Private borrowing during the financial revolution: Hoare's Bank and its customers, 1702–24[1]

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The financial revolution improved the British government's ability to borrow, and thus its ability to wage war. North and Weingast argued that it also permitted private parties to borrow more cheaply and widely. We test these inferences with evidence from a London bank. We confirm that private bank credit was cheap in the early eighteenth century, but we argue that it was not available widely. Importantly, the government reduced the usury rate in 1714, sharply reducing the circle of private clients that could be served profitably.

I

A generation ago, in a classic study, Dickson termed the momentous changes in British government finances after 1688 a financial revolution. The changes undertaken in Britain's fiscal position enabled the government to borrow far more extensively and cheaply than before. The result was to encourage William III's military adventures on the continent in the early part of the eighteenth century and much more extensive military operations at the end of it. North and Weingast argued more recently that the changes in British governmental finances had a profound and beneficial effect on business. They argued that the same institutional changes that helped the government—in the main, an improvement in property rights—also helped private individuals. This inference was offered as a partial explanation to the perennial question of why the industrial revolution took place in England.[2]

We argue that there was a disjunction between the changes in government and private finances, between the macroeconomic and microeconomic changes taking place in eighteenth-century England. Private financial markets and credit intermediaries were operating well at this time, aggregating savings and allocating capital; yet the Hanoverian state's intervention in private credit markets undermined the positive effects that could have flowed from this. Intermediaries operated within the constraints imposed on them by the government's actions and policies. These constraints allowed enough room for the financial market to operate efficiently, but not enough scope for it to promote structural change and economic growth.

[2] Dickson, *Financial revolution*; North and Weingast, 'Constitutions and commitment'. See also Brewer, *Sinews of power*; Neal, *Financial capitalism*.

We inquire into this process using a unique micro-level data set of individual loan transactions, preserved in the archive of a small goldsmith bank, Hoare's. We proceed by first reviewing the literature on the financial revolution and its link to economic growth. We then describe our data set and inquire into the nature of Hoare's customers. We look in turn at their identities, the terms on which they borrowed, the collateral they borrowed against, and the differential effect of credit rationing. Our case study clearly sacrifices breadth for depth, but this detail is necessary to understand the changes in the English financial markets at the start of the eighteenth century.

Our first conclusion is that the English credit system, even early in the eighteenth century, was relatively open. The accidents of birth and privilege do not appear to have affected the terms on which people borrowed from Hoare's. While restricted to wealthier groups, banking seems to have been surprisingly egalitarian in a society that was still highly structured. Our second conclusion, however, is that Hoare's Bank was constrained by usury laws. The result was a financial system that appears to work well if the microeconomics of specific lenders are examined, but one that was unable to provide open access to credit on as large a scale as a fully-functioning peacetime financial system should do.

II

There is agreement in the literature that there was a financial revolution in England around 1700. The particular nature of this revolution and its causes are in dispute, but not its existence. Different causes imply slightly different dates for the revolution, but all scholars date the revolution in a single generation. The canonical source of course is Dickson, who located the source of the financial revolution in the British ability to tax effectively. The supply of revenue allowed the government to borrow, and financial development was the result. This line of thought has been amplified in several papers by O'Brien, who added the military ambitions of William to the mix as the deeper cause for the government's fiscal revolution.[3] While these authors discussed private financial markets, their primary attention was turned to the government.

A more recent literature was initiated by North and Weingast, who argued that the accession of William itself was the stimulus for a broader financial revolution in the supply of private credit. Their principal evidence was a fall in the interest rate at which the government could borrow. According to their interpretation, the reduction in the legal usury interest rate from 6 to 5 per cent in 1714 reflected a decline in market interest rates, a result of lower risk premia. Their claims have been contested by Sussman and Yafeh, who argued that British government rates fell only after 1713 when peace returned to Britain; and that if there were changes in the financial system in 1688, the effects of this change were obscured by war, and did not spread into the economy for another quarter of a century. Clark and Quinn also denied that private interest rates fell at all around 1688. All of the

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[3] Dickson, *Financial revolution*; O'Brien, 'Political economy'; idem, 'Political structures'. See also Ferguson, *Cash nexus*; Munro, 'Medieval origins'.

revisionists failed to find any breaks in private interest rates at the time of the Glorious Revolution.[4]

This paper builds on these and related studies, although it asks a different question. Much of the recent literature has been negative, denying a historical break in 1688. Our paper is positive, asking how the private financial market operated in the early eighteenth century. We do not try to date precisely overall institutional changes, and we cannot trace back causes into wholesale governmental reorganizations. Instead, we evaluate how borrowing worked during the early years of the financial revolution, using micro-level evidence. We also ask if relatively small changes in government policies affected the development of the domestic financial market.

We explore the operation of the London credit market through a detailed study of a single bank. There are good reasons for such a case study at this time. The studies noted above all have great breadth, but they cannot show the way in which people typically operated in the financial market. In addition, there were so few banks in the West End of London in the early eighteenth century that our single bank represents a larger sample of London private banking at the time than many samples of other populations. In the first years of the eighteenth century, there may not have been more than a dozen such banks; there were only two dozen or so by the end of our period.[5]

One key factor that affected the operation of the loan market was the existence of usury laws. They limited interest rates to a legal maximum, with higher rates carrying heavy fines of three times the capital involved in the transaction. The legal limit was reduced from 6 to 5 per cent in 1714 because, the act said, previous reductions in the usury rate had 'by experience been found very beneficial to the Advancement of Trade and Improvement of Lands'. The importance of the latter effect is shown by another clause aiming to relieve the owners of land who had borne the burden of the long war just ended and have 'become greatly impoverished'. Further clauses argued that a lower rate of interest would promote international trade and bring English rates into line with those of other countries.[6] While the officially cited reasons for lowering the usury limit emphasize positive effects on the economy in general, the change is partly described as compensation for the effects of the War of the Spanish Succession. Independent of the factors cited in the statute, it is clear that, as the English state continued to increase its debt rapidly (as it had done during the war), it would also be a primary beneficiary.

The extent to which the usury laws were obeyed and what their effects were are controversial subjects. Adam Smith argued that as long as the maximum legal rate was fixed slightly above the market-clearing rate, it did no harm and actually had beneficial effects, since it kept money out of the hands of 'prodigals and projectors, who alone would be willing to give this high interest'.[7] Ashton argued that evasion, while not impossible, was rare; penalties were high, and the chances of enforcing

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[4] North and Weingast, 'Constitutions and commitment'; Sussman and Yishay, 'Institutional reforms'; Clark, 'Political foundations'; Quinn, 'Glorious Revolution's effect'.

[5] Joslin, 'London private bankers', p. 173.

[6] 'From 29th Sept. 1714 Interest upon Loan of Money, &, at above the Rate of 5l. per Cent per Ann. Not to be taken'; Act to reduce the Rate of Interest without any Prejudice to Parliamentary Securities, 13 Anne c. 15, *Statutes of the realm*, vol. 9, p. 928.

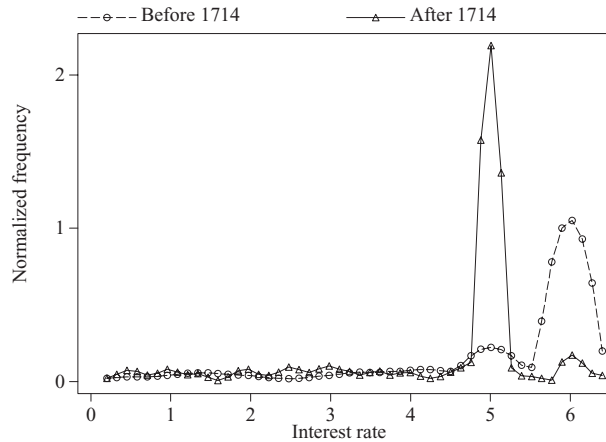[7] Smith, *Wealth of nations*, book II, ch. IV, para. 15.

Figure 1. *Distribution of interest rates, loans against interest*
Source: Hoare's Bank archives.
Note: Epanechnikov kernel estimation with width 0.2. Zero-loans excluded.

usurious contracts were low.[8] Pressnell assumed that the limits were evaded widely, although generally at a later time.[9] There is no agreement either about the effectiveness of the usury laws nor about their consequences. We require detailed data on loan transactions to pursue this question further.

III

Hoare's Bank was (and is) a private bank in the West End of London. Richard Hoare was a goldsmith who moved his business to Fleet Street in the 1690s and completed his transformation from goldsmith to banker in the ensuing decades.[10] The bank's balance sheet grew from some £150,000 in 1700 to £500,000 by the early 1740s. It has been possible to examine loan ledgers from the early eighteenth century. This information can be used to shed light on the lending process at Hoare's, as well as on the nature of the bank and its customers.[11]

We inquire first into the terms on which people borrowed from Hoare's Bank. We have detailed information on individual loans, and each loan is an observation. There are, as will be explained, multiple loans to the same individuals. The convention used here is to consider a transaction to be more than one loan if the principal is paid off between the transactions. If partial payments are made or additional funds are borrowed before the first loan is repaid, all of these transactions are considered to be one loan, albeit a complicated one. Neither financial practices nor accounting techniques in these seminal years of private banking were as neat as they would become later.

With few exceptions, Hoare's offered loans at the usury limit or not at all. Figure 1 plots the distribution of loans by the interest rate charged, distinguishing

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[8] Ashton, *Economic fluctuations*, pp. 86–7, 175–6.
[9] Pressnell, *Country banking*, pp. 316–21.
[10] Hoare, *Hoare's Bank*, pp. 12–26.
[11] Hoare's Bank, *Account Ledgers*; idem, *Balance Sheet Ledger*.

Table 1. *Lending rates at Hoare's and public interest rates*

Estimation technique		OLS	OLS		
Sample	OLS	Public interest rate below average	Public interest rate above average	OLS	Median regression
i_{public}	−0.197	−0.24	−0.33	−0.19	0.0031
	(1.59)	(1.0)	(1.1)	(1.6)	(0.8)
Usury	0.83***	−0.92***	−0.79***	−0.83***	−0.99***
	(5.99)	(4.4)	(4.1)	(−5.9)	(215)
Duration				−0.00027***	−0.0001***
				(4.0)	(56)
Loan amount				−0.00008***	−0.00003***
				(2.1)	(23)
Collateral				0.028	0.004
				(0.2)	(0.95)
Constant	5.9***	6.04***	6.4***	6.2***	6.01***
	(8.99)	(9.5)	(5.96)	(15.7)	(472)
Adj. R^2	0.08	0.07	0.06	0.11	0.22
N	487	257	230	486	486

Source: Hoare's Bank archives.
Note: *** indicates significance at the 99% level of confidence. Dependent variable is the loan rate on lending transactions at Hoare's, derived from the account ledgers at the bank. Loans without interest are excluded. Heteroskedasticity-robust standard errors, clustered at the annual level.

years before and after the change in the usury rate. The two peaks are at the legal maxima for the period: 6 per cent for the years up to 1714, and 5 per cent thereafter. The graph shows clearly the reduction in interest rates after 1714. There were two exceptions to this general rule. Of those customers paying interest, a few borrowed at interest rates below the legal maximum. Also, some clients borrowed at zero interest, normally for small amounts (and backed by readily saleable collateral, such as candlesticks or jewellery). These exceptions decreased over time.

If the interest rate did not vary in general, there had to be some other way to equilibrate this small market. In order to balance the supply of funds with demand for them, the bank had to ration credit. We can test for credit rationing by asking what we would expect if quantity restriction were *not* the key allocation mechanism. The interest rate for each loan then should reflect the scarcity of loanable funds at Hoare's and, in a competitive market, in the credit market more generally. To test this systematically, we regressed the interest rate on each loan from Hoare's Bank on the public interest rate.[12] We included a dummy for the usury rate, which takes the value of one for 1715 and beyond when the usury rate was lowered to 5 per cent. If the credit rationing hypothesis is wrong, we would expect a positive, significant coefficient on the public interest rate.

Table 1 summarizes the results. There is no evidence that the interest rate on government debt affected the rate at which people borrowed from Hoare's—the coefficient is positive or negative, depending on the specification used. It is never statistically significant. In contrast, the effect of the change in the usury rate emerges clearly in the regressions. When the rate was lowered by one percentage point, Hoare's lending rates fell by almost exactly that amount. The result is clear

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[12] This is derived by combing the interest rates from Sussman and Yishay, 'Institutional reforms', and consol rates from Homer and Sylla, *History of interest rates*.

under OLS, and even clearer in the median regression. Hoare's rates were determined administratively, not by the market. The lack of a clear correlation between private and public sector lending rates calls into question the widespread practice of letting one proxy for the other.[13] More importantly, there is no reason to think that interest rates on private loans were good indicators of overall scarcity in the credit market. Given the usury limit, we probably only observe lending to relatively good risks—the observed rates are effectively truncated at 6 or 5 per cent.[14] Later in the century, when yields on government paper were lower, we see systematic differentiation of lending rates. In 1774, for example, the loan ledger shows lending at 4, 4.5, and 5 per cent interest, at a point in time when the yield on consols was 3.48 per cent.[15] The absence of a correlation with public interest rates (and of differentiation in response to risk) therefore indicates that the usury limit constrained the bank and its clients from entering into mutually beneficial contracts.

The results in table 1 reveal a few other details of Hoare's practices. Larger loans were marginally cheaper, and longer loan durations were associated with slightly lower rates. This latter observation, however, should not be interpreted as a sign of an inverted yield curve. Quinn did so in his analysis of loans by Child's Bank, a competitor to Hoare's, but this regression shows that there was no yield curve.[16] The effect of loan duration is very small; an increase in loan duration by 1,000 days was, on average, associated with a 0.2 per cent lower interest rate, according to this estimate. The bank did not use compound interest, and the bank's internal rate of return on a loan was necessarily less than the rate it attempted to charge on all loans for more than one year.[17] If we use a subset of 151 loans for which we have the bank's intended interest rate (as recorded by the bank clerks in the loan ledger), we find a small, positive, and insignificant coefficient on loan duration.

Many of Hoare's loans were against collateral. The bank's origins as a goldsmith gave it an edge in assessing the value of plate. Nonetheless, this particular type of collateral lost its dominance quickly. The relative importance of various types of collateral is shown in figure 2. During the first quarter of the eighteenth century, roughly half of Hoare's loans were against collateral. The total value of loans varied strongly by type of collateral. Unsecured loans were relatively small, but lending against penal bills, plate, notes, and a person's bond also recorded low values. Lending against mortgages was very important initially and was then overtaken by lending against securities. While only 12 per cent of total lending was in the form of securities-backed loans in 1700–10, the proportion rose to 28 per cent in 1711–24. The unusual market conditions during the South Sea Bubble contributed to this, but they are not sufficient to explain all of the increase.

The evidence from lending rates and loan contracts shows a market that was kept in balance by quantity rationing. Interest rates were almost entirely invariant, even if some exceptions applied. Part of the rationing was clearly achieved by

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[13] Antràs and Voth, 'Productivity growth'.
[14] We thank an anonymous referee for pointing this out.
[15] Sussman and Yishay, 'Institutional reforms'. Their interest rate series (without repayment) only dips below 4% twice during our sample period—in 1716 and 1720. We find some loans below the usury limit, but the number of observations ($N = 19$ and 27) is too low to detect systematic patterns.
[16] Quinn, 'Glorious Revolution's effect'.
[17] Where possible, we corrected this by calculating simple interest. In the case of some of the more complex transactions involving multiple, unequal repayments at irregular intervals, this was not always possible.
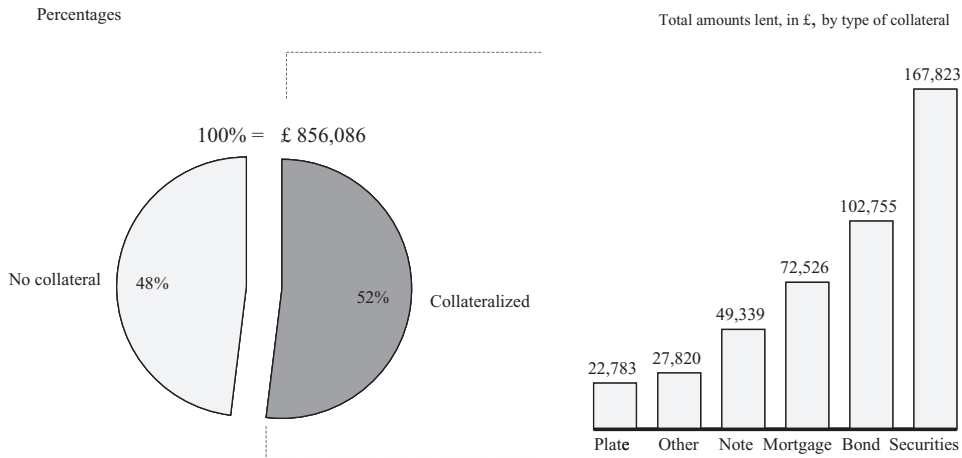
Percentages

Total amounts lent, in £, by type of collateral

100% = £ 856,086

No collateral

48%

52% Collateralized

167,823

102,755

72,526

49,339

22,783 27,820

Plate Other Note Mortgage Bond Securities

Figure 2. *Total lending volume in pounds sterling, 1700–24*
Sources: Hoare's Bank archives.
Note: In the case of mixed types of collateral, the loan was assigned to all categories.

collateral requirements—many loans required the posting of security. We examine next how lending differed for individual subgroups.

Hoare's never had a large number of customers. Because a single bank is being examined here, this low number may be an indication of just how small it was in its early years. However, our evidence suggests that the bank concentrated its lending deliberately in a small number of transactions, with a few customers. Over the period 1695 to 1724, the account ledgers contain the names of 721 individual borrowers, taking out a total of 1,065 loans.[18] After 1700, Hoare's served between 66 and 206 customers per quinquennium. Only a few of them took out large loans, and fewer obtained multiple loans. For those with access to credit, however, the sums involved could be considerable. In 1705–9, for example, the top 20 clients of the bank received 69 per cent of all money lent. While the value of loans per customer was £1,040, lending to the top 20 involved average commitments of £6,009. Figure 3 plots the Lorenz curve for loan amounts, showing highly concentrated lending.[19] The Gini coefficient is 0.73—the bottom three-quarters of loans did not even account for 25 per cent of all loans. The top borrower received loans of £34,296, or almost 20 per cent of all loans.

Loans to large borrowers were substantial relative to the size of the loan book. They also represented a significant concentration of risk. In most years, the largest 20 borrowers owed more money to the bank than the partners had in equity. When Hoare's made a loan of £22,865 to its largest borrower, Marcus Moses (a Jewish diamond dealer from Hamburg), in 1707, it was still owed £4,650 from a loan in 1706. Without having been repaid, the bank loaned Marcus Moses another £6,780 in 1708. Total equity in the firm amounted to £66,034 in 1708. All of these loans were offered without collateral, except for the last transaction, which involved a

[18] Not all of these can be used for our subsequent analysis because of missing observations for individual variables.
[19] As we explain below, this is a lower bound on the inequality of loans by borrower—the big borrowers were also more likely to be repeat customers.
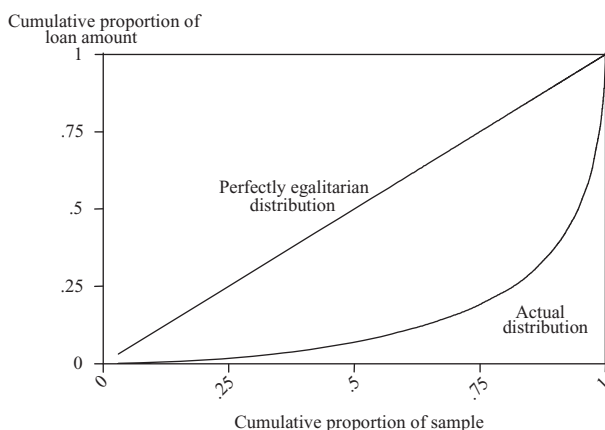
Figure 3.   *Lorenz curve: inequality of amounts lent*
Source: Hoare's Bank archives.

note. Had the bank's biggest client defaulted, it would have lost half of its capital. Clearly, Hoare's decided that lending to a small group of select, well-known customers made good business sense.[20]

Who were the borrowers that obtained access to credit at Hoare's Bank in the early eighteenth century? At first glance, the loan ledgers of the bank read like a *Who Was Who* of the period. Earls, dukes, viscounts, lords, and ladies appear with the same frequency as they would have done at the first ball of the season. However, in the loan ledgers—and in the list of largest borrowers—they appear side-by-side with commoners, down to the proverbial Mr John Smith. To examine the background of Hoare's borrowers more systematically, we collected biographical information on the largest borrowers at Hoare's. To qualify, individuals had to be among the 20 largest borrowers in any five-year period. The resulting list of 103 names was checked against a number of standard sources; we identified 18 in Cokayne's *Complete peerage*, 12 in the *Dictionary of national biography* (DNB), 5 in Dickson's monograph on the financial revolution, and 1 from Carswell's account of the South Sea Bubble.[21] All of these people are considered 'known' in the following regressions. The 67 borrowers not identifiable in standard biographical directories of the period received large loans. We surmise that they must have formed part of England's commercial and financial elite—borrowers whose wealth and earnings were above suspicion in the eyes of Hoare's, but whose standing in the country's class structure was not sufficiently elevated to gain access to the DNB or Cokayne's. This, in its own right, suggests that Hoare's did not only offer consumption loans to the sons of the nobility, or temporary liquidity for a few courtiers. Lists of the largest borrowers by decade are given in the appendix. Of the top 20 borrowers in any five-year period, six on average borrowed in the following five-year period, with a maximum of 10—but they rarely remained on the list of Hoare's largest customers.

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[20] Even this strategy did not eliminate risk; Moses caused Hoare's a lot of trouble as his business faltered; Hutchings, *Messrs Hoare*, p. 26.
[21] Cokayne, *Complete peerage*; Stephen and Lee, *Dictionary*; Carswell, *South Sea Bubble*.

Table 2. *Lending to customers, by borrower's characteristics*

	All	Women	DNB	Titled	Cokayne	Repeat
Average loan amount (in £)	848	187	1,655	919	2,193	876
Proportion of zero loans	23%	27%	18%	24%	21%	20%
Duration (in days)	896	936	755	1,262	1,192	663
Proportion collateralized	36%	35%	36%	42%	50%	29%
N	1,065	104	120	144	52	432

Table 3. *Lending to customers, by frequency of borrowing*

Maximum of loan number	Number of customers	% of total	Value per customer	Total loans	% of total
1	431	68.3	741	319,295	35.5
2	109	17.3	1,446	157,583	17.5
3	40	6.3	3,527	141,087	15.7
4	17	2.7	2,400	40,801	4.5
5	17	2.7	5,144	87,453	9.7
6–8	12	1.9	11,846	70,752	7.9
9+	5	0.8	16,429	82,143	9.1
Total	631	100.0		899,114	100.0

Source: Hoare's Bank archives.

The impressions from the appendix are investigated more systematically in table 2, which offers a more detailed look at Hoare's lending to several non-exclusive groups of customers. Women received markedly smaller loans than men, and many of them appear to have been at zero interest.[22] There are few women in our database—fewer than one in every 10 borrowers was female. Clients listed in Cokayne's *Complete peerage* received the largest loans on average. At the same time, the proportion of loans against collateral was also unusually high. A more detailed analysis shows that the aristocracy's easier access to credit reflected the kind of collateral offered, not an inherent bias in Hoare's lending decisions. Repeat customers only received an average amount of credit, and they could borrow at zero interest with the same frequency as everybody else. They have one of the shortest average durations in our data set, suggesting that the repeated use of Hoare's credit facilities was necessary to manage liquidity in the short term. The one clear benefit that repeat customers received was a reduced need to post collateral—less than 30 per cent did, compared to half for the aristocracy and one-third in the sample overall.

Despite the relatively normal average loan amount, total exposure to repeat customers was substantial. The characteristics of loans are shown in table 3 by the number of loans taken out by the same persons. Hoare's lent large amounts to customers who borrowed regularly. Five customers took out nine or more loans during our sample period—less than 1 per cent of the number of customers on whom we have reliable information. Yet they received over 9 per cent of total lending volume. Fully two-thirds of Hoare's lending was to repeat customers,

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[22] The evidence on women borrowing in much smaller numbers than men is also highlighted by A. Laurence, ' "That nasty South Sea affair": the Hastings sisters, Mrs Bonnell and the rage to speculate', Economic History Society conference paper (2004).

Table 4.　*Hoare's lending activity and its correlates*

	1	2	3
Dependent variable	Zero loan	Interest rate	Loan duration
Estimation method	Probit	OLS	OLS
Female	0.07	−0.08	−130
	(0.4)	(0.4)	(0.8)
Aristocracy	0.06	−0.27	410***
	(0.4)	(1.5)	(2.95)
New customer	0.16	−0.19	222**
	(1.6)	(1.6)	(2.4)
Multiple	−0.86***	−0.03	802***
	(7.1)	(0.3)	(8.6)
Known	0.02	−0.04	−294*
	(0.14)	(0.25)	(2.2)
Trend	−0.02***		−41*
	(5.3)		(7.2)
Usury		−0.844***	
		(6.1)	
Collateral	−0.28	−0.07	447
	(2.5)	(0.6)	(4.7)
Adj. R^2	0.1	0.05	0.19
N	852	641	666

Source: Hoare's Bank archives.
Notes: *, **, and *** indicate significance at the 90%, 95%, and 99% level of confidence respectively. Dependent variable: in column 1, a dummy variable that takes the value of 1 if a loan at zero interest was made, and 0 otherwise; in column 2, interest rate; in column 3, loan duration in days.

defined as clients taking out more than one loan during the years 1690–1724. Because some of them probably had a business relationship before or after the end of our sample period (and because we did not consider loans to family members as repeat loans), this is a lower bound on the true importance of repeat customers.

Some of Hoare's loans—22 per cent—apparently were at zero per cent interest.[23] To the modern eye, this may appear puzzling. Child's, another bank operating in London during the period, also made numerous loans without apparently charging interest.[24] Similarly, one-quarter of the loans in rural India a century and a half later that were analysed by development economists were zero-interest loans.[25] We report in table 4 a few regressions designed to understand the probability of borrowing at zero interest, the interest rate obtained if one was charged, and the length of loans. There is some evidence of Hoare's offering free credit more readily for first-time borrowers, but statistical results are not conclusive at standard levels of confidence (column 1). People who borrowed more than once were less likely to get loans without interest, and as the eighteenth century progressed, this custom declined in importance.

Interest rates did not vary much for customers who paid interest (column 2), nor was the variation systematic. Members of the aristocracy were not particularly privileged in terms of borrowing cost, paying some 0.2 per cent less than average—but the effect is imprecisely estimated, and might well be zero. The

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[23] This is equivalent to 12% of lending volume.
[24] Quinn, 'Glorious Revolution's effect'.
[25] Ghatak, *Rural money markets*, p. 71.

Table 5. *Lending volume and individual characteristics*

Column	1	2	3	4	5	6
Dependent variable	Loan amount	Loan amount	Loan amount	Log (loan amount)	Log (loan amount)	Log (loan amount)
Estimation	OLS	OLS	Median regression	OLS	OLS	Median regression
Female	−661***	−474**	−146***	−1.2***	−0.99***	−1.3***
	(3.3)	(2.4)	(3.2)	(7.7)	(6.7)	(4.6)
Aristocracy	−259	−206	46	0.15	0.24*	0.28
	(1.4)	(1.1)	(1.1)	(1.1)	(1.7)	(1.1)
Minor	−225	−343*	−50*	0.15	0.06	0.28
	(1.3)	(1.98)	(1.9)	(1.1)	(0.5)	(1.1)
Multiple	874***	775***	260***	1.1***	0.99***	0.99***
	(7.2)	(6.5)	(9.5)	(11.6)	(11.1)	(5.9)
Known	999***	980***	250***	0.65***	0.6***	0.61**
	(5.4)	(5.4)	(40.1)	(4.6)	(4.5)	(2.5)
Mortgage		1,178***			1.12***	
		(3.8)			(4.93)	
Plate		−311			−0.56***	
		(1.5)			(3.7)	
Note		117			−0.5**	
		(0.5)			(2.8)	
Bond		180			0.05	
		(0.9)			(0.4)	
Penal bill		−300			−0.73**	
		(0.9)			(2.2)	
Securities		1,535***			1.35***	
		(6.7)			(7.9)	
Other		−260			−0.16	
		(1.1)			(0.9)	
Adj. R^2	0.08	0.13	0.04	0.18	0.26	0.1
N	1,059	1,059	1,059	1,059	1,059	1,059

Source: Hoare's Bank archives.
Notes: *, **, and *** indicate significance at the 10%, 5%, and 1% level respectively. R^2 in the case of median regressions is the Pseudo-R^2 statistic.

median interest rate paid did not differ for any group.[26] According to our OLS estimates, new customers paid a little less, but the difference was minimal. Adding controls for loan amount and duration does not change these findings. In addition, the chances of obtaining a loan at no interest were not directly influenced by the socio-economic characteristics of the borrowers. While the clerks at Hoare's Bank were assiduous in noting the titles and social standing of their clients, credit appears to have been given on much the same basis to noble and ordinary members of society, as shown in both tables 2 and 4. The only firm conclusion from the second column of table 4 is that interest rates fell sharply after the lowering of the usury limit in 1714.[27]

We examine the determinants of loan duration in the final column of table 5. Customers with multiple loans borrowed for longer, as did the aristocracy and new customers. The significance of the aristocracy coefficient is fragile—if we include controls for loan amount and the type of collateral offered, we obtain a t-statistic

[26] We ran a median regression, but all coefficients except for the usury rate dummy were insignificant.
[27] The chances of obtaining an interest-free loan also fell, but this may simply reflect a broader trend away from such forms of lending.

of 1.2 and a much smaller coefficient. The results for other variables are unaffected. Posting collateral was associated with loans that were repaid markedly later, but not consistently. It is possible that some of these loans were defaults, terminated after a suitable interval by sale of the collateral. Only some such loans can be identified clearly in our data, and the interaction of collateral and loan duration appears complex. These findings suggest that Hoare's offered relatively broad access to credit and did not differentiate rates very much by the social standing of its borrowers in the chances of obtaining interest-free loans, the interest rates charged for loans, or the duration of loans.

Since interest rates were largely fixed, the main dimension in which the bank's trust of its customers could express itself was the value of a loan. We examine the impact of individual characteristics on loan amounts in table 5. We report ordinary least squares regressions and median regressions, using the loan amount and the natural logarithm of the loan amount as the dependent variable. In general, the log specification performs better—since our data are highly skewed, this is hardly surprising. Our set of control variables explains up to one-quarter of the total variation.

Hoare's Bank lent less to women systematically, showed no significant favours to the aristocracy, lent the same amounts to new customers and old ones, and offered significantly more in the context of multiple stage loans.[28] The sign on the aristocracy dummy changes depending on the way the dependent variable is transformed, and it is not significant in the majority of specifications; nor do these relationships simply proxy for the type of collateral offered by different groups of borrowers, as columns 2 and 5 demonstrate. Observable characteristics of the borrowers explain about as much as the posting of collateral by type does—between 5 and 8 per cent of the total variation. Hoare's handed out greater amounts of money to persons of high social standing—those that we have been able to track down in the DNB and similar sources. We cannot claim that our results capture the attractiveness of customers for the bank completely, but we can trace some important differences. Lending volumes for individual sub-groups differed considerably: 'known' customers borrowed 2.7 times as much as the average client, and multiple customers borrowed about as much as the average. It is also evident that the impact of being a member of the aristocracy (or of the minor nobility) was small and uncertain. Overall, we are able to explain up to a quarter of the variation in loan value. By the standards of most historical work on lending decisions, this is a respectable number.[29]

The English financial system, as reflected in the loan books of Richard Hoare and his descendants, was surprisingly open. There may have been few borrowers, and entire classes of citizens clearly had no access to credit. However, the accidents of birth, noble titles, and royal connection were small factors in lending decisions. In the ledgers and even on the list of top borrowers, the likes of Marcus Moses mingled freely with dukes and earls. In the few cases where we know the uses of the loans—such as for Marcus Moses' diamond business, or the cases where Tuscan

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[28] We ran the regression for alternative sub-periods, and found essentially unchanged results. In particular, for the period before the lowering of the usury limit, we found comparable (if smaller) effects.

[29] F. Galassi and L. Newton, 'My word is my bond—reputation as collateral', University of Warwick working paper (2003).

ham served as collateral—there also was no apparent reluctance to lend for commercial purposes. What stood in the way of using the powerful machinery of deposit banking for industrial expansion?

IV

We argue that the usury limit acted as one of the key constraints on the financial revolution's effectiveness. The influence of the institution as such is hard to trace—it remained in force in England until 1854.[30] We can, however, use a policy change and its repercussions to get a better sense of the institution's consequences. The legal maximum interest rate was lowered from 6 to 5 per cent in 1714. North and Weingast argued that this change reflected a general decline in interest rates after the Glorious Revolution.[31] We argue that this change had a major impact on Britain's emerging banking system, and that the consequences were almost entirely negative. It led to a retreat into collateralized lending, reducing the efficiency of intermediation. Also, credit once again became more concentrated in the hands of a few wealthy borrowers. The same groups that had received loans on favourable terms continued to do so, but a much wider group of aspiring lenders that did not fulfil all of the criteria of an ideal borrower were at least partly cut off. What strides Hoare's had made in widening access to credit were largely reversed after the lowering of the interest rate ceiling. Given the impact of a relatively small change in the maximum legal lending rate, the institution itself must have had much larger adverse consequences.

How would we expect a private bank to react to a forced reduction in the maximum interest rate it can charge? The market balanced through changes in volume, and the interest rate was identical for most transactions. We believe a fixed-cost interpretation can explain many of the important features.[32] Consider figure 4 as a highly stylized summary of the situation. The bank can earn interest of r on its lending of volume V, and has to incur a fixed cost (F) to set up the loan—getting to know the potential client, learning about his or her trustworthiness, assessing collateral, etc. The solid line in figure 4 shows the profit of the bank, $\pi = rV - F$, as a function of loan size, V. The interest rate, r, determines the slope of the profit schedule. M shows the volume at which the earnings offset the fixed cost of setting up the loan. Clearly the bank will try to avoid lending less than M, since it cannot recoup its fixed cost through the revenue of rV.

If r is now constrained to 5 instead of 6 per cent, this will rotate the profit schedule downwards, keeping F fixed. Minimum lending to break even is now M'. The larger the fixed-cost factor in early lending was, the larger the rightward shift of the minimum lending volume will be. In other words, since lending is essentially a fixed-cost business, serving customers below a certain minimum size is only worthwhile if the interest rate is high enough. The decline in the maximum

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[30] They were effectively repealed in 1833, when short bills were exempted. Cf. Homer and Sylla, *Interest rates*, pp. 205–6.
[31] North and Weingast, 'Constitutions and commitment'.
[32] There may well be other approaches that are observationally equivalent to our interpretation.
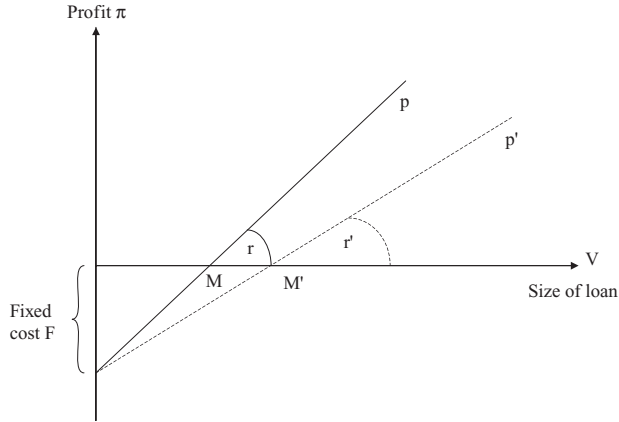
Figure 4.   *A model of loan size*

permissible rate should have pushed borrowers at the margin out of the market that banks like Hoare's could have served profitably.[33]

We first document the rise in average loan values, as predicted by our simple model in figure 4. We then extend the same logic to take account of additional borrower characteristics.

While those from noble backgrounds and with considerable wealth maintained easy access to credit, smaller borrowers were cut off. This can be seen by a comparison of the amount of credit provided before and after 1714. Figure 5 shows the distributions, with the log amount lent on the horizontal axis. Two features stand out. First, the overall distribution markedly shifts to the right after the usury rate was lowered. Typical loan amounts rose markedly. Second, the distribution appears truncated below 3. After 1714, almost no one received loans for £20 or less, while plenty of borrowers had done so during the preceding decades.

If some borrowers received much bigger loans after 1714, who were they? Who lost out in terms of access to credit? The number and concentration of Hoare's borrowers is shown by quinquennia in table 2. There were only a few borrowers in the first five years of the bank's existence, and this period is not illuminating. In the period 1695–1714, however, lending was becoming less concentrated. The share of the top 20 borrowers declined from above 90 per cent of the total loans to less than 40 per cent. The same broad trend emerges if we examine the share going to the top 10 per cent of borrowers (to adjust for changes in total number of clients served). After 1714, however, the earlier tendency towards a more 'egalitarian' loan allocation suffered an abrupt reversal according to both measures of concentration. The concentration on top borrowers returned to the high levels not seen since the 1690s. In the years 1720–4, four pounds sterling out of every five lent by Hoare's went to one of the 20 largest borrowers (table 6).[34]

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[33] If there were variable costs as well, they would have to be subtracted from r. They would not affect our analysis unless they changed with the usury rate.

[34] The period 1705–9 already shows a partial reversal of the earlier tendency towards less concentration. We experimented with a break-point in the series in 1705, but did not find a significant difference in the coefficients on the attractiveness indicator (as reported in tab. 7).
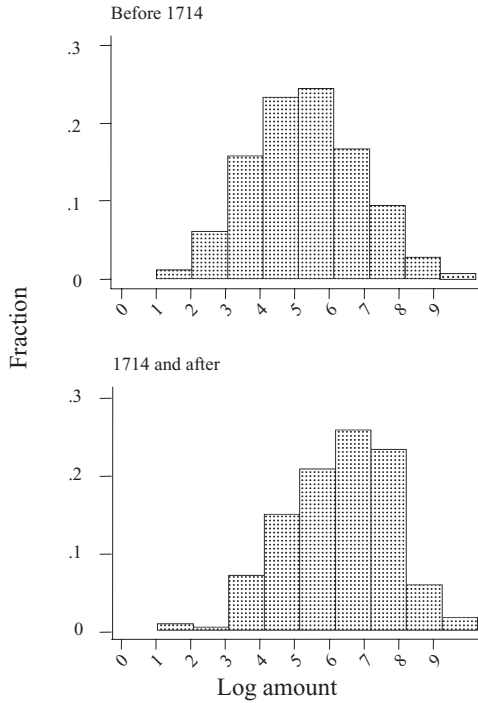
Figure 5. *Distribution of loan size (in logs) before and after 1714*
Source: Hoare's Bank archives.
Note: Histograms drawn with a 10 bins.

Table 6. *Lending to top borrowers, 1690–1724*

		1690–4	1695–9	1700–4	1705–9	1710–14	1715–19	1720–4
Total lending		8,173	52,893	247,399	174,882	190,578	160,199	119,058
Number of borrowers		25	114	206	168	84	83	66
Top 20	Lending	8,142	48,163	115,007	113,057	74,436	115,385	95,810
	In % of total	100%	91%	46%	65%	39%	72%	80%
Top 10% of	Lending	6,177	41,496	139,097	115,310	57,244	75,306	62,348
borrowers	In % of total	76%	78%	56%	66%	30%	47%	52%

Source: Hoare's Bank archives.

The same logic also drove the bank back towards discriminating in favour of the more privileged groups of borrowers. During the period 1695–1714, Hoare's lent relatively freely across social groups; yet overall, its customers continued to be much more blue-blooded than the English population at large. The reason is obvious enough—some of the costs conceptualized as part of the fixed-cost element in figure 4 were markedly smaller for groups whose wealth (in directly observed assets like land, for example) was common knowledge, and whose standing and financial position was the talk of town and country. With an artificial constraint on the maximum interest rate to be charged, those of lesser social standing would be the

first to lose out in the credit market, for essentially the same reasons as before—the up-side, in terms of interest, was now too limited to serve them.

We used the patterns in table 5 to construct an index of customer attractiveness. Based on the observable characteristics and the extent to which they co-vary, we calculated a single score using principal components analysis. We then tested if the advantage of being a favoured customer—in terms of the amount of money lent—differed before and after the reduction of the usury limit. Table 7 shows the results of OLS and quantile regressions for a variety of sub-periods. Columns 1–3 and 7–9 show conditions before the change in the usury rate; the other columns reveal conditions after the usury rate reduction.

The return to 'desirable' characteristics went up dramatically after the reduction of the interest rate ceiling. One 'unit' on our attractiveness scale was worth £230 before 1714, and £866 thereafter. Someone at the 90th percentile of the attractiveness distribution would have received £240 more than someone at the median before 1714; after the change in the usury laws, the difference was £904. A similar result becomes apparent if we look simply at the returns to being 'known'—be it through an entry in the DNB, in the *Complete peerage*, or in one of the standard histories of the period. Before the lowering of the interest rate ceiling, those of elevated social status received an average of £652 extra, or roughly double the average amount. After 1714, the additional credit made available amounted to £1,846, giving borrowers loans of 2.8 times the average size. These results also hold if we use quantile regressions, estimated at the 75th percentile, to examine how access to the larger amounts of credit changed before and after 1714.

A difficulty of inference arises from what could be a general trend towards higher loan amounts over the period; we might confuse broader changes with the effects of the usury laws. The empirical evidence, however, does not support this alternative view. In a regression of loan amount on a time trend and a dummy variable that takes the value of one after 1714, and zero before, both are significant—and the jump at the time of the usury limit reduction is 77 times larger than the time trend. More importantly, if we restrict our comparison to a handful of years on either side of the change in the law in 1714, there is no longer a significant time trend—yet we find very similar effects, with the returns to being 'known' rising markedly after 1713.

Access to credit became harder for those borrowers who did not belong to England's social elite. However, even for those lucky enough to obtain a loan, it became less useful. There is one further dimension in which the lowering of the interest rate ceiling made life harder for borrowers—average maturities declined sharply. While loans lasted for an average of 964 days before 1714, average duration fell to 672 days afterwards.[35] Again, the change was much smaller for the more privileged groups. For those 'known' in our data set, the average duration only declined from 851 to 732 days.[36] This decline in loan length is not driven by a few outliers; it can be observed over the entire range of the distribution. Investments in England's nascent industries would have required much longer

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[35] Loans against interest fell in duration from 1,099 days to 717 (means), and from 393 to 332 (medians).

[36] We assume that the decline in length is driven by Hoare's decisions, not borrower preferences. It may well be the case that Hoare's preferred to lend to customers whose borrowing needs were temporary, and that it discriminated increasingly in their favour after 1714.

Table 7. *Lending volume, by borrower characteristic and sub-period*

| | OLS | | | | | | Quantile regression* | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
	1700–13	1700–13	1709–13	1714–30	1714–30	1714–21	1700–13	1700–13	1709–13	1714–30	1714–30	1714–21
Attractive	230			866			256			454		
	(2.1)			(3.7)			(3.4)			(1.1)		
Known		652	1,064		1,846	2,152		515	788		1,500	2,100
		(3.4)	(2.74)		(4.7)	(4.6)		(4.5)	(2.8)		(2.3)	(3.2)
C	705	613	508	1,304	1,049	1,033	556	500	500	1,628	1,500	1,400
	(10.7)	(8.7)	(3.4)	(9.2)	(6.9)		(12.1)	(12.0)	(4.6)	(7.1)	(6.3)	(5.6)
Adj; R^2	0.0042	0.013	0.05	0.05	0.08	0.09	0.011	0.02	0.02	0.007	0.03	0.05
N	813	813	813	246	246	202	813	813	130	246	246	202

Source: Hoare's Bank archives.
Note: * Quantile regression estimated at the 75th percentile.

Table 8. *Collateralized and uncollateralized lending*

		1690–9	1700–4	1705–9	1710–14	1715–24
By number of loans	No collateral	43	161	174	102	118
		26.7%	54.8%	72.2%	87.9%	57.0%
	Collateralized	118	133	67	14	89
		73.3%	45.2%	27.8%	12.1%	43.0%
By value	No collateral	17,326	135,086	101,447	85,684	90,822
		25.1%	54.6%	58.0%	89.5%	32.5%
	Collateralized	51,739	112,312	73,434	10,054	188,435
		74.9%	45.4%	42.0%	10.5%	67.5%

Source: Hoare's Bank archives.

commitments than two or three years. The change in the usury limit and the contemporaneous decline in loan maturities suggest that banks found it much harder to provide long-term financing when they were operating under increasingly stringent interest rate controls.[37]

The move from collateralized lending to unsecured intermediation is a key step in the evolution of a financial system. Its economic importance should be obvious—in the case of collateralized lending, banks only increase the liquidity of borrowers. Once unsecured loans can be obtained, the system provides true intermediation services and allows borrowers access to capital that they did not yet own. The financial system begins to provide genuine transfers of funds across people and time. Hoare's origins as a goldsmith facilitated its transition to being a bank because it had an edge in appraising the value of collateral—plate in the majority of cases. As time went by, the bank learned to make unsecured loans, as shown in table 8. In the 1690s, the majority of loans were against collateral—in six out of every 10 transactions, the bank asked and received legal title to or the physical delivery of some item of value, normally equivalent to the total amount of the loan. The proportion fell as the eighteenth century progressed. In the first five years after 1700, the bank made over half of all loans without collateral, rising to three-quarters in the second half of the first decade, and to 88 per cent in the quinquennium immediately preceding the change in the usury law.

Once the usury limit had been lowered to 5 per cent, however, uncollateralized lending as a proportion of the whole dropped sharply, to 60 per cent. Relative to trend, the drop is even more dramatic, since there was a significant tendency away from collateralized lending before 1714. If we analyse the value of loans instead of the number of transactions, a very similar story emerges. Hoare's initially lent more against collateral than without it, but by the third quinquennium of the eighteenth century, 90 per cent of loan value was not secured by assets that Hoare's held or could lay claim to. The imposition of lower lending limits quickly threw the process into reverse. Before 1714, 61 per cent of Hoare's lending by value was uncollateralized, and 39 per cent was secured against assets; after 1714, the proportions were almost exactly reversed. Over the years 1715–24, collateral was almost as important in Hoare's lending as it had been in the first decade of the family's West End activities.

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[37] The frequent wars, and the decline in deposits associated with them, also made lending for longer periods difficult. See the example from Hoare's cited in Brewer, *Sinews of power*, pp. 201–2.

The lowering of the usury limit therefore not only hindered progress, it led to a 'roll-back' of earlier accomplishments. It is hard to know how this affected the bank, as opposed to putative borrowers. Hoare's Bank was still learning the craft of banking in the early decades of the eighteenth century. In the years just prior to the reduction in the usury rate, profits were often low. It must have been difficult for the partners to carry on in this new business. While we know about the bank's loans immediately after the change, early balance sheets are missing and we cannot know the bank's profitability.

The importance of collateralized lending in the early decades of the eighteenth century affects our assessment of the government's role in the evolution of securities markets. In the standard accounts of the financial revolution, the government's willingness and ability to honour its debts led to the rise of a large, liquid market in public securities. Individuals could now invest without having to worry about possible future liquidity shocks. However, our evidence suggests that the role of debentures in the rise of liquid secondary markets may have been partly overstated. While the soundness of public credit may have helped create public trust, equity instead of debt could be traded in just as liquid a fashion. It was also a good alternative in many other uses. Hoare's loaned against securities long before consols became the benchmark security in English capital markets, and it did so with increasing frequency. Of the 140 collateralized loan transactions between 1700 and 1710, 22 (16 per cent) were against securities. Between 1711 and 1724, this proportion rose to 38 out of 96 (40 per cent). By lending volume, the shift was even more dramatic, as can be calculated from table 6. In the first decade of the eighteenth century, securities were used to back 23 per cent of the value of all loans against collateral. By the second decade, this proportion had risen to 62 per cent.[38] Almost none of these transactions involved government debt directly. Hoare's preferred traded securities to annuities, probably because of their high liquidity. Of the 72 transactions with securities as collateral in our data set, only 11 involved annuities, lottery tickets (from the 1710 lottery), Exchequer bills, or Army debentures.[39] The rest consisted entirely of Bank of England stock, East India stock and bonds, and South Sea stock. By value, collateral directly issued by the government accounted for only 4.7 per cent of total secured lending.

Hoare's practices therefore show that during the early stages of Britain's financial revolution, equities served many of the functions later taken over by consols. The rise of a liquid market in government-issued paper became important only later in the eighteenth century. This strengthens the similarities of Britain's early financial development with the Netherlands, where the Dutch East India Company's shares were liquidly traded and served as collateral.[40] At the same time, we need to acknowledge one key limitation to the similarity. While the Dutch East India Company was principally a commercial enterprise, the main purpose of the Bank of England and of the South Sea Company was to channel funds to the government—the South Sea Bubble was principally an equity-for-public-debt swap.[41] The shares used as collateral by Hoare's were mainly (if indirectly) a form

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[38] If we exclude 1720, the year of the South Sea Bubble, the proportion is 55%.
[39] In the earlier analysis, we excluded loan transactions before 1700 and after 1725 because our coverage is spotty.
[40] Gelderblom and Jonker, 'Completing a financial revolution'.
[41] Carswell, *South Sea Bubble*, pp. 103–5.

of government debt. However, what matters for institutional development is the fact that shares made good collateral, and were used in much the same way as consols were from the 1750s onwards, just as they were in the Netherlands. Early eighteenth-century practices therefore suggest that equities would have been perfectly adequate for the development of a liquid secondary market. More fundamentally, the need for collateral itself was the result of the state's intervention in the loan market. Without ceilings on interest rates, collateralized lending would have probably continued to decline, in line with earlier trends. It is only because of the English state's desire to keep interest rates low that private banks were prevented from charging a sizeable risk premium for loans, reinforcing the importance of collateral. This limited the ability of the financial revolution to truly raise funds, rather than to just add enhanced liquidity. The introduction of consols only enhanced the efficiency of the latter, and even this gain must have been small, given how easy it was to borrow against shares.

The composition of borrowers, changes in the distribution of loan sizes, and the re-emerging importance of collateral after 1714 all suggest that the tightening of the usury laws constrained severely the operation of England's financial sector. Their existence as such is probably one of the key reasons why the financial revolution had such a small impact on economic growth.

V

We traced the individual effects of regulations in the microeconomic evidence taken from Hoare's Bank. An alternative approach would be to compare industrializing Britain with cases where neither usury laws nor wartime borrowing interrupt intermediation. This, of course, requires an examination of a very different time period, the very recent past. Banerjee emphasized six key features of credit markets in today's Third World: large spreads between borrowing and lending rates; large variability of loan rates for different clients; large loans, which cost less; few defaults; larger loans and lower interest rates for wealthy creditors; and most credit used for production and trade. His data came largely from the Indian subcontinent in the 1980s and 1990s, as well as from some African and Asian countries.[42] Clearly, the institutions in these countries, their state of development, and the relevant technology all differ from eighteenth-century England. Nonetheless, a comparison can suggest something about the kind of financial system that could have existed 300 years ago. Hoare's lending practices were remarkably similar in some respects, and dramatically different in others. Both money lenders on the Indian subcontinent and Richard Hoare and his heirs managed to keep defaults very low. In both cases, this is probably the outcome of active screening and monitoring. They both offered more generous access to capital for those from wealthier backgrounds. Among the similarities, one could also add the importance of lending to borrowers who are well-known to the bank.[43]

The main differences all involve the pricing of loans—the size of spreads and the differentiation of interest rates by borrower characteristics and by loan amount. The key parameter used by lenders in the Third World today were not within

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[42] Banerjee, 'Contracting constraints'.
[43] Ibid.

Hoare's reach; the usury laws ensured that maximum interest rates were very low. Differentiating rates would have required lending at less than 5 per cent (6 per cent before 1714), and very few loans apparently were worth offering at such low rates (at least during the first half of the century). Missing from our eighteenth-century data is the bulk of the distribution of loans in poorer countries today, loans that are predominantly used for trade and production, at interest rates of 10–120 per cent. The usury laws appear to have biased lending away from such uses and ensured that poorer groups of society (as well as those seeking funds for riskier but potentially more productive investments) were excluded from the credit market. Those who received credit from England's emerging banks in the eighteenth century borrowed cheaply indeed; higher inflation in emerging markets cannot account for the differences between the interest rates paid by Hoare's clients and those in India and Africa.

While the state was the main beneficiary of the usury laws, the merchants and aristocrats to whom Hoare's lent in peacetime also benefited from low interest rates. However, the hidden macroeconomic costs of such a system were possibly large. Interest rates were restricted to very low levels, the length of a loan was uncertain, and a bank's deposits were prone to be withdrawn during frequent wars.[44] Extending credit to illiquid entrepreneurs was unlikely to be profitable. Small borrowers were not worth the efforts of banks, since the high fixed administrative costs could not be recouped through interest charges. The same is true of almost all investments in riskier ventures.

VI

Why did finance not matter more for the industrial revolution? Why are there so few examples of intermediated finance that helped to start new businesses or the adoption of new techniques? Postan argued, 70 years ago, that in England, 'the reservoirs of savings were full enough, but conduits to connect them with the wheels of industry were few and meager . . . surprisingly little of her wealth found its way into the new industrial enterprises . . . '.[45] At first glance, the mystery deepens—most of the techniques that are necessary to run an efficient financial system were widely known (and used) in eighteenth-century Britain. However, despite apparent demand for the banking services, the domestic banking sector as a whole stayed small. Borrowing remained the privilege of the few. It also did relatively little to facilitate long-term investment. Its main function seems to have been the financing of building and (possibly) agricultural improvements through mortgages, of consumption smoothing for the upper classes, and of trade for merchants.

The basic 'technology' of deposit banking is old, and was well-known long before the eighteenth century. It was used increasingly after 1700. Nevertheless, the financial revolution that has attracted considerable attention was principally an improvement in the market for government debt. What would English private credit markets have looked like without persistent state intervention in the lending process, and without the disruptive effects of wartime borrowing? The microeconomic evidence from Hoare's lending decisions as well as comparison with credit

[44] Temin and Voth, 'Credit rationing'.
[45] Postan, 'Recent trends', p. 2.

markets in developing countries today suggest that government interference hindered the growth of Britain's nascent financial system. Usury laws made it very hard to lend to any but the most privileged groups. They also delayed the move from collateralized to unsecured lending. Because of the usury laws, credit was rationed at the maximum legal rate. The lowering of the usury limit led to a refeudalization of the credit market. Before 1714, Hoare's had offered small and large loans to borrowers of privileged and of relatively obscure background. After 1714, the returns on lending were lowered by government fiat, and hence, the bank lowered the risk profile of its lending. It retreated from uncollateralized lending, and concentrated on a small group of high-net-worth customers that it knew well. The average duration of loans also fell markedly, making it much harder to finance long-term projects with credits. One of our key conclusions is that the reduction in the usury ceiling in 1714 was not simply a reflection of the Glorious Revolution's benign consequences, as argued by North and Weingast. Combined with the restrictions on joint-stock companies enacted during the South Sea Bubble, the state's regulations and economic actions did much to stifle the financing of private enterprise in eighteenth-century Britain.[46]

This case study reveals how the financial revolution affected the economy. The early history of Hoare's Bank suggests that this kind of revolution is contained within a larger context. It can benefit economic growth if other factors do not get in the way, but not all by itself. We should not overemphasize the importance of secure property rights after the Glorious Revolution. The financial revolution benefited almost exclusively the Hanoverian military state and members of the elite closely associated with it; a different kind of revolution might have benefited England's industrial transformation. The English government became a more reliable borrower, but its liberal access to credit retarded economic development. Progress that had been made in the financial sector in the years just after 1700 came to a standstill or went into reverse. The disconnection between the pool of savings and the wheels of industry, noted by Postan and generations of economic historians, was partly the result of heavy-handed state intervention.[47]

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[46] Mirowski, 'Rise'.
[47] The macroeconomic effects of this rule are explored in Temin and Voth, 'Credit rationing'.

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APPENDIX: *Largest borrowers (in top 20 in a five-year sub-period)*

Rank	1695–9	Sum of loans	1700–4	Sum of loans	1705–9	Sum of loans
			(Richard Hoare*)	27,290		
1	William Waterson	7,250	Richard Bull	12,377	Marcus Moses	38,676
2	Sir Thomas Dolman	6,764	Thomas Cooke and Samuel Dashwood	13,939	Richard Bull	18,732
3	William Benson*	6,156	George Wright	8,268	Gibbons Bagnall	6,240
4	William Sydenham	4,500	Nathaniel Herne	7,500	William Benson	5,655
5	Thomas and Lady Alington*	3,232	Charles Hedges*	6,500	John and Walter Plumer	5,400
6	Earl of Feversham*	3,153	Sir Richard Onslow*	6,124	(Richard Hoare* and Gibbons Bagnall)	5,396
7	James Selby	3,100	Earl of Burlington	6,093	Henry Bellasyse	5,300
8	Duke of St Albans*	2,600	Earl of Radner*	5,050	John Meres	5,000

APPENDIX: *Continued*

Rank	1695–9	Sum of loans	1700–4	Sum of loans	1705–9	Sum of loans
9	Francis Clarke	2,181	Thomas Powell	5,000	Simon Harcourt	4,587
10	John Austen	1,360	Abraham Beake	5,000	John Lund	4,500
11	John Parkhurst	1,200	Sir Gilbert Keate	5,000	Edward Colston*	3,283
12	Lord Brooke*	1,050	John Mendez de Costa*	4,860	John Goggs	3,200
13	Henry Johnson	1,000	Smitt Berzenj	4,190	Jeremy Gough	3,000
14	Francis Bosfright	900	Earl of Abington*	4,000	William Gardner	2,100
15	Lord Russell	800	Francis Clarke	3,800	Samuel Waters*	2,000
16	Wragg & Co	729	Whitlock Bulstrode*	3,600	Francis Annesley	2,000
17	Lady Elizabeth Nevile	600	William Jolliffe	3,506	George Planeton	1,770
18	Thomas Wharton*	550	Ralph Freeman	3,500	William Stocker	1,754
19	Thomas Foley*	538	Master Streynsham	3,200	Francis Gailer	1,600
20	Tregonelle Frampton*	500	John Cumberlige	3,000	John Cartlitche	1,500
21	Henry Lyell	500			John Cumberlige	1,500
					Robert & Madam Cecill	1,500
					Edward Haistnell	1,500

Source: Hoare's Bank archives.
Note: * Identified.

Rank	1710–14	Sum of loans	1715–19	Sum of loans	1720–4	Sum of loans
1	Samuel Clarke*	16,000	Lord Bingley*	19,327	Earl of Burlington	17,741
2	William Burslem	8,350	Ferdinand Humerz	10,000	Lord Carlton*	17,000
3	Charles Caesar	8,011	Gregory Page*	10,000	Samual Clarke*	8,500
4	Jeremey Gough	7,800	Martin Killigren	8,300	Richard Groire	6,005
5	Samual Hayes	5,850	Elias Paz*	7,860	Anthony Duncombe*	5,000
6	Nathaniel Castleton	4,900	Mire Bolock	7,000	Dennis Kelley	4,480
7	(Richard Hoare)	3,333	Thomas Pearce	6,919	Lord Ashburnham	3,622
8	Sir William Benton	3,000	Samual Clarke	5,900	John Foster	3,533
9	Edward Jennings	3,000	Duke of Newcastle*	5,000	Thomas Pritchard	3,200
10	William Harvart	3,000	Thomas Pritchard	4,830	Lord Percival*	3,000
11	Simon Harcourt*	2,200	Anthony Meeke	4,500	Thomas Sidney	2,900
12	John Rooper	2,200	Robert Chester*	4,000	Richard Ellis	2,700
13	James Marie	2,070	Guide & Company	3,800	William Rea	2,525
14	John Lund	1,500	Edmond Dunch and Sam Hayes*	3,000	John Finch	2,504
15	Edward Colston	1,288	John Eliston	3,000	Henry Heron	2,500
16	Duke of Kingston*	1,200	Thomas Beare	2,719	Francis Groyne	2,100
17	Thomas Cooke	1,067	John Smith	2,600	Thomas Foley*	2,500
18	Richard Bull	1,000	Thomas Gritehand	2,370	John Ward*	2,000
19	Allen Brodrick*	1,000	Lord Ashburnham*	2,260	Duke of Kingston*	2,000
20	Mary Rome	1,000	Brigadeer Windsor	2,000	John Poole	2,000
21	Hollis Gilham	771	Samual Benson	2,000	William Steuart and Robert Pitt*	2,000
22			Edward Sheppard	2,000		
23			William Rea	2,000		

Source: Hoare's Bank archives.
Note: * Identified.