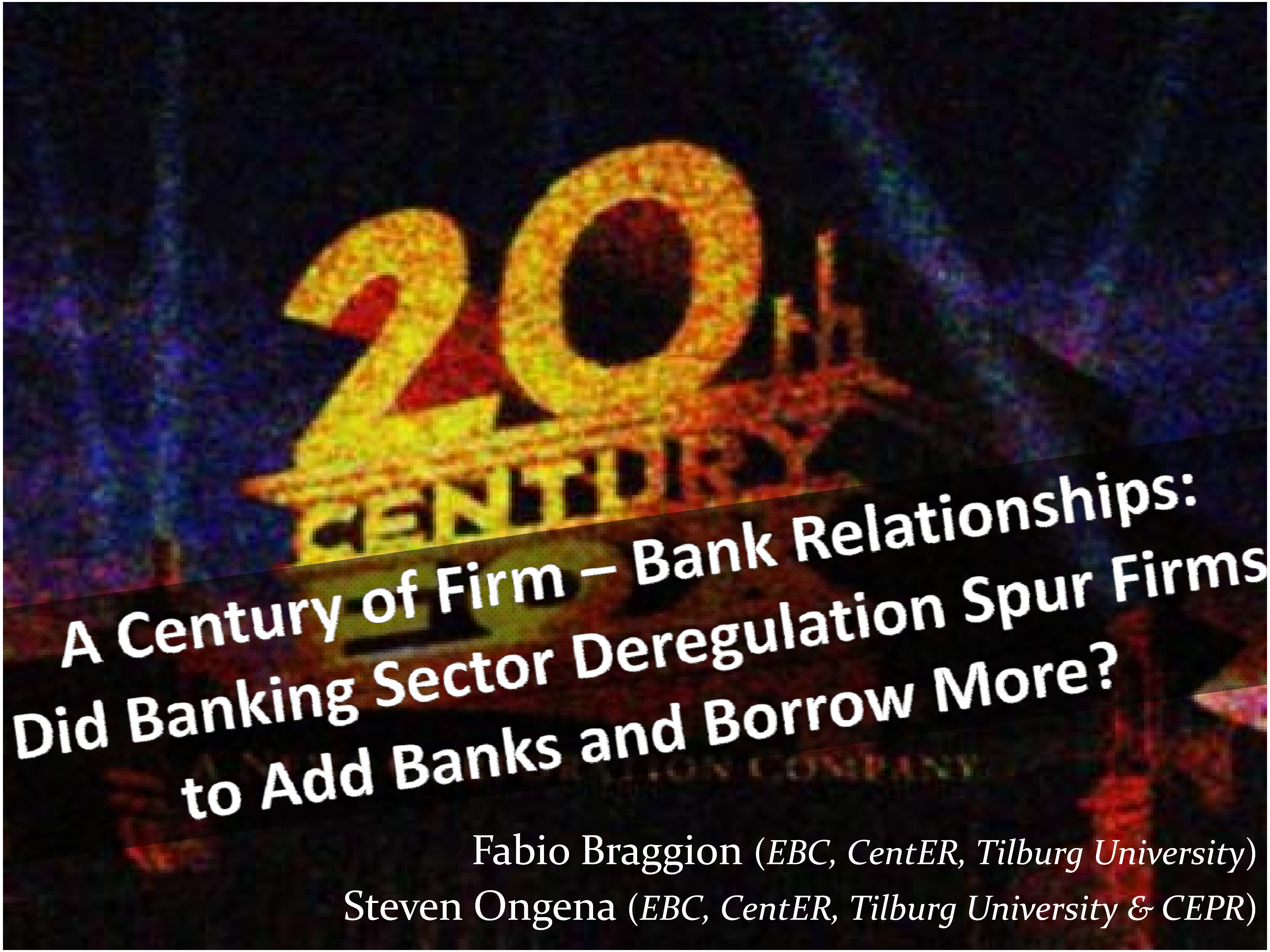


A Century of Firm – Bank Relationships: Did Banking Sector Deregulation Spur Firms to Add Banks and Borrow More?

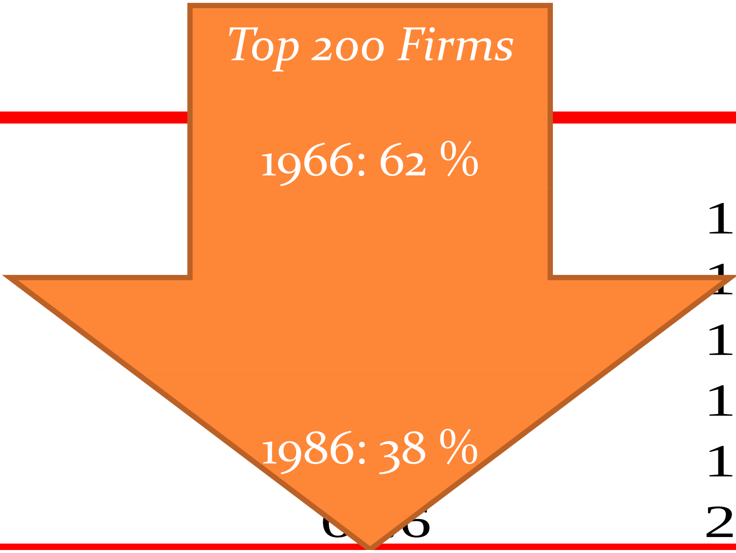
Fabio Braggion (*EBC, CentER, Tilburg University*)
Steven Ongena (*EBC, CentER, Tilburg University & CEPR*)

This Paper

- We study how relationships between firms and banks evolved in the UK during the Twentieth century
  - Focus on the number of bank relationships (chosen by a firm)

TABLE 1
NUMBER OF FIRM-BANK RELATIONSHIPS THROUGHOUT THE 20TH CENTURY IN BRITAIN

Year	Observations	% Firms with N Bank Relationships		
		N=1	N=2	N>2
Entire Sample				
1896	678	86.9	11.7	1.5
1906	1,790	83.4	12.9	3.7
1916	1,815	83.8	12.2	4.1
1920	1,908	83.4	12.6	3.9
1924	2,140	84.1	11.3	4.6
1934	2,432	82.9	12.6	4.4
1938	2,882	86.3	10.3	3.4
1948	3,236	[illegible]	9.7	3.4
1958	3,394	[illegible]	8.6	3.0
1966	3,116	[illegible]	9.5	4.2
1970	2,687	[illegible]	13.0	6.1
1974	2,295	[illegible]	17.4	10.1
1976	2,098	[illegible]	17.5	11.6
1980	1,756	[illegible]	19.0	14.3
1984	1,973	[illegible]	19.5	17.0
1986	2,004	[illegible]	20.1	16.3

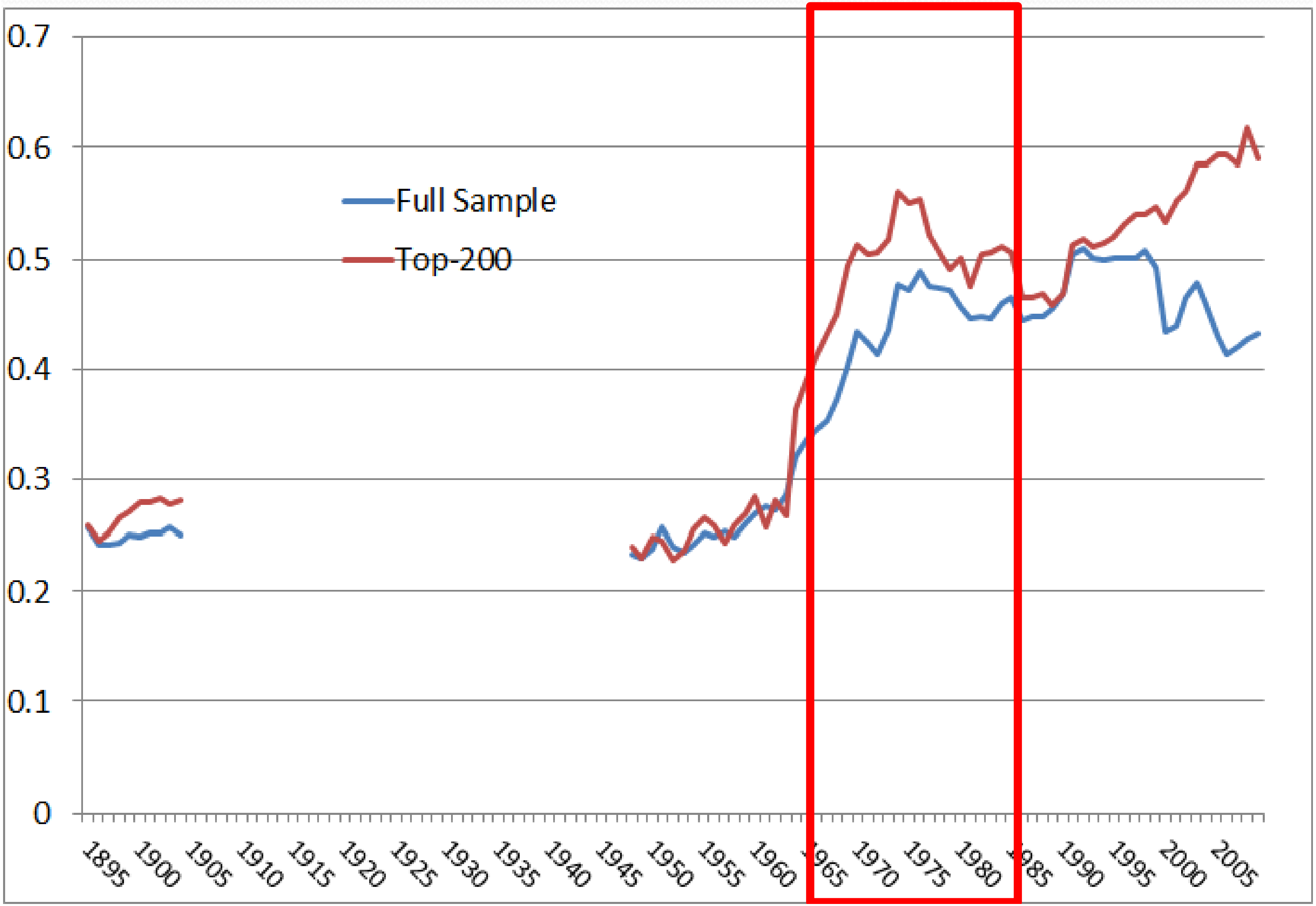


This Paper

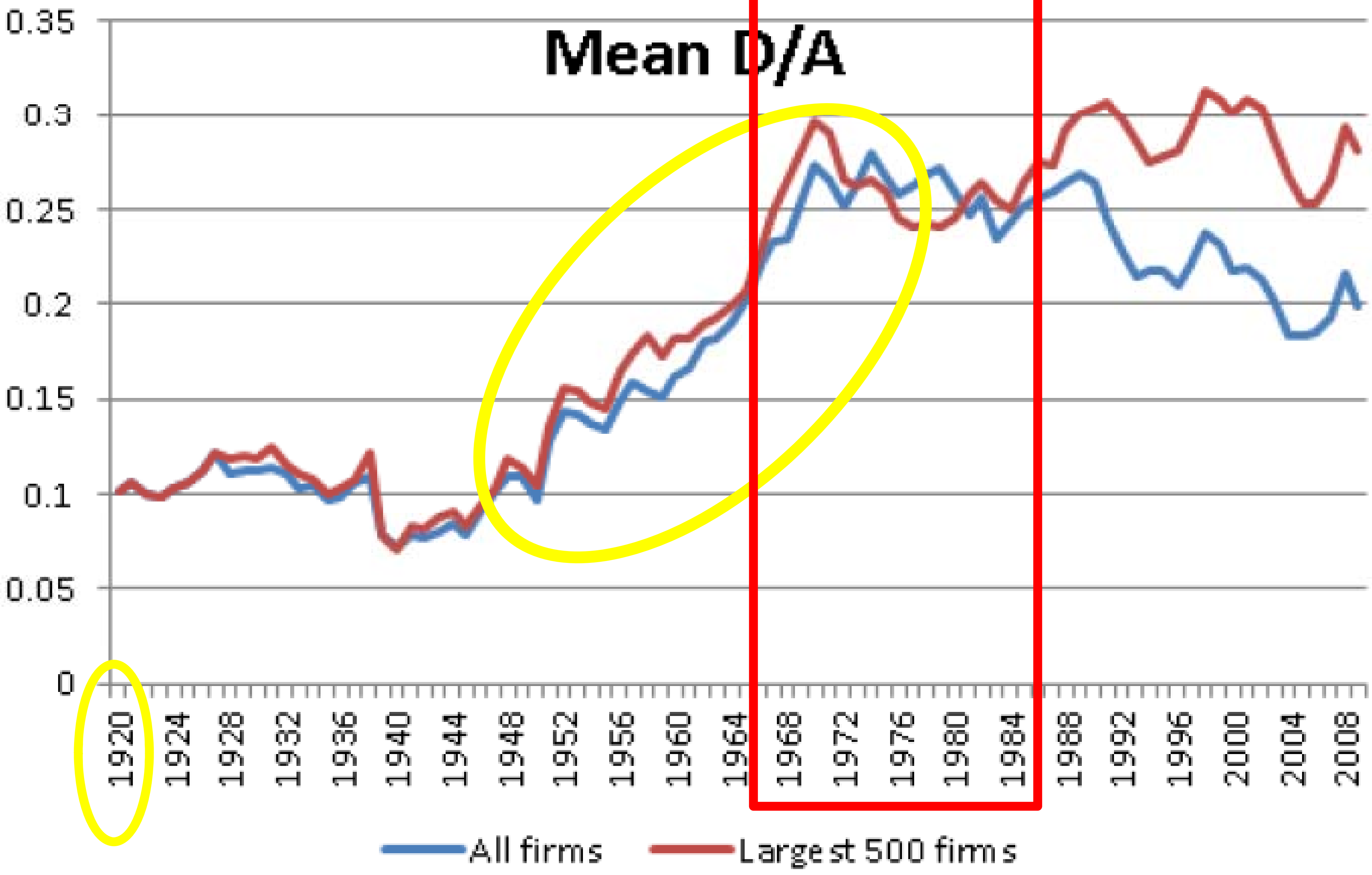
- We study how relationships between firms and banks evolved in the UK during the Twentieth century
  - Focus on the number of bank relationships (chosen by a firm)
    - We document a shift from bilateral to multilateral relationships
      - We provide some explanations
        - *How did this shift relate to firms' financial policies*?

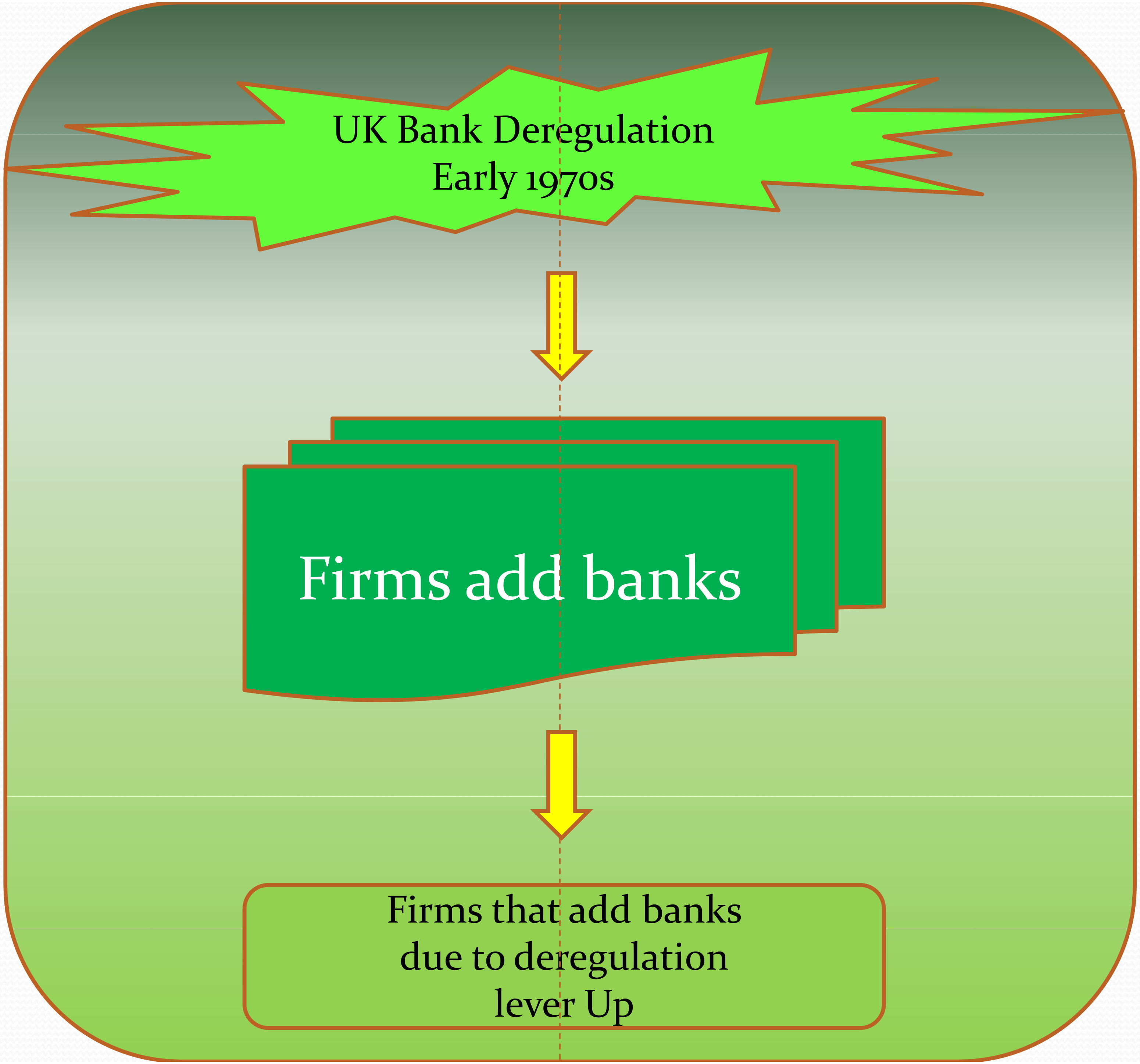
Mean UK Firms Leverage: 1895-2009

[Same for Median]



Mean US Leverage: 1920-2009




UK Bank Deregulation
Early 1970s
Firms add banks
Firms that add banks
due to deregulation
lever Up

Preview of Main Results

- Deregulation and intensifying competition in the UK banking industry in early 70s

- Following deregulation, firms add bank(s)
  - Especially large and transparent firms do
    - These firms can immediately break free from hold up?
    - Before deregulation mainly size matters
  - Many similar ("clearer") banks are added
    - Irrespective of bank type, transparency matters (somewhat)
    - Large firms choose clearer banks, not other British or foreign banks

- Adding banks associated with:
  - Increase in leverage & bank debt; a decline in trade credit
    - Compare: same firm before and after adding ("adder"), with similar "stayer" (before and after); do so before and after deregulation
      - Association especially strong for transparent firms

Motivation: Firm-Bank Relationships

- The number of bank relationships is an important determinant of bank credit conditions for a firm
  - In general a key feature of a banking system
- Understanding if the current pattern of relationship banking is the result of a historical process
- Use a long-run analysis to evaluate various explanations for relationship banking
  - Any explanation for a secular shift must be an economically relevant one

Motivation: Firm Financial Policies

- Do changes in financial conditions affect leverage?

Leary (JF 2009); Sufi (RFS 2009); Lemmon and Roberts (JFQA 2010); Rice and Strahan (JF 2010)

- Provide evidence of the importance of a "banking channel" for firms' financial policies
  - Competing banks may fail to fully internalize the consequences of (future) corporate indebtedness?
    - Banks may not have foreseen deregulation and future borrowing by the firm from another bank
    - Especially when vying for market share banks may "overlend"

Bizer and DeMarzo (JPE 1992); Degryse, Ioannidou and Schedvin (2012)

An Analysis of Britain

- London Stock exchange had a leadership position already starting from the early Twentieth Century

- Clear evolution of the legislation intended to protect creditors and improve corporate communications

- Fairly stable banking system

- Large availability of (good) data

Data

- From the *London Stock Exchange* Yearbook:
  - Name and number of banks trading with companies
  - Capital authorized and issued
  - Board of directors
  - Voting rights associated to various class of shares
  - Past dividends
  - Bonds and mortgages

ABINGDON WORKS COMPANY, LIMITED.

Manufacturers of Arms and Cycle Components, and General Machinists.

Registered **18th July, 1896.**

Office.....Bath Street, Birmingham.

Telegraphic Address: "Abingdon," Birmingham. Telephone: No. 289.

Transfer Arrangements—Common form. Fee for registration of transfer, probate, proof of death in joint holdings, proof of marriage, or power of attorney, 2s. 6d. Separate deed required for each class of share and for each account. Wife's witness of husband's signature, or *vice versâ*, not accepted. Married women allowed on register. *Shuttings*—10 days on declaration of interim dividend and 10 days before annual meeting. *Voting*—1 vote for each share of either class.

Directors—H. F. Woodward (*Chairman*), J. C. Scott, G. H. C. Hughes, J.P., Thomas Mabbutt. (Qualification, 500 Shares of either class.)

Solicitors—Johnsons, Barclay & Lowe.

Auditors—Allen Edwards & Smith.

Bankers—Lloyds Bank Limited (Temple Row).

Manager—Frank Hulse. *Secretary*—Frank Tucker.

This is a reconstruction of a Company of the same name registered 28th March, 1889, which was a reconstruction of a Company registered in 1874. In 1896 each shareholder in the old (1889) Company received one Ordinary and one Preference Share for each £1 of Ordinary Share Capital held.

ACCOUNTS AND DIVIDENDS—Accounts made up annually to 31st August, and submitted in October, an interim dividend being paid in March. Reserve Fund, £6,500 (£1,500 transferred to credit of Profit and Loss Account in 1903). Goodwill, £17,500. Dividends on Ordinary Shares for last five years—1898-9, 10 per cent.; 1899-1900, 6 per cent.; 1900-1, 5 per cent.; 1901-2, 2½ per cent.; 1902-3, nil. Carried forward at 31st August, 1903 (after paying Preference dividend to date), £50.

CAPITAL—Authorised, £100,000, in 60,000 Ordinary and 40,000 Preference Shares of £1 each. Issued, £60,400, in 30,200 shares of each class, all fully paid. The Preference Shares are entitled to a cumulative dividend of 6 per cent., payable in April and October, and have priority for capital. In the event of winding-up, the Preference Shares would receive one-third of the surplus after repaying the Ordinary Shares, and the latter shares the remaining two-thirds. Both classes of shares are quoted at *Birmingham*. Prices marked in 1903—Ordinary: Highest, 11s. 9d.; Lowest, 5s. Preference: Highest, 15s. 6d.; Lowest, 13s. 9d.

Data

- Cambridge DTA Databank
  - Balance Sheets of British Firms, 1948-1991
    - Leverage ratio
    - Components of debt structure
    - Long-term debt
    - Bank debt
    - Trade credit

T1 NUMBER OF FIRM-BANK RELATIONSHIPS THROUGHOUT THE 20TH CENTURY IN BRITAIN

		Number of Bank Relationships			% Firms with N Bank Relationships		
Year	Observations	Average	Median	Maximum	N=1	N=2	N>2
Entire Sample							
1896	678	1.15	1	4	86.9	11.7	1.5
1906	1,790	1.22	1	5	83.4	12.9	3.7
1916	1,815	1.22	1	6	83.8	12.2	4.1
1920	1,908	1.22	1	8	83.4	12.6	3.9
1924	2,140	1.23	1	6	84.1	11.3	4.6
1934	2,432	1.24	1	7	82.9	12.6	4.4
1938	2,882	1.19	1	7	86.3	10.3	3.4
1948	3,236	1.19	1	7	86.9	9.7	3.4
1958	3,394	1.17	1	9	88.3	8.6	3.0
1966	3,116	1.20	1	9	86.2	9.5	4.2
1968	3,023	1.23	1	9	85.2	10.4	4.5
1970	2,687	1.28	1	7	80.9	13.0	6.1
1972	2,526	1.36	1	12	76.7	15.7	7.6
1974	2,295	1.45	1	10	72.5	17.4	10.1
1976	2,098	1.50	1	11	71.0	17.5	11.6
1978	1,876	1.59	1	11	68.0	18.6	13.4
1980	1,756	1.61	1	8	66.7	19.0	14.3
1982	1,948	1.68	1	11	64.7	18.7	16.5
1984	1,973	1.71	1	10	63.5	19.5	17.0
1986	2,004	1.69	1	10	63.6	20.1	16.3

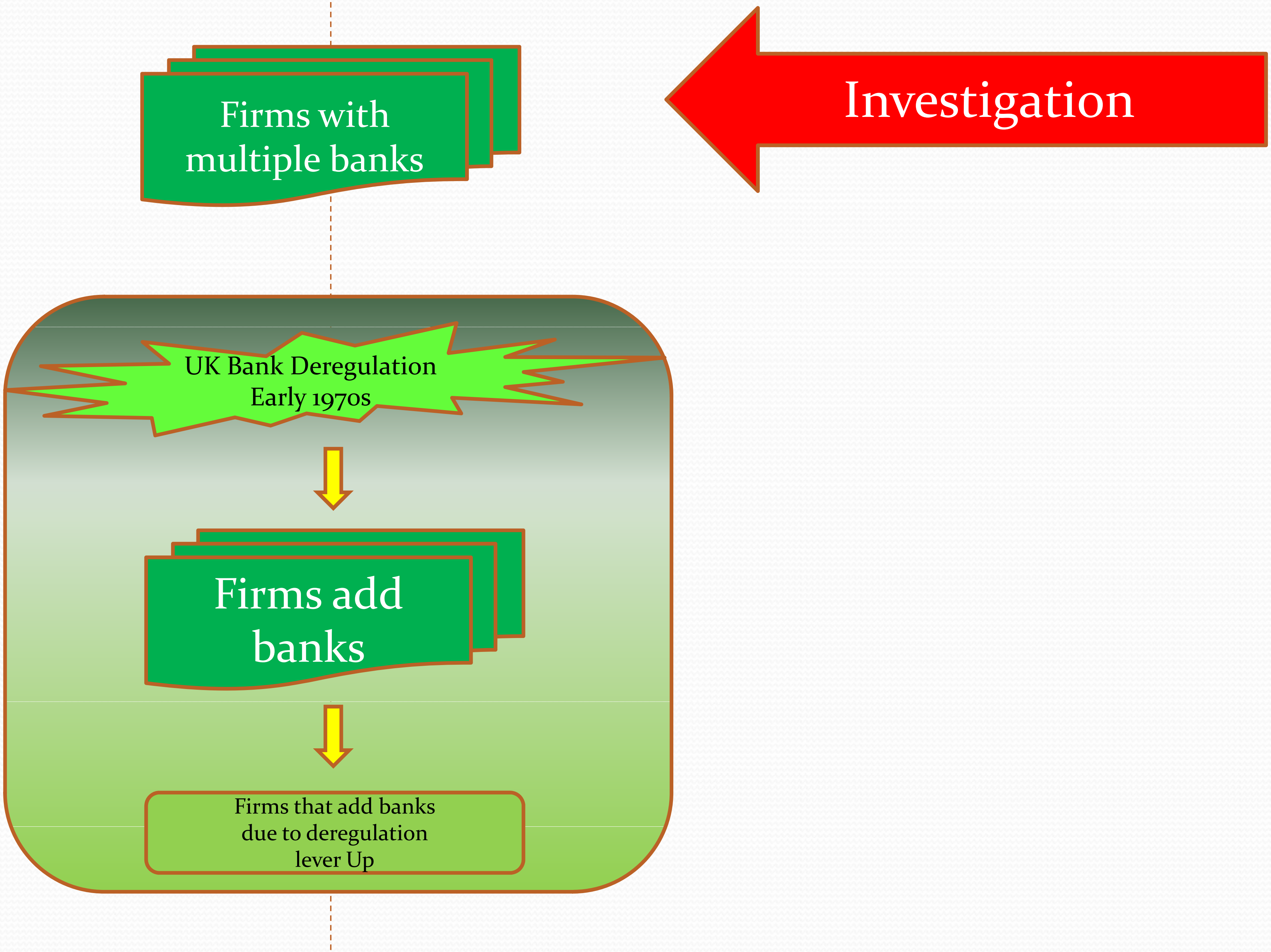
M&As

T1

NUMBER OF FIRM-BANK RELATIONSHIPS THROUGHOUT THE 20TH CENTURY IN BRITAIN

To make sure no changes in the composition of firms occur.

		Number of Bank Relationships			% Firms with N Bank Relationships		
Year	Observations	Average	Median	Maximum	N=1	N=2	N>2
Firms Followed from 1966 until 1986							
1966	599	1.30	1	8	84.0	9.4	6.7
1968	599	1.31	1	8	82.3	11.4	6.4
1970	599	1.32	1	6	80.8	12.2	7.0
1972	599	1.37	1	8	77.6	14.0	8.4
1974	599	1.44	1	10	73.6	17.2	9.2
1976	599	1.50	1	11	70.8	17.7	11.5
1978	599	1.62	1	11	68.3	17.9	13.9
1980	599	1.63	1	7	67.3	17.4	15.4
1982	599	1.70	1	9	65.9	15.2	18.9
1984	599	1.77	1	9	63.4	16.9	19.7
1986	599	1.78	1	8	61.4	18.9	19.7


Firms with multiple banks
Investigation
UK Bank Deregulation Early 1970s
Firms add banks
Firms that add banks due to deregulation lever Up

Explaining Multiple Banking

- The dependent variable:
  - ***Multiple Firm-Bank Relationships (0/1)*** =1 if the number of firm-bank relationships equals more than one and, =0 otherwise.

- Probit models
- Tabulate Marginal effects
  - For dummy (0/1) variables the marginal effect indicates the effect of a change from zero to one in the variable.

T 2 Variables Available for Years in the entire Period 1896 - 1986

Multiple Firm-Bank Relationships	0/1	=1 if the company maintains multiple firm-bank relationships, =0 otherwise
Capital Issued	000 BRP	Amount of total share capital issued by the company
Age	years	Age of the company in the sample year
Board Size	-	Number of members in the administration board
Borrowing Limit	-	The borrowing limit for the companies officers divided by the book value of assets
One Share - One Vote	0/1	=1 if the company applies the one share - one vote principal, =0 otherwise
Officially Listed	0/1	=1 if the company had any class of its outstanding shares officially listed in London and traded on the floor, =0 otherwise
Arm's Length Debt	0/1	=1 if the company has bonds or any other form of arm's length debt outstanding, =0 otherwise
Arm's Length Leverage	-	Bonds or any other form of arm's length debt outstanding divided by the book value of assets
Past Dividends	0/1	=1 if the company always paid a dividend in the previous two years, =0 otherwise

T 4 Year 1896	I	II	III	IV
ln(Capital Issued)	0.062***	0.061***	0.022	0.080***
	[0.016]	[0.016]	[0.021]	[0.020]
ln(1 + Age)	-0.033**	-0.034**	-0.064**	-0.042**
	[0.016]	[0.016]	[0.025]	[0.021]
ln(1 + Board Size)	0.016	0.018	-0.029	0.015
	[0.046]	[0.046]	[0.056]	[0.056]
Borrowing Limit				0.048
				[0.045]
One Share - One Vote (0/1)	-0.006	-0.006	-0.016	-0.002
	[0.027]	[0.027]	[0.034]	[0.032]
Officially Listed (0/1)	0.048	0.050	0.070*	0.033
	[0.034]	[0.034]	[0.040]	[0.039]
Arm's Length Debt (0/1)	-0.002	0.022	-0.016	-0.015
	[0.027]	[0.039]	[0.033]	[0.033]
Arm's Length Leverage		-0.088		
		[0.108]		
Past Dividends (0/1)			0.040	
			[0.035]	
Chi2	34.53	34.05	12.61	28.79
N	617	617	338	476

T 4

TABLE 4

MULTIPLE FIRM-BANK RELATIONSHIPS: PROBIT ANALYSIS FOR SELECTED YEARS DURING THE 20TH CENTURY

	Year 1896				Year 1906				Year 1916			
Model	I	II	III	IV	I	II	III	IV	I	II	III	IV
ln(Capital Issued)	0.062***	0.061***	0.022	0.080***	0.061***	0.061***	0.072***		0.081***	0.081***	0.078***	
	[0.016]	[0.016]	[0.021]	[0.020]	[0.011]	[0.011]	[0.014]		[0.011]	[0.011]	[0.014]	
ln(1 + Age)	-0.033**	-0.034**	-0.064**	-0.042**	-0.045***	-0.045***	-0.050***		-0.021	-0.021	-0.009	
	[0.016]	[0.016]	[0.025]	[0.021]	[0.014]	[0.014]	[0.019]		[0.013]	[0.013]	[0.019]	
ln(1 + Board Size)	0.016	0.018	-0.029	0.015	0.120***	0.120***	0.135***		0.056*	0.056*	0.024	
	[0.046]	[0.046]	[0.056]	[0.056]	[0.027]	[0.027]	[0.036]		[0.030]	[0.030]	[0.038]	
Borrowing Limit				0.048								
				[0.045]								
One Share - One Vote (0/1)	-0.006	-0.006	-0.016	-0.002	0.003	0.003	0.008		-0.009	-0.009	-0.022	
	[0.027]	[0.027]	[0.034]	[0.032]	[0.018]	[0.018]	[0.023]		[0.018]	[0.018]	[0.021]	
Officially Listed (0/1)	0.048	0.050	0.070*	0.033	0.042*	0.042*	0.012		0.014	0.014	0.015	
	[0.034]	[0.034]	[0.040]	[0.039]	[0.022]	[0.022]	[0.027]		[0.020]	[0.020]	[0.024]	
Arm's Length Debt (0/1)	-0.002	0.022	-0.016	-0.015	0.003	0.003	0.020		0.003	0.002	0.013	
	[0.027]	[0.039]	[0.033]	[0.033]	[0.018]	[0.019]	[0.023]		[0.018]	[0.029]	[0.022]	
Arm's Length Leverage		-0.088				-0.004				0.002		
		[0.108]				[0.141]				[0.071]		
Past Dividends (0/1)			0.040				0.024				-0.026	
			[0.035]				[0.028]				[0.028]	
Chi2	34.53	34.05	12.61	28.79	130.50	130.52	89.71		120.14	120.43	78.94	
N	617	617	338	476	1,667	1,667	1,034		1,681	1,681	1,155	
	Year 1920				Year 1924				Year 1934			
Model	I	II	III	IV	I	II	III	IV	I	II	III	IV
ln(Capital Issued)	0.055***	0.053***	0.064***		0.042***	0.042***	0.053***		0.046***	0.047***	0.078***	
	[0.011]	[0.011]	[0.014]		[0.009]	[0.009]	[0.011]		[0.008]	[0.008]	[0.014]	
ln(1 + Age)	-0.012	-0.012	-0.024		-0.002	-0.002	-0.020		0.000	0.000	-0.009	
	[0.012]	[0.012]	[0.015]		[0.011]	[0.011]	[0.015]		[0.010]	[0.010]	[0.019]	
ln(1 + Board Size)	0.095***	0.095***	0.065		0.088***	0.088***	0.064*		0.049*	0.049*	0.024	
	[0.032]	[0.032]	[0.040]		[0.030]	[0.031]	[0.039]		[0.028]	[0.008]	[0.038]	
One Share - One Vote (0/1)	0.017	0.016	0.003		-0.026	-0.026	-0.009		0.003	0.003	-0.022	
	[0.018]	[0.018]	[0.024]		[0.016]	[0.016]	[0.020]		[0.016]	[0.016]	[0.021]	
Officially Listed (0/1)	0.011	0.012	0.008		0.043**	0.044**	0.035		0.050**	0.049**	0.015	
	[0.021]	[0.021]	[0.027]		[0.020]	[0.020]	[0.023]		[0.020]	[0.020]	[0.024]	
Arm's Length Debt (0/1)	-0.019	-0.009	-0.033		0.011	0.028	0.022		0.000	-0.011	0.013	
	[0.018]	[0.023]	[0.022]		[0.017]	[0.033]	[0.021]		[0.017]	[0.028]	[0.022]	
Arm's Length Leverage		-0.039				-0.051				0.035		
		[0.052]				[0.084]				[0.074]		
Past Dividends (0/1)			0.063				0.041**				-0.026	
			[0.039]				[0.021]				[0.028]	
Chi2	89.83	93.32	67.20		117.96	119.49	95.45		103.45	103.58	78.94	
N	1,727	1,727	1,109		2,024	2,024	1,366		2,319	2,319	1,155	
	Year 1938				Year 1948				Year 1958			
Model	I	II	III	IV	I	II	III	IV	I	II	III	IV
ln(Capital Issued)	0.035***	0.036***	0.034***	0.041***	0.050***	0.050***	0.050***	0.050***	0.041***	0.042***	0.040***	0.041***
	[0.007]	[0.007]	[0.009]	[0.007]	[0.005]	[0.005]	[0.005]	[0.006]	[0.005]	[0.005]	[0.006]	[0.005]
ln(1 + Age)	0.019***	0.019***	0.029**	0.023***	0.014*	0.014*	0.014*	0.016*	0.020**	0.022**	0.026***	0.019**
	[0.007]	[0.007]	[0.011]	[0.007]	[0.008]	[0.008]	[0.008]	[0.009]	[0.009]	[0.009]	[0.010]	[0.009]
ln(1 + Board Size)	0.091***	0.091***	0.109***	0.095***	0.072***	0.072***	0.072***	0.075***	0.020	0.018	0.022	0.019
	[0.024]	[0.024]	[0.029]	[0.025]	[0.021]	[0.021]	[0.021]	[0.022]	[0.019]	[0.019]	[0.020]	[0.019]
Borrowing Limit				-0.007				-0.024				0.027
				[0.025]				[0.023]				[0.038]
One Share - One Vote (0/1)	0.006	0.006	0.008	0.008	0.012	0.012	0.012	0.015	0.016	0.017	0.009	0.015
	[0.012]	[0.012]	[0.017]	[0.012]	[0.012]	[0.012]	[0.012]	[0.013]	[0.012]	[0.012]	[0.012]	[0.012]
Officially Listed (0/1)	0.029*	0.029*	0.020						-0.002	-0.005	0.003	0.000
	[0.017]	[0.017]	[0.020]						[0.014]	[0.014]	[0.014]	[0.014]
Arm's Length Debt (0/1)	0.033**	0.003	0.024	0.031*	0.044**	0.045	0.044**	0.040**	0.030**	0.021	0.027**	0.031**
	[0.017]	[0.033]	[0.020]	[0.017]	[0.019]	[0.042]	[0.019]	[0.020]	[0.013]	[0.013]	[0.013]	[0.013]
Arm's Length Leverage		0.08				-0.001				0.068*		
		[0.081]				[0.091]				[0.035]		
Past Dividends (0/1)			0.004								0.023	
			[0.018]								[0.018]	
Chi2	152.34	151.65	100.48	147.53	205.85	205.86	205.85	200.73	135.71	135.50	135.92	135.89
N	2,773	2,773	1,941	2,638	3,128	3,128	3,128	3,007	3,340	3,340	3,002	3,318

1896

1906

1916

1920

1924

1934

1938

1948

1958

Findings

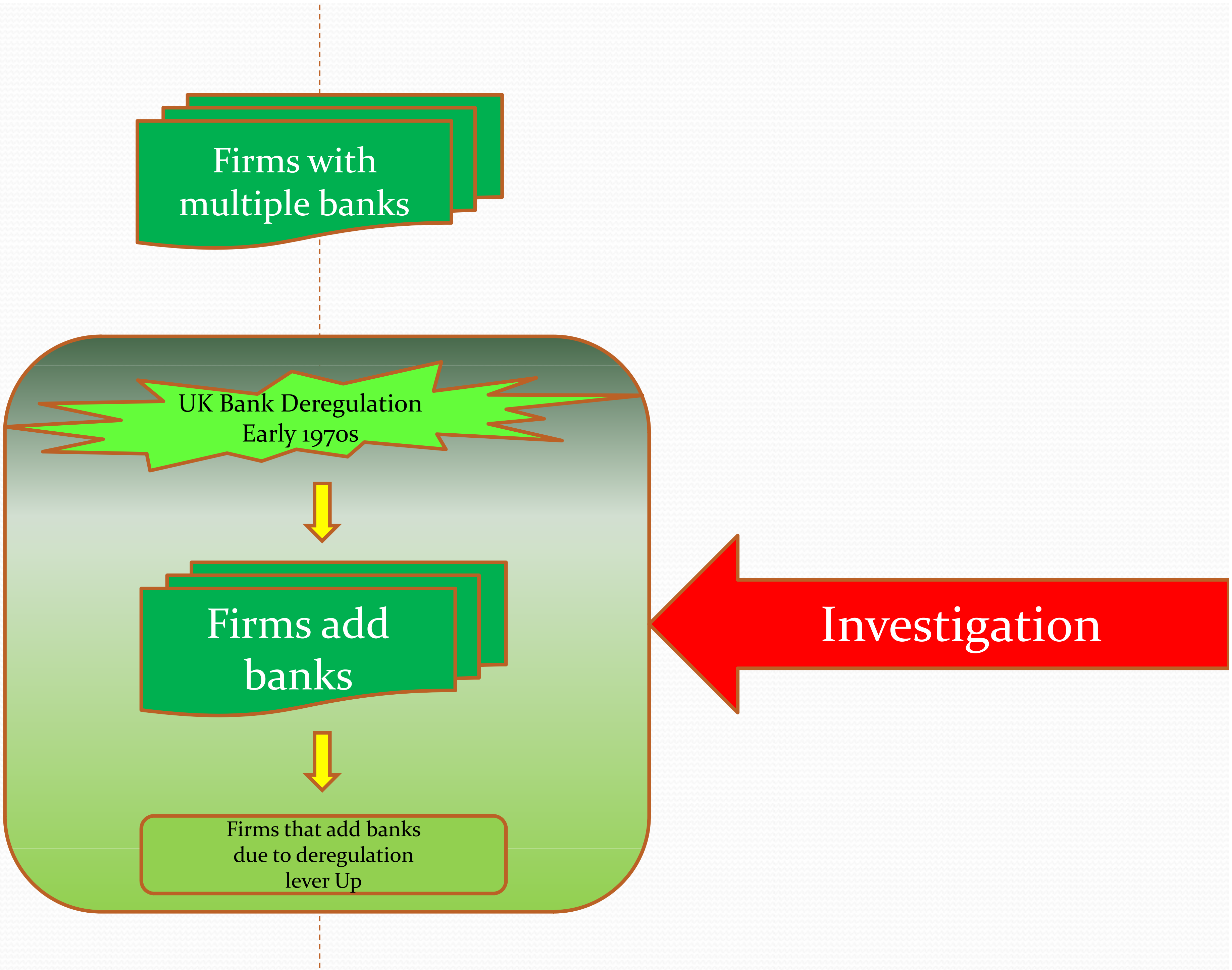
- Firm and board size corresponds to multiple banking
  - Large firms need more services
  - Every board member may have his/her favorite bank

    Ongena, Tümer-Alkan and Vermeer (JCF 2011)

- Transparancy variables do not matter much
  - Except Arm's Length Debt in 1948 and 1958

The transition (to multiple) takes place

- In a time of bank deregulation
  - December 1971 – Abolition of the Banks Cartel
  - Bank of England - in principle - supports the idea of greater competition among British banks
    - More aggressive banks are more likely to steal customers …
    - Firms have more choice …


Firms with multiple banks
UK Bank Deregulation Early 1970s
Firms add banks
Firms that add banks due to deregulation lever Up
Investigation

T 2

Variables Also Available for the Period 1966 - 1986

Book Value of Assets	mln. BRP	Firm book value of assets
British (0/1)	0/1	=1 if the headquarters of the firm is located in Britain, =0 otherwise
Leverage	-	Mortgages plus debentures plus short-term debt divided by the book value of the assets
Subsidiary (0/1)	0/1	=1 if the company is controlled by another company, =0 otherwise
Tangibility	-	Property, plant and equipment divided by the book value of assets
Past Returns	%	The returns on the firm's stock in the previous two years
Relationship Bank is National Westminster in 1974 or 1976 (0/1)	0/1	=1 if the relationship bank is National Westminster in 1974 or 1976, =0 otherwise
Relationship Bank Liquidity Ratio	-	Cash and marketable securities divided by the book value of assets of the relationship bank
Relationship Bank Capital Ratio	-	Total equity capital and reserves divided by the book value of assets of the relationship bank

T 7 Variable	N	Mean	Median	Std. Dev.
Book Value of Assets	15,434	14.910	2.881	46.500
Age at Start	15,434	61.910	63	32.150
British (0/1)	15,434	0.931	1	0.253
Board Size	15,434	6.263	6	2.541
One Share - One Vote (0/1)	15,434	0.482	0	0.5
Officially Listed (0/1)	14,583	0.835	1	0.371
Arm's Length Debt (0/1)	15,434	0.428	0	0.495
Leverage	15,434	0.368	0.370	0.195
Subsidiary (0/1)	15,434	0.143	0	0.35
Tangibility	15,434	0.358	0.326	0.199
Return on Equity	6,128	0.237	0.231	0.155
Past Returns	4,673	0.011	0.010	0.028
Relationship Bank is National Westminster in 1974 or 1976 (0/1)	15,434	0.042	0	0.201
Relationship Bank Liquidity Ratio	11,382	0.300	0.279	0.111
Relationship Bank Capital Ratio	11,382	0.158	0.056	1.308
Firm Has Headquarter in London (0/1)	12,003	0.341	0	0.474
Change in Concentration of Banking Market Where Firm Has Headquarter	7,936	0.006	0	0.063

T 8

TABLE 8

SURVIVAL ANALYSIS OF GOING FROM SINGLE TO MULTIPLE FIRM-BANK RELATIONSHIPS DURING THE 1966-1986 TRANSITION PERIOD

Model	I	II	III	IV	V	VI	VII	VIII	IX
ln(Book Value of Assets)	0.149***	0.128***	0.108***	0.101***	0.097*	0.123***	0.065*	0.086	0.099***
	(0.021)	(0.022)	(0.023)	(0.024)	(0.052)	(0.045)	(0.038)	(0.053)	(0.027)
ln (1 + Age at Start)	-0.012	-0.003	-0.009	0.007	-0.042	0.058	0.080	0.048	0.049
	(0.098)	(0.100)	(0.098)	(0.097)	(0.170)	(0.151)	(0.137)	(0.169)	(0.105)
British (0/1)	-0.457***	-0.510***	-0.435***	-0.522***	-0.354	-0.134	-0.398	-0.061	-0.421***
	(0.138)	(0.140)	(0.138)	(0.139)	(0.409)	(0.404)	(0.383)	(0.469)	(0.162)
ln(1 + Board Size)	0.069	0.057	0.029	0.040	-0.232	-0.219	-0.126	-0.358	0.069
	(0.115)	(0.115)	(0.115)	(0.115)	(0.222)	(0.219)	(0.188)	(0.230)	(0.128)
One Share - One Vote (0/1)	0.139*			0.151*	0.268*	0.171	0.078	0.232*	0.131
	(0.083)			(0.083)	(0.139)	(0.133)	(0.128)	(0.142)	(0.092)
Officially Listed (0/1)		0.492***		0.448***	0.847*	0.912**	-0.189	0.699	0.557***
		(0.154)		(0.154)	(0.457)	(0.425)	(0.300)	(0.463)	(0.186)
Arm's Length Debt (0/1)			0.523***	0.508***	0.574***	0.657***	0.324**	0.616***	0.467***
			(0.098)	(0.098)	(0.182)	(0.171)	(0.146)	(0.189)	(0.108)
Leverage	0.817***	0.797***	0.549***	0.536**	0.835**	0.659*	0.214	0.694*	0.698***
	(0.204)	(0.205)	(0.209)	(0.208)	(0.371)	(0.338)	(0.299)	(0.371)	(0.221)
Subsidiary (0/1)	-0.422***	-0.406***	-0.414***	-0.354**	-0.838	-0.682*	-0.171	-0.743	-0.469***
	(0.139)	(0.137)	(0.136)	(0.138)	(0.610)	(0.402)	(0.223)	(0.605)	(0.159)
Tangibility	-0.060	-0.031	-0.209	-0.161	-0.528	-0.655	-0.297	-0.965**	-0.005
	(0.219)	(0.221)	(0.222)	(0.222)	(0.503)	(0.417)	(0.347)	(0.464)	(0.243)
Return on Equity						0.222			
						(0.372)			
Past Returns							3.594*		
							(1.942)		
Number of Acquisitions in the Past Two Years								0.603***	
								(0.198)	
Relationship Bank is National Westminster in 1974 or 1976 (0/1)									0.363*
									(0.193)
Relationship Bank Liquidity Ratio									1.199**
									(0.509)
Relationship Bank Capital Ratio									0.042
									(0.477)
Industry Dummies	No	No	No	No	Yes	No	No	No	No
Number of Observations	14,634	14,634	14,630	14,630	5,242	6,063	4,673	5,132	11,528

Results

- Estimates broadly supportive of hold-up theories of relationship banking

  Fischer (1990), Sharpe (JF 1990), Rajan (JF 1992), von Thadden (FRL 2004)

  - Deregulation fosters competition
  - Competition creates informational hold-up rents and adding a bank helps to mitigate these hold-up rents
    - ***Without*** **outside banks** (in a market monopoly) there are only market rents and there is no intertemporal extraction based on an informational advantage
    - ***With*** **outside banks** (and competition) single relationship bank may acquire an informational advantage over the firm and extract an information monopoly interest rate
    - The firm can resolve this problem by adding a new bank
  - It is easier for more transparent firms to add a new bank
    - Transparency plays a bigger role during the transition period (than before)
      - Deregulation speeds up transition to multiple banking
        - Not much difference to the type of bank that is added

Cross-Regional Variation?

- Collect the branch location of all banks across the UK for the entire transition period

- Calculate the lagged change in the Herfindahl Index
  - = The change in the sum of bank shares in terms of branches squared

T 8

Model	X	XI	XII	XIII	XIV	XV	XVI	XVII
Sample	UK	UK	UK	UK	Outside London	Outside London	Outside London	Outside London
ln(Book Value of Assets)	0.093***	0.092***	0.093***	0.093***	0.152***	0.151***	0.152***	0.152***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.042)	(0.042)	(0.042)	(0.042)
ln (1 + Age at Start)	0.028	0.030	0.028	0.029	0.091	0.092	0.090	0.092
	(0.119)	(0.119)	(0.119)	(0.119)	(0.161)	(0.160)	(0.161)	(0.161)
Firm Has Headquarter in London (0/1)	0.001	-0.005	0.001	-0.000				
	(0.107)	(0.107)	(0.107)	(0.107)				
ln(1 + Board Size)	-0.175	-0.179	-0.175	-0.175	-0.073	-0.078	-0.072	-0.073
	(0.148)	(0.147)	(0.148)	(0.148)	(0.191)	(0.190)	(0.191)	(0.191)
One Share - One Vote (0/1)	0.084	0.092	0.083	0.083	-0.068	-0.058	-0.069	-0.069
	(0.103)	(0.102)	(0.103)	(0.103)	(0.125)	(0.124)	(0.126)	(0.126)
Officially Listed (0/1)	0.783***	0.779***	0.801***	0.784***	1.043***	1.041***	1.095***	1.047***
	(0.254)	(0.255)	(0.255)	(0.254)	(0.327)	(0.329)	(0.330)	(0.329)
Arm's Length Debt (0/1)	0.396***	0.401***	0.396***	0.395***	0.331**	0.338**	0.330**	0.328**
	(0.120)	(0.120)	(0.120)	(0.120)	(0.149)	(0.150)	(0.149)	(0.149)
Leverage	0.393	0.403*	0.394	0.393	0.687**	0.693**	0.687**	0.686**
	(0.243)	(0.243)	(0.243)	(0.243)	(0.312)	(0.311)	(0.312)	(0.312)
Subsidiary (0/1)	-0.623***	-0.623***	-0.622***	-0.623***	-0.555**	-0.555**	-0.554**	-0.555**
	(0.185)	(0.185)	(0.185)	(0.185)	(0.245)	(0.245)	(0.245)	(0.245)
Tangibility	-0.153	-0.143	-0.153	-0.153	0.072	0.081	0.072	0.070
	(0.274)	(0.274)	(0.274)	(0.274)	(0.362)	(0.362)	(0.362)	(0.362)
Change in Concentration of Banking Market Where Firm Has Headquarter	-1.065*	-0.470	0.276	-1.415	-1.080*	-0.643	1.555	-1.620
	(0.654)	(0.908)	(1.227)	(1.251)	(0.632)	(0.801)	(1.362)	(1.356)
Change in Concentration * One Share - One Vote (0/1)		-3.382**				-3.301*		
		(1.644)				(1.832)		
Change in Concentration * Officially Listed (0/1)			-1.468				-2.791*	
			(1.412)				(1.509)	
Change in Concentration * Arm's Length Debt (0/1)				0.440				0.659
				(1.471)				(1.547)
Number of Observations	7,963	7,963	7,963	7,963	5,256	5,256	5,256	5,256

NOTE. -- The estimates in this table are based on ML estimations of the proportional hazard model using the Cox (1972) proportional hazard function as the baseline hazard. The independent variables are defined in Table 1 and are lagged one period of two years, except Age at Start which is taken in 1966. Coefficients are listed in the first row, standard errors are reported in the second row between brackets, and the corresponding significance levels are in the first row adjacent to the estimated coefficients. *** Significant at 1%, ** significant at 5%, * significant at 10%.

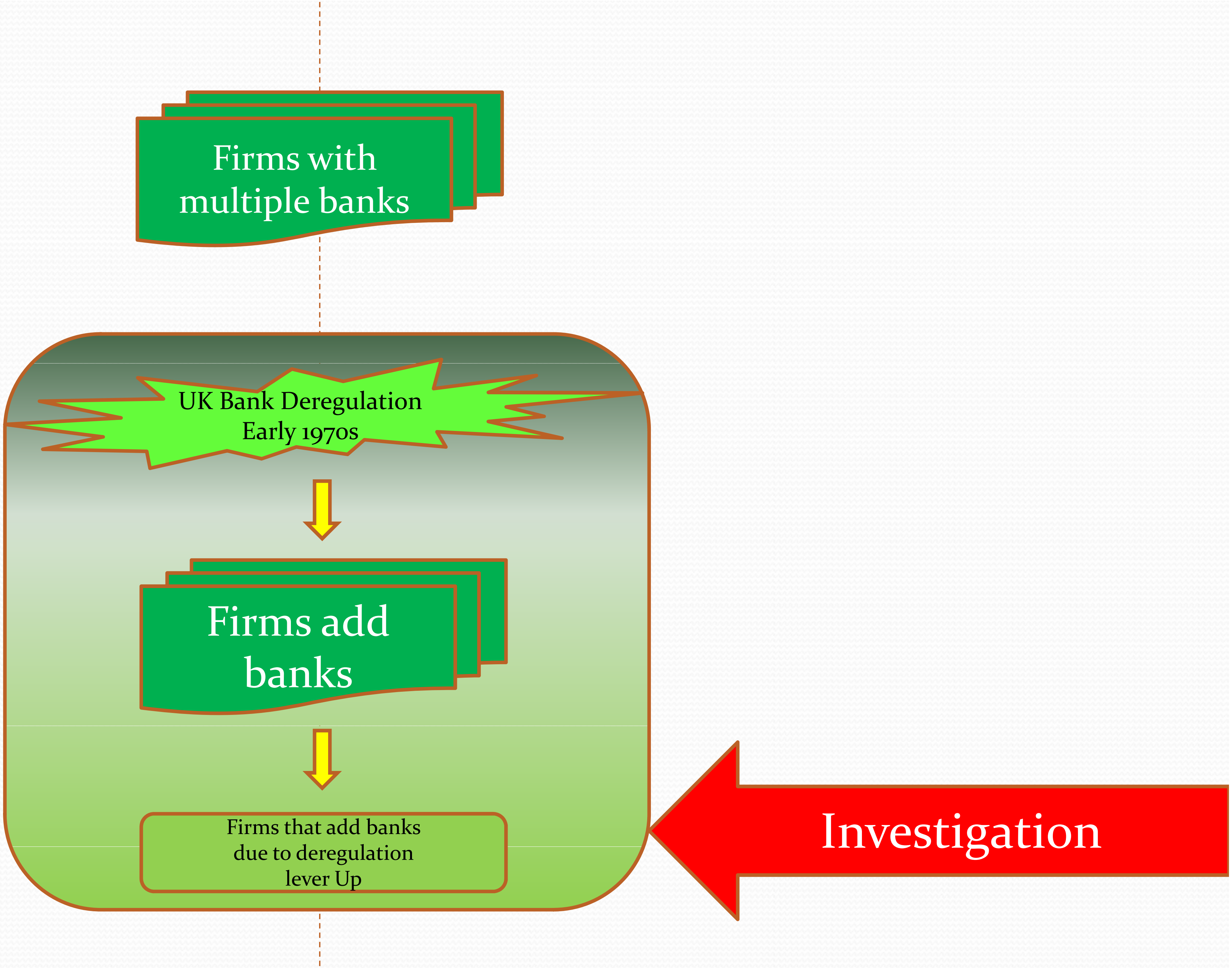
Cross-Regional Variation?

- More competition (negative change in the HHI) positively explains adding of bank relationships
  - More so for one-share-one-vote firms and for officially-listed firms (outside London)

T 9

TYPE OF BANKS THAT WERE ENGAGED AND ADDED DURING THE 1966-1986 TRANSITION PERIOD

	Relationship Bank		Added Bank	
Bank Type	N	%	N	%
Clearer Bank	*19,928*	*95.8*	*1,073*	*61.6*
London Clearer	17,682	85.0	908	52.2
Scottish Clearer	1,627	7.8	93	5.3
Irish Clearer	619	3.0	72	4.1
Other British Bank	*489*	*2.4*	*222*	*12.8*
Foreign Bank	*379*	*1.8*	*446*	*25.6*
Commonwealth Bank	301	1.4	142	8.2
Other Foreign Bank	78	0.4	304	17.5


Firms with multiple banks
UK Bank Deregulation Early 1970s
Firms add banks
Firms that add banks due to deregulation lever Up
Investigation

What About Financial Policies?

Endogeneity Problem:

Adding a bank and financial policies
are jointly determined
by factors
that are unobserved by the
econometrician!

Endogeneity: What Do We Do?

1. We control for time-invariant factors and compare outcomes of the same firm before and after it adds a bank

2. We compare the outcome variable of "adders" with the outcomes of observationally-equivalent "stayers" that continue to maintain a single-bank relationship

3. We exploit the theoretical predictions of relationship lending models which imply that when the degree of competition in the banking market is fiercer, the adding of a (so-called "inside") bank will have a stronger impact on borrowing conditions
   - As a result, we expect that "adders" *post*-1970 will display larger changes in their debt composition and leverage ratios

Matching

- EVENT that takes the value of one if a firm adds a bank and equals zero otherwise.
- Compute a biannual propensity score (between 1956 and 1986) by running a probit model where the dependent variable is EVENT on a comprehensive set of firm variables:
    - ln(1+Age), ln(Book Value of Assets), One Share - One Vote (0/1), Officially Listed (0/1), Arm's Length Debt (0/1), Tangibility, Net Investment (in Tangible + Intangible +Trade), Growth of Bank Debt, Growth of Trade Credit, Growth of Long Term Debt, Net Share Issues to Book Value of Assets, and Industry affiliation.
        - Age and the dummy variables: lagged for two periods because adding of a new bank to an existing firm-bank relationship is recorded at a biannual basis. All continuous variables are the seven-year averages of the pre-adding period.
            - Results are robust to further lengthening of this time period while shortening it decreases matching performance somewhat without affecting our main estimates of interest

Pre- and post-matching samples

- Assesses the difference between the pre- and post-matching samples of the matching variables for the firms that did not add banks ("the stayers") and the firms that did add banks ("the adders")
  - T-statistic for a test of the equality of the means assuming equal variances
    - Kolmogorov-Smirnov test statistic (similar)
      - A nonparametric test for the equality of continuous, one-dimensional probability distributions that can be used to compare two samples; quantifies a distance between the empirical distribution functions of two samples

- The testing confirms that matching does generate samples that are mostly equal in the matching variables (as in Lemmon and Roberts, JFQA 2010)

T 11

Matching Variables	Pre-Matching: I Firms That Did Not Add Banks Mean (St. Dev)	Pre-Matching: II Add Banks	Pre-Matching: III Difference in Means	Pre-Matching: IV T-statistic	Post-Matching: I Did Not Add Banks Mean (St. Dev)	Post-Matching: II Add Banks	Post-Matching: III Difference in Means	Post-Matching: IV T-statistic
ln(Book Value of Assets)	8.401	9.111	0.710	7.299***	9.018	9.184	0.166	1.193
	(1.283)	(1.249)			(1.174)	(1.255)		
ln (1 + Age)	2.881	2.709	-0.172	-2.648***	2.834	2.688	-0.146	-1.553
	(0.833)	(0.892)			(0.744)	(0.898)		
British (0/1)	0.967	0.982	0.015	0.98	0.980	0.980	0.000	0
	(0.178)	(0.134)			(0.139)	(0.139)		
One Share - One Vote (0/1)	0.410	0.398	-0.012	-0.358	0.366	0.386	0.020	0.353
	(0.492)	(0.491)			(0.483)	(0.488)		
Officially Listed (0/1)	0.874	0.952	0.078	3.313***	0.974	0.954	-0.020	-0.92
	(0.332)	(0.215)			(0.160)	(0.210)		
Arm's Length Debt (0/1)	0.473	0.747	0.274	7.077***	0.739	0.752	0.013	0.262
	(0.499)	(0.436)			(0.441)	(0.433)		
Subsidiary (0/1)	0.0469	0.0120	-0.035	-2.82***	0.00654	0.0131	0.007	0.579
	(0.211)	(0.109)			(0.0808)	(0.114)		
Leverage growth	0.0104	0.0176	0.007	2.903***	0.0168	0.0186	0.002	0.584
	(0.0288)	(0.0326)			(0.0223)	(0.0319)		
Bank Debt Growth	0.0150	0.0203	0.005	1.048	0.0181	0.0215	0.003	1.043
	(0.0611)	(0.0294)			(0.0288)	(0.0281)		
Long Term Debt Growth	0.00891	0.0196	0.011	4.337***	0.00886	0.0204	0.012	3.108***
	(0.0307)	(0.0406)			(0.0193)	(0.0415)		
Trade Credit Growth	0.0295	0.0427	0.013	3.46***	0.0390	0.0451	0.006	1.296
	(0.0479)	(0.0478)			(0.0321)	(0.0486)		
Share Issuance Growth	0.00608	0.00588	0.000	-0.033	0.00484	0.00638	0.002	0.383
	(0.0965)	(0.0307)			(0.0382)	(0.0319)		
Return on Equity Growth	0.0626	0.0758	0.013	0.918	0.0551	0.0770	0.022	1.801*
	(0.123)	(0.114)			(0.0955)	(0.117)		
Number of Observations	7,657	166			153	153		

T 10

Variable Name	Variable Definition	1966 - 1976 (N=9,028) Mean	Median	St.Dev.	1955 - 1986 (N=32,400) Mean	Median	St.Dev.
Leverage	Total debt divided by total book value of assets	0.393	0.395	0.184	0.335	0.318	0.187
Long Term Leverage	Bank and long term debt over assets	0.202	0.185	0.172	0.157	0.117	0.162
Bank Debt to Total Debt	Bank overdrafts and loans divided by total debt	0.203	0.179	0.186	0.172	0.106	0.196
Long Term Debt to Total Debt	Long term liabilities divide by total debt	0.121	0.020	0.169	0.107	0.000	0.179
Trade Credit to Total Debt	Trade and other credit divided by total debt	0.676	0.657	0.232	0.721	0.730	0.246
Share Issuance	Net issue of ordinary and preferred shares divided by the book value of assets at the beginning of the year	0.013	0	0.102	0.015	0	0.132
Return on Equity	Total profits divided by total capital and reserves	0.255	0.233	1.478	0.212	0.209	0.849

T 12

Panel A: *1966 - 1976*	I	II	III	IV	V	VI	VII
Dependent Variable:	Leverage	Long Term Leverage	Bank Debt to Total Debt	Long Term Debt to Total Debt	Trade Credit to Total Debt	Share Issuance	Return on Equity
1966 - 1976	0.034**	0.012	0.020	-0.011	-0.023	-0.023***	-0.018
	(0.016)	(0.011)	(0.013)	(0.014)	(0.017)	(0.008)	(0.012)
1956 - 1970	0.028	-0.016	-0.026	-0.022	-0.006	-0.039***	-0.009
	(0.028)	(0.021)	(0.021)	(0.028)	(0.030)	(0.013)	(0.023)
1971- 1976	0.042**	0.025*	0.042**	-0.004	-0.038*	-0.017*	-0.051**
	(0.021)	(0.014)	(0.019)	(0.015)	(0.021)	(0.010)	(0.021)

Panel B: *1956 - 1986*	I'	II'	III'	IV'	V'	VI'	VII'
Dependent Variable:	Leverage	Long Term Leverage	Bank Debt to Total Debt	Long Term Debt to Total Debt	Trade Credit to Total Debt	Share Issuance	Return on Equity
1956 - 1986	0.020**	0.030***	0.026**	-0.001	-0.025*	-0.012	-0.005
	(0.008)	(0.010)	(0.012)	(0.010)	(0.013)	(0.008)	(0.012)
1956 - 1970	0.004	0.003	0.003	0.000	-0.004	-0.027**	0.024**
	(0.012)	(0.012)	(0.019)	(0.017)	(0.021)	(0.013)	(0.012)
1971- 1986	0.025**	0.044***	0.041**	0.000	-0.041**	-0.012*	-0.036
	(0.012)	(0.016)	(0.018)	(0.012)	(0.018)	(0.007)	(0.022)

Tentative Conclusions

- The number of banks trading with firms remained remarkably stable for more than 70 years
- A **transition** occurred to multiple relationship banking in the years of financial liberalization in the 1970s
  - Intensifying local competition plays a role
- Leverage and bank borrowing increases after a new bank is added in the post-liberalization period