pre- and then post- Covid-19. Unfortunately, there was a smaller number of responses to this part of the survey. With this caveat noted, there has been a sharp increase in the use of email as the primary method of communication post- Covid-19 i.e. up from around 24% pre- Covid-19 to just over 44% at the time of the survey. Moreover,

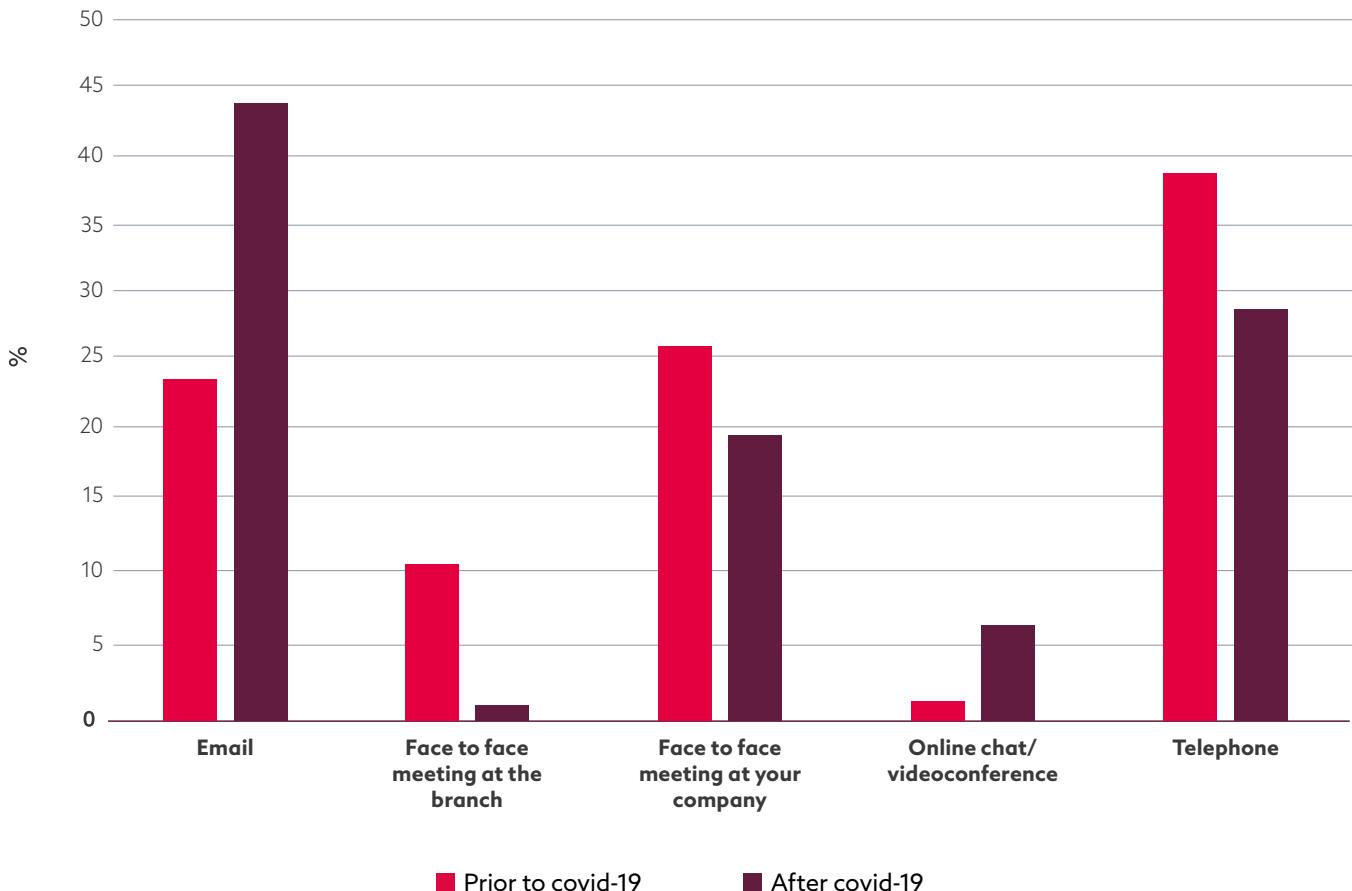
the use of online chat/video conference has also seen a sharp increase with around 6.5% of respondents describing this as their primary means of communication. At the time of the survey, face-to-face meetings at branches were noted as the primary means of communication by just 1.3% of the respondents. It is noted here that a large number of the survey respondents banked with Barclays, with this bank having seen significant numbers of branch closures in Wales and then with more difficulties undertaking business banking in branch.³

³ See also here [Access to High Street Banking in Wales - Committees - UK Parliament](#); see also committees.parliament.uk/writtenevidence/130547/pdf/

Findings: respondent relationship with main business bank

Figure 3.3

Primary method of communication (pre- and post- Covid-19, n=117, 77 respectively)

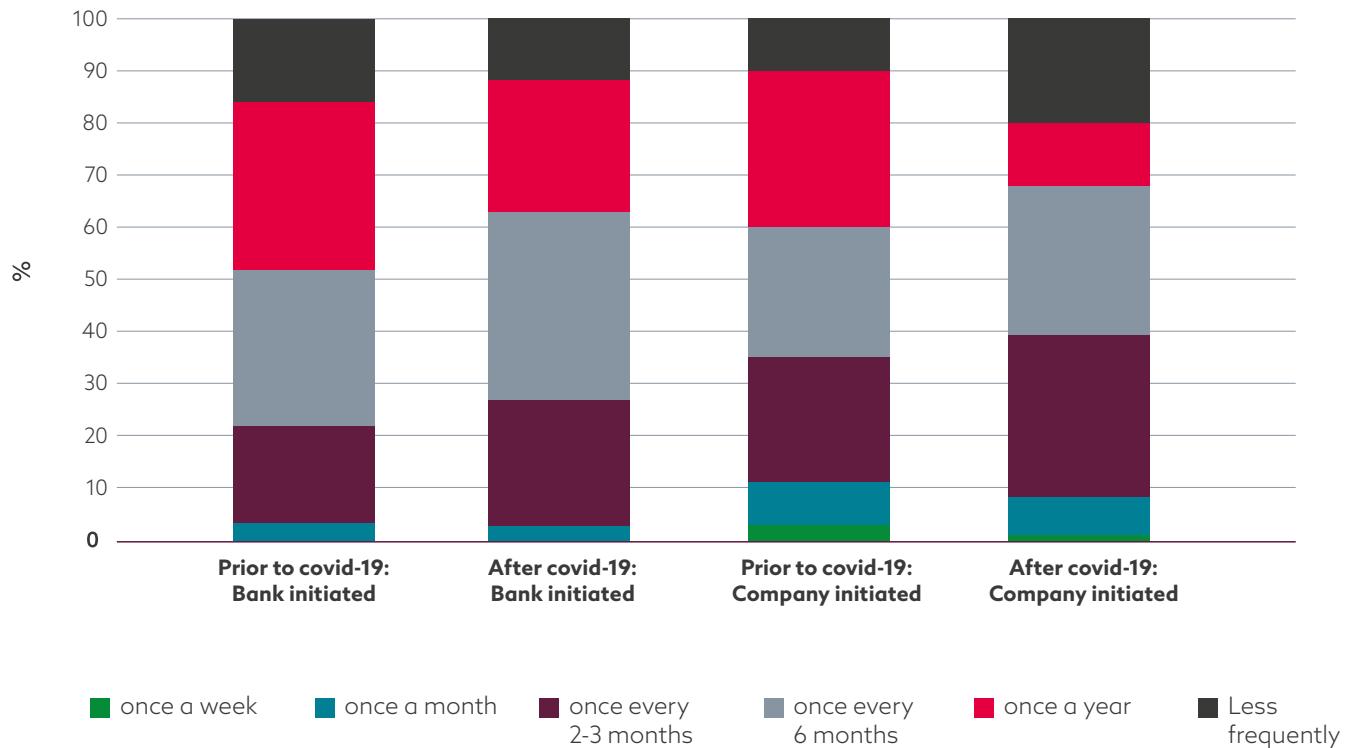


Clearly, there is expected to be a relationship between the primary method of communication and the frequency with which communication takes place. Figure 3.4 again adopts a pre-Covid-19 and post-Covid-19 lens and with the two panels of the figures examining frequency in terms of which party initiates i.e. the main bank or the company. From the perspective of the main business bank, in over 60% of business cases, the frequency of communication was either once every six months or once per year. Post-Covid-19 there has been an increase in banks communicating with their clients every 2-3 months, or every six months.

In terms of the business, there is greater frequency of communication with, for example close to 32% of respondents communicating with their main bank once every 2-3 months, and with around 28% communicating once every six months. Whereas pre-Covid 19 some 48% of respondents revealed that they communicated with their main business bank once every 2-3 or 6 months, this percentage grew to over 59% post- Covid-19. It is noted that there will be a strong connection between frequency of communication with the main bank (and vice versa) and the types of services being used/ applied for by the business in question.

Findings: respondent relationship with main business bank

Figure 3.4
Frequency of communication pre- and post- Covid-19



3.4 Source of main external funding and loans

Figure 3.5 reveals the source of the main external funding of the business. Once again, there was a small number of responses here. Loans were the main source of external funding, both pre- and post- Covid-19, with loans being the main source for 48% of respondents pre- Covid-19 and for just under

54% of respondents post- Covid-19. The proportion of respondents whose main source of external finance was listed as overdraft, grant or invoice/asset finance all fell slightly post- Covid-19. Very few of the respondent businesses reported that equity was the main external source.

Findings: respondent relationship with main business bank

Figure 3.5

Source of main external funding pre- and post- Covid-19 (n=52; n=67)

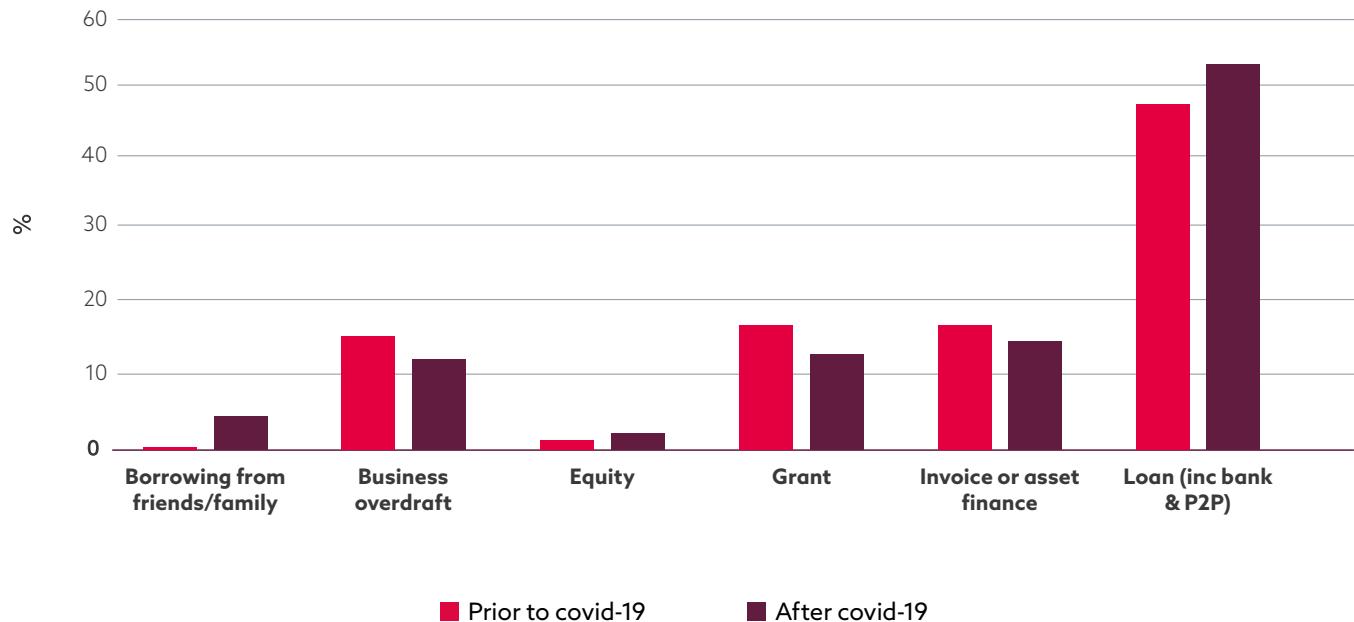


Figure 3.2a earlier revealed that just 22% of the survey respondents received a loan from their main business bank. This partly explains the smaller number of respondents who replied to questions about their main loan channel pre- and post- Covid-19. Figure 3.6 also shows responses in terms of the main loan channel used with banks that were not the main business bank of the company. Although the number of respondents is low in Figure 3.6 there is a hint of some important changes occurring after Covid-19. For example, prior to Covid-19, around 45% of respondents applied for loans face-to-face, whereas at the time of the survey this percentage had fallen to 21%. There was a

sharp increase in the percentage of respondents applying online with their main business bank (and we note that the option for face-to-face meetings has now been largely precluded in some of the main clearing banks), increasing from around 5% to 25%. Small numbers of survey respondents used peer-to-peer or crowdfunding as their main loan channel. The percentage of respondents using the Development Bank of Wales as their main loan channel increased from 14% to 29% pre- and post- Covid-19 respectively, again noting that the number of respondents here is quite low.

Findings: respondent relationship with main business bank

Figure 3.6

Main loan channel of respondent pre- and post- Covid-19 (n=22; n=28)

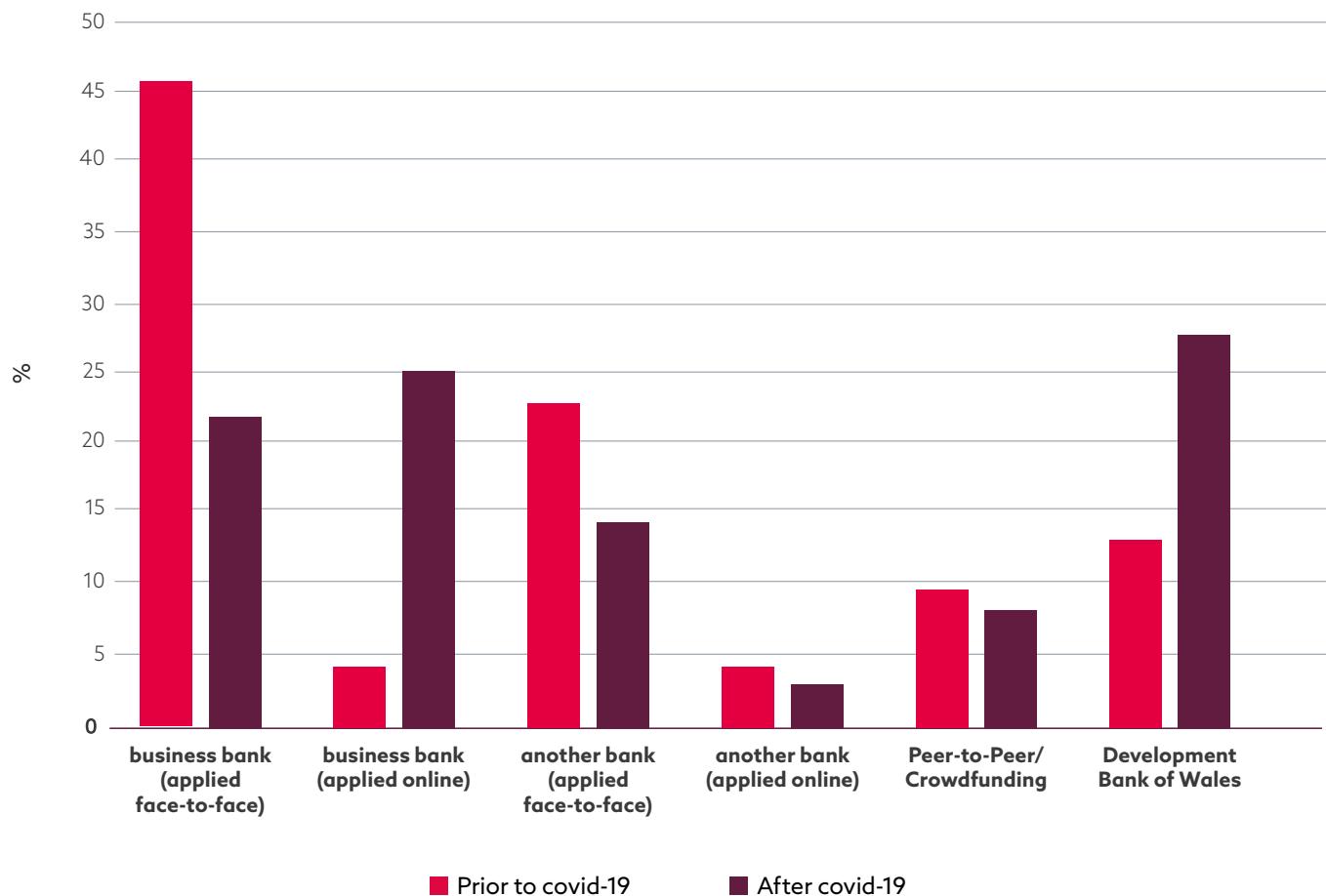
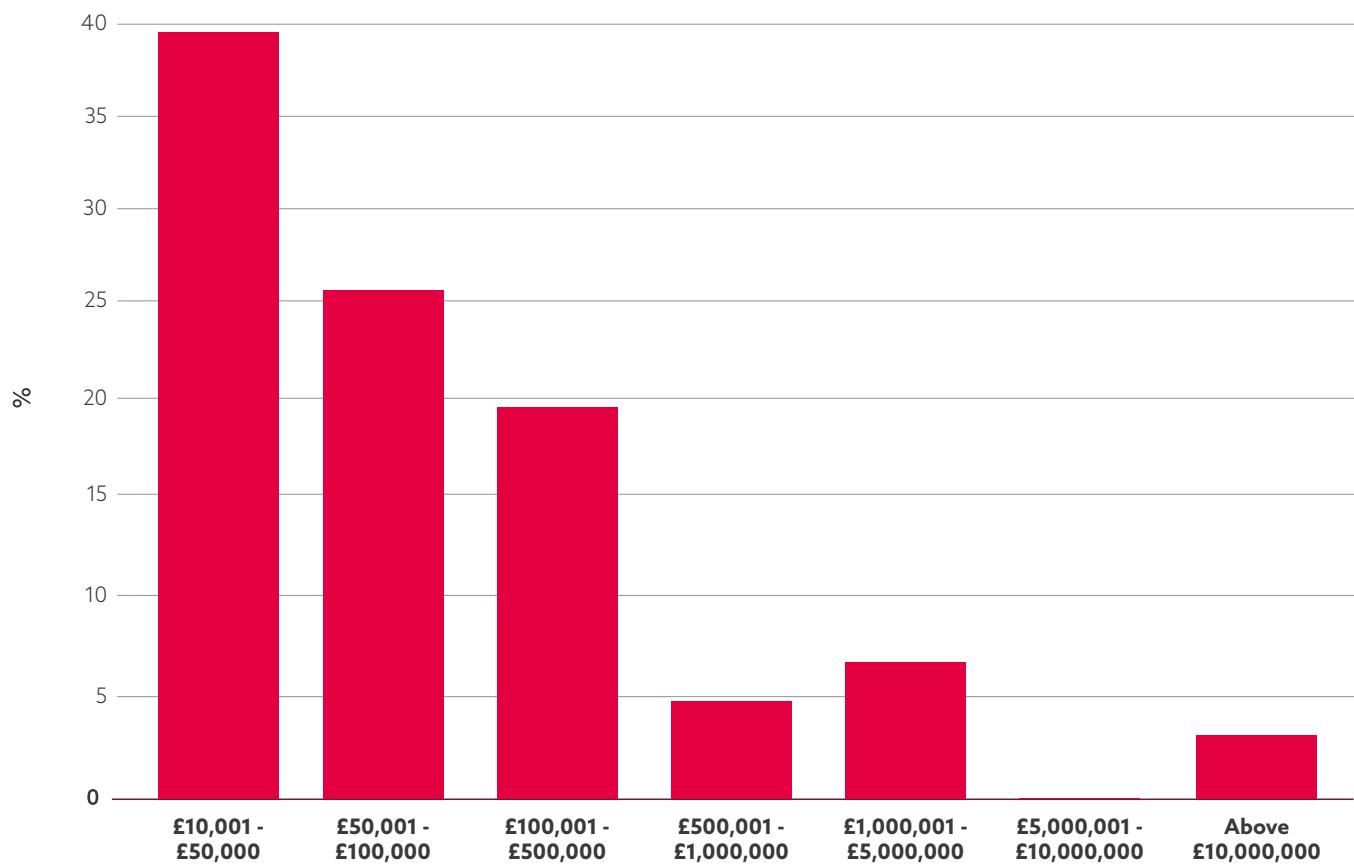


Figure 3.7a provides details of the largest loan applied for by respondents since Covid-19. For two-thirds of respondents, the largest loans applied for were for sums of less than £100,000, and with less than 10% of respondents reporting that the largest loan applied for was in excess of £1m. Figure 3.7b reveals the loan 'channel' employed and here a little over 55% of respondents reported that the channel was from their main business bank online, and with 20% stating that it was from their main business bank but face-to-face. Very few respondents reported applying for their largest loan through either peer-to-peer routes or crowdfunding.

In terms of the results of the application process, the survey revealed that 86% of respondents stated that the loan was approved and the business accepted the terms; in very few cases an application was approved but the terms were not acceptable to the business concerned. In just under 5% of cases the loan application was declined.

Figure 3.7(a)
Largest loan applied for since Covid-19 (n=81)

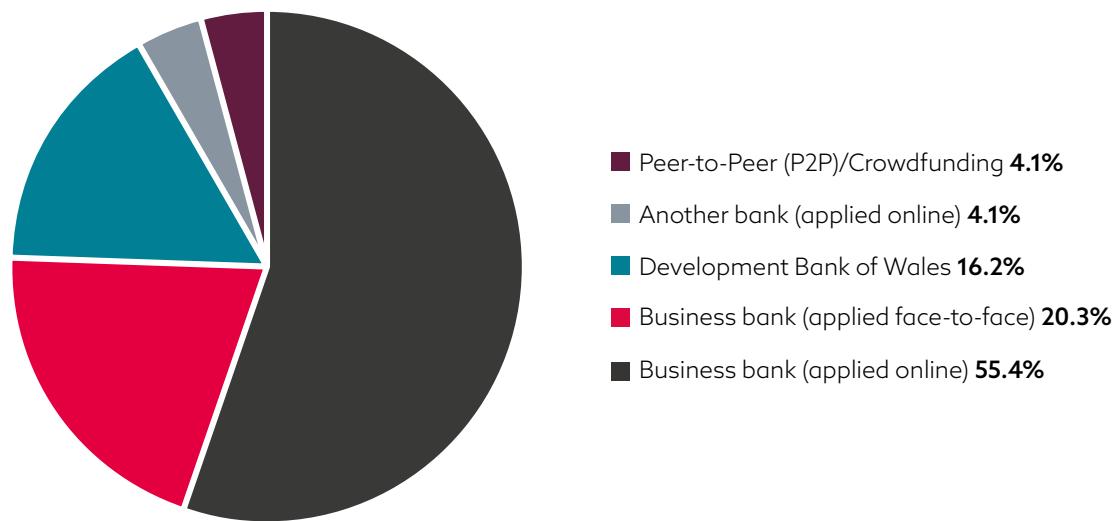


Findings: respondent relationship with main business bank

3

Figure 3.7(b)

Channel of largest loan applied for since Covid-19 (n=74)



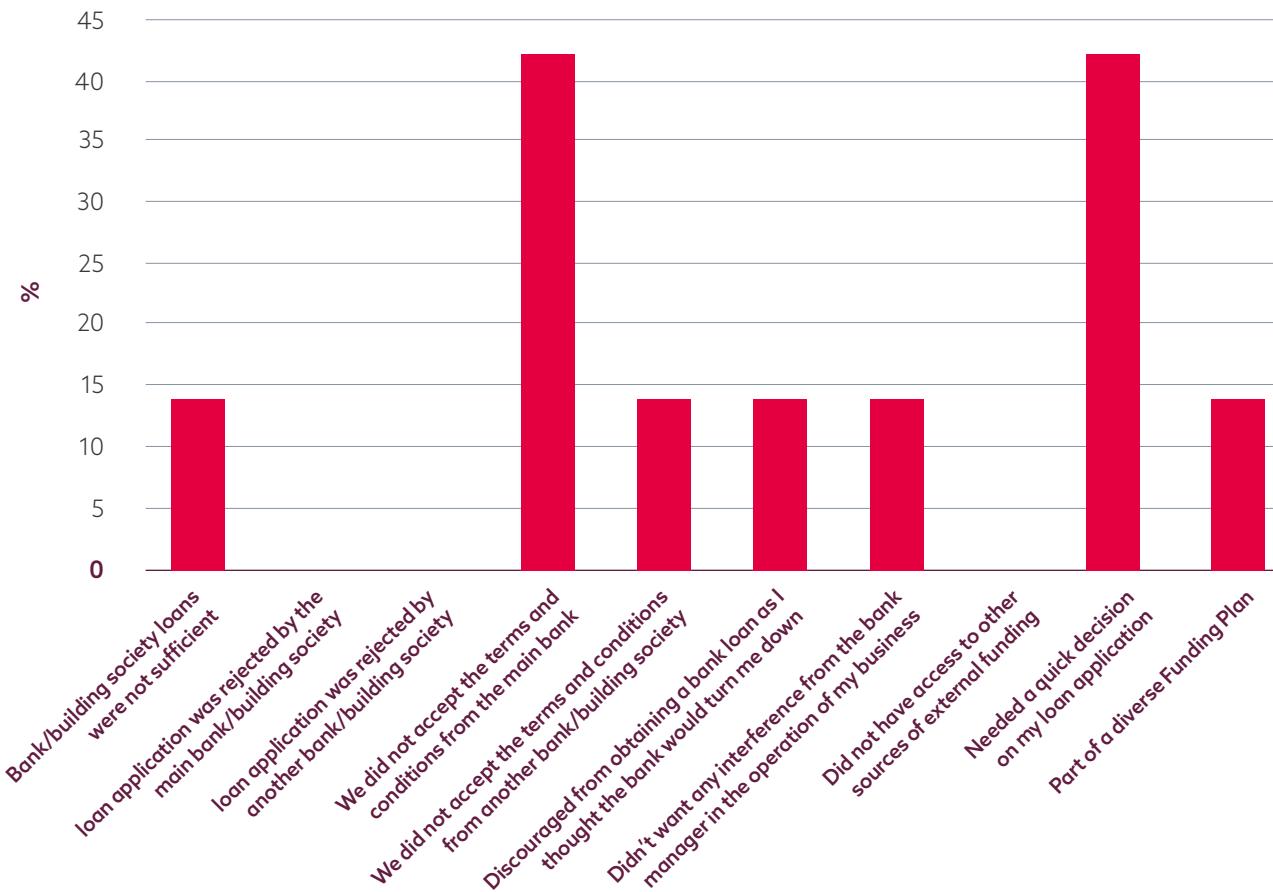
Finally in this section, the survey requested information in respect of why businesses did not seek to use peer-to-peer and crowdfunding platforms to meet their financing needs (see Figure 3.8). The largest proportion of firms (66%)

simply responded that they had no need for external finance, after this the key responses were a lack of familiarity, and then businesses being satisfied with the finance options available for them.

Findings: respondent relationship with main business bank

Figure 3.8(a)

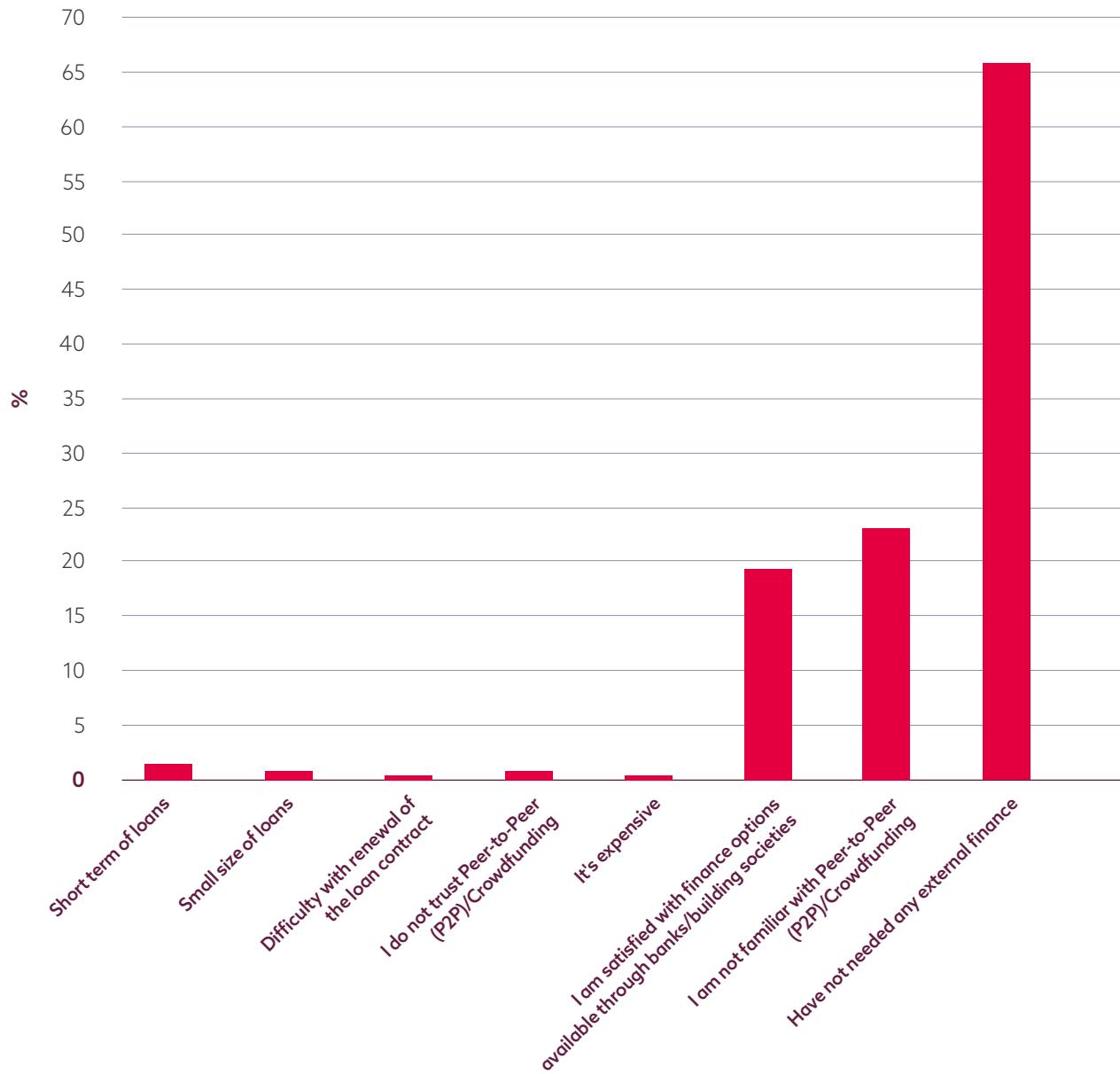
Reason for use (n=11) P2P and Crowdfunding



Findings: respondent relationship with main business bank

Figure 3.8(b)

Reason for non-use (n=127) P2P and Crowdfunding



4.1 Introduction

In this section, we summarise how we used the survey data discussed in Section 3 to undertake an econometric analysis that explores a selection of the research questions posed in Section 1. Recall that the study aimed to examine the roles of relationship banking and online banking in SME financing. In the econometric analysis we sought to focus on three issues:

- the impact of relationship banking and online banking on SMEs' financing constraints, loan amounts and loan terms, as well as whether this effect varies with loan size.

- how relationship banking and online banking influenced the SME loan contract and whether these effects vary by loan size. Specifically, here we examined loan amount, loan maturity, interest rates, collateral requirements, loan approval speed, and overall borrower⁴ satisfaction.
- the impact of online banking on relationship banking, and whether this impact varies with loan size. Specifically, does online banking enhance the role of relationship banking, or does it weaken the role of relationship banking in the case of small and medium-sized enterprises in Wales?

4.2 Methodology and variables

The econometric methodology employed is described in Appendix 1. In brief, here is a description of the econometric methods used:

- To examine whether a measure of SME financial constraint (i.e. for the largest loan amount applied for by the SME since Covid-19) was affected by the extent of relationship banking experienced by the SME and whether the loan applied for was online.
- To examine whether the amount of the loan gained by the SME (largest loan obtained since the Covid-19 pandemic) was affected by the extent of relationship banking experienced by the SME and whether the loan was applied for online.
- To examine whether the loan conditions obtained (here in terms of the maturity of the largest loan gained since Covid-19) was affected by the extent of relationship banking experienced by the SME and whether the loan was applied for online.

- To examine whether SME satisfaction with loan maturity, loan approval speed, and overall borrower satisfaction was affected by the extent of relationship banking experienced by the SME and whether the loan application was online.

At the outset it is important to recognize that when we use the term online banking we take this as consistent with a broad meaning of FinTech and digital banking. Table 4.1 below shows the different variables used in the analysis, while Table 4.2 shows the statistical description of the variables. Table 4.1 reveals that a number of the dependent and independent variables are binary in nature. Table 4.2 flags up that a relatively small number of observations were available to undertake the analysis, such that caution is required in drawing overmuch inference from the results.

⁴ We do not report results for collateral requirements and interest rates as no significant results were found.

Relationship banking, online banking and SME loans: econometric analysis

Table 4.1

Definition of variables



Name	Description
Dependent variables	
Financial Constraints (FC) (0,1)	For the largest loan amount applied for since Covid-19, the binary variable takes the value 1 if the amount of the bank loan obtained fully meets the amount of bank loan applied for; otherwise, the value is 0.
Amount Received (AMRec) (£)	For the largest loan amount applied for since Covid-19, the logarithm of the amount of bank loans obtained by enterprises.
Amount Applied (AMApp) (£)	For the largest loan amount applied for since Covid-19, the logarithm of the amount of bank loans applied for by enterprises.
Maturity (MAT) (year)	For the largest loan amount applied for since Covid-19, the maturity of bank loans obtained by the enterprise.
Amount Satisfaction (ASAT) (0,1)	For the largest loan amount applied for and obtained since Covid-19, the binary variable that takes value 1 if the business subjectively "strongly agrees" that the loan amount obtained fully meets the company's financial needs; otherwise, the value is 0.
Maturity Satisfaction (MSAT) (0,1)	For the largest loan amount applied for and obtained since Covid-19, the binary variable that takes value 1 if the business subjectively "strongly agrees" that they are fully satisfied with the loan term; otherwise, the value is 0.
Process Speed Satisfaction (SPSAT) (0,1)	For the largest loan amount applied for and obtained since Covid-19, the binary variable that takes value 1 if the business subjectively "strongly agrees" that they are fully satisfied with the speed of loan decision is 1; otherwise, the value is 0.
Overall satisfaction with loan provided (OVSAT) (0,1)	For the largest loan amount applied for and obtained since Covid-19, the binary variable that takes value 1 if the business subjectively "strongly agrees" that they are fully satisfied with the overall loan provided is 1; otherwise, the value is 0.
Independent variables	
Relationship Banking (0,1)	For the largest loan amount applied for since Covid-19, the binary variable that takes value 1 if the business subjectively "strongly agrees" or "tend to agree" that they can approach the bank anytime needed; otherwise 0.
Online Bank (OB)	For the largest loan amount applied for since Covid-19, 1 if the company applies for the largest loan since the outbreak of Covid-19 from online banking; otherwise 0. Note that this proxies for the broad meaning of Fin Tech and digital banking.
Control variables	
Employee	The number of employees (in logs).
IND (0,1)	1 if a company belongs to the secondary industry; 0 if it belongs to the tertiary industry. The secondary industry refers to mining, manufacturing, electricity, heat, gas, water production and supply, and construction. The tertiary industry refers to service industry. (Our sample does not include companies in primary industries).
Region (0,1)	1 if the enterprise is located in the Southeast region of Wales; otherwise, 0.

Table 4.2

Statistical description of the variables



Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Financial Constraints (FC) (0,1)	56	0.893	1	0.312	0	1
Amount Received (AMRec) (£)	56	421,250	75,000	1,178,446	0	3,000,000
Amount Applied (AMApp) (£)	56	341,786	75,000	764,632	30,000	3,000,000
Maturity (MAT) (year)	55	5.845	4	3.872	0	15
Amount Satisfaction (ASAT) (0,1)	53	0.623	1	0.489	0	1
Maturity Satisfaction (MSAT) (0,1)	53	0.623	1	0.489	0	1
Process Speed Satisfaction (SPSAT) (0,1)	53	0.642	1	0.484	0	1
Overall Satisfaction (OVSat) (0,1)	54	0.630	1	0.487	0	1
Relationship (0,1)	56	0.607	1	0.493	0	1
Online Bank (0,1)	56	0.589	1	0.496	0	1
EMPLOY (FTE)	56	25.071	15	34.358	7	175

Table 4.2 reveals that the largest loan received by a responding SME since Covid-19 was £3m with a mean loan received of around £421,000 (median £75,000 and with this a better measure of central tendency here). The amount of loan applied for (AMApp) by the SMEs ranged from £30,000 to £3m, with a mean value close to £342,000. SMEs included in the analysis ranged from 7-175 employees with a mean employment value close to 26.

One of the issues of interest is how far amounts applied for and received varied according to whether the SME applied online as opposed to applying offline through the branch network. Table 4.3 reveals that the loan amounts applied for and received were larger in the case of where SMEs applied through the branch as opposed to through online means. For example, the mean amount of loan received through an online banking route was £331,250.

Further analysis of the figures underpinning Table 4.3 revealed that SMEs subject to financial constraints were more likely to use online banking. Moreover, for small loans (applications under £200,000), SMEs subject to financial constraints were more likely to use online banking, but with the difference not significant for the cases of SMEs applying for large loans (exceeding £200,000). A tentative conclusion can be drawn that for SMEs applying for small loans, using online banking was more effective in alleviating SME financial constraints.

Table 4.3 would seem to support this. The loan amounts applied for by SMEs through online banking were lower than those applied for through offline banking (both in terms of median and average values). Additionally, the median values revealed in Table 4.3 suggest that loan amounts applied for through face-to-face applications were almost always fully met, but loan amounts applied for through online banking were not fully met.

Relationship banking, online banking and SME loans: econometric analysis

Table 4.3

Amount of bank loans applied for and obtained through different application channels



	Mean £	Median £	Min £	Max £
Amount applied: offline bank (24)	547,500	187,500	30,000	3,000,000
Amount applied: online bank (32)	187,500	75,000	30,000	3,000,000
Amount received: offline bank (24)	541,250	187,500	0	3,000,000
Amount received: online bank (32)	331,250	52,500	0	750,000

Note: Unit is GBP. Offline bank refers to loan applications submitted to banks through face-to-face channels. Online bank refers to loan applications submitted to banks through online channels.

Table 4.4 shows the proportion of loans that have been processed through the online route, split into small and large loans (£200,000) and low and high financing constraints. The table supports the reasonable expectation that

firms that face high financing constraints and particularly for small sized loans tend to apply through the online route.⁵

Table 4.4

Proportion of loans applied online



	Full sample	Small loan	Large loan
Low financing pressure constraint = 1	56%	62%	52%
High financing pressure constraint = 0	67%	100%	50%

Note: "Financing constraint" is a reverse indicator. If the financing constraint equals 1, it indicates that the company can obtain the required loan amount.

Table 4.5 reveals the results from an analysis of the role of variables Relationship Banking and Online Bank in impacting the dependent variables Financial Constraint (i.e. whether the loan received by the SME was the same as that applied for), the Amount Received (AMRec) and then the Maturity of loans received (MAT).

The variable that proxies for the presence of Relationship Banking has a positive and significant effect on the variable Financial Constraint suggesting that the degree of relationship banking is important in explaining whether or not SMEs receive the loans they were expecting to. This finding confirms what is generally accepted in the academic literature that relationship banking eases financial

⁵ This finding is further supported using an alternative measure of financing constraint and shown in supplementary material in Appendix 2 as a robustness exercise.

Relationship banking, online banking and SME loans: econometric analysis

constraints faced by SMEs. We also find that the variable Relationship Banking is positively and significantly associated with the amount of loan received by the SME. However, there was found to be no significant relationship between the presence of Relationship Banking and the Maturity variable.

Table 4.5 also shows that there were no significant relationships between the variable Online Bank (a binary variable showing whether the SME received their largest loan since Covid-19 from online banking) and any of the dependent variables in Table 4.4 although the signs here are consistently negative on the coefficients.

Finally, here the variable Relationship Banking *Online Bank is found to have a negative and significant relationship with the variable Financial Constraint. The use of this variable suggests that the variable Online Bank works to reduce the effects of Relationship Banking in alleviating the SME financial constraint i.e. whether they received the amount of loan funding that they expected. This finding is consistent with the notion that online banking serves to bypass the traditional route of relationship banking. While we find no firm evidence in the econometric analysis that the dilution of relationship banking is expressed through the application of small sized loans, there is weak evidence from the material in Tables 4.3 and 4.4.

Table 4.5

SME relationship banking, online banking and financing situation;
Standard errors in parenthesis



Model (see Appendix 1 Method)	Probit	OLS	OLS
Dependent variables	Financial constraint (FC; 0=constrained)	Log of Amount received (AMRec) measure	Maturity (MAT) (years)
Independent variables			
Relationship Banking	0.691*** (0.220)	2.738** (1.347)	1.623 (1.344)
Online Bank	-0.086 (0.105)	-0.848 (1.966)	-0.405 (1.435)
Rel. Banking*Online Bank	-0.541** (0.228)	-0.234 (1.979)	1.070 (2.024)
Size, region and industry controls	Yes	Yes	Yes
Obs.	56	56	55
R-squared	0.202	0.259	0.159

Notes: The results are the average marginal effect estimated by the probit model. The dependent variable for each column is listed in the top row. Robust standard errors are shown in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4.6 summarises the findings of how far the variables Relationship Banking and Online Bank are related with the satisfaction with loan size, maturity, and decision speed. The table reveals that the variable Relationship Banking is positively and significantly associated with each of the loan satisfaction variables. Online

Bank is positively associated with satisfaction of the loan amount and the speed of decision. The Relationship Banking*Online Bank variable is employed to show that Online Bank serves to weaken the association between Relationship Banking and the measures of satisfaction with loan size, and speed of decision making.

Table 4.6

SME relationship banking, Online banking and satisfaction with loan conditions (ordered probit)



Variables	Satisfaction with loan size	Satisfaction with loan maturity	Satisfaction with speed
Relationship Banking	0.142** (0.062)	0.144*** (0.044)	0.124** (0.058)
Online bank	0.703** (0.277)	0.171 (0.279)	0.596** (0.283)
Rel. Banking*Online Bank	-0.201** (0.078)	-0.073 (0.094)	-0.158* (0.083)
Firm size, industry and regional controls	Yes	Yes	Yes
Obs.	53	53	53
R-squared	0.065	0.112	0.101

Notes: The results are the average marginal effect estimated by the probit model. The dependent variable for each column is listed in the top row. Robust standard errors are shown in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

A threshold analysis was undertaken to explore whether the credit obtained through different channels exhibits nonlinearities in the form of threshold points across different loan sizes/firm qualities. Loans below a certain threshold may be directed to online application but loans above may be subject to face-to-face evaluation. Such nonlinearities may be caused by the different risk levels of different loan

sizes/firm qualities and the transaction costs of lending technologies. The small number of observations and lack of variation in the data made a robust threshold analysis ineffective. Appendix 2 provides further information in respect of the link between loan size and satisfaction, and loan size and the variable financial constraint.

A key aim of this report was to better understand the strength of the banking relationship held by SMEs in Wales and whether technological change was changing the significance of relationship banking for SMEs.

The report revealed that a significant number of the respondent SMEs maintained commercial relationships with the largest four clearing banks, with relatively few having relationships with newer banks such as Monzo and Tide. Indeed, the research revealed the stability of banking relationships with around half of the SMEs surveyed having a relationship with their main bank in excess of 20 years.

An important theme for the research was how far technology might be impacting the ways in which SMEs communicated with their main business bank, and whether that had changed as a means of communication following from the Covid-19 pandemic. The report revealed increased use of email as the primary method of communication post Covid-19 and businesses also reported a strong increase in the use of online chat/video conference facilities. Critically a very small proportion of the survey respondents identified face-to-face meetings at branches as their main means of communication, and with some expectation that it is these face-to-face meetings that reinforce relationship banking.

However, new technology can improve communication and reduce the cost of communication, and the survey analysis showed an increase in the frequency of banks communicating with their business clients in the post-Covid-19 environment. In parallel, from the SME side, there was a noticeable trend towards higher levels of communication with the main business bank in the post- Covid-19 business environment. Clearly this was linked in part to the types of services being requested from the main business bank.

The survey reinforced historical data reported in the Economic Intelligence Wales quarterly and annual report series⁶ in respect of the main external funding sources of the business. Loans were the predominant external source of finance (pre- and post- Covid-19), and the survey findings showed the proportion of respondents whose main source of external finance was listed as overdraft, grant or invoice/asset finance fell in the post- Covid-19 period.

A further important theme in the report was how far processes of applying for loans have changed in the presence of new technology. The report revealed a fall in the proportion of SMEs applying for loans on a face-to-face basis in the post- Covid-19 environment, but then with a concomitant increase in on-line applications. Given some expectation that online banking might depreciate the significance of relationship banking, and with the latter an expected determinant of the success or failure of gaining loans, this finding was of interest. Within the SMEs surveyed, very few used peer-to-peer or crowdfunding as a main loan channel. The survey findings provided some evidence that the lack of use of more innovative funding sources related to a lack of familiarity, and businesses being comfortable with the finance options currently available.

The statistical analysis in section 4 of the report revealed that:

- Loan amounts applied for and received were larger where SMEs applied through branch as opposed to through online means, and with SMEs subject to credit constraints more likely to use online banking (particularly in the case of smaller loans).
- The degree of relationship banking is important in explaining whether SMEs receive the loan amounts they were expecting to, and with larger loans more likely to be achieved

⁶ See [Annual report - Dev Bank](#)

where there was evidence of stronger relationship banking.

- There were no significant relationships found between whether the SME received their largest loan since Covid-19 from online banking and variables describing financial constraints, amount of loan gained, or loan conditions. However, evidence was found that the use of online banking works to reduce the effects of relationship banking in alleviating SME financial constraints i.e. whether they received the amount of loan funding that they expected as online applicants saw loans received being lower than the amount they applied for.
- The presence of stronger relationship banking was associated with SME satisfaction with loans received. But online banking served to reduce the impact of this by offering an alternative avenue for small loan applications.

As highlighted in the report, there were some limits on what could be achieved in the formal statistical analysis because of low sample sizes in terms of the number of survey respondents that had received loans. We also accept that the ways through which we measure the degree of relationship banking and SME engagement with FinTech can be contested; moreover there may be implicit bias in some elements of the survey with SMEs that have gained loans ranking the quality of their relationship with their main business bank higher.

However, the research reveals changes in the way that SMEs work with their banks and vice versa since the Covid-19 pandemic period and with technological improvement potentially weakening the ties between firms and their banks. Clearly, changes in relationships also reflect basic changes in the supply side. The main business banks in Wales have reduced their physical branch infrastructure and with this also affecting the way retail consumers

bank. Fundamentally, in large parts of Wales it has become far more difficult to have a physical face-to-face relationship in a branch setting, although several banks have been proactive in using tools such as Teams and Zoom to speak to business clients. That noted, the ability of Welsh SMEs to engage with the full range of business services offered by the main banks is likely to be a function of their own digital maturity and with this found to vary across SMEs in different parts of Wales and in different industries.⁷

Clearly, there is more research that is needed in this space. For example, relatively little is understood on the relationship between SME ICT use (perhaps in terms of digital applications, E-commerce and E-trading), SME ICT resources (in terms of infrastructure, skills, capabilities), and the way in which the same SME makes use of services from the financial services sector. The survey revealed quite limited use of peer-to-peer lending and crowdfunding, and this could link to internal ICT factors in SMEs. This would be a useful avenue for further research in terms of how well-equipped Welsh SMEs are to take advantage of FinTech opportunities.

The research pointed to some rapid changes since the Covid-19 pandemic. The trends in technology use outlined in this report will likely continue at pace. There is a need to regularly monitor how general technology and FinTech development is affecting external financing processes for SMEs and whether patterns in Wales diverge from those in other parts of the UK.

Some care is required in drawing policy implications from the descriptive and econometric analysis because of the number of underlying observations. There is also a question of how far policy recommendations refer to policy of the main business banks used by SMEs, the Development Bank of Wales and/or Welsh Government/Business Wales.

⁷ See Digital Maturity Survey for Wales, 2020. Summary at https://www.cardiff.ac.uk/_data/assets/pdf_file/0006/2477580/DMS-2020-Summary-ENG.pdf

First, the descriptive analysis reveals that there is some degree of inertia in terms of SMEs changing their main business banks (Figure 3.1a/b). There can be good reasons for this. But it is hard to separate business motives from bank motives. A long-time association could indicate a strong firm-bank relationship to the advantage of the firm. It could also indicate the hold-up problem where banks hold on to customers by exploiting their information advantage to increase switching costs – an advantage to the bank. Either way there may be lost opportunities when the services of alternative providers are not evaluated. SME interventions in Wales in terms of business advice might at the very least signal the value of reviewing the main business bank periodically and exploring the market for financial services. For example, the survey revealed very few SMEs using the services of more recently instituted banks and of peer-to-peer lenders and crowdfunding.

Second, changes in the way banks communicate with users and innovation in communication channels means that SMEs who are less digitally mature might struggle to engage. There is an overarching challenge in interventions which seek to improve the digital maturity of Welsh SMEs to show the importance of digital technology adoption for accessing financial services in particular. This is more acute in more rural areas where the physical bank infrastructure has been depreciated and where the maintenance of a relationship will be more dependent on online video resources.

Third, the research provides evidence of an increase in the importance of online application processes for main loans after Covid-19, while relationship banking is revealed to be important in terms of the size of loan received. We provide some evidence for the notion that online banking is bypassing the traditional route of relationship banking for small size loans. In terms of policy development for the business banks there is then a suggestion that there remains value in relationship banking in leveraging the types of business information needed to confirm larger loans. Ultimately there is a balance to be struck here between the lower costs for banks in approving through online processes set against the greater risks of not engaging more closely with applicants. Our research was not able to pick up on statistically significant threshold effects and here more work is needed. The survey was not designed to capture the role of relationship banking in aiding the transition of loan applications from small online application to larger applications that entailed physical interaction. While this may be an avenue for future research, it would be prudent for banks to not lose sight of the value of relationship banking in this transition. The main recommendation here then is for business banks to maintain different routes for loan application and with continued value in relationship banking.

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Appendix 1:

Econometric methodology

Ordered probit

To investigate the role of relationship banking and online banking on easing the financial constraints faced by SMEs, and meeting objectives in terms of loan conditions (maturity of loan), and speed of decision making, we utilize the ordered probit model introduced by McKelvey and Zavoina (1975). Our dependent variable is the Likert scale response from the survey questions on satisfaction with loan size, maturity, and speed of decision. The Likert scale takes values from 1 to 5 and can thus be classified as an ordinal variable. Assuming that there is a latent variable y_i^* that determines the satisfaction of firm i with the loan conditions, we can use the following latent variable equation:

$$y_i^* = X_i \beta + \epsilon_i$$

where X_i is the vector of explanatory variables that may influence the satisfaction level, and ϵ_i is an error term that has a logistic distribution. Since y_i^* is an unobserved variable, the maximum likelihood technique is applied to estimate the probabilities of observing values of c_i given X_{ih} . The latent variable y_i^* has thresholds $y_{ih} = j$ if $\kappa_{j-1} < y_{ih}^* \leq \kappa_j$. Then the probability that firm i has satisfaction level j can be calculated as follows:

$$P(y_i = j) = P(\kappa_{j-1} < y_i^* \leq \kappa_j) = F(\kappa_j - X_i \beta) - F(\kappa_{j-1} - X_i \beta)$$

where κ_j is the threshold parameter that separates outcome level $j-1$ from level j , and $F(\cdot)$ is a standard cumulative distribution function. Because the dependent variable is ordinal, the coefficients do not have a linear interpretation in the probability equation. Instead, they represent the change in the log-odds of being in a higher category (i.e. a higher level of satisfaction) associated with a one-unit increase in the corresponding independent variable. To better understand the effect of explanatory variables on the level of satisfaction, we report on their marginal effects.

The marginal effect of an increase in a regressor x_r on the probability of selecting alternative j are calculated as:

$$\frac{dP(y_i = j)}{dx_{ri}} = \{F'(\kappa_{j-1} - X_i \beta) - F'(\kappa_{j-1} - X_i \beta)\}\beta_r$$

The marginal effect shows how each unit increase in the independent variable affects the probability of selecting alternative j by the marginal effect expressed as a percent.

Appendix 1:

Econometric methodology

Probit model

To examine the impact of relationship banking and online banking on the probability of the SME obtaining a loan, we employ a probit regression model. This is suitable for binary outcome variables. The dependent variable, Financial Constraint, takes value 1 if the loan is approved, and 0 otherwise. The probit model is specified as follows:

$$P(\text{Financial Constraint}_i = 1 | X_i) = F(X_i \beta)$$

Where $F(\cdot)$ is the cumulative density function of the normal distribution. Then the log-likelihood function for probit model is given as:

$$\ln L(\beta) = \sum_i (y_i \ln(F(X_i \beta)) + (1 - y_i) \ln(1 - F(X_i \beta)))$$

The β coefficients are obtained by maximizing the log likelihood function. The estimated coefficients indicate how changes in relationship banking and other factors influence the probability of loan approval, with marginal effects providing economic interpretation. The marginal effects of x_r on the probability of $y=1$ are calculated as:

$$\frac{dP(y = 1 | x)}{dx_r} = F'(X_i \beta) * \beta_r$$

The marginal effect explains the effect of the independent variable on the probability that $y=1$, i.e. by how much the probability of $y=1$ increases when x_r increases by 1 unit.

Appendix 1:

Econometric methodology

Threshold model

To test the non-linearity in the relationship between relationship banking and loan conditions, we used the threshold regression model proposed by Hansen (1999). The model is as follows:

$$Y_i = \alpha_1 + \beta_{s1} X_i * I(Threshold_i \leq \gamma) + \beta_{s2} X_i * I(Threshold_i > \gamma) + \delta' z_i + \varepsilon_i \quad (X)$$

where Y_i represents a vector of dependent variables, which link to satisfaction, for example, the loan amount, maturity, and interest rate, X_i is the key explanatory variable that includes relationship banking, RB_i , and a dummy variable for the use of online banking, OB_i , which takes the value 1 if the company's largest loan applied for was made through online banking, and 0 otherwise.

$I(\bullet)$ is an indicator function with $I(Size_i \leq \gamma) = 1$ if $Size_i \leq \gamma$ and $I(Size_i \leq \gamma) = 0$ if $Size_i > \gamma$. In this model, the threshold variables is $Size_i$, which represents the size of the loan application. γ is the scalar threshold parameter or sample split value, estimated from the model.

Finally, z_i is a vector of company-and-loan-specific characteristics that include age, size, profitability, effect of Covid-19, loan amount, expansion plan, as well as industry- and city-specific fixed effects. Our key focus is on coefficient β as it captures the importance of different lending channels for the firms' access to finance. Importantly, we observe non-linearity when we have different β in each regime, that is, when $\delta \equiv (\beta_{s1} - \beta_{s2}) \neq 0$. The statistical theory for model (X) is provided by Hansen (1999) who proposed to estimate the threshold parameter using a concentrated least squares method. We start by testing for the significance of the threshold effect with

$$H_0: \delta = 0 \text{ vs. } H_1: \delta \neq 0,$$

i.e., the null hypothesis of a linear model against the alternative of a threshold regression model. This hypothesis could be tested using a heteroscedasticity-autocorrelation consistent Lagrange multiplier (LM) test as proposed by Hansen (1999). If the null hypothesis is rejected, then there is evidence of non-linearity in the model, and so we can estimate regime-specific.

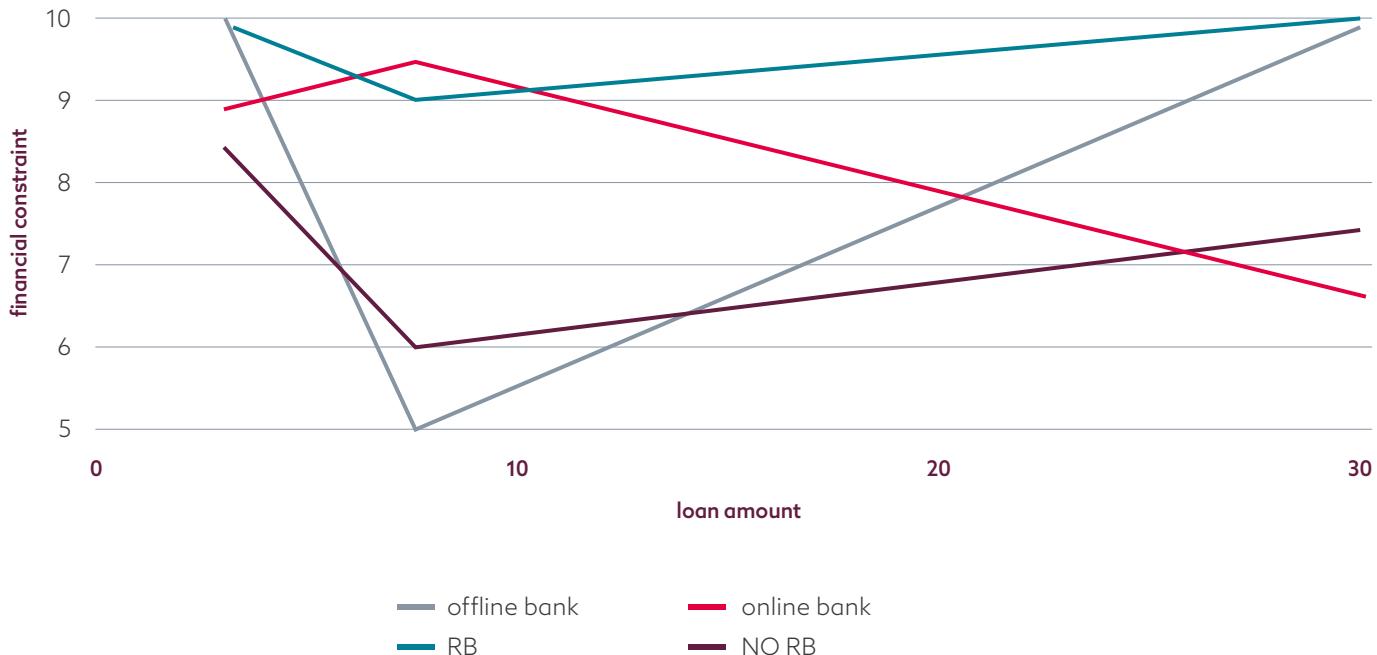
While we were able to identify a threshold point in a similar survey undertaken in Zhejiang province China, the number of observations obtained in this survey were too few to find any meaningful results. The results are presented in Appendix 2 for information only. This is an avenue for further investigation in a larger scale survey.

Appendix 2:

Additional supporting tables and figures

Figure A1

Financial constraint by Different Channels



Notes: "Financing constraint" is a reverse indicator. If the financing constraint equals 1, it indicates that the company can obtain the required loan amount. The horizontal axis shows the size of loan in ten thousand GBP. The vertical axis shows the proportion of financial constraint equal to 1 (i.e., the proportion of companies without financing constraints). "Offline bank" refers to loan applications submitted to banks through face-to-face channels. "Online bank" refers to loan applications submitted to banks through online channels. "RB" refers to companies that subjectively "strongly agree" or "tend to agree" that they can approach the bank used for the majority of our business anytime needed. "NO RB" refers to companies that do not subjectively "strongly agree" or "tend to agree" that they can approach the bank used for the majority of our business anytime needed.

Appendix 2:

Additional supporting tables and figures



Table A1

Financing constraints and online banking using alternative measure of constraint

	Full sample	Small loan	Large loan
Low Financial pressure FC = 1	50%	73%	11%
High Financial pressure FC = 0	66%	71%	50%

Note: We use the Size-age (SA) index to measure a company's financial pressure. The SA index proposed by Hadlock and Pierce (2010) posits that the size of the firm and the age of the firm are the best predictors of financial constraint faced by the firm and is calculated as $SA = -0.737 * \text{size} + * \text{size}^2 - 0.04 * \text{age}$, where size is measured by the logarithm of total assets. We divided firms into high financial pressure and low financial pressure groups based on their SA index scores. Additionally, based on the median scale of loan application amount (£75,000), we divided businesses into two groups: those applying for small loans and those applying for large loans.

Table A1 indicates that Welsh SMEs constrained by historical credit restrictions may be more inclined to use online banking to apply for loans (66% versus 50%). Furthermore, for small loans, both credit-constrained and non-constrained SMEs show enthusiasm for online banking applications, with no significant difference between the two groups. However, for large loans, the proportion of credit-constrained SMEs using online banking is substantially higher than that of non-constrained SMEs (50% vs. 11%). This highlights the critical importance of online banking for credit-constrained enterprises.

Table A2 presents selected results from the threshold regression. While we would not wish to place too much credence on the results, the findings indicate the need for deeper investigation. Taking a threshold value of £30,000, column 3 suggests that online applications do not help for loans of more than the threshold value. Column 9 suggests that for loans more than the threshold, relationship banking helps with the loan size. Column 6 suggests that satisfaction with the interest rate on large loans is weakened through the online route.

Appendix 2:

Additional supporting tables and figures



Table A2

SME Online banking and satisfaction with loan conditions using Threshold model

Probit									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Satisfaction with loan amount			Satisfaction with interest rate			Satisfaction with loan amount		
Online bank	-0.111 (0.139)	0.323 (0.209)	-0.1695*** (0.143)	-0.049 (0.142)	0.342* (0.175)	-0.297* (0.165)			
Relationship							0.210* (0.125)	-0.033 (0.239)	0.317** (0.158)
Industry, size and regional controls	Yes			Yes			Yes		
Threshold	30000*			30000*			30000*		
Obs.	53	21	32	52	21	31	53	21	32
R-squared	0.026	0.101	0.260	0.044	0.266	0.118	0.053	0.0376	0.166

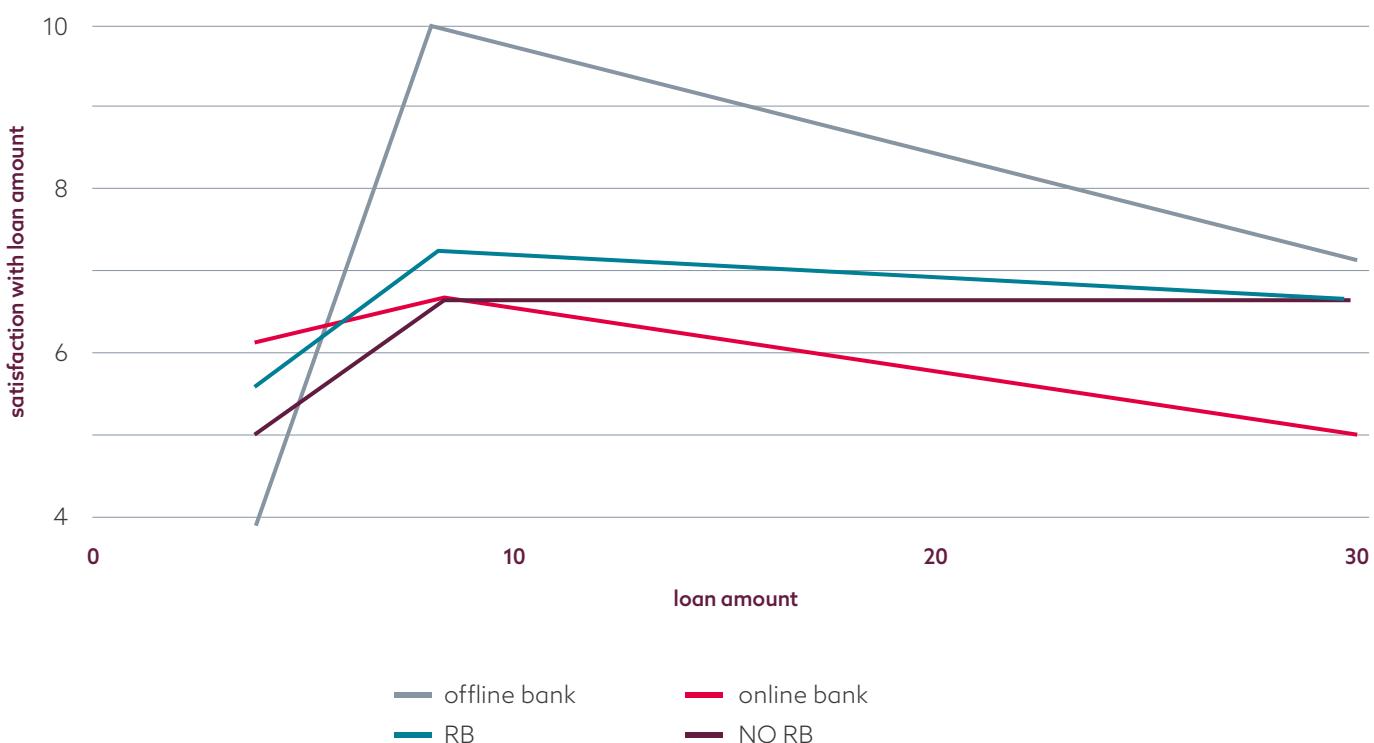
Notes: Columns 1 to 6 present the results obtained using the threshold model. Columns 1 to 3 present the threshold effects of online banking on satisfaction with loan amounts, with a threshold value of £30,000 and significance at the 10% level. Columns 4 to 6 present the threshold effects of online banking on satisfaction with loan interest rates, with a threshold value of £30,000 and significance at the 10% level. Columns 7 to 9 present the impact of relationship banks on satisfaction with loan amounts. We manually set the threshold at 30,000 pounds to compare with the results in columns 1 to 3. Additionally, due to the small sample size, the impact of relationship banks on satisfaction with loan interest rates cannot be estimated when the threshold is set at 30,000 pounds, so these results are not displayed. The results are the average marginal effect estimated by the probit model. The dependent variable for each column is listed in the top row. Robust standard errors are shown in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix 2:

Additional supporting tables and figures

Figure A2

Satisfaction with loan amount by Different Channel



Notes: "Financing constraint" is a reverse indicator. If the financing constraint equals 1, it indicates that the company can obtain the required loan amount. The horizontal axis shows the size of loan in ten thousand GBP. The vertical axis shows the proportion of FC equal to 1 (i.e., the proportion of companies without financing constraints). "Offline bank" refers to loan applications submitted to banks through face-to-face channels. "Online bank" refers to loan applications submitted to banks through online channels. "RB" refers to companies that subjectively "strongly agree" or "tend to agree" that they can approach the bank used for the majority of our business anytime needed. "NO RB" refers to companies that do not subjectively "strongly agree" or "tend to agree" that they can approach the bank used for the majority of our business anytime as needed.

Appendix 3:

Survey script

Before and after Covid-19: bank-business relationships, digital finance and SME finance - the case of Wales

introduction - CATI

Hello. Can I speak to Sample full name please?

REPEAT ONCE SPEAKING TO CORRECT PERSON

My name is <INTERVIEWER NAME> from Opinion Research Services. We have been commissioned by the Development Bank of Wales, a subsidiary of Welsh Government, to carry out a survey with businesses in Wales. **Just to mention this conversation is recorded and may be monitored for training and quality purposes only.** This survey is to understand how businesses use banks and external financing, and how this has changed since the Covid-19 pandemic. Your responses will be invaluable to help inform future financial products offered by the Development Bank.

If named respondent is not available/not appropriate: Who is the most appropriate person to complete a survey about your company, and please can I speak to them?

If not immediately available: record name and phone number of appropriate person. Record appointment if appropriate. Read out: 'Thank you for your time, an interviewer will call back tomorrow.'

If necessary: Development Bank of Wales works in partnership with Welsh Government to provide sustainable and effective finance to businesses that will benefit Wales and its people.

Could you spare me some time to answer a few questions about how your business is financed? Your participation is vital to Development Bank of Wales, and will be greatly appreciated.

IF YES – READ OUT TO ALL:

READ OUT THE APPROPRIATE SENTENCE DEPENDING ON WHETHER YOU STARTED THE INTERVIEW IN WELSH OR ENGLISH:

Cymraeg: Ydych chi'n hapus i barhau i wneud y cyfweliad yn Gymraeg, neu a fyddai'n well gennych chi ei wneud yn Saesneg?

English: And are you happy to answer the questions with me today in English, or would you prefer to make an appointment to complete the interview in Welsh? (if prefer Welsh - make appointment as necessary).

If necessary: It should take approximately 10 to 15 minutes depending on your answers. All results provided to Development Bank of Wales will be in an anonymised format. The anonymised data will also be shared with Cardiff Business School (part of the Development Bank's Economic Intelligence Wales research collaboration), to analyse the anonymised survey results and produce a report which will be published on the [Economic Intelligence Wales website](#).

Read out: Everything you say will be treated in confidence and your contact details will never be released to any other parties. If you would like to confirm my identity, I can supply you with a contact name and telephone number for Opinion Research Services or the Market Research Society at any time.

ORS will destroy any information which identifies you as an individual 3 months after project completion, but the rest of your responses will be kept for statistical purposes. ORS adheres to all latest Data Protection legislation (If necessary: the Data Protection Act and GDPR, the General Data Protection Regulation).

Appendix 3:

Survey script

INTERVIEWER: PROVIDE AS NECESSARY

If you have any queries regarding privacy, please visit:

ORS - ors.org.uk/privacy

Development Bank of Wales - <https://developmentbank.wales/financesurvey>

CONTACT DETAILS:

ORS TEAM CONTACT DETAILS: 0800 107 7890
or info@ors.org.uk

Contact detail for Development Bank of Wales:
Sian Price or Liam Evans on 0800 587 4140 or
email EconomicIntelligence@developmentbank.wales

MRS Freephone Number: **0800 975 9596**

Also if respondent wants to verify this is genuine, go to Development Bank of Wales website at the following link where the survey is explained: developmentbank.wales/financesurvey

ADDITIONAL IF NECESSARY INFO:

Development Bank of Wales is the data controller of the information collected as part of this interview, and ORS is the data processor. The interview takes about 12-15 minutes, depending on your answers.

IF NECESSARY (i.e., if respondent asks how their details were obtained): Your number was selected from a list of commercially available numbers (purchased from Data-scope). Your contact details will at no time be released to any other parties and will only be used in connection with this survey.

NewDrivingScreen: Before we start, can I just check you are not currently driving?

If yes

DrivingAbandon:

Can I please book an appointment to call you back at a more convenient time to carry out this interview?

(Market Research Society guidelines prevent us interviewing people whilst driving - even if they have hands free kit and are willing to participate, you must not continue the interview)

Appendix 3:

Survey script

SURVEY - CATI + CAWI

A: about your business

Selection criteria.

This is the list of characteristics to include:

1. Keep firms that have been registered for at least 6 years

2. Keep firms with between 5 and 249 employees

3. Cardiff Business School confirmed exclude:

o A : Agriculture, forestry and fishing

o O : Public administration and defence; compulsory social security

o P : Education

o S : Other service activities

o T : Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

o U : Activities of extraterritorial organisations and bodies

(ASK ALL)

Q1. Firstly, can I confirm, is your business currently trading? Code one only READ OUT IF NECESSARY

1. Yes

2. No longer in business

(Ask if Q1=no longer in business)

Q2. What is the main reason why the business is no longer trading? Code one only

INT - If they say financial difficulties, please try and confirm if they sought credit

1. Financial difficulties and could not get credit

2. Financial difficulties but did not seek credit

3. Market conditions

4. Dependence on a few big customers

5. Staffing recruitment/retention problems

6. Retirement

7. Personal reasons

8. Other

9. Rather not say

(If Q1= no longer in business) TERMINATE INTERVIEW: Unfortunately, we are only able to continue with those currently in business. Thank you for your time.

(ASK ALL)

Q3. How long has the business been trading?

1. Less than 6 years TERMINATE INTERVIEW: Unfortunately we are only able to continue with those whose business has been trading for 6 years or longer. Thank you for your time.

2. 6 years but less than 10 years

3. 10 years but less than 15 years

4. 15 years but less than 20 years

5. 20 years but less than 25 years

6. 25 years but less than 30 years

7. 30 years but less than 40 years

8. 40 years ago or more

(ASK ALL)

Appendix 3:

Survey script

Q4a - And can you confirm that your business is [Sample:Business Name]?

a) Yes

b) No

(ASK IF INCORRECT BUSINESS NAME IN Q4a)

Q4b. Could you confirm what is the correct name of your business?

(ASK IF INCORRECT BUSINESS NAME IN Q4a)

Q4c. Please provide the postcode of your business

ASK IF INCORRECT BUSINESS NAME IN Q4a, SINGLECODE

Q4d. How many employees does your business have, including yourself?

1. Less than 5 employees - TERMINATE

INTERVIEW: Unfortunately we are only able to continue with those businesses who have between 5 and 249 employees. Thank you for your time.

2. 5-9 employees

3. 10-19 employees

4. 20-49 employees

5. 50-99 employees

6. 100-249 employees

7. 250 employees or more - TERMINATE

INTERVIEW: Unfortunately, we are only able to continue with those businesses who have between 5 and 249 employees. Thank you for your time.

ASK IF INCORRECT BUSINESS NAME IN Q4a

Q4e. Which industry is the Company's primary business in?

B: business banking

I'll begin by asking a few questions about your business bank.

ASK ALL, SINGLECODE

Q5. What is the name of the bank your business uses for the majority of its business? Code one only

1. Barclays

2. Cashplus

3. Co-operative Bank

4. Halifax

5. HSBC

6. Julian Hodge Bank

7. Lloyds Banking Group

8. Monzo Bank

9. Nationwide Building Society

10. NatWest Group

11. Principality Building Society

12. Starling Bank

13. Santander

14. Tide

15. TSB Bank

16. Virgin Money

17. Other – write in

ASK ALL, SINGLECODE

Appendix 3:

Survey script

Q6. How many years has your business been using this bank?

1. Less than a year
2. 1 year, but less than 2 years
3. 2 years, but less than 3 years
4. 3 years but less than 6 years
5. 6 years but less than 10 years
6. 10 years but less than 15 years
7. 15 years but less than 20 years
8. 20 years or longer
9. Don't Know

ASK ALL, MULTICODE, RANDOMISE

Q7. What services does your business use at this bank?

Please select all that apply.

1. Bank loan and / or bank overdraft
2. Current account
3. Easy access savings account
4. Notice account (a higher interest account requiring notice to make withdrawals)
5. Commercial mortgages
6. Leasing / hire purchase
7. Business credit cards
8. Personal credit cards
9. Other financial services, please specify

(ASK IF Q6 is business has been using bank 6 years or more)

Q8a Still thinking about the bank your business uses for the majority of its business, do you currently have a dedicated member of staff at the bank who is the main contact for your business needs?

Yes

No

Don't know

If yes to Q8a..

What is the primary way in which you currently communicate with them? Select one only

1. Face to face meeting at the branch
2. Face to face meeting at your company
3. Telephone
4. Email
5. Online chat/ videoconference
6. My company hasn't had any recent communication (within the last few years) with our dedicated contact

Q8c. If options 1-5 above Approximately, how often does your business initiate contact with your dedicated member of staff at the bank?

1. At least once a week
2. At least once a month
3. At least once every 2-3 months
4. At least once every 6 months
5. At least once a year
6. Less frequently

Q8d. If options 1-5 ...and approximately, how often do they initiate contact with your business?

1. At least once a week
2. At least once a month
3. At least once every 2-3 months
4. At least once every 6 months
5. At least once a year

Appendix 3:

Survey script

6. Less frequently

(ASK IF Q6 is business has been using bank 6 years or more)

Q9a Did you have a dedicated member of staff at the bank for your business needs before the start of the Covid pandemic (before February 2020)?

10. Yes

11. No

12. Don't know/can't remember

If yes to Q9a..

What was the primary way you communicated with them before the pandemic? Code one only

NOTE: COMMUNICATION PRIOR TO COVID AS OPPOSED TO CURRENT METHODS

1. Face to face meeting at the branch

2. Face to face meeting at your company

3. Telephone

4. Email

5. Online chat/ videoconference

6. My company didn't have any communication with our dedicated contact prior to the pandemic

7. Don't know/can't remember

Q9c. If options 1-5 above Roughly how often did your business initiate contact with your dedicated member of staff at the bank, before the Covid pandemic?

NOTE: CONTACT BY YOUR BUSINESS PRIOR TO COVID AS OPPOSED TO CURRENTLY

1. At least once a week

2. At least once a month

3. At least once every 2-3 months

4. At least once every 6 months

5. At least once a year

6. Less frequently

7. Don't know/can't remember

Q9d. If options 1-5 ...and roughly, how often did they initiate contact with your business, before the Covid pandemic?

NOTE: CONTACT BY THE BANK PRIOR TO COVID AS OPPOSED TO CURRENTLY

1. At least once a week

2. At least once a month

3. At least once every 2-3 months

4. At least once every 6 months

5. At least once a year

6. Less frequently

7. Don't know/can't remember

I'm going to ask a few questions about 'Relationship banking'. This refers to a long-term, stable relationship between a bank and its customers, through the provision of a range of personalised financial products and services to meet the specific needs of the customer. This model of banking emphasises an ongoing relationship of mutual trust and benefit between the bank and the customer, rather than just a single transaction or short-term financial exchange.

ASK All

(Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, DK)

Q10 To what extent do you agree or disagree with the following statements?

1. My business has a strong relationship with the bank we use for the majority of our business

2. We feel we can approach the bank we use for the majority of our business anytime we need

Appendix 3:

Survey script

3. Personal networking is important when doing business
4. Maintaining relationships with third parties (e.g., business partners, suppliers, banks, industry associations, etc.) is important for conducting our business

C: EXTERNAL FUNDING

Q11a. Does your business currently have any external funding, including loans (including peer to peer lending/crowding funding), equity, grant, or borrowing from family or friends?

Yes

No

If yes to Q11a business currently has external funding

Q11b. What is currently your business' PRIMARY source of external funding?

Note: By the primary source we mean the way you obtained the largest total amount of money.

1. Business overdraft
2. Credit card
3. Loan (including bank lending and Peer-to-Peer (P2P) lending/Crowdfunding)
4. Borrowing from friends/family
5. Grant
6. Equity
7. Invoice or asset finance
8. Other, please specify

If Q11b=loan :

Q11c. How did you obtain the loan? Code one only

Note: If your business currently has more than one loan please think of the largest amount of money

1. From your business bank (applied face-to-face)
2. From your business bank (applied online)
3. From another bank (applied face-to-face)
4. From another bank (applied online)
5. From Peer-to-Peer/Crowdfunding
6. From the Development Bank of Wales (DBW)
7. Other, please specify

Ask if Q3 is trading 6 years or more,

Q12a. Did your business have any external funding before the start of the Covid pandemic, including loans (including peer to peer lending/crowding funding), equity, grant, or borrowing from family or friends?

Yes

No

If yes to Q12a business had external funding before pandemic

Q12b. What was your business' PRIMARY source of external funding before the start of the Covid pandemic?

Note: By the primary source we mean the way you obtained the largest total amount of money.

1. Business overdraft
2. Credit card
3. Loan (including bank lending and Peer-to-Peer (P2P) lending/Crowdfunding)
4. Borrowing from friends/family
5. Grant
6. Equity
7. Invoice or asset finance
8. Other, please specify

Appendix 3:

Survey script

If Q12b=loan :

Q12c. How did you obtain the loan before the start of the Covid pandemic? Code one only

Note: If your business had more than one loan please think of the largest amount of money

1. From your business bank (applied face-to-face)
2. From your business bank (applied online)
3. From another bank (applied face-to-face)
4. From another bank (applied online)
5. From Peer-to-Peer/Crowdfunding
6. From the Development Bank of Wales (DBW)
7. Other, please specify

D: applying for loans

We now have a few questions about the largest loan your business has applied for since the start of the Covid pandemic (February 2020), even if you did not end up getting the loan.

ASK ALL

Q13a. Has your business APPLIED for a loan since the start of the Covid pandemic (February 2020), including sources such as borrowing from a bank or Peer-to-Peer (P2P)/Crowdfunding?

Yes

No

ASK IF Q13a =APPLIED for a loan since the start of the pandemic

Q13b. Thinking of the largest loan your business APPLIED for since the start of the Covid pandemic (February 2020), how much was your business SEEKING to borrow?

1. £10,000 or less
2. £10,001 - £50,000

3. £50,001 - £100,000
4. £100,001 - £500,000
5. £500,001 - £1,000,000
6. £1,000,001 - £5,000,000
7. £5,000,001 - £10,000,000
8. Above £10,000,000

If Q13a =APPLIED for a loan since the start of the pandemic.

Q13c. Still thinking about the largest loan your business APPLIED for since the start of the pandemic, which of the following did your business approach first?

1. A loan from your business bank (applied face-to-face)
2. A loan from your business bank (applied online)
3. A loan from another bank (applied face-to-face)
4. A loan from another bank (applied online)
5. Peer-to-Peer (P2P)/Crowdfunding
6. Development Bank of Wales (DBW)
7. Other, please specify

If Q13c =APPLIED for options 1-6

Q13d. Thinking of the largest loan your business APPLIED for since the start of the pandemic, what was the outcome of the application? (single-selection)

1. The loan application was approved and we accepted the terms of this loan.
2. The loan application was approved, but we did not accept the terms of this loan.
3. The loan application was denied
4. The loan application is still in progress

Appendix 3:

Survey script

5. Your business withdrew/stopped the application

6. Other (write in)

Ask if loan approved but did not accept terms in Q13d

Q13e. What were the main reasons for your business not accepting the terms of this loan?

Please select all that apply.

1. Unacceptable interest rates

2. Unacceptable guarantee requirements – e.g. the institution requiring security over your home/ property or other assets, the institution requiring a personal guarantee to secure the loan being offered to you

3. The offered loan amount was insufficient

4. The loan term offered was too short

5. Other, please specify

Ask if loan approved but did not accept terms OR loan rejected in Q13d

Q13f If your business eventually got the money, what was the main source of finance?

1. I did not get the money (please specify the reason why)

2. A loan from your business bank (applied face-to-face)

3. A loan from your business bank (applied online)

4. A loan from another bank (applied face-to-face)

5. A loan from another bank (applied online)

6. A loan from Peer-to-Peer (P2P)/Crowdfunding

7. Development Bank of Wales

8. Borrowing from friends/family

9. Business overdraft

10. Credit card

11. Grant

12. Equity

13. Invoice or asset finance

14. Other, please specify

Ask if Q13c=3/4/5/6 OR Q13f=4/5/6/7, SINGLECODE

Q13g. How many years has your business been using the bank where your business Applied the largest loan since the start of the pandemic?

1. Less than a year

2. 1 year, but less than 2 years

3. 2 years, but less than 3 years

4. 3 years but less than 6 years

5. 6 years but less than 10 years

6. 10 years but less than 15 years

7. 15 years but less than 20 years

8. 20 years or longer

9. Don't Know

Ask if Q13c=3/4/5/6 OR Q13f=4/5/6/7, MULTICODE, RANDOMISE

Q13h. What services does your business use at this bank?

Please select all that apply.

10. Bank loan and / or bank overdraft

11. Current account

12. Easy access savings account

13. Notice account (a higher interest account requiring notice to make withdrawals)

14. Commercial mortgages

Appendix 3:

Survey script

15. Leasing / hire purchase

Q13f=2/3/4/5/6/7

16. Business credit cards

Q14b. Thinking of the largest loan your business OBTAINED since the start of the pandemic, what was the loan term?

17. Personal credit cards

1. Less than 1 year

18. Other financial services, please specify

2. 1 year up to 2 years

Ask if Q13c=3/4/5/6 OR Q13f=4/5/6/7,

3. 2 years up to 3 years

(Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, DK)

4. 3 years up to 5 years

Q13i To what extent do you agree or disagree with the following statements?

5. 5 years up to 10 years

1. My business has a strong relationship with the bank we use for our loan

6. 10 years up to 20 years

2. We feel we can approach the bank we use for our loan anytime we need

7. 20 years or longer

Ask if loan accepted is selected in Q13d or Q13f=2/3/4/5/6/7

Ask if option 1 is selected in Q13d or

In the following set of questions, please answer based on the largest loan your business OBTAINED since the start of the Covid pandemic (February 2020)

Q13f=2/3/4/5/6/7

Q14a. Thinking of the largest loan your business OBTAINED since the start of the Covid-19 pandemic (February 2020), what is the actual amount of loan that was secured? (Unit: pound sterling)

Q14c. Thinking about the largest loan your business OBTAINED since the start of the pandemic, to what extent do you agree or disagree with the following statements?

1. £10,000 or less

Likert scale (Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, Not applicable)

2. £10,001 - £50,000

1. The loan amount obtained fully satisfied my company's financial needs

3. £50,001 - £100,000

2. I am fully satisfied with the term of the loan

4. £100,001 - £500,000

3. I am fully satisfied with the interest rate for this loan

5. £500,001 - £1,000,000

4. I am fully satisfied with the guarantee requirements for this loan

6. £1,000,001 - £5,000,000

5. I am fully satisfied with the speed of loan decision

7. £5,000,001 - £10,000,000

6. Overall, I am satisfied with the loan provided

8. Above £10,000,000

E: Peer-to-Peer (P2P)/Crowdfunding

Ask if option 1 is selected in Q13d or

If necessary: Peer-to-peer lending refers to a financing model that directly connects borrowers and investors through an online platform. Crowdfunding is a way of raising

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Survey script

small amounts of money from a large number of individuals through an online platform to support a project, business or product.

Q15. Don't ask IF Q11c = currently have funding from P2P/Crowdfunding OR IF Q12c = had P2P/Crowdfunding pre Covid OR IF Q13c = applied for funding from P2P/Crowdfunding Post Covid OR IF Q13f = loan was no accepted/rejected but eventually got the money from P2P/Crowdfunding Post Covid.

**Has your business ever applied for a loan from Peer-to-Peer (P2P)/Crowdfunding ?
SINGLECODE**

Yes

No

ASK IF NEVER USED Peer-to-Peer (P2P)/Crowdfunding (If Q15=no), MULTICODE

Q15b. What are the main reasons why your business has NOT applied for Peer-to-Peer (P2P)/Crowdfunding? Please select all that apply.

1. Have not needed any external finance.
2. I am satisfied with finance options available through banks/building societies
3. Short term of loans
4. Small size of loans
5. Difficulty with renewal of the loan contract
6. I do not trust Peer-to-Peer (P2P)/Crowdfunding
7. I am not familiar with Peer-to-Peer (P2P)/Crowdfunding
8. Other, please specify

ASK IF USED Peer-to-Peer (P2P)/Crowdfunding (ask IF Q11c = currently have funding from P2P/Crowdfunding OR IF Q12c = had P2P/Crowdfunding pre Covid OR IF Q13c = applied for funding from P2P/Crowdfunding Post Covid OR IF Q13f = loan was no accepted/

rejected but eventually got the money from P2P/Crowdfunding Post Covid or if Q15=Yes), MULTICODE

Add a note for those filtered here only: You previously mentioned during the survey that your business has had or applied for Peer-to-Peer (P2P)/Crowdfunding

Q15c. What were the main reasons for choosing to apply for Peer-to-Peer (P2P)/Crowdfunding, instead of other sources of funding? Please select ALL that apply.

1. Bank/building society loans were not sufficient
2. Our loan application was rejected by the bank/building society we use for the majority of our business
3. Our loan application was rejected by another bank/building society
4. We did not accept the terms and conditions from the bank we use for the majority of our business as they were unfavourable
5. We did not accept the terms and conditions from another bank/building society as they were unfavourable
6. I was discouraged from obtaining a bank loan as I thought the bank would turn me down
7. I didn't want any interference from the bank manager in the operation of my business
8. I did not have access to other sources of external funding
9. I needed a quick decision on my loan application
10. Other, please specify

ASK IF USED Peer-to-Peer (P2P)/Crowdfunding, ROUTING AS ABOVE, MULTICODE

Q15d. When has your business applied for Peer-to-Peer (P2P)/Crowdfunding?

1. Before the start of the Covid pandemic

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Survey script

(before February 2020)

2. Since the Covid pandemic (after February 2020)

3. Have applied both before and after the pandemic

ASK IF USED Peer-to-Peer (P2P)/Crowdfunding
ROUTING AS ABOVE,

Q15e. What level of debt from Peer-to-Peer (P2P)/Crowdfunding is currently outstanding, as a percentage of your business's total debt?

- 1. ·0% (Nothing)
- 2. ·Up to 25%
- 3. ·25%-up to 50%
- 4. ·50%-up to 75%
- 5. ·75%-or more

ASK All, (Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, DK)

Q16 To what extent do you agree or disagree with the following statements about Peer-to-Peer/Crowdfunding?

- 1.The importance of relationship banking has decreased with the rise of Peer-to-Peer (P2P)/Crowdfunding
- 2.Peer-to-Peer (P2P)/Crowdfunding is a better alternative to relationship banking when applying for loans

READ OUT TO ALL

Thank you for your answers so far, we really appreciate it. There are just a few more questions about your business we'd like to ask you, to put your answers into context. All of the questions are entirely optional. If you're unsure of the exact amount, provide the answer that most closely applies.

Q17 What were the total assets of your business in your last complete financial year?

- 1. £100,000 or less
- 2. £100,001 - £1,000,000
- 3. £1,000,001 - £2,000,000
- 4. £2,000,001 - £10,000,000
- 5. Above £10,000,000

ASK ALL, SINGLECODE

Q18 What was the turnover (total income or sales) of the business in your last complete financial year? (Unit: pound sterling)

- 6. £100,000 or less
- 7. £100,001 - £1,000,000
- 8. £1,000,001 - £2,000,000
- 9. £2,000,001 - £10,000,000
- 10. Above £10,000,000

ASK ALL

Q18 Taking into account all sources of income in your last complete financial year, did your business generate a profit, break even or suffer a loss?

- 1. A profit
- 2. Break-even
- 3. A loss
- 4. Rather not say
- 5. Don't know

ASK ALL

F: Additional information on the company

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Q19 Does your business have any plans to recruit staff in your next financial year (counting from now on)?

1. yes
2. no
3. Rather not say
4. Don't know

ASK ALL

Q20 What was your company's sales growth in your last complete financial year?

1. Higher sales growth (Over 10%)
2. Slight increase in sales (1% - 10%)
3. Flat sales (0%)
4. Slight decrease in sales (1% - 10%)
5. Greater decline in sales (Over 10%)
6. Rather not say
7. Don't know

ORS-RECONTACT (ASK ALL)

Finally, just to let you know that you may be contacted for quality control purposes or in the event of us wanting to speak to you very briefly again in relation to this survey only. Would we be able to contact you? INTERVIEWER: Please explain if necessary that they will not necessarily be contacted again. It will only be in the case of us wanting to ask an additional question for the survey or for verifying something they've said for quality control purposes.

Yes

NEED TO CONFIRM NAME AND CONTACT NUMBER IF SPEAKING TO SOMEONE ELSE

No

Refused

Thank you very much once again.

To repeat: This survey has been conducted by Opinion Research Services. We are a member of the Market Research Society and adhere to the relevant data protection legislation, and if you have any queries regarding the survey or our company, I can supply you with contact details.

INTERVIEWER: PROVIDE AS NECESSARY

ORS TEAM CONTACT DETAILS: 0800 107 7890
or info@ors.org.uk

MRS Freephone Number - 0800 975 9596

THANK YOU FOR taking the time to participate



bancdatblygu.cymru
developmentbank.wales

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