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MPC UNIT DISCUSSION PAPER No. xxx: Financial Protectionism: the First Tests

Andrew K. Rose(1) and Tomasz Wieladek(2)

Abstract

We provide the first empirical tests for financial protectionism. We use a bank-level panel data set spanning all British and foreign banks providing loans within the United Kingdom between 1997Q3 and 2010Q1. During this time, a number of banks were nationalised, privatised, given unusual access to loan or credit guarantees, or received capital injections. We use standard empirical panel-data techniques to study the "loan mix," domestic (British) loans of a bank expressed as a fraction of its total loan activity. We also study effective short-term interest rates, though our data set here is much smaller. We examine the loan mix for both British and foreign banks, both before and after unusual public interventions such as nationalisations and public capital injections. We find strong evidence of financial protectionism. After nationalisations, foreign banks reduced the fraction of loans going to the UK by about eleven percentage points and increased their effective interest rates by about 70 basis points. By way of contrast, nationalised British banks did not significantly change either their loan mix or effective interest rates. Succinctly, foreign nationalised banks seem to have engaged in financial protectionism, while British nationalised banks have not.

Keywords: bank; nationalisation; privatization; crisis; loan; domestic; foreign; empirical; panel.

***JEL* classification**: F36; G21

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(1) Haas School of Business, University of California, Berkeley. Email: arose@haas.berkeley.edu
(2) External MC Unit, Bank of England. Email: tomasz.wieladek@bankofengland.co.uk

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External MPC Unit, Bank of England, Threadneedle Street, London, EC2R 8A

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"We will not retreat into financial protectionism"

- G20 Leaders' Statement from London Summit, April 2009[1]
- G20 Leaders' Statement from Pittsburgh Summit, September 2009[2]

1. Introduction

The "Great Recession" which engulfed the world in 2008-09 is frequently compared to the Great Depression of the early 1930s. Many economists blame trade protectionism for deepening, spreading, and/or lengthening the Great Depression. This time around, there is only muted evidence of traditional trade protectionism, at least thus far.[3] But the public sector has made substantial interventions in financial markets around the world, particularly in the banking sector. In this study we ask if government support for banks has resulted in a new type of protectionism: financial protectionism.

We think of financial protectionism as a nationalistic change in banks' lending behaviour, as the result of public intervention, which leads domestic banks either to lend less or at higher interest rates to foreigners. While the idea of financial protectionism has been discussed informally for some time, to the best of our knowledge no other work has ever formally tested for the presence of financial protectionism in bank lending behaviour. The lack of previous empirical work is not surprising to us, as publicly available data are typically aggregated and do not provide sufficient information to test this hypothesis rigorously. In this study, we take advantage of a panel data set on bank activity collected by the Bank of England. This data set covers all banks, both foreign and domestic, which operated in the UK, a rich country with a large international financial sector. Our data spans 1997Q3 through 2010Q, a period characterized by the most significant international financial crisis in decades, during which a number of British and foreign banks were nationalised or supported with capital injections and/or loan guarantees. Concurrently, most British and foreign banks did not need to rely on explicit state support for their survival. As such, this heterogeneity means that our data set is ideally suited to testing for financial protectionism.

We use a standard panel data model with period- and bank-specific fixed effects to search for financial protectionism. Our main focus is the fraction of domestic (British) loans

a bank makes as a fraction of its total loan activity, a ratio we refer to as the "loan mix," though we also investigate interest rates. Our key finding is that after nationalisation, foreign banks reduced British as a share of total lending by about eleven percentage points, and increased interest rates on new loans to UK residents by 70 basis points. By way of comparison, nationalisation does not seem to affect either the lending or interest rate decisions of British banks. These results are robust to a variety of perturbations to the underlying empirical model. Succinctly, foreign nationalised banks seem to have engaged in financial protectionism, which British nationalised banks have not.

2. Data and Methodology

2.1 The Data Set

Strategy. Our objective in this study is to test for financial protectionism in an unabashedly empirical fashion.[4] The aggregate data series lends at least *prima facie* plausibility to the idea that lenders cut back more dramatically on their cross-border activity than on their domestic activity. Figure 1 plots the growth of lending to British business over the past few years. The superficial impression one gets is that during the Great Recession, foreign lenders (taken to mean banks with headquarters outside the UK) contracted their activity more dramatically than British lenders (banks with headquarters in the UK) . But such aggregate evidence provides at most indirect support for the presence of financial protectionism.

We are interested in examining if public interventions, such as bank privatisation or nationalisation, skews either the prices that banks charge for foreign (as opposed to domestic) loans, or their quantity. Most publicly available data sets provide insufficient information to answer this questions rigorously. For instance, the BIS provides two data sets on cross-border bank lending, "locational" (e.g., Buch, 2003) and "consolidated" (e.g., Rose and Spiegel, 2004). However, neither allows one to differentiate domestic from foreign lending, let alone lending for e.g., nationalised as opposed to private banks. Laeven and Valencia (2010) study systemic banking crises and provide data on bank nationalisations

during these crises. However, these authors use aggregated data and are also unable to differentiate the effects of public intervention on domestic as opposed to foreign financial activity. Since aggregation may thus mask the effects of financial protectionism, it is best to test for this phenomenon using data at the institution specific level. For such reasons, it seems natural to test for financial protectionism at the level of individual institutions. However, publicly available disaggregated databases such as *BankScope* do not provide information on individual institutions' external claims.[5] A good test for financial protectionism requires data on both external and domestic lending at the level of individual institutions, some of which were affected by public interventions during the sample period.

Source of Financial Data. Fortunately, for the purposes of this investigation, the Monetary and Financial Statistics Division at the Bank of England have kindly provided us with an appropriate data set. It includes quarterly data with a host of information for all banks resident in the UK.[6] London's status as a major international financial centre means that the banking system of the UK has considerable diversity, enabling us to search credibly for indications of financial protectionism in the behaviour of both British and foreign banks. This rich dataset is substantially better suited to test for financial protectionism than publicly available datasets. Unfortunately, it has a substantive disadvantage for academic research; for obvious reasons, the data set is confidential.

The data set provides us with a complete set of balance sheet data for every institution in the UK banking sector, as all banks operating in the UK must provide this information to the Bank of England under the present regulatory regime.[7] Internally, the Bank of England uses this confidential data set to help carry out its financial and monetary stability objectives. Externally, the data is passed on the FSA for the purposes of bank regulation and to the Office of National Statistics, where it features as one of the building blocks of the UK's national accounts. Since the accuracy of this data set potentially affects a host of economics spheres, there is every reason to believe that the Bank of England takes its measurement seriously.

Reporting institutions must provide the data to the Bank of England in several "forms." The "AL" form of the dataset provides disaggregated loans and advances granted to

UK residents (other than monetary and financial institutions). The "CC" form provides disaggregated series on a reporting institution's total claims on non-residents. We combine AL and CC series to derive our key regressand, the "loan mix" ratio. The loan mix measures the ratio of British to total bank lending, and is our dependent variable of choice. The data set on loan mix is available quarterly from 1997Q3 until 2010Q1 for a total of 487 banks (not all of which have complete series). As of May 2010, 56 of these banks are British according to the Bank of England, while the rest are foreign. Further details on the construction of our variables are available in the data appendix.

British banks seem naturally to lend more inside the UK, at least compared with foreign banks. This is clear from Figure 2, which provides histograms of the loan mix for British and foreign banks. The behaviour of the loan mix ratio suggests that British banks tend naturally to lend relatively more at home (the distribution is skewed towards one), while foreign banks lend more abroad (the distribution is skewed towards zero). This does not necessarily indicate financial protectionism, since Figure 2 combines data from publicly-owned, privately-owned banks, and a number of banks whose ownership switched. The question we ask is whether a bank's behaviour – that is, its loan mix – changes following a large public intervention. Regression analysis of the loan mix permits us to explore whether or not a bank changes its preferences for domestic, as opposed to foreign, lending, following events like nationalisation.

Data on loan rates provides us with an alternative, inferior, way to test for financial protectionism. In particular, the "ER" form provides information on disaggregated effective interest rates on new loans, weighted by loan size.[8] Unfortunately, these data are available over a shorter span of time (only from 2004Q1), and only for the largest institutions (though these collectively make up three-quarters of total lending to any particular sector).[9]

We also take advantage of data provided by the "BT" and "PL" forms, which contain in-depth information of the reporting institution's balance sheet and income/expenditure statement, respectively. The additional data from these forms are used to construct several control variables such as the non-performing loan ratio and measures of capital adequacy, liquidity, and profitability.

Source of Public Intervention Data. Which of the (487) banks in our sample have been affected by public interventions during the sample period? In early August 2010, we conducted bank-by-bank Google searches for ' "bank name" nationalisation nationalise privatize' where "bank name" was the precise name of the individual bank in question (according to the Bank of England data set). The clues we discovered from these searches lead us to investigate approximately 150 banks in detail. As we found convincing evidence of public interventions, we constructed suitable binary dummy variables (which take on the value of one at the time of and after public intervention, and are otherwise zero). Subsequently we discovered a number of disaggregated data sets on public interventions in banks; we have used these to check and corroborate our classifications.[10]

We gathered data on four types of public intervention: 1) nationalisations, 2) privatisations, 3) injections of public capital, and 4) unusual access to loans, guarantees or liquidity. We focus on bank nationalisations in our empirical work. When a bank receives a public capital injection, it is difficult to measure the government's effective influence on the bank, since private bank capital is difficult to measure during the very times of crisis when capital is injected. Some banks received capital injections that were minor compared with their existing capital; they remained, for the most part, private institutions. Other banks were essentially nationalised when they received capital injections. For this reason, it seems unwise to assume that all banks treat capital injections similarly. Access to unusual liquidity facilities or loan guarantees is even more problematic, since these forms of assistance are quite heterogeneous.[11] Further, capital injections and other forms of public assistance can occur repeatedly; the effect of such assistance is also likely to be heterogeneous, especially since repeated rescues are sometimes implicitly guaranteed in advance. Nationalisation, by way of contrast, is a more clear-cut and discrete event. Nationalisation is also more discrete than bank privatisation (which is often spread over period of time). Since bank privatisation tends to occur during periods of tranquillity, the associated effects on lending decisions are not likely to be "the opposite" of bank nationalisation, which occurs in times of crisis. For all these reasons, bank nationalisation seems like the most obvious measure of public intervention likely to result in detectable financial protectionism. Figure 3 provides a set of four histograms for British banks; three

present public interventions and the last presents "tranquil" observations (i.e., those without any intervention). Each histogram graphs the number of relevant observations, organized into bins corresponding to the loan mix.

2.2 Methodology

We begin to explore our data set with a simple panel data model. We start by estimating the following regression equation:

$$Dom_{i,t}/(Dom_{i,t}+For_{i,t}) = \alpha_i + \beta_t + \gamma Nat_{i,t} + \gamma_{UK} Nat_{UK,i,t} + \delta Priv_{i,t} + \delta_{UK} Priv_{UK,i,t}$$

$$+ \zeta Cap_{i,t} + \zeta_{UK} Cap_{UK,i,t} + \theta LL_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where:

- $Dom_{i,t}$ is lending to domestic (British) non-financial firms by bank i at time t;
- For is lending to foreign (non-British) firms;
- $\{\alpha_i\}$ is a comprehensive set of bank-specific fixed effects;
- $\{\beta_t\}$ is an analogous set of time fixed effects;
- $Nat_{i,t}$ is a dummy variable which takes a value of one when a British bank i is nationalised at or before time t, minus one if a foreign bank is nationalised at or before time t, and is otherwise zero;
- $Nat_{UK,i,t}$ is a dummy variable which takes a value of one when British bank i is nationalised at or before time t, and is otherwise zero;
- Priv, Cap, and LL are analogues for banks that are privatised, the recipients of public capital injections, and receive unusual access to liquidity, or loan guarantees;
- ε is a well-behaved disturbance term;
- $\{\gamma\}$, $\{\delta\}$, $\{\zeta\}$, and $\{\theta\}$ are coefficients.

The coefficients of greatest interest to us are γ and γ_{UK}. They measure the permanent effect of bank nationalisation on the loan mix. We note in passing that our loan mix regressand is unaffected by changes in total lending.

Financial protectionism might be expected to result in British banks *increasing* the share of British loans in their loan portfolios following a public intervention like nationalisation; symmetrically, foreign banks might be expected to *reduce* the British share of their loan mix.[12] That is, we have constructed our dummy variable such that financial protectionism, if it exists, would be manifest in a positive and significant γ coefficient. Of course, British and foreign responses to nationalisation may not be similar quantitatively. Accordingly, we check whether the behaviour of public interventions is the same for British and foreign owned banks. We also do not assume but instead check for the equality of responses to different public interventions (like nationalisation, capital injections, and so forth).

We estimate our equation with least squares, though we provide a variety of alternative estimators below to ensure the robustness of our results. We present robust standard errors that are clustered by time, though again we also check that our results are not sensitive to this assumption. We cluster by time since public interventions in our sample are in practice temporally concentrated. Table 1 provides some relevant evidence; it tabulates the proportion of different interventions in particular periods of time. Half of all bank nationalisations in the sample took place during the second half of 2008 when the financial crisis was at its peak. Other interventions (such as public capital injections) are even more concentrated.

3. Results

3.1 Lending

Estimates of equation (1) are presented in Table 2. Our interest in this table is mostly in checking for two types of symmetry: a) between different types of public interventions (nationalisations, capital injections and so forth); and b) between British and

foreign bank responses to public interventions. Since there were no British bank privatisations during our data sample, we can only test the symmetry between British and foreign responses to nationalisations, public capital injections, and unusual access to loan or liquidity facilities. We begin with that task.

The results in Table 2 indicate that there is a statistically negligible difference between British and foreign access to both capital injections and unusual loan or liquidity facilities. Both δ_{UK} and ζ_{UK} are not only statistically insignificant at conventional levels but have the same signs as δ and ζ. When we test the restriction $\delta_{UK}=\zeta_{UK}=0$, the restriction is consistent with the null hypothesis at better than the .2 confidence level. The same cannot be said of the British and foreign responses to bank nationalisation; the loan mix of British banks responds much less to a degree that is both economically and statistically significant. Accordingly, we impose the reasonable restrictions (of symmetric responses to British and foreign capital injections and unusual access to loan/liquidity facilities) and re-estimate our equation; these estimates are presented in the right-hand column. The results are tabulated in the column at the right of Table 2.

Our chief interest is the effect of bank nationalisation on the loan mix. Nationalisation seems to have a significant effect on the loan mix; foreign bank reduce their proportion of British to total lending by over ten percentage points. This is a large economic effect, which is also highly statistically significant; the t-statistic for the hypothesis of no effect is 5.3. It is also interesting to note that the coefficient on the British nationalisation dummy variable is of almost identical magnitude but opposite sign; that is, British bank nationalisation appears to have no economically (or statistically) significant effect on the loan mix. The substantive evidence of financial protectionism after foreign bank nationalisation is our most striking finding, especially when combined with the absence of any indication of a comparable reaction by British banks.

The results of Table 2 indicate that other public interventions also have effects on the loan mix. These effects differ by the type of intervention. Banks that are granted unusual access to loan or liquidity facilities seem to engage in financial protectionism; British banks raise the proportion of British loans in their portfolios by almost three percentage points

(foreign banks lower their British loan mix by the same amount). Capital injections have a smaller effect which is curiously negatively signed, indicating that foreign banks which receive public capital actually *increase* the proportion of British loans in their portfolios, though only by a small amount (just over one percentage point). Privatised foreign banks reduce the proportion of British loans by over ten percentage points, a statistically and economically significant amount. Unfortunately, some of these results are sensitive to minor econometric assumptions, as we now show.

3.2 Sensitivity Analysis

Table 3 checks the robustness of our key results in twelve different ways; each row in the table represents a separate least squares regression. Since a) there are no British bank privatisations during the sample and b) foreign British and foreign bank nationalisations have separate effects, we replace our "symmetric" (+1 British/0/-1 Foreign) dummy variables with conventional (+1/0) dummy variables.

We begin by using an alternative definition of our dependent variable; specifically, we replace CC15 (Total external claims on non-resident customers) in the denominator with CC1 (Loans and advances to non-residents). Our key nationalisation results using the two ratios are very similar, though coefficient estimates for other interventions vary somewhat in significance. Next we check that our standard error assumptions are not critical by providing two alternatives; robust standard errors that are not clustered, and traditional standard errors. The statistical significance of our nationalisation results is unaffected, though different standard errors do affect the significance of other public interventions.

Next, we weight our least squares regressions in two different ways: by the natural logarithm of total bank loans (the denominator of our loan mix dependent variable), and by the log of total assets. Neither of these checks appears to affect the results much. Adding these variables as controls (instead of weighting by them) also seems to affect the results little. Since the loan mix is a limited dependent variable, we also estimate our equation with an appropriate censored technique (Tobit), but again this does not affect our results much.

We also cut our sample of data in a number of different ways. First, we divide the sample into big and small banks, using the median bank loan portfolio (the denominator of our dependent variable) as the dividing point. The results differ by bank size; bigger banks that are nationalised seem to engage in more financial protectionism, as seems intuitive. The responses of smaller banks to public interventions are not statistically significant from zero. Next, we check whether our results are sensitive to the inclusion of particular observations Our results are little affected by dropping the earlier part of our sample, , though the privatisation effect drops by an order of magnitude. Our last test in this vein is to drop all observations with a residual which lies more than two standard errors from the mean. However, this does not have a major effect on our key coefficient, indicating that outliers are not responsible for our results.

To summarize: the effects of unusual access to loans or liquidity, and public capital injections are not always robust when we investigate minor perturbations to the basic econometric methodology. However, both foreign bank nationalisations and privatisations seem consistently to lower the proportion of British loans in the portfolios of foreign banks. These effects are usually economically large (around ten percentage points), and statistically significant. While there have been no British bank privatisations during our sample period, the British bank nationalisations have had no consistently large effect on the loan mix, from either an economic or statistical perspective.

3.3 Adding Extra Controls

So far we have shown that our default results seem fairly robust to various model specifications. However, omitted variable bias remains a serious concern even though we have included both time- and bank-specific fixed effects. Accordingly, we construct a set of nine other control variables which have been used in microeconometric studies of bank lending (e.g., Ehrman, Gambacorta, Martinez-Pages, Sevestre and Worms, 2001, and Kashyap and Stein (2000)). The variables we consider are: a) loan growth; b) asset growth; c) two variants of the capital adequacy ratio; d) two measures of leverage; and e) a measure of a banks dependency on the wholesale market (the precise definitions of these variables are in the data appendix).

We add the nine extra control variables one by one to our default model, and present the results in Table 4a. It turns out that our key estimates seem to be robust to the inclusion of the controls we consider. Regardless of which extra control variable we include, the coefficients suggest that foreign nationalisations have a statistically significant effect on the domestic share of lending of around ten percentage points, while the effect of British nationalisations is not statistically significantly different from zero. Including the control variables also does not substantially change the effects of the other public interventions we consider.

We can add a number of other control variables of interest if we limit our data sample. In particular, the "PL" form allows us to construct a number of potentially relevant ratios: a) the ratio of non-performing loans to total assets; b) three variants of the profit rate (profits as a proportion of assets); and c) the dividend to asset ratio. We add these ratios one by one, and report the results in Table 4b. Since the PL form has only been available since 2004, the number of observations used for each of the regressions (reported in individual rows of Table 4b) is 3,742, less than 40% of the sample used to generate the estimates of Table 4a. However, despite the smaller sample size, our results still seem robust. There is one exception; when we add the non-performing loan ratio, the size of the foreign nationalisation effect approximately halves and is only significantly different from zero at the 7.3% confidence level.

Our results do not change much when we include a number of the extra control variables simultaneously (instead of one at a time). We divide the extra controls into two groups, and present the results in Table 5. The first set contains the controls of Table 4a: loan growth; asset growth; log total assets; capital adequacy; assets/capital (leverage); and wholesale market dependence. The second set includes the controls included in Table 4b: the non-performing loan ratio; the dividend ratio; and the profit ratio. Our base-line results are confirmed when we include all of the controls in the first group. As expected, when include the second set of controls and the number of observations is reduced accordingly, our results are weaker.

3.4 Interest Rates

If the banking sector is perfectly competitive, banks are price-takers and the effects of financial protectionism on a bank's behaviour might only be observable in the quantity of lending, but not in interest rates charged on new loans. With imperfect competition on the other hand, standard bank lending models predict that banks can charge interest rates which are above their cost of capital (Freixas and Rochet, 2008). Since previous work has rejected the hypothesis of perfect competition in the UK banking system (Claessens and Laeven, 2004), it seems worthwhile to explore whether we find evidence of financial protectionism in individual banks' interest rate decisions. If banks engage in financial protectionism following nationalisation, we would expect foreign banks to raise interest rates on British loans following nationalisation and *mutatis mutandis*. Accordingly, we repeat our analysis, but substitute interest rates for the loan mix as our dependent variable.

Table 6 is an analogue to Table 3, but uses the effective interest rate on new private non-financial corporation loans of less than one year maturity as the dependent variable (instead of the loan mix). We measure interest rates this way since a larger group of banks lends to the private non-financial corporation sector than to any other sector. Unfortunately, interest rate data are only available since 2004Q1 for a relatively small number (less than forty) of the largest banks active in the UK. Still, while the estimates of Table 6 are based on a small sample of data, they corroborate the results we obtained above with the 'loan mix'. In particular, foreign banks seem to demand interest rates on loans to British companies that are about seventy basis points higher after nationalisation. By way of contrast, nationalised British banks do not seem to lend at lower rates to UK resident non-financial private companies, as the financial protectionism hypothesis would suggest. There is also weaker evidence that unusual access to loans or liquidity results in financial protectionism manifest in interest rates.

Of course, it could still be the case that British banks charge higher interest rates abroad following nationalisation. Unfortunately we do not have the data to test this proposition. The same is true for nationalised foreign banks' interest rate behaviour abroad. It is, on the other hand, reassuring that the difference in the behaviour of foreign and British nationalised banks is robust to whether we use the 'loan mix' or interest rates as the dependent variable.

3.5 A Note on Endogeneity

Are there reasons to believe that our key regressors – massive public interventions like nationalisations – are simultaneously determined with the bank's choice of loan mix? Alternatively, is there any reason to believe that reverse causality is a problem, with a bank's loan mix driving public interventions? We think it unlikely; it unclear to us that bank nationalisations and the like are much affected by the domestic/foreign loan ratio, at least in our data context. While many British loans did sour during the "Great Recession" of 2008-09, so did many loans abroad; the crisis was a global phenomenon.

Furthermore, bank nationalisations are rare events, and often occur because of inadequate risk management. In rich countries like the UK, it seems unlikely that the loan mix is a significant source of such risk. We nevertheless tried a series of instrumental variables, consisting of the controls used in Tables 4 and 5, but none of them produced statistically significant results for the coefficients of interest to us. This is probably because the variables we considered are weak instrumental variables, as they are not significantly correlated with our dummy variables for public interventions (nationalisation, and the like).

4. Conclusion

In this paper, we have provided the first rigorous evidence of financial protectionism. We take advantage of a uniquely suitable confidential bank-level panel data set collected by the Bank of England which includes the activities of all banks operating in the UK from 1997Q3 through 2010Q1. Our methodology consists in a plain-vanilla "difference in difference" panel data regression model, which controls for time- and bank-specific fixed effects. We find that foreign banks which have been nationalised reduce their proportion of British to total lending by about eleven percentage points; they also raise loans rates for British companies by about 70 basis points. But financial protectionism is not universal. In contrast to their foreign counterparts, there is no evidence that nationalised British banks changed their lending behaviour in any substantive way.

Our main message from this study is that the behaviour of foreign banks operating in the UK seems to be consistent with financial protectionism. Both the microeconomic causes of this behaviour and its macroeconomic consequences (if any) remain unknown. We leave those important issues for future research.

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Table 1: Temporal Clustering of Public Interventions

	Nationalisation (5 British/15 Foreign)	Capital Injection (24 British/ 65 Foreign)	Unusual Access to Loan Guarantee (30 British/10 Foreign)
2008Q3	20	0	5
2008Q4	30	70	83
2008H2	50	70	88
2008	55	71	88
2009H1	10	15	10
2008H2-2009H1	60	85	98

All figures are percentages.

Table 2: The Effect of Public Interventions on Loan Mix

After:		
Nationalisation (γ)	10.9**	10.9**
	(2.1)	(2.1)
British Nationalisation (γ_{UK})	-10.5**	-10.4**
	(2.2)	(2.2)
Access to Unusual Loans/Liquidity (δ)	1.9	2.8**
	(1.1)	(.6)
British Access to Unusual Loans/Liquidity (δ_{UK})	1.8	
	(1.2)	
Capital Injection (ζ)	-1.2*	-1.3**
	(.5)	(.5)
British Capital Injection (ζ_{UK})	-1.0	
	(.9)	
Privatization (θ)	10.8**	10.8**
	(3.1)	(3.1)
British Privatization	n/a	
Foreign=British effects (p-value)	.00**	
Foreign=British effects except Nationalisation (p-value)	.23	
Observations	9,615	9,615
R^2	.92	.92
RMSE	9.21	9.21

Dependent variable: 100(domestic loans/(domestic + foreign loans)). Coefficients for row dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Each column represents a separate LS regression. Observations from quarterly panel, spanning 1997Q3-2010Q1 for 361 banks. Dummies are +1 for time during/after British banks/event, -1 for foreign banks/events. Time- and bank-specific fixed effects included but not recorded.

Table 3: Sensitivity Analysis

After:	Foreign Nationalisation	British Nationalisation	Unusual Access to Loans or Liquidity	Public Capital Injection	Foreign Privatization
Default	-10.9**	.5	2.8**	-1.3**	-10.8**
	(2.1)	(.5)	(.6)	(.5)	(3.1)
Denominator Variant	-10.6**	1.5*	1.5*	-.9	-12.3**
	(2.1)	(.6)	(.6)	(.5)	(3.4)
Robust SEs, not clustered	-10.9**	.5	2.8	-1.3	-10.8**
	(2.7)	(1.9)	(1.5)	(1.0)	(2.8)
Traditional SEs	-10.9**	.5	2.8*	-1.3	-10.8**
	(2.0)	(2.0)	(1.2)	(.8)	(3.4)
Weight by Log Loans	-10.6**	.1	2.6**	-1.4**	-11.5**
	(2.0)	(.4)	(.6)	(.4)	(3.1)
Weight by Log Assets	-10.8**	.2	2.7**	-1.4**	-11.2**
	(2.0)	(.5)	(.6)	(.4)	(3.1)
Control for Total Loans	-9.9**	-.5	3.5**	-1.1*	-10.9**
	(2.0)	(.5)	(.6)	(.5)	(3.1)
Control for Total Assets	-9.8**	-.5	3.8**	-.9	-10.9**
	(2.0)	(.5)	(.5)	(.5)	(3.1)
Tobit	-11.7**	-3.2	-.1	-.6**	-10.0**
	(.6)	(2.3e+7)	(.4)	(.1)	(88.)
Big Banks	-8.6**	-1.6**	1.1*	.1	-19.7**
	(2.41)	(.41)	(.5)	(.4)	(2.9)
Small Banks	3.4	5.8	6.3	-.5	-2.5**
	(12.6)	(3.1)	(3.4)	(3.0)	(.6)
Drop pre-2000	-11.9**	-.6	2.7**	-1.3**	-1.0**
	(2.2)	(.5)	(.6)	(.5)	(.3)
Drop >|2σ| outliers	-9.9**	2.8**	-.1	-.0	-8.5**
	(1.2)	(.8)	(.5)	(.3)	(2.6)

Dependent variable: domestic loans/(domestic + foreign loans), expressed as a percentage. Coefficients for column dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Each row represents a separate LS regression. Dummies are +1 for British banks/event, -1 for foreign banks/events except for nationalisations and privatisations. Default regression has 9,615 observations from quarterly panel spanning 1997Q3-2010Q1 for 361 banks. Time- and bank-specific fixed effects included but not recorded (Tobit has fixed time effects, random bank effects).

Table 4a: Adding Extra Controls, One by One

Extra Control:	Foreign Nat'n	British Nat'n	Unusual Loan/Liq'y Access	Public Capital Injection	Foreign Privatization	Control
Default (none)	-10.9** (2.1)	.5 (.5)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)	
Loan Growth	-10.8** (1.9)	.6 (.5)	3.0** (.6)	-1.4** (.5)	-10.8** (3.2)	-.9** (.3)
Asset Growth	-11.1* (2.1)	.4 (.5)	2.9** (.6)	-1.4** (.5)	-10.8** (3.2)	.030** (.004)
Capital Adequacy	-11.1** (2.1)	.0 (.5)	3.1** (.6)	-1.3** (.5)	-10.9** (3.1)	4.4** (.8)
Capital Adequacy, variant	-11.1** (2.1)	-.0 (.5)	3.1** (.6)	-1.3** (.5)	-10.8** (3.1)	4.3** (.8)
Assets/Capital (Leverage)	-10.8** (2.1)	-1.5** (.4)	2.8** (.6)	-1.5** (.5)	-10.6** (3.1)	-3e-7 (4e-7)
Assets/Capital (Leverage) , variant	-10.9** (2.1)	.5 (.5)	2.9** (.6)	-1.3** (.5)	-10.8** (3.1)	-3e-7 (4e-7)
Wholesale Market Dependence	-10.9** (2.1)	.5 (.6)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)	1.2 (3.0)

Dependent variable: 100(domestic loans/(domestic + foreign loans)). Coefficients for column dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Default regression has 9,615 observations from quarterly panel spanning 1997Q3-2010Q1 for 361 banks. Time- and bank-specific fixed effects included but not recorded.

Table 4b: Adding Extra Controls, One by One; (Data only available from 2004 onwards)

	Foreign Nat'n	British Nat'n	Unusual Loan/Liq'y Access	Public Capital Injection	Foreign Privatization	Control
Non-Perf. Loan Ratio	-5.3 (2.8)	.8 (.5)	1.9** (.5)	-.8 (.5)	n/a	-143.** (41.)
Profits/ Assets	-8.2** (2.7)	.5 (.5)	1.8** (.5)	-.7 (.4)	n/a	34. (20.)
Profits/ Assets, variant #1	-8.4** (2.7)	.5 (.5)	1.8** (.5)	-.6 (.4)	n/a	31. (25.)
Profits/ Assets, variant #2	-8.4 (2.7)	.5 (.5)	1.8** (.5)	-.6 (.4)	n/a	30. (25.)
Dividends/ Assets	-8.5** (2.7)	.5 (.5)	1.7** (.5)	-.6 (.5)	n/a	-16. (207.)

Dependent variable: 100(domestic loans/(domestic + foreign loans)). Coefficients for column dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Default regression has 3,742 observations spanning 2004Q1-2010Q1. Time- and bank-specific fixed effects included but not recorded.

Table 5: Adding Extra Controls Simultaneously

Extra Controls:	Foreign Nat'n	British Nat'n	Unusual Loan/Liq'y Access	Public Capital Injection	Foreign Privatization	No. Obs.
Default (none)	-10.9** (2.1)	.5 (.5)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)	9,615
Set #1	-9.7** (1.8)	-2.9** (.4)	4.0** (.6)	-1.2* (.6)	-10.9** (3.2)	9,141
Set #2	-5.4 (2.8)	.8 (.5)	1.9** (.5)	-.8 (.05)	n/a	3,742

Dependent variable: domestic loans/(domestic + foreign loans), expressed as a percentage. Coefficients for column dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Each row represents a separate LS regression. Dummies are +1 for British banks/event, -1 for foreign banks/events except for nationalisations. Default regression has 9,615 observations from quarterly panel spanning 1997Q3-2010Q1 for 361 banks. Time- and bank-specific fixed effects included but not recorded. Set #1 of controls includes: loan growth; asset growth; log total assets; capital adequacy; assets/capital (leverage); and wholesale market dependence. Set #2 of controls includes: non-performing loan ratio; dividend ratio; profit ratio.

Table 6: Interest Rates

After:	Foreign Nationalisation	British Nationalisation	Unusual Access to Loans or Liquidity	Public Capital Injection
Default	.71**	.19	.15*	.04
	(.07)	(.17)	(.06)	(.05)
Interest Rate Variant	.86**	-.83**	.08	.29
	(.25)	(.16)	(.14)	(.16)
Robust SEs, not clustered	.71**	.19	.15	.04
	(.08)	(.14)	(.10)	(.07)
Traditional SEs	.71**	.19	.15	.04
	(.17)	(.10)	(.08)	(.07)
Weight by Log Loans	.71**	.16	.20**	.03
	(.07)	(.17)	(.07)	(.06)
Weight by Log Assets	.71**	.18	.17**	.04
	(.07)	(.16)	(.06)	(.05)
Control for Total Loans	.71**	.18	.17*	.04
	(.07)	(.16)	(.07)	(.06)
Control for Total Assets	.71**	.21	.14*	.03
	(.07)	(.16)	(.05)	(.06)
Drop >|2σ| outliers	.70**	.08	.10*	.05
	(.07)	(.06)	(.04)	(.04)

Dependent variable: Interest rate for private non-financial corporation loans of less than one year maturity. Variant is interest rate for households and individual trust loans of less than one year maturity. Coefficients for column dummy variables; robust standard errors recorded in parentheses (clustered by time) unless recorded otherwise. One (two) asterisk(s) mark coefficients significantly different from zero at .05 (.01) significance level. Each row represents a separate LS regression. Dummies are +1 for British banks/event, -1 for foreign banks/events except for nationalisations. Default regression has 679 observations from quarterly panel spanning 2004Q1-2010Q1 for 35 large banks active in the UK. Time- and bank-specific fixed effects included but not. No privatizations occurred in the sample.

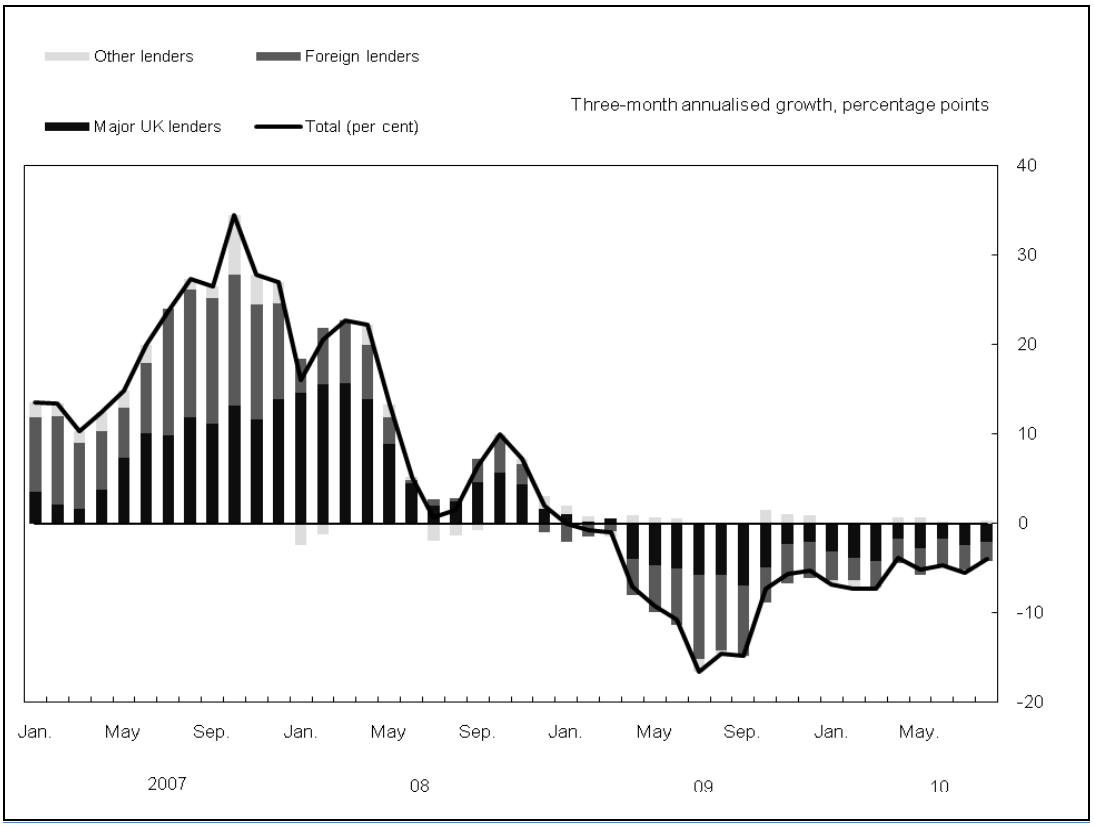


Figure 1: Contributions to Growth in Lending to UK Businesses
(Monetary financial institutions' lending to private non-financial corporations.
Three-month annualised growth rates in the stock of lending.)

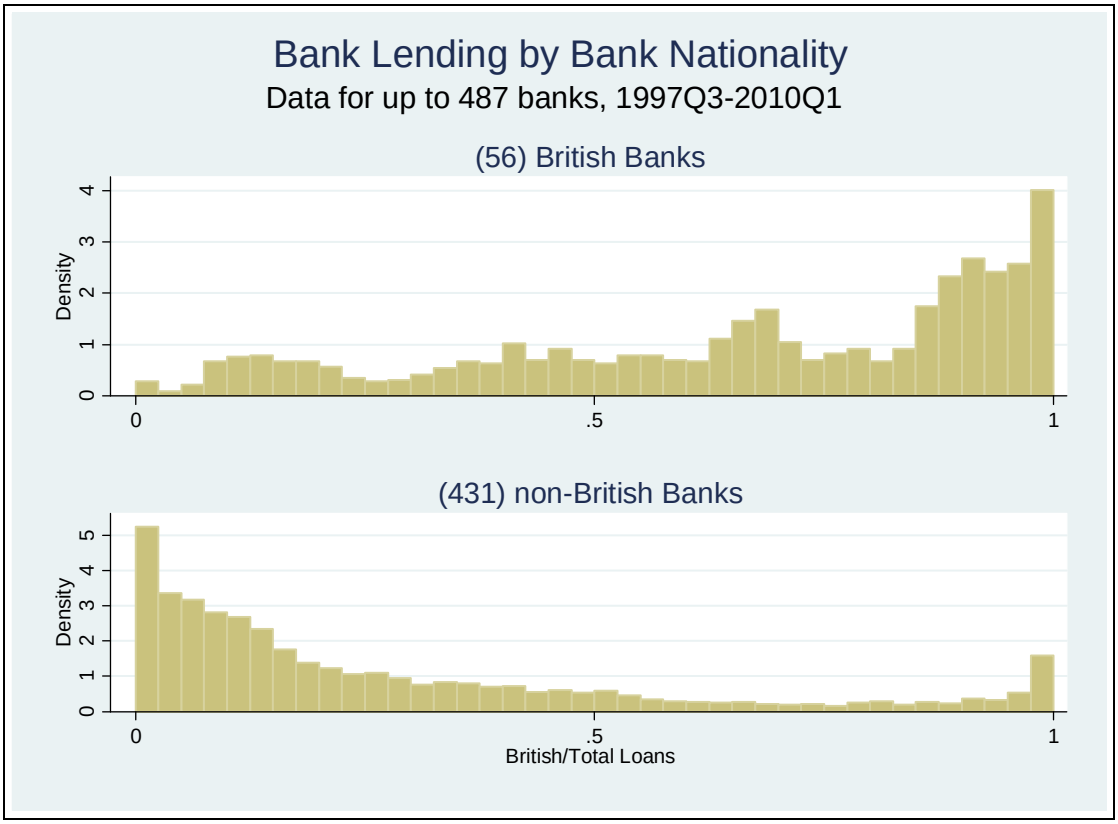


Figure 2: Loan Mixture varies by Nationality

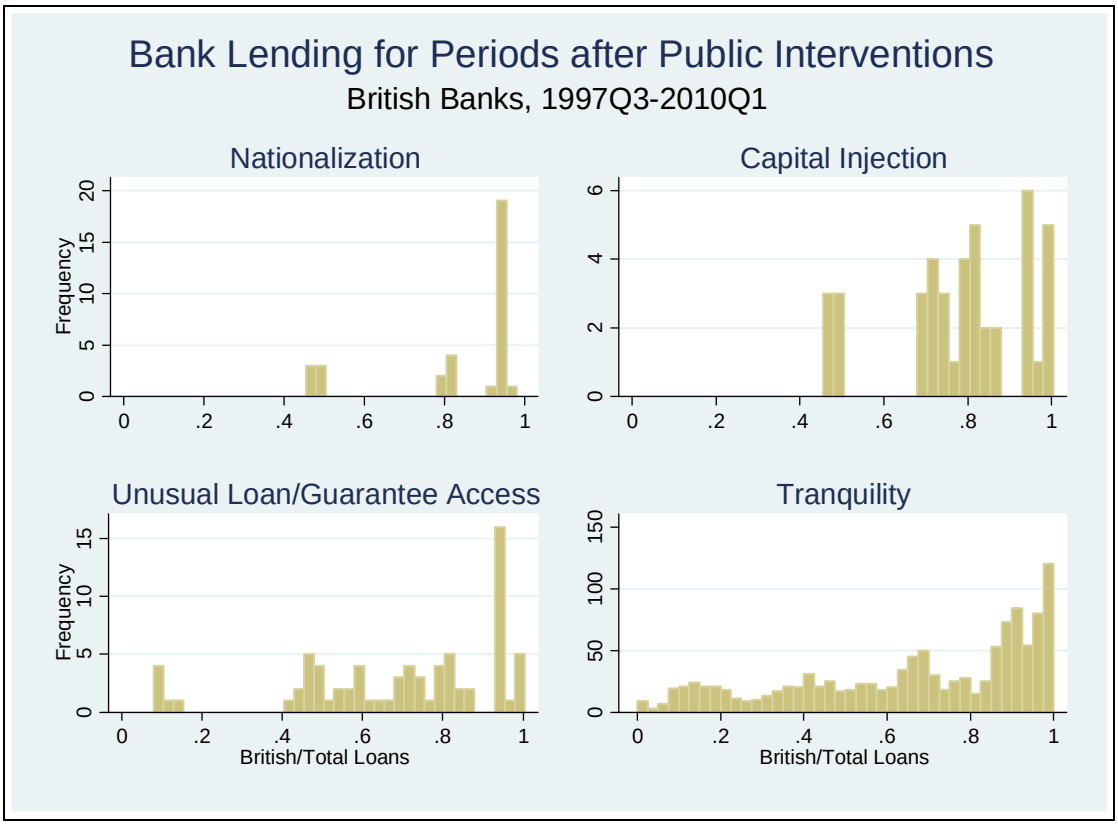


Figure 3: Histograms of the Loan Mix for British Banks

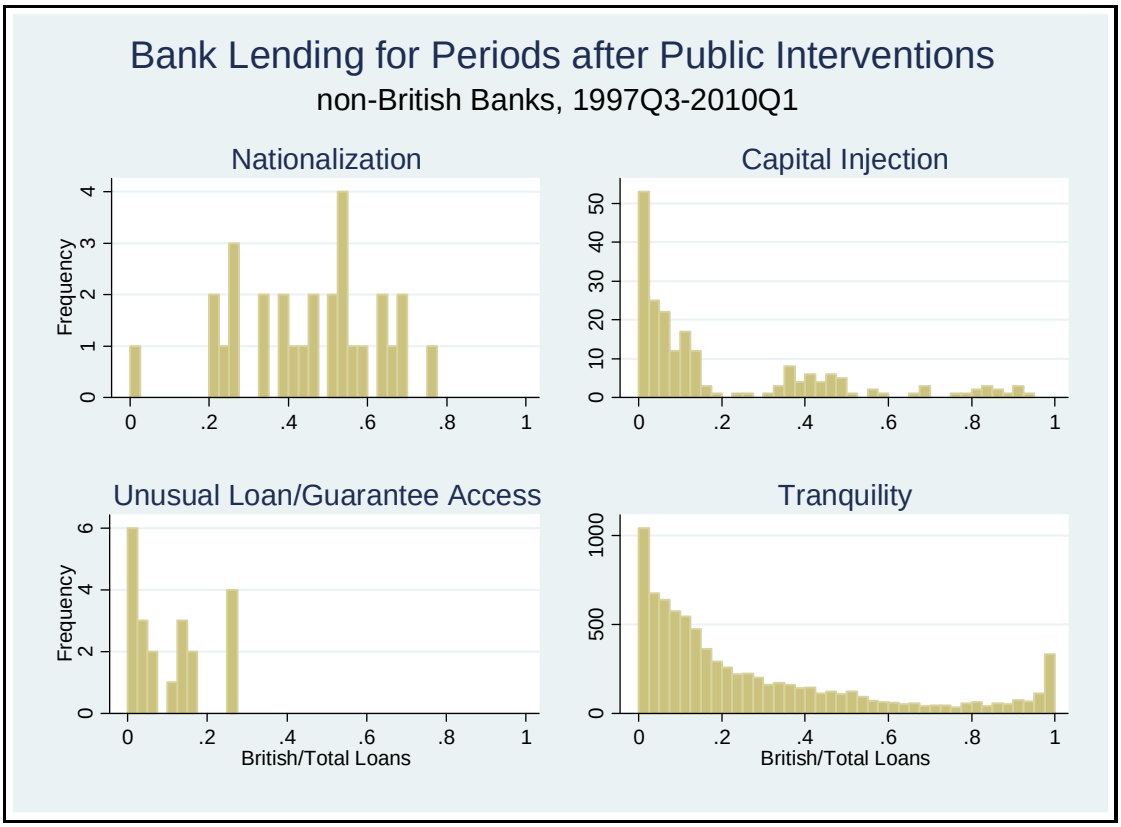


Figure 4: Histograms of the Loan Mix for non-British Banks

Data Appendix

We collect the raw data from the AL, BT, CC, CE, ER, IS, PL and QD forms. A detailed description of these forms (along with the forms themselves) is available at http://www.bankofengland.co.uk/statistics/reporters/defs/defs.htm. The variables actually used in our regressions are transformed from the raw data as described below.

Variable	Item in form
Share of Domestic in Total Lending, "Loan Mix"	AL 19 [Total Lending to UK residents] / (AL 19 [Total Lending to UK residents] +CC15 [Total external claims on non-resident customers])
Share of Domestic in Total Lending (Denominator Variant)	AL 19 [Total Lending to UK residents]/ (AL 19 [Total Lending to UK residents] +CC1 [Total loans and advances to non-residents])
British Bank	Institutional Nationality is identified by the Bank of England (over time) in http://www.bankofengland.co.uk/statistics/reporters/institutions/index.htm#UK
Size	BT 40 [Total Assets]
Asset Growth	Growth rate of BT 40 [Total Assets]
Loan Growth	Growth rate of AL 19 [Total Lending to UK residents]
Capital adequacy ((Capital + Reserves)/Total Assets)	BT 19 [Capital and Other funds]/ BT 40 [Total Assets]
Capital adequacy ((Capital + Reserves)/Total Assets), Variant	BT 19CD [Capital and Other accounts]/ BT 40 [Total Assets]
Leverage (Assets/Owners Equity)	BT 40 [Total Assets]/ BT 19CD [Capital and other internal accounts]
Leverage (Assets/Owners Equity), Variant	BT 40 [Total Assets]/ BT 19 [Capital and Other funds]
Wholesale Market Dependence	BT 6 [Liabilities under Sale and Repurchase Agreements] / BT 20 [Total Liabilities]
Non Performing Loan Ratio	PL 20B [Financial Level of Provisions for Bad and Doubtful Debts] / BT 40 [Total Assets]
Profitability	PL 21 [Retained Profit after Provisions for Bad and Doubtful Debts] / BT 40 [Total Assets]
Profitability, Variant 1	PL 19 [Retained Profit before Provisions for Bad and Doubtful Debts] / BT 40 [Total Assets]

Profitability, Variant 2	PL 15 [Pre-tax profits on ordinary activities before provisions for bad and doubtful debts] / BT 40 [Total Assets]
Dividends/ Assets	PL 17 [Dividends paid] / BT 40 [Total Assets]
Effective interest Rates on loans to Private non-financial corporations	ERC102 [Private non-financial corporations Time – fixed original maturity <= 1 year (maturity)]

Endnotes

[1] http://www.londonsummit.gov.uk/en/summit-aims/summit-communique/ or http://www.g20.org/Documents/final-communique.pdf

[2] http://www.pittsburghsummit.gov/mediacenter/129639.htm or http://www.g20.org/Documents/pittsburgh_summit_leaders_statement_250909.pdf

[3] But see http://www.globaltradealert.org/

[4] To the best of our knowledge, there is no theory of relevance in this area.

[5] Even if this were the case, work by Ehrman, Gambacorta, Martinez-Pages, Sevestre and Worms (2001) shows, in the case of Euro-Area countries, that BankScope data can suggest very different answers than more complete data available at national central banks.

[6] This data set is only available on a locational, as opposed to a consolidated, basis. This difference in reporting may be important for some questions regarding cross-border lending, but it is irrelevant for ours. Consolidated data records 'pure' cross border lending at the banking group level as an external claim, netting out within-banking group transfers. In our analysis of the loan mix we are interested in whether domestic claims change with respect to the sum of domestic and external claims, regardless of composition. The distinction between consolidated and locational data seems to be therefore irrelevant. Furthermore, the results with the 'loan mix' are confirmed by the effective interest rate data, suggesting that this distinction is probably not affecting our results.

[7] To maintain transparency, we do not try to adjust the data for mergers and acquisitions. If one bank is bought by another, then the former drops out of our sample, while the latter's lending artificially expands by the acquired institution. If as a result of nationalization, a foreign bank in Britain needs to sell its domestic operations, its UK lending would thus shrink artificially. In other words, our methodology would pick up this sale of domestic UK operations as financial protectionism. However, our data on bank ownership does not suggest that foreign nationalised banks systematically sold off their operations in the UK.

[8] The Bank of England uses this data to monitor the transmission of changes in the policy rate through the British banking sector to the broader economy (see http://www.bankofengland.co.uk/statistics/reporters/defs/def_er.pdf).

[9] See http://www.bankofengland.co.uk/mfsd/iadb/notesIADB/effective_int.htm

[10] For instance, our classification turns out to be consistent with the database on policy interventions in the current crisis (including bank nationalisations), provided by Ait-Sahalia, Andritzky, Jobst, Nowak and Tamirisa (2009).

[11] By unusual access to liquidity we refer to the case where banks received larger amounts of liquidity against assets of lower quality than in normal times. It is important to point out that not all banks chose to access these facilities during the crisis (in some countries the degree of access was public information; in these countries, the associated stigma led to a degree of adverse selection among the institutions accessing central banks liquidity facilities). In other words, unusual liquidity provision was not always universal.

[12] For this reason we construct our nationalisation variables with opposite signs for British and foreign banks after nationalisation.