

Financial Protectionism: the First Tests

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The Usual Disclaimer

- Research presented here solely reflects the views of the authors and not those of the Bank of England

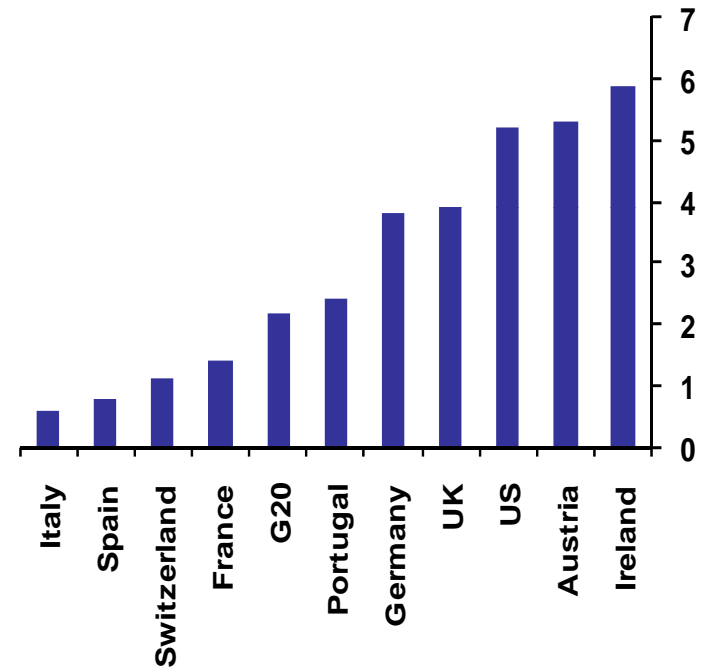
Motivation

- Great recession frequently compared to ‘Great Depression’
- Trade protectionism blamed for spreading/deepening ‘Great Depression’
- Little evidence of substantive ‘classic’ trade protectionism in ‘Great Recession’

Motivation (2)

- But public sector financial system interventions occurred around the world...

Public capital injection as a fraction of 2008 GDP

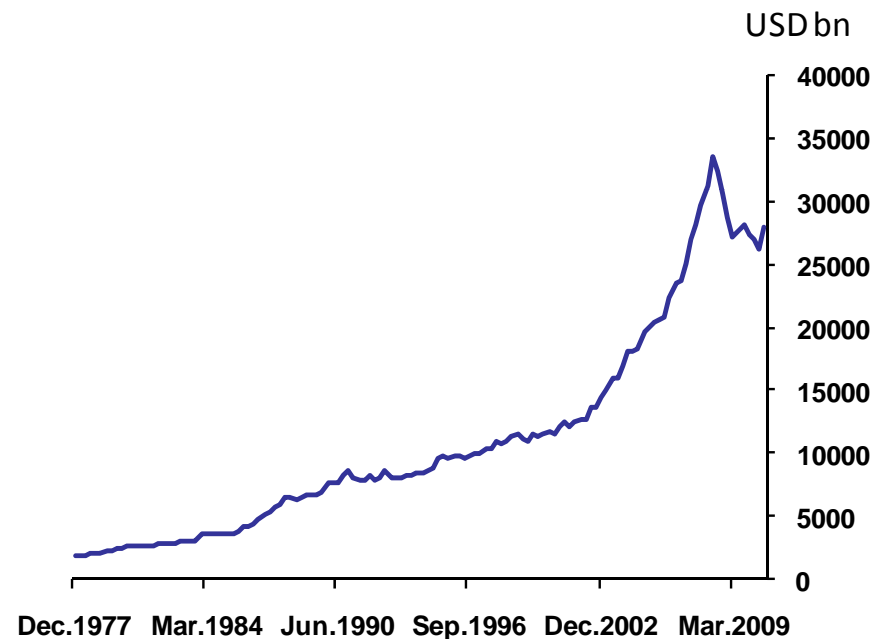


Source: IMF

Motivation (3)

- ... and cross-border bank lending fell by an unprecedented amount at the same time.
 - “Flight Home” or “Great Retrenchment”

Real BIS bank external asset claims



Source: BIS

Motivation (4)

- In this paper we ask if the two are related:
 - Q: Has government support (nationalization, public capital injection, unusual liquidity support) for banks affected their foreign lending?
 - That is, did the ‘Great Recession’ financial interventions lead to a new type of protectionism, *financial protectionism?*

Definition of *Financial Protectionism*

- Public intervention leads to nationalistic change in banks' lending behaviour:
 - Less lending to foreigners (quantities)
 - Higher interest rates to foreigners (prices)
 - More lending and/or lower interest rates to residents

Investigating Financial Protectionism

- Key: a) *differential* effect on quantities and/or prices to *foreigners/domestics*, only *after* b) public intervention
 - Suggests difference in difference approach (which we use)
- *Preview of Results*: find effects in both quantities and prices

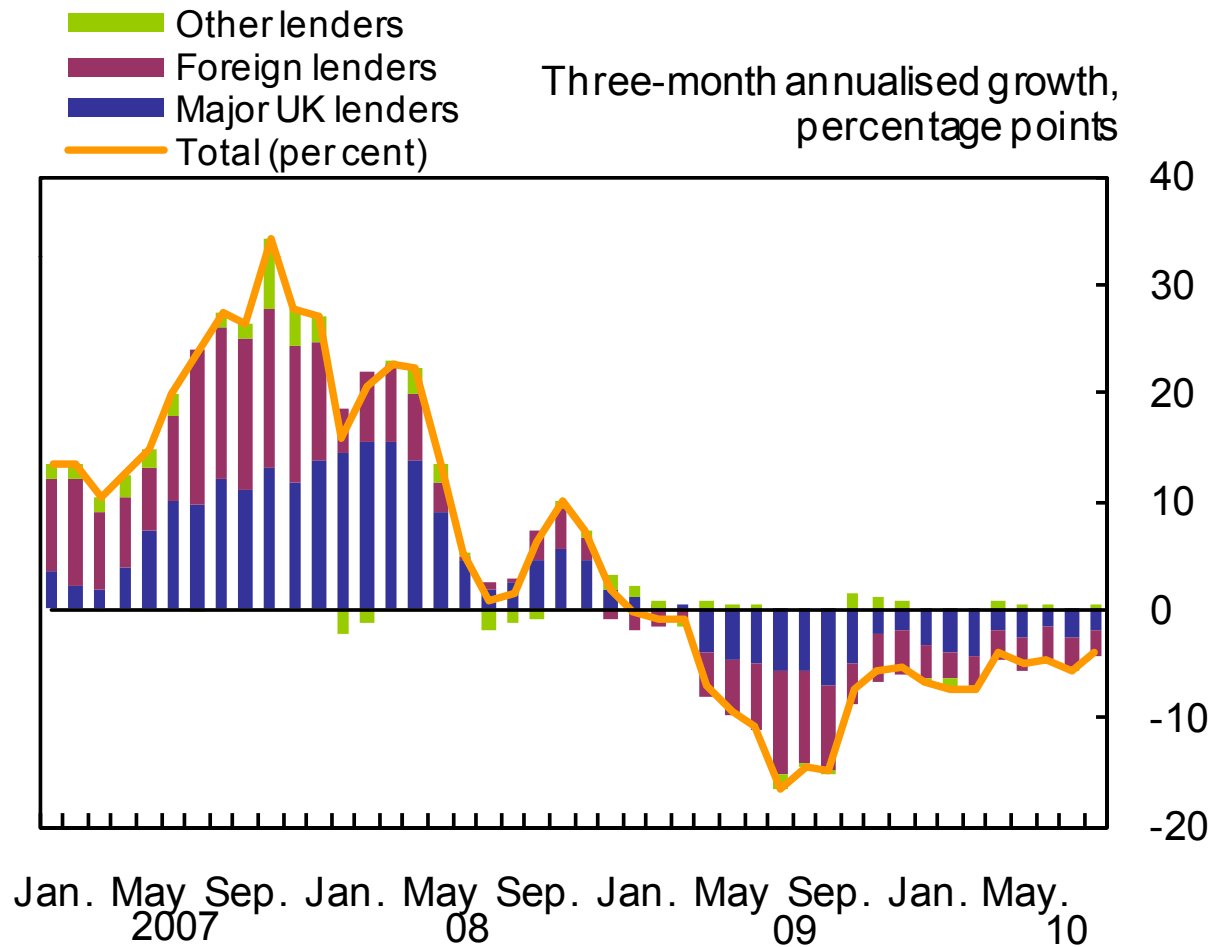
Data Set

- BIS datasets do not provide individual bank breakdown
 - So can't compare foreign/domestic banks or private/public banks
- Publicly available micro datasets do not provide data on external lending
- Accordingly, we use a *confidential* Bank of England dataset to test this hypothesis

Data (2)

- The database provides comprehensive balance sheet information for all banks operating in the UK at quarterly horizon (1997Q3 – 2010Q1)
- Data usually used for regulatory purposes and national account statistics (→ measurement error taken seriously)
- Data covers 487 banks, 56 of whom are UK-owned
 - Number of observations = 9,615

Foreign vs. UK bank British Lending through the crisis: Aggregates



Data (3)

- Public sector interventions data collected by us, conducting bank-by-bank Google searches for ‘ “bank name” nationalisation nationalise privatise’
- Constructed suitable binary dummies for: *privatisation, nationalisation, public capital injection, liquidity support*

Public Interventions: Temporal Clustering

All figures are percentages.	Nationalisation (5 British/15 Foreign)	Capital Injection (17 British/59 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

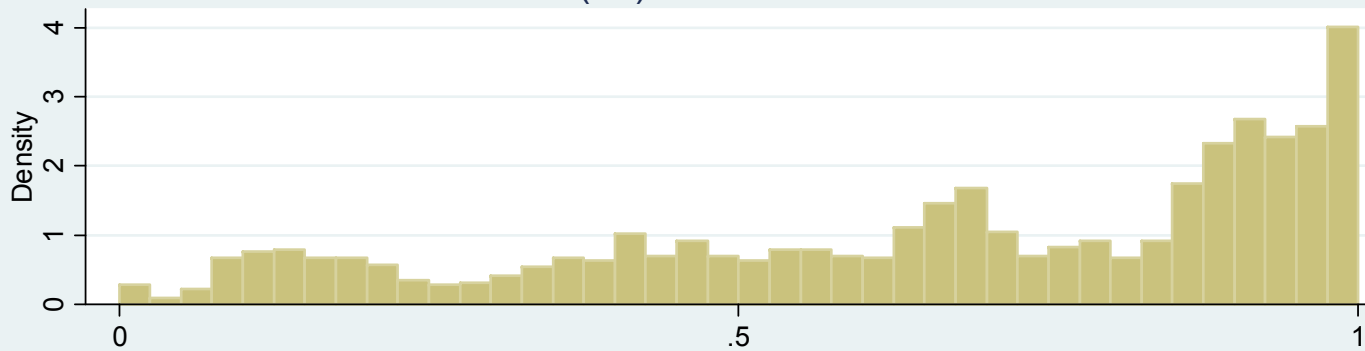
Empirical Approach

- First (main) dependent variable: ‘Loan mix’
 - Loan mix = Lending to UK residents/ Sum of Lending to UK residents and non-residents
 - Bank by bank (not group!)
- Second dependent variable: Interest rate
 - Effective interest rate on new UK private non-financial corporation loans of less than one year maturity

Histogram of 'Loan Mix'

Bank Lending by Bank Nationality
Data for up to 487 banks, 1997Q3-2010Q1

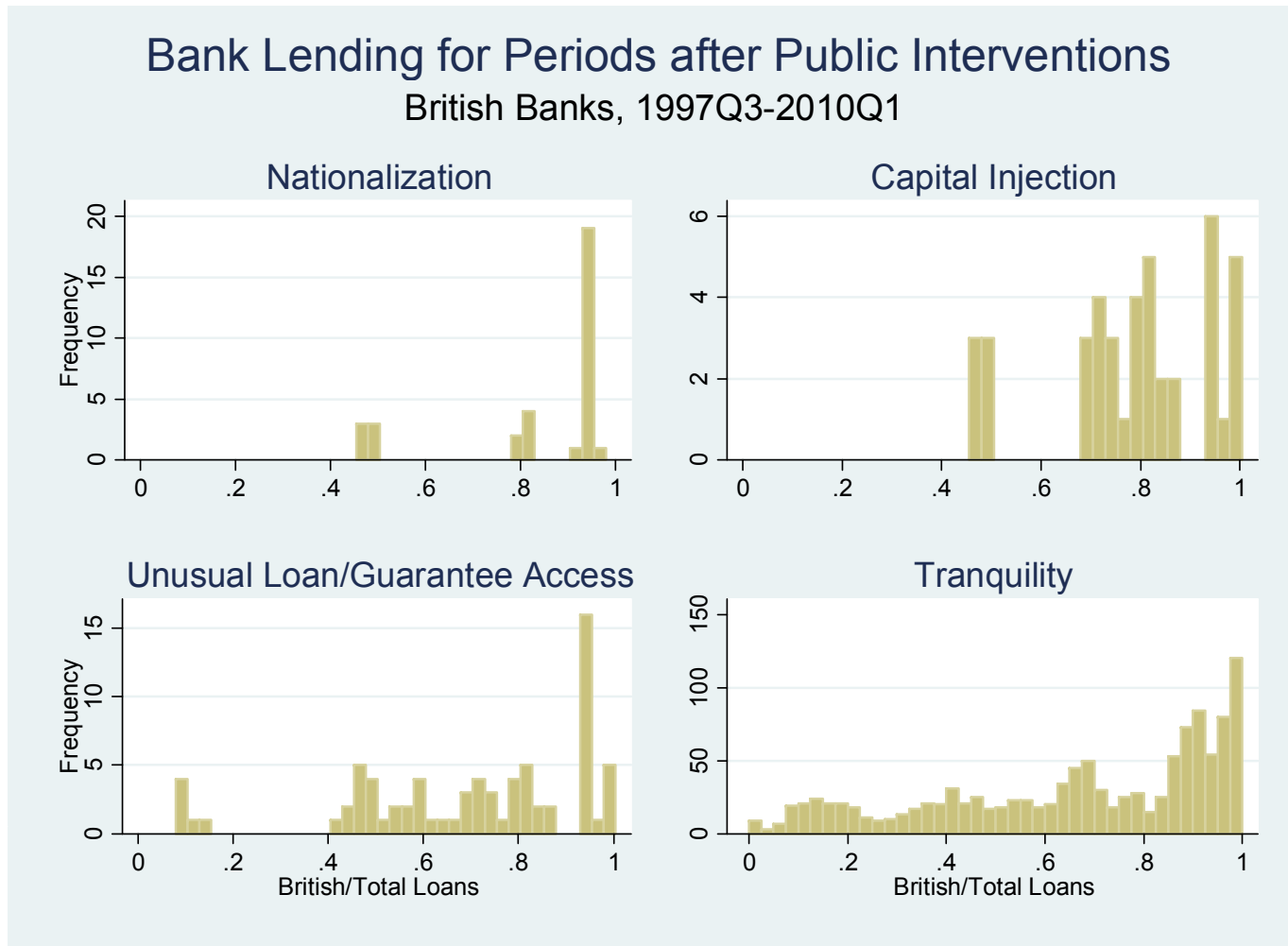
(56) British Banks



(431) non-British Banks

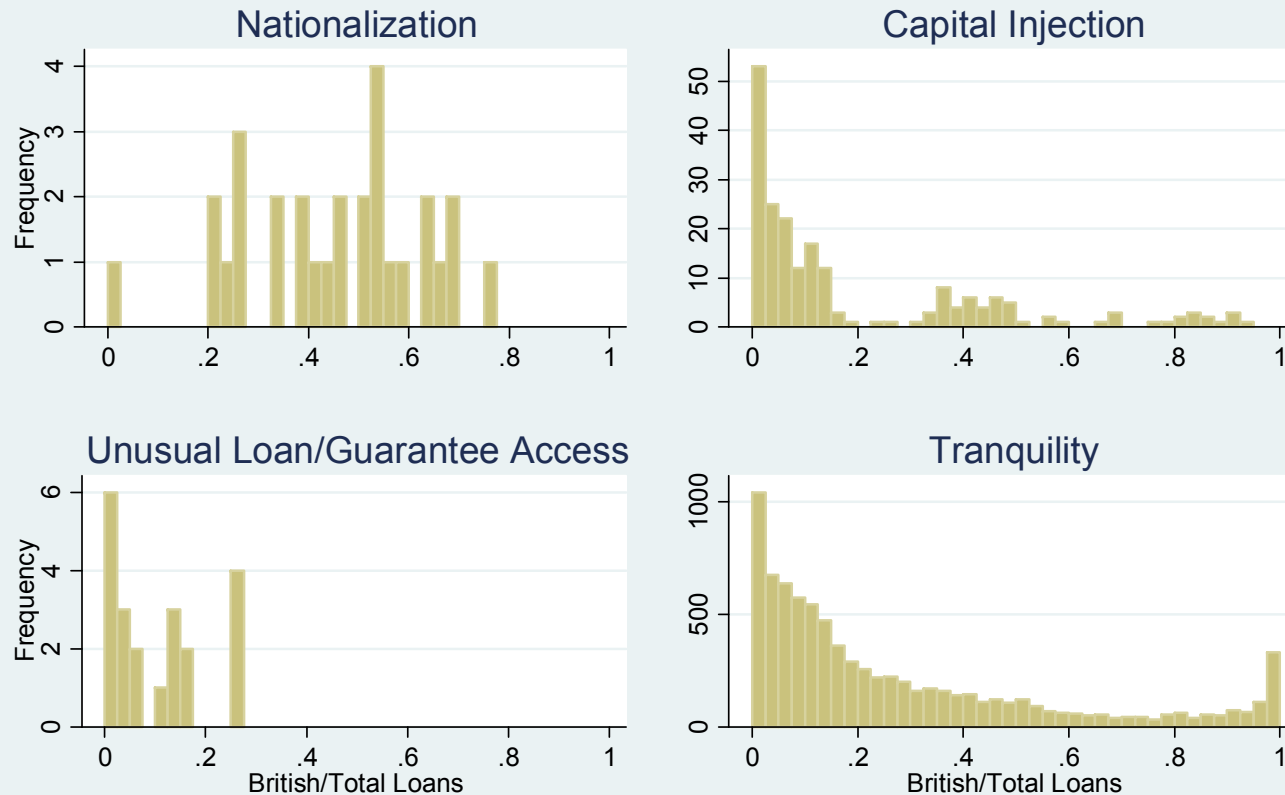


'Loan mix' histogram after interventions for British banks



'Loan mix' histogram after interventions for foreign banks

Bank Lending for Periods after Public Interventions
non-British Banks, 1997Q3-2010Q1



Empirical Approach (2)

- Fall in the 'Loan mix' and/or increase in interest rate following foreign bank public sector intervention consistent with Financial Protection
- Similarly interpret increase in the 'Loan mix' and/or decrease in interest rate following UK bank public sector intervention

Empirical Approach (3)

- $Y_{i,t}$ is the dependent variable
- $\{\alpha_i\}$ - bank-specific fixed effects
 - heterogeneity
- $\{\beta_t\}$ - time fixed effects
 - Common shocks
- $\text{Nat}_{i,t}$
 - = 1 British bank i is nationalised at or before time t
 - = -1 if a foreign bank is nationalised at or before time t , 0 otherwise
- $\text{Nat}_{UK,i,t}$
 - = 1 if British bank i is nationalised at or before time t
- 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;

Empirical model

$$\begin{aligned}
 Y_{i,t} = & \alpha_i + \beta_t + \\
 & \gamma \text{Nat}_{i,t} + \gamma_{UK} \text{Nat}_{UK,i,t} \\
 & + \delta \text{Priv}_{i,t} + \delta_{UK} \text{Priv}_{UK,i,t} \\
 & + \zeta \text{Cap}_{i,t} + \zeta_{UK} \text{Cap}_{UK,i,t} \\
 & + \theta \text{LL}_{i,t} + \varepsilon_{i,t} \quad (1)
 \end{aligned}$$

Empirical Approach (4)

- F-test suggests that *effect of British and foreign bank nationalisation is different*
 - ➔ Treat foreign and British nationalisation as separate variables subsequently
- But, for other interventions, keep dummy as 1 if event refers to British bank, -1 if to foreign bank and 0 otherwise

Empirical Approach (5)

$$Y_{i,t} = \alpha_i + \beta_t + \gamma_{FOR} \text{Nat}_{FOR,i,t} + \gamma_{UK} \text{Nat}_{UK,i,t} + \delta \text{Priv}_{i,t} + \zeta \text{Cap}_{i,t} + \vartheta \text{LL}_{i,t} + \varepsilon_{i,t} \quad (2)$$

- $\text{Nat}_{FOR,i,t}$
= 1 Foreign bank i is nationalised at or before time t , 0 otherwise
- $\text{Nat}_{UK,i,t}$
– =1 if British bank i is nationalised at or before time t , 0 otherwise
- All other interventions
– = 1 British bank i is nationalised at or before time t
– =-1 if a foreign bank is nationalised at or before time t , 0 otherwise
- *Note presence of comprehensive time and bank FE*

Results

- F-test suggests that effect of British and foreign bank nationalisation is different

- Treat foreign and British nationalisation as separate variables subsequently
- But, for other interventions, keep dummy as 1 if event refers to British bank, -1 if to foreign bank and 0 otherwise

Estimates of Equation (1)

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

Results (2): Sensitivity Analysis

<u>After:</u>	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>
Default	-10.9** (2.1)	.5 (.5)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)
Denominator Variant	-10.6** (2.1)	1.5* (.6)	1.5* (.6)	-.9 (.5)	-12.3** (3.4)
Robust SEs, not clustered	-10.9** (2.7)	.5 (1.9)	2.8 (1.5)	-1.3 (1.0)	-10.8** (2.8)
Traditional SEs	-10.9** (2.0)	.5 (2.0)	2.8* (1.2)	-1.3 (.8)	-10.8** (3.4)
Weight by Log Loans	-10.6** (2.0)	.1 (.4)	2.6** (.6)	-1.4** (.4)	-11.5** (3.1)
Weight by Log Assets	-10.8** (2.0)	.2 (.5)	2.7** (.6)	-1.4** (.4)	-11.2** (3.1)
Control for Total Loans	-9.9** (2.0)	-.5 (.5)	3.5** (.6)	-1.1* (.5)	-10.9** (3.1)
Control for Total Assets	-9.8** (2.0)	-.5 (.5)	3.8** (.5)	-.9 (.5)	-10.9** (3.1)
Tobit	-11.7** (.6)	-3.2 (2.3e+7)	-.1 (.4)	-.6** (.1)	-10.0** (88.)

Results (3): Cutting Up the Sample

<u>After:</u>	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>
Default	-10.9** (2.1)	.5 (.5)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)
Big Banks	-8.6** (2.41)	-1.6** (.41)	1.1* (.5)	.1 (.4)	-19.7** (2.9)
Small Banks	3.4 (12.6)	5.8 (3.1)	6.3 (3.4)	-.5 (3.0)	-2.5** (.6)
Drop British Banks	-10.9** (2.1)	n/a	1.9 (1.1)	-1.2* (.5)	-10.5** (3.1)
Drop pre-2000	-11.9** (2.2)	-.6 (.5)	2.7** (.6)	-1.3** (.5)	-1.0** (.3)
Drop > 2σ outliers	-9.9** (1.2)	2.8** (.8)	-.1 (.5)	-.0 (.3)	-8.5** (2.6)

Results (4): Adding Controls

<u>Extra Control:</u>	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>	<u>Control</u>
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)

Results (5): More Controls

	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>	<u>Control</u>
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.)

Results (6): Important Controls

	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>	<u>Control</u>
Bank Nationality x Time FE	-16.1** (3.2)	1.8 (2.1)	4.0** (1.4)	-.9 (1.0)	-4.7 (3.7)	F(•)= 1.2**
Status-Switching Banks	-9.5** (2.2)	1.2 (.6)	1.6** (.5)	-1.0* (.4)	-10.8** (3.1)	F(•)= 36**
EC Objection or Investigation	-10.7* (4.2)	.3 (.6)	2.8** (.6)	-1.3** (.5)	10.8** (3.1)	F(•)= 1.0

Note: inclusion of Bank-Nationality x Time FE wipes out any potential country x time-specific effects (exchange rates, national business cycles, ...)

- “Flight Home” or “Great Retrenchment”

Results (7): Even More Controls

<u>Extra Control:</u>	<u>Foreign Nationalisation</u>	<u>British Nationalisation</u>	<u>Unusual Access to Loans or Liquidity</u>	<u>Public Capital Injection</u>	<u>Foreign Privatisation</u>
Default (none)	-10.9** (2.1)	.5 (.5)	2.8** (.6)	-1.3** (.5)	-10.8** (3.1)
Set #1	-9.7** (1.8)	-2.9** (.4)	4.0** (.6)	-1.2* (.6)	-10.9** (3.2)
Set #2	-5.4 (2.8)	.8 (.5)	1.9** (.5)	-.8 (.05)	n/a

- Set #1: loan growth; asset growth; log total assets; capital adequacy; assets/capital (leverage); wholesale market dependence.
- Set #2: non-performing loan ratio; dividend ratio; profit ratio.

Numerator or Denominator?

- A potential explanation
 - *Ex ante* possible that nationalization leads to denominator growth > numerator growth
 - Unclear if this is financial protectionism or not
 - Does this explain the story?

Numerators and Denominators

- Growth rates economically, statistically similar for numerator, denominator:
 - All observations
 - Split by British/Foreign
 - Split by Private/Nationalized
 - Combinations as well

What about Endogeneity?

- Tried various instruments for nationalisation
- Reverse causality unlikely, as defaults increased both at home and abroad during the crisis
- But ratio of interbank and financial market to total sight deposits (very short-term funding) works as IV for foreign nationalisation
 - Right sign, but coefficient increases fourfold in magnitude
 - Data only available after October 2007

Conclusion from 'Loan mix'

- **British** banks behaviour does not appear to change following nationalisation
- But **foreign** banks lend more outside and less in the UK following nationalisation
 - Highly statistically significant, robust, size of effect reasonable
 - → We interpret this as evidence of **financial protectionism**
 - Not trivial: 12% loan activity nationalized

Interest rates as Regressand

- With imperfect competition, banks can charge interest rates above cost of capital (Freixas and Rochet, 2008)
- Previous work rejects perfect competition in the UK (Claessens and Laeven, 2004)
- So look for evidence of financial protectionism in interest rate data

Interest rates as Regressand (2)

- ‘Effective’ (weighted by loan) interest rate data are only available since 2004Q1 and for 40 largest lenders to a particular sector
 - sample much smaller → 679 observations
- We use effective interest rate on new private non-financial corporation loans of less than one year maturity as the dependent variable

Results

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

Interest Rate Conclusion

- Effect of foreign nationalisation statistically significant, correct sign and robust
 - ➔ Consistent with *financial protectionism*
- Effect of British nationalisation typically Insignificant
 - ➔ Consistent with earlier results
- Results robust to choice of dependent variable

Unfinished Business: Future Research

1. Microeconomic *causes* of large public interventions
2. *Liabilities* side of banks' balance sheets
3. *Welfare consequences*

Overall Summary

- First evidence of behaviour consistent with *financial protectionism* for foreign, but not British banks
 - Use bank-level quarterly panel with time- and bank-specific fixed effects
 - After *British* nationalizations, *little* happens to interest rates or loan mix of British banks
 - After *foreign* nationalizations, foreign banks cut back more on British loans, raise interest rates