



The Forgotten Cost of Borrowing on Public Small Business Lending Schemes: Evidence from the Fee Structure of UK Enterprise Finance Guarantee Lending

Marc Cowling¹

College of Business, Law and Social Sciences, University of Derby, UK

Abstract. Public loan guarantee schemes have the aim of alleviating credit constraints on small businesses by providing a gilt-edged guarantee to the lender in the event of default. In return, an interest premium is levied on loans and is paid to the government over and above that charged by the lending bank. Yet public guaranteed lending also attracts additional arrangement fees for the lender. This feature of such schemes has not been well understood despite the fact that on the current UK scheme 88.8% of issued loans and credit lines attract arrangement fees that average £2,935 per lending contract (or 2.9% of total borrowing) across the portfolio. In this paper, we explore the incidence and scale of arrangement fees and how they differ across different types of small business and lending types (credit lines versus term loans) to try and understand why fees are such an important and revealing feature of loan contracting. An important finding is that fees and interest rate are negatively correlated, implying that these two pricing elements of a loan may be compensating components of a loan's pricing structure and contract menu offered to the borrower.

Keywords: small business lending, loan guarantees, loan fees, credit rationing.

1. Introduction

Three key features of loan contracts, namely the interest rate (price), the requirement for, and provision of, collateral, and the loan or credit amount advanced, have been extensively examined in the theoretical (Stiglitz and Weiss, 1981; Besanko and Thakor, 1987; De Meza, 2002) and empirical literatures relating to loan contracting. See, for example, Neuberger and R athke-D oppner (2015), Berger and Udell (1995), and Stein (2011) for analyses of the determination of loan interest rates, Coco (2000) for a review of the collateral literature, and Cowling, Matthews, and Liu (2017) for evidence on the determination of credit line amounts offered by UK banks.

It is perhaps surprising that, particularly given the overwhelming presence of lending fees embedded in standard term loan and credit line contracts, this fourth

1. Corresponding author: Marc Cowling, College of Business, Law and Social Sciences, University of Derby, UK. Email: m.cowling@derby.ac.uk

fundamental feature of loan contracting has not received similar levels of attention (Berg, Saunders, and Steffen, 2016). This omission is particularly important in our understanding of loan contracting as it adds to the total cost of borrowing, often to credit rationed firms in the case of public credit guarantee programmes, and hence the profitability of lending. Associated loan fees also have the potential to act as a sorting mechanism for banks faced with loan proposals put forward by informationally opaque firms by inducing firms to reveal their preferences and additional relevant information fundamental to the assessment of borrower commitment to repay and default probability.

In this paper we use novel UK data on a unique form of bank-firm lending contracting, the Enterprise Finance Guarantee (EFG) Scheme. What is particularly interesting about this type of lending is that it is a tripartite agreement between a set of 45 private banks approved to issue EFG loans and lines of credit, the UK government, and private smaller businesses. Here the loan application process between the private bank and small business initially operates as normal with a small business approaching a bank for a loan and the bank assessing the viability of that proposal. But where appropriate, the government scheme effectively can be used to underwrite a proportion of any default loss that might be incurred. This has the effect of shifting the banks loan supply curve outwards in the long-run. The bank, after assessing the firms' proposal can make a contract offer including the loan interest rate, the loan term, loan amount, and importantly a fee that is charged at the point of loan issue. The government has a contractual agreement with the issuing bank to underwrite (guarantee) a specified proportion of any outstanding debt unpaid in the event of default. For this privilege, it charges an additional interest rate premium to the borrowing firm.

This paper attempts to address a significant omission in the empirical literature identified by Berg et al. (2016) by examining one specific feature of small business loan contracts, namely the arrangement fee. We consider several questions relating to arrangement fees: Who gets charged a fee? How does the scale of this fee vary across different loan and firm types? And what proportion of the bank's total profit from lending is accounted for by the fee? In tackling these key questions, we hope to develop our understanding of the role and importance of fees in loan contracts by adding new UK evidence to this sparse empirical literature.

2. Fees and Loan Pricing in Context

Theories of loan pricing point to two fundamental aspects of the presence of fees in loan contracts. The first aspect relates to options pricing. In respect of lines of credit (overdraft facilities in the UK), the fee represents the lending bank's compensation for offering the commitment to supply a line of credit which is drawn down if the interest rate offered is below the spot market rate prevailing at

the time the funds are needed. In this sense, the bank offers the firm the ‘option’ to draw upon the agreed line of credit. Commitment loans, by nature a forward-looking contract (see Melnik and Plaut, 1986, for a theoretical exposition), mean that there is less information available to the lender than is evident when spot contracts are negotiated. Thus the borrower effectively transfers risk to the lender (Avery and Berger, 1991). In respect of term loans, the fee and option structure relate to the ‘option’ to terminate the loan and repay the full outstanding amount before its full term. The bank, in the absence of a fee, would lose the stream of interest income until the loan reaches its full term, assuming repayment in full would occur. Thus, to compensate the bank for early termination of the loan, it charges a fee for embedding this early repayment option in the loan contract.

The second aspect of fees relates to more classic signalling theories in the presence of asymmetric information between lender and borrower (Bester, 1985; Chan and Kanatas, 1985). Here the presence of options in a potential loan contract, and the willingness of firms to accept some or all of the options on offer, conveys important information to the bank in respect of moral hazard and imposes an explicit financial cost to the firm for *ex post* deviant behaviour. As our focus is explicitly on *ex ante* loan fees, a consideration is the potential for banks to seek to recoup the costs of conducting due diligence prior to the loan being drawn down. This in itself is interesting as an option for the bank is simply to build these costs into its overall loan pricing structure (the specified loan interest rate) and receive a higher income stream over the course of the loan. In the present paper we empirically explore the potential trade-off between fee amounts and interest rates, in line with Berg, Saunders, and Steffen (2016).

We might expect that if the bank receives a higher-risk lending proposition, then it might favour the upfront fee over a riskier stream of future interest payments. Thus, we might expect that younger, and smaller, firms are more likely to incur this type of fee when borrowing due to the shorter and more fragmented relationship with their main bank. Empirically, Berger and Udell (1995) found that borrowing costs and collateral requirements on commitment loans tend to decline with the length of the banking relationship. The second issue is the costs of loan arrangement and due diligence. This contains a fixed and variable cost element. We might expect that small loans would attract a smaller fee, but that the fee structure does not rise proportionately with the size of the loan due to the fixed cost element that applies to all loans.

Lepetit, Nys, Rous, and Tarazi (2008), in their study of the evolution of European bank income streams, explicitly state that where long-term bank-firm relationships have been established, “the marginal cost induced by the supply of additional loans is limited to interest expenses” (page 1453). What their study did show was the dramatic shift in the relative importance of non-interest income streams to European and US banks that occurred after a significant period of deregulation. For example, US banks non-interest income rose from 19% to 43% in two decades to 2001. In a shorter time-frame the comparable shares for

European banks rose from 26% to 41% over a single decade to 1998. This theme is expanded by Carbo-Valverde and Rodriguez-Fernández (2007), again studying European banking. They argued that a broader definition of bank margins is justified to reflect the multi-output production function of banks and the increased relevance of non-traditional activities in total bank revenues, thus extending the Ho-Saunders (1981) model in relation to the immediacy of liquidity services, and in doing so the intermediation between deposits and lending ($r_L - r_D$).

To this extent the empirical point of focus, that of the fee as a key element of the overall loan price, and an important contract feature, is well grounded in the loan contracting literature which has viewed loan contracts as being multi-dimensional as they represent a bundle of terms or parameters over which the principals and agents negotiate (Melnik and Plaut, 1986; Chan and Thakor, 1987; Martinelli, 1997). Yet with a few notable exceptions, the majority of empirical studies have singularly focused on the impact of changing various contract parameters on loan price, where loan price is the interest rate, or spread. The arrangement fee component of the overall loan price has largely been overlooked.

3. The UK Enterprise Finance Guarantee Scheme

Here we briefly discuss the nature of the UK Enterprise Finance Guarantee (EFG) scheme to provide the context which underpins our empirical analysis and interpretations of the findings. The UK scheme is situated in a worldwide class of public partial credit guarantee schemes which are available in more than 100 countries (Beck, Klapper, and Mendoza, 2010). It is an augmentation of the longstanding UK Small Firms Loan Guarantee Scheme (SFLG) which was initiated in 1981 and ran until the EFG superseded it in 2009 (Allinson, Robson, and Stone, 2013), and was a direct response to worsening credit conditions for SMEs due to the Global Financial Crisis. As with all guarantee schemes, it is designed to support additional lending to SMEs with a viable lending proposition, but who lack adequate collateral or track record. In scale, EFG accounts for between 1% and 2% of total bank lending to UK SMEs. EFG supports loans, credit lines, and invoice facilities with a lending floor of £1,000 and a ceiling of £1m. The other key government set parameters are: the guarantee set at 75% of the outstanding finance at the point of technical default; the loan premium paid to government, set at 2% on top of the lending costs (interest rate plus fees) charged by the bank, and; lending term, set at a floor of 3 months, and a ceiling of 10 years.

4. Data, Lending Contracts, and Embedded Options

Here we present our data and sample statistics. The data were derived from two sources. The EFG Management Information (MI) system holds a record of each

contractually agreed financial contract between an approved lender and eligible borrower firm. These data were supplemented by a 16-25 minute Computer Aided Telephone Interview (CATI) for a sample of 500 EFG user businesses. The survey added key additional information about business and management demographics and performance over an extended period from 2009-2012.

The first point of note is that 30.8% of EFG approved lending was in the form of lines of credit. The remaining 69.2% was in the form of term loans. A particularly interesting feature was that the average cash value (in pounds sterling, £) for credit lines was £118,518 which was larger than the average term loan amount which was £93,976. However, this partly relates to the different shapes of the cash distributions across credit and loan facilities (Figures 1 and 2) as we observe that the median credit line was £55,883, which was slightly smaller than the median of £57,830 for term loans.

Figure 1: Distribution of Cash Amount – Credit Lines

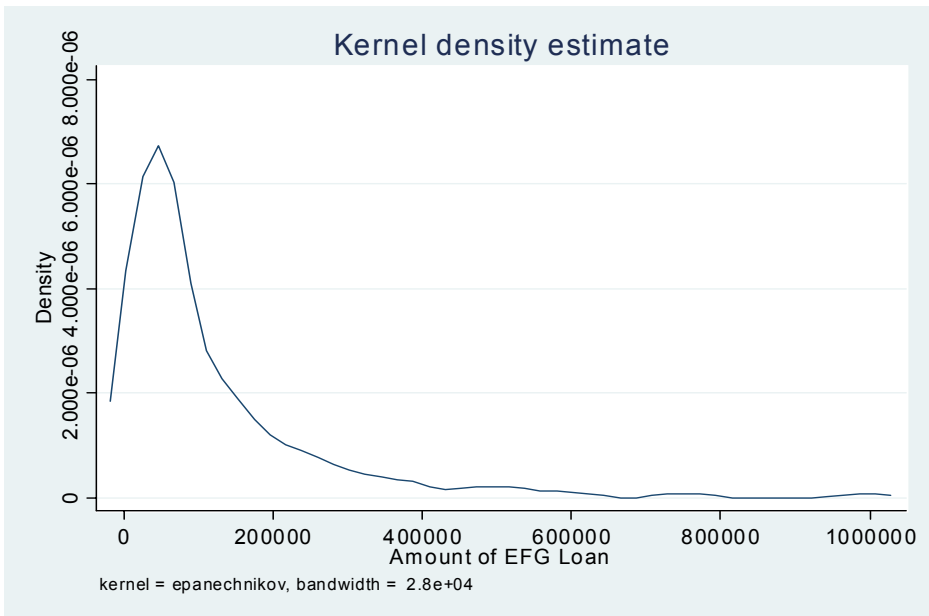
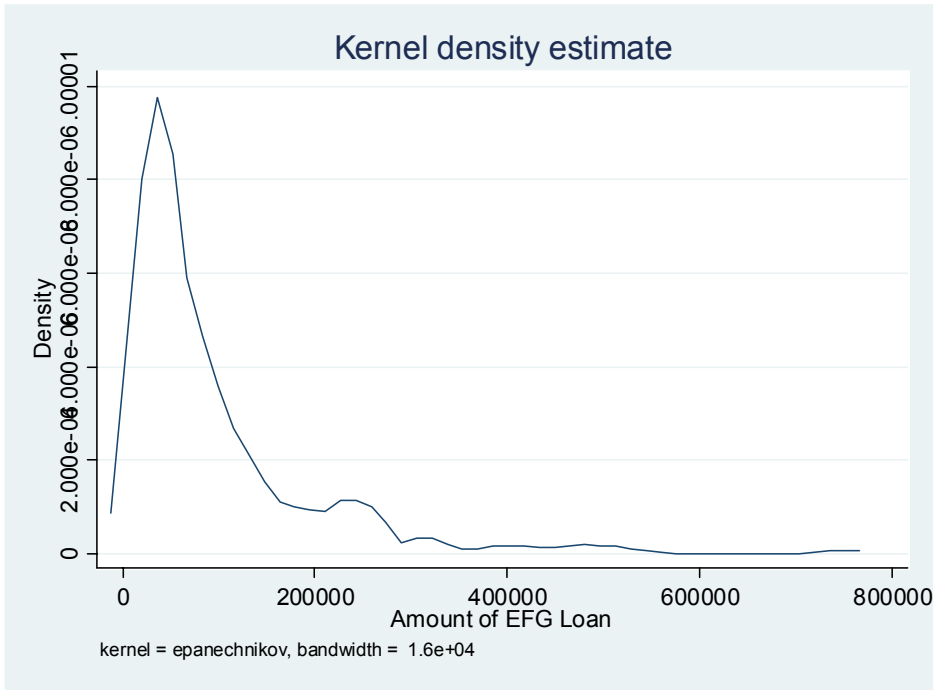


Figure 2: Distribution of Cash Amount – Term Loans



Collateral was available from the firm for 50.0% of credit line contracts and 61.0% of term loan contracts. The interest rate charged on lines of credit was fixed on 43.9% of contracts which was a lower proportion than was apparent for term loan contracts which was 45.3%. This feature is interesting as fixed rates contractually insure the borrower against future increases in open market rates. This is referred to as the implicit insurance rate hypothesis and empirically tested, with inconclusive results, in studies for the US and UK on loan contracting and loan rate stickiness by Berger and Udell (1992) and Cowling (2010), respectively. In respect of firm performance, and bearing in mind that this is a smaller business sample where equity returns and stock prices are not relevant, we find that 70.6% of firms with a line of credit made a net profit in the last financial year leading up to their successful credit application. The comparable figure for firms with a term loan agreement was 78.7%.

Figure 3: Distribution of Lending Agreement Maturity (months) – Credit Lines

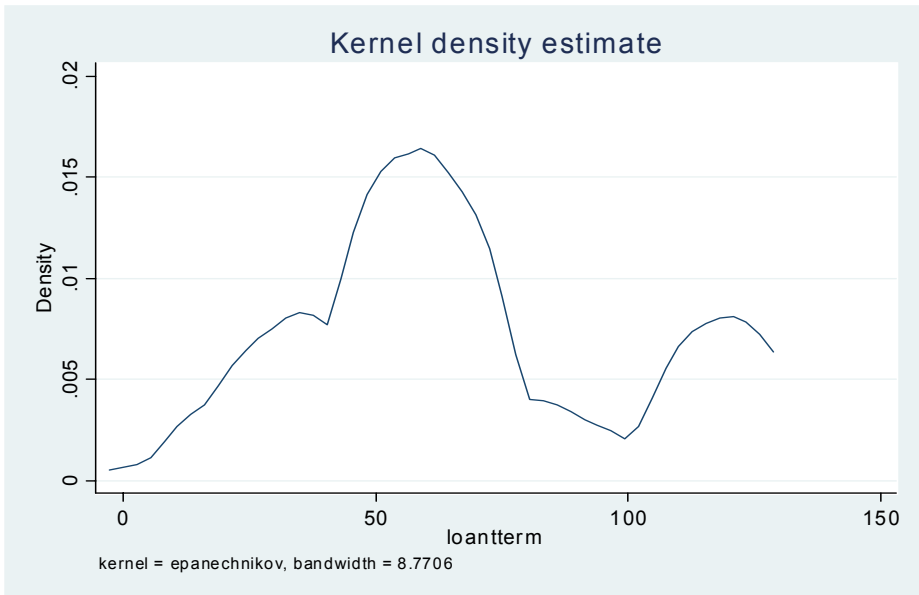
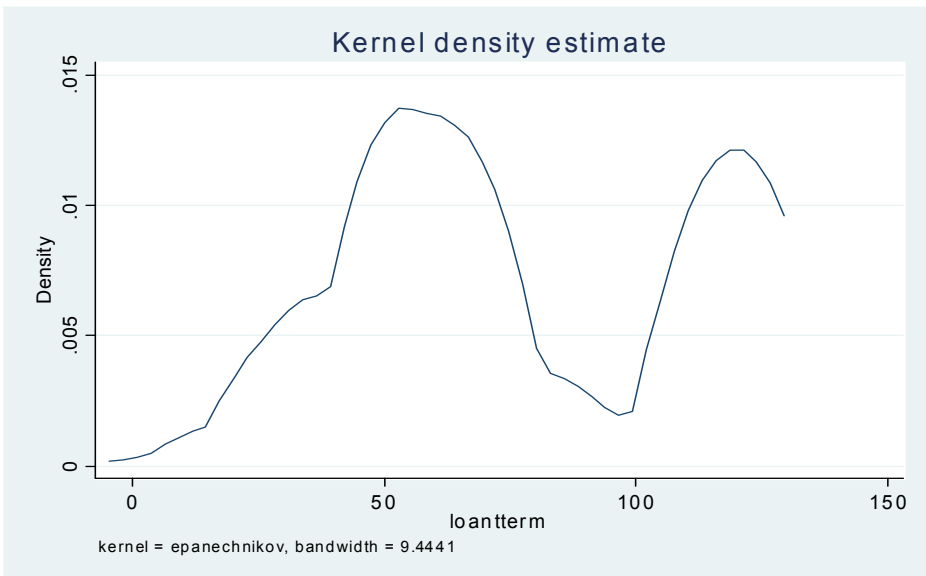


Figure 4: Distribution of Lending Agreement Maturity (months) – Term Loans



The average maturity of lending agreements (see Figures 3 and 4) was, on average, 9-10 months longer on term loans at 77.4 months compared to 67.7 months on credit lines. Although both distributions have a bi-modal character, this effect is more pronounced for term loans with the right-hand spike in the

distribution at 10 years being close to that observed at 4-5 years. However, in both instances the median maturity was 5 years. The length of this maturity period is particularly interesting in the case of credit lines as it is much longer than is apparent for conventional lines of credit in the UK which are around 2-3 years (Cowling et al., 2017). This is not the case for term loans which approximate those issued under conventional small business lending contracts (Cowling, Liu, Minniti, and Zhang, 2016). And this former feature suggests that EFG is a unique subset of small business – bank lending where the gilt-edged nature of the government guarantee induces banks to take a longer, and more positive, view through a de-risking effect. This is reinforced by the fact that UK asset prices collapsed during this immediate post-GFC period thus reducing the cash value of traditional collateral held by banks as security against traditional funding.

At this point we digress briefly as our evidence in respect of lending maturity in the presence of high levels of fixed rate lending are intriguing. As indeed is the similarity between the maturities of credit lines and term loans. On the former, we might expect to observe a negative effect on maturity when interest rates are fixed given the unpredictability of future open market rate movements as we extend the time horizon further into the future. On the latter, we would expect that, in general, the requirement for lines of credit to smooth out liquidity problems would, by their very nature, imply a shorter-term time horizon. To address this, we run a simple OLS regression with maturity measured in months as our dependent variable and a dummy variable for fixed rate lending (versus variable interest rates) and an additional dummy variable for a line of credit (versus a term loan). The results are reported below for 500 observations.

$$\text{Maturity of lending agreement} = 66.72 - 11.50 * \text{Fixed Rate} - 9.71 * \text{Credit Line} \quad [1]$$

$$[11.87] \quad [2.00] \quad [3.02]$$

Figures in parentheses are t-statistics. The results of our simple model show that, on average, a fixed rate lending agreement reduces lending maturity by 11.5 months. The comparable effect for a credit line compared to a term loan is a reduction of 9.7 months in average maturity. Both these findings are reassuring and consistent with theoretical predictions and empirical evidence. Next we consider the distribution of lending contract fees in respect of their actual cash amounts. The distributions for credit lines and term loans are presented in Figures 5 and 6.

Figure 5: Distribution of Lending Fees (£s) – Credit Lines

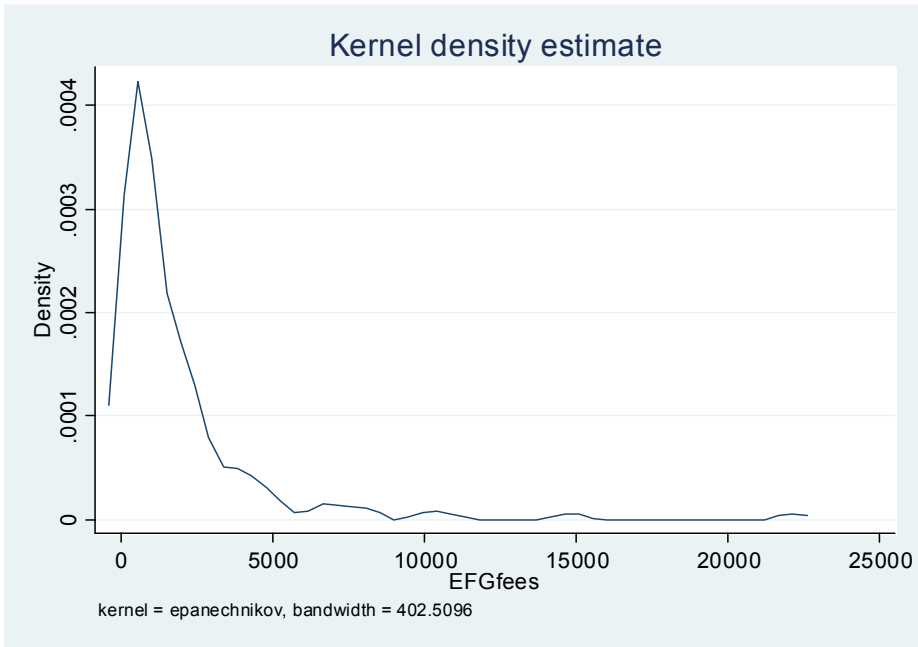
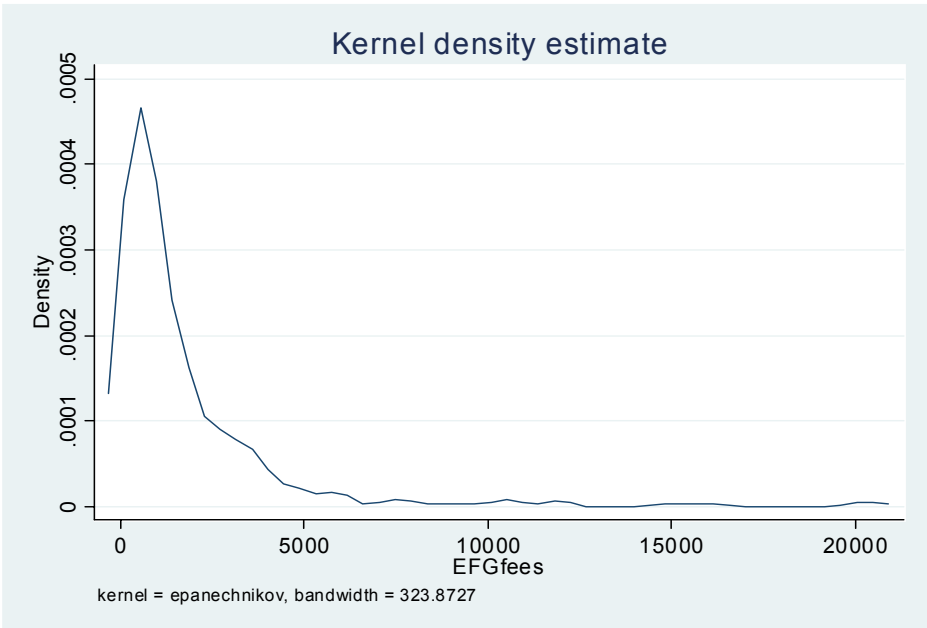


Figure 6: Distribution of Lending Fees (£s) – Term Loans



Before we consider lending fees charged, we note that in 9.7% of credit line contracts and 11.9% of term loan contracts no lending fee is charged. Across the respective portfolios of credit lines and term loans, the average (median) fees are £5,703 (£988) and £1,704 (£888) respectively. If we only consider lending agreements where the fee is positive, the contrasts between credit line and term loan agreements are even more pronounced. Here, the average (median) fees are £6,319 (£1,125) and £1,933 (£1,050) respectively. This establishes that whilst the presence of fees in lending contracts is just marginally more likely in credit line agreements, the actual magnitude of the fees in cash terms is significantly higher for credit line agreements and of the order of 227 basis points higher on average and 7.1 basis points higher when calculated at the median.

In terms of the fee cost in relation to the cash amount advanced, when evaluated at the mean we observe that on credit lines the fee is 4.81% and on term loans it is 1.81%. At the median the respective figures are 1.77% and 1.54%. Thus, the arrangement fee is a larger proportion of lending on lines of credit (assuming the full amount of credit is drawn down) than on term loans. It is a non-trivial cost of lending to the borrower firm. This pattern is consistent with upfront fees being higher for high volatility borrowers and those experiencing a downturn in performance (Berg, Saunders, and Steffen, 2016). It is also consistent with banks setting lending rates that minimise the imbalance of cash reserves and loan demand, an element of which incorporates an upfront fee which is added to the riskless interest rate to compensate the bank for immediacy (lending when a firm has a demand for capital) and interest rate risk bearing (Gischer and Juttner, 2003).

Figure 7: Distribution of Interest Rates – Credit Lines

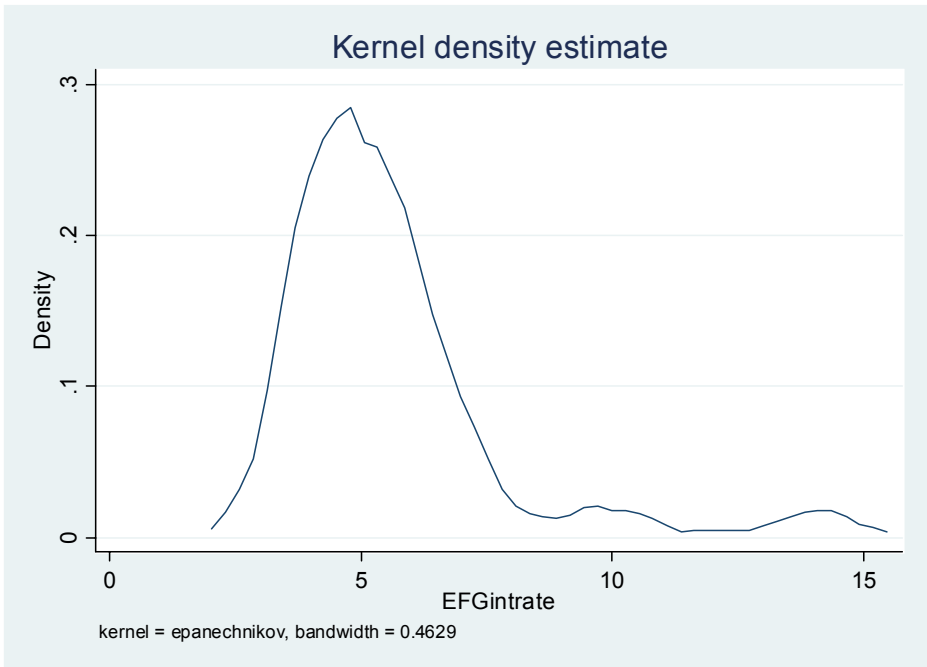
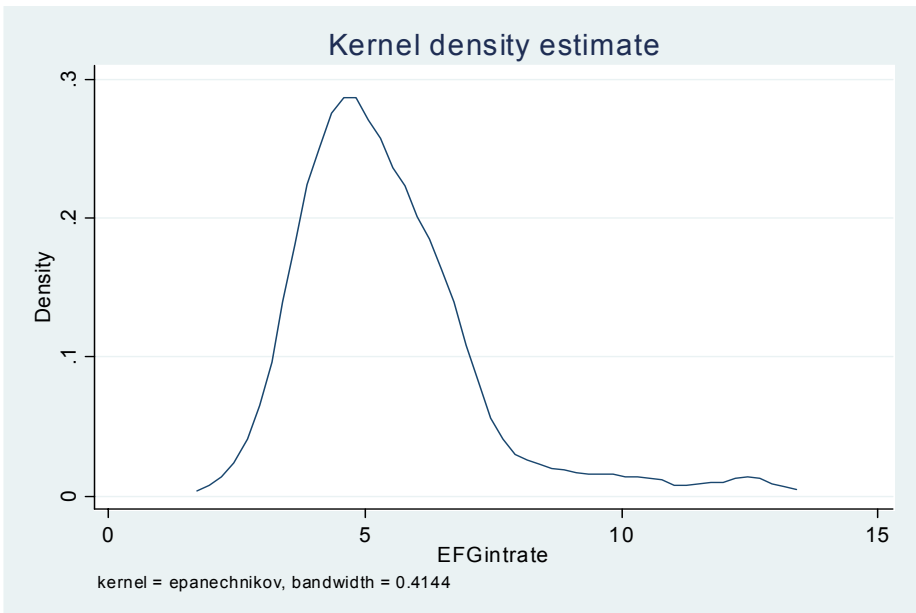


Figure 8: Distribution of Interest Rates – Term Loans



Figures 7 and 8 show the interest rate distribution on credit lines and term loans respectively. In both cases the distributions follow a largely normal pattern with the bulk of lending incurring interest rates between 2.5% and 8%. The average interest rate for credit lines was 5.60% which compares to 5.45% on term loans. The respective median interest rates are 5.17% and 5.04%. In both distributions there are long tails to the right-hand-side. The maximum interest rate charged on a credit line is 15.0% which is considerably higher than the term loan maximum rate which is 13.0%. By historical standards these lending rates are high, particularly when Bank of England base rates were held at 0.25% for a sustained period in response to the GFC (Ughetto, Scellato, and Cowling, 2017). But this is not unexpected given that the EFG scheme is intended to support lending to firms that face a degree of credit rationing in the conventional market for debt (Cowling, 2010).

Table 1 shows the respective summary statistics in relation to loan characteristics, borrower demographics, and measures of credit worthiness distinguishing between lines of credit and term loans. The share of the sample using credit lines is 30.8% (154 observations) and term loans 69.2% (346 observations). On lending features, we note that the average term loan maturity is 9 months longer than the average line of credit agreement. The offer of loan security (collateral) is present in 61% of term loan contracts, but only 50% of lines of credit. All lines of credit were requested for working capital purposes as expected, whilst the dominant reason for taking a term loan was for fixed capital investment.

Table 1: Comparing Credit Lines and Term Loans

Variable	Unit	Credit Line [154 observations]			Term Loan [346 observations]		
		Mean	Median	S.D	Mean	Median	S.D
Panel A: Price Terms							
Interest Rate	%	5.602	5.165	2.245	5.449	5.040	1.809
Fee	£'s	5,703	988	48,279	1,704	888	2,569
Panel B: Loan Characteristics							
Amount	£'s	118,518	55,883	144,768	93,976	57,830	99,861
Maturity	Months	67.68	60.00	32.15	77.38	60.00	33.79
Secured	0/1	0.500	0.501	0.500	0.610	1.000	0.488
New Bank	0/1	0.119	0.000	0.675	0.087	0.000	0.717
Substitute Finance	0/1	0.156	0.000	0.364	0.202	0.000	0.402
<i>Purpose</i>							
Working Capital	0/1	1.00			0.000		
Fixed Capital Investment	0/1	0.000			0.460		
Market Expansion	0/1	0.000			0.031		
New Products & Services	0/1	0.000			0.095		
Start-Up	0/1	0.000			0.118		
Other	0/1	0.000			0.296		

Panel C: Borrower Characteristics							
Profit	0/1	0.706	1.00	0.457	0.787	1.00	0.410
Firm Age	Years	19.63	10.50	37.35	16.50	9.00	24.36
<i>Size</i>							
Micro	0/1	0.431	0.00	0.497	0.500	0.500	0.501
Small	0/1	0.425	0.00	0.496	0.338	0.00	0.474
Medium	0/1	0.144	0.00	0.352	0.162	0.00	0.369
<i>Industry</i>							
Primary	0/1	0.028			0.027		
Manufacturing	0/1	0.200			0.218		
Construction	0/1	0.114			0.056		
Retail	0/1	0.196			0.237		
Hotels & Catering	0/1	0.020			0.070		
Transport & Comms	0/1	0.063			0.055		
Real Estate	0/1	0.294			0.211		
Other Services	0/1	0.086			0.126		
<i>Credit Worthiness</i>							
Count of financial delinquency instances		0.816	1.000	1.016	0.569	0.000	0.905
Panel D: Market Characteristics							
Competition Intensity	1-5 scale	2.098	2.000	0.955	2.223	2.000	0.923
Innovation Intensity	1-5 scale	1.306	1.000	1.214	1.508	2.000	1.218

Note: Employment size class data is only reported for a subset of 336 firms. All other variables relate to 500 firms.

Borrower characteristics showed some clear differences, with firms taking out term loans more likely to be generating positive profits than those negotiating lines of credit. Businesses with credit lines were on average three years older than those taking out term loans, but the latter were more likely to be from the smallest micro size class (<10 employees). There were some interesting differences in respect of industry sector with construction and real estate businesses more highly represented for lines of credit than for term loans. These sectors are noted for their high relative volatility. Finally, we note that businesses taking out lines of credit were more likely to have had previous episodes of financial delinquency, on average, than those taking out term loans.

5. Modelling Loan Contract Features

In this section we focus on two core parameters of the loan contract: the interest rate charged, and the amount of loan arrangement fee charged at the point of contract agreement. In the regression models we have fewer observations than generally reported in the sample descriptives and this relates to missing employment data which was not collected at the scheme MI level. We use the core set of variables described in Table 1 as our starting point. As we have already observed there are some 9.7% of borrowers with a line of credit and 11.8% of

those with a term loan who do not pay any fee at all. We need to adjust for any potential sample selection effects present that systematically distinguish between the bank requirement for payment of a fee and the size of the fee charged. Here we adopt a Heckman specification with sample selection with an initial logit model expressed in binary form with borrowers who pay a fee classified as a 1 and those who do not pay a fee classified as a zero (the selection equation). This latter group are excluded from the second stage model which considers the cash size of the fee charged (the outcome equation).

5.1. Fees Charged

The first step of the Heckman model, the selection equation (Table 2 – Model 1), shows that borrowers who attract higher interest rates also have a higher probability of being charged fees. This is consistent with a risk adjusted pricing approach by banks. Loans of longer maturity, which require relatively smaller per period repayment schedules, are less likely to attract fees, but there was a positive association between the presence of fees in a contract and the absolute size of the credit facility or loan. In cases where a borrower offered collateral to the bank, this was taken as a positive signal of the commitment to repay and acted to reduce the probability of attracting a fee. There were no apparent differences in the fee probability between lines of credit and term loans. Previous episodes of financial delinquency played no role in respect of the imposition of fees.

Table 2: Loan fees and interest rate models

	Model 1: Fees (1,0)			Model 2: log Fees			Model 3: Interest rates		
	Coeff	S.E	t-stat	Coeff	S.E	t-stat	Coeff	S.E	t-stat
Interest rate	0.215	0.074	2.900	-0.088	0.024	-3.640			
Loan maturity (months)	-0.008	0.003	-2.880	0.003	0.001	2.800	-0.006	0.003	-1.980
Loan size £s	0.001	0.000	4.000	0.001	0.000	14.910	-0.001	0.000	-4.780
Collateral Offered	-0.369	0.183	-2.020	0.149	0.080	1.860	0.050	0.185	0.270
Credit line	0.019	0.202	0.100	0.009	0.089	0.100	0.342	0.210	1.630
Financial delinquency count	0.012	0.097	0.120	0.014	0.040	0.350	0.220	0.093	2.370
Substitute finance	0.431	0.248	1.740	0.021	0.100	0.210	-0.401	0.234	-1.710
Constant	-1.401	0.695	-2.010	6.693	0.199	33.680	5.453	0.850	6.420
Firm size class	Yes			Yes			Yes		
Firm age	Yes			Yes			Yes		
Industry sector	Yes			No			Yes		
N obs	355			299			331		
R sq							0.236		
F stat	404.31								
Pr>F	0.00001						0.00001		

Note: Models 1 and 2 are estimated by means of a Heckman selection model. Model 3 is estimated by means of OLS.

5.2. Scale of Fees Charged

The second step of the Heckman model, the outcome equation (Table 2 – Model 2), explains the absolute cash amount of fees conditional on any fees being charged at all. Here we observe that there is a negative relationship between the amount of fee charged and the prevailing interest rate offer. This implies that borrowers are sorted into two regimes: high interest rate—low fees or low interest rate—high fees, or at least on this schedule somewhere between the two extremes. This finding is consistent with Berg et al. (2016) who argue that banks will use upfront fees as an element of their overall pricing structure that compensates them for advancing funds which are repaid at a future time with a more favourable (i.e. lower per period) repayment schedule. This is common practice in mortgage markets. Fees were also higher the longer the loan maturity and the larger the size of the loan or line of credit. Again, this evidence is in line with the use of fees as a compensating factor for offering the option of a longer funding agreement or larger funding arrangement. There was some further evidence (although only at the 10% level of significance) that introducing collateral into the borrowing

agreement was associated with higher fees. This may reflect the cost of verifying the value of the collateral, and also of writing a covenant into the contract.

5.3. Interest Rate Charged

Finally, we estimate an OLS model, with robust standard errors, to explain the variation in borrowing interest rates charged (Table 2 – Model 3). Here we observe that lower interest rates are charged for borrowing of longer maturity and larger size. These are the opposite signs to those observed for fees in Model 2. Lines of credit were marginally (at the 10% level of significance) more likely to attract higher interest rates, but the offer of collateral had no effect. But having a negative track record associated with prior episodes of financial delinquency had a strong and positive effect on interest rates charged. The presence of alternatives to the bank's funding offer (variable Substitute finance) also reduced their interest rate suggesting that banks compete for good quality borrowers.

To calculate the relative importance of fees versus loan interest rates, we use a hypothetical loan approximating the weighted balance from Table 1 of credit lines and term loans. This gives us a £100,000 loan with a maturity of 6 years and issued at an interest rate of 5.5%. If we then calculate the total interest rate paid on capital over the loan term we derive a total interest payment of £17,182. This compared to a (weighted) average loan fee of £3,037. Thus the total cost of borrowing is £20,219. The share of total loan costs associated with fees is then 15.0%.

6. Conclusions

We have examined the nature of bank fees charged when advancing credit lines or term loans to UK SMEs. Our investigation was inspired by recent US work conducted by Berg et al. (2016: page 1357) who, in their empirical analysis of the total cost of corporate borrowing, offered clear guidance for future work on borrowing and loan contracting by stating, "*Don't ignore the Fees*". Following their advice, we found that 89% of all UK credit lines and term loans advanced to SMEs attracted an arrangement fee. We also found that the scale of the fees charged was non-trivial and of the order of £1,000 - £6,000 for every £100,000 of funds advanced. In this sense fees represent a significant proportion of the total cost of SME borrowing from banks with an average of 15% of this cost.

Our key findings were that fees and interest rate are negatively correlated and that businesses can offset the requirement for fees to a degree by offering collateral. Fees are higher when more of the banks' capital is at risk, and for longer periods of time. It appears that there is a negatively sloped fee—interest rate schedule that reflects the desire by the bank to offer compensating pricing

structures within an overall framework of a desired total borrowing cost (or lending profit, from the bank's perspective). The business and bank then negotiate over the precise contract details within this overall total cost of borrowing schedule which is effectively a menu offered by the bank to the borrower of which the borrower selects their choice from the menu presented to them. We note that small firms have no negotiating power with banks and are thus not able to influence the menu offered to them. Riskier borrowers tend to prefer contracts with lower fees and higher interest rates whereas banks favour higher upfront fees over a riskier stream of future interest payments. Banks do exhibit competitive behaviours, but only for high quality borrowers who are offered lower interest rates. This is consistent with a desire to 'lock-in' good quality borrowers.

References:

- Allinson, G., Robson, P., & Stone, I. (2013), *Economic Evaluation of the Enterprise Finance Guarantee (EFG) Scheme*. Project Report. London: Department for Business, Innovation and Skills.
- Avery, R.B. & Berger, A.N. (1991), "Risk-based capital and deposit insurance reform", *Journal of Banking & Finance*, 15(4-5), 847-874.
- Beck, T., Klapper, L.F., & Mendoza, J.C. (2010), "The typology of partial credit guarantee funds around the world", *Journal of Financial Stability*, 6(1), 10-25.
- Berg, T., Saunders, A., & Steffen, S. (2016), "The total cost of corporate borrowing in the loan market: Don't ignore the fees", *The Journal of Finance*, 71(3), 1357-1392.
- Berger, A.N. & Udell, G.F. (1992), "Some evidence on the empirical significance of credit rationing", *Journal of Political Economy*, 100(5), 1047-1077.
- Berger, A.N. & Udell, G.F. (1995), "Relationship lending and lines of credit in small firm finance", *The Journal of Business*, 68(3), 351-381.
- Besanko, D. & Thakor, A.V. (1987), "Collateral and rationing: Sorting equilibria in monopolistic and competitive credit markets", *International Economic Review*, 28(3), 671-689.
- Bester, H. (1985), "Screening vs. rationing in credit markets with imperfect information", *American Economic Review*, 75(4), 850-855.
- Carbo-Valverde, S. & Rodriguez-Fernández, F. (2007), "The determinants of bank margins in European banking", *Journal of Banking & Finance*, 31(7), 2043-2063.
- Chan, Y.S. & Kanatas, G. (1985), "Asymmetric valuations and the role of collateral in loan agreements", *Journal of Money, Credit and Banking*, 17(1), 84-95.
- Chan, Y.S. & Thakor, A.V. (1987), "Collateral and competitive equilibria with moral hazard and private information", *The Journal of Finance*, 42(2), 345-363.
- Coco, G. (2000), "On the use of collateral", *Journal of Economic Surveys*, 14(2), 191-214.
- Cowling, M. (2010), "The role of loan guarantee schemes in alleviating credit rationing in the UK", *Journal of Financial Stability*, 6(1), 36-44.
- Cowling, M., Liu, W., Minniti, M., & Zhang, N. (2016), "UK credit and discouragement during the GFC", *Small Business Economics*, 47(4), 1049-1074.
- Cowling, M., Matthews, C., & Liu, W. (2017), "The role of loan commitment terms in credit allocation on the UK small firms' loan guarantee scheme", *International Review of Entrepreneurship*, 15(1), 15-28.
- De Meza, D. (2002), "Overlending?", *The Economic Journal*, 112(477), F17-F31.
- Gischer, H., & Juttner, D.J. (2003), "Global competition, fee income and interest rate margins of banks", *Kredit und Kapital*, 36(3), 368-394.
- Ho, T.S. & Saunders, A. (1981), "The determinants of bank interest margins: Theory and empirical evidence", *Journal of Financial and Quantitative Analysis*, 16(4), 581-600.
- Lepetit, L., Nys, E., Rous, P., & Tarazi, A. (2008), "Bank income structure and risk: An empirical analysis of European banks", *Journal of Banking & Finance*, 32(8), 1452-1467.
- Martinelli, C. (1997), "Small firms, borrowing constraints, and reputation", *Journal of Economic Behavior & Organization*, 33(1), 91-105.
- Melnik, A. & Plaut, S. (1986), "Loan commitment contracts, terms of lending, and credit allocation", *The Journal of Finance*, 41(2), 425-435.
- Neuberger, D. & Rähke-Döppner, S. (2015), "The role of demographics in small business loan pricing", *Small Business Economics*, 44(2), 411-424.
- Stein, R. (2011), "Estimating the expected natural interest rate using affine term-structure models: The case of Israel", Research Department, Bank of Israel, Discussion Paper No. 2011.03.
- Stiglitz, J.E. & Weiss, A. (1981), "Credit rationing in markets with imperfect information", *American Economic Review*, 71(3), 393-410.
- Ughetto, E., Scellato, G., & Cowling, M. (2017), "Cost of capital and public loan guarantees to small firms", *Small Business Economics*, 49(2), 319-337.