

Branching for Caution: Banks in England and Wales During a Financial Crisis

Jinlin Wei

University of Warwick

Introduction

Question

- ▶ How did a financial panic in 1878 lead to the expansion of English joint-stock banks?

Motivation

- ▶ The amalgamation wave of joint-stock banks in England started in the 1880s. Why did banks expand their branch networks and increase their liabilities after a financial panic?
- ▶ Branch network is important in increasing deposits and market shares even when Internet banking became available. England was covered by relatively small banks and the market was competitive. How did the concerns of shareholders affect the branching of banks?

What I have done

- ▶ Construct panel data at the bank level on branches, liabilities and assets between 1874 and 1885.
- ▶ Use a two-way fixed effects model with fixed effects for banks and years.
- ▶ Construct an instrumental variable based on the existence of newspapers before the financial panic following Beach and Hanlon (2021).
 - ▶ The press played an important role in spreading information about the failure of the City of Glasgow Bank and the bankruptcy of its shareholders.
- ▶ Larger shocks during the financial panic led to larger increases in the number of branches of English joint-stock banks. Initially smaller banks expanded more while only the expansion of initially larger banks attracted more deposits.

Contribution

Bank branching

- ▶ Banks expand to diversify risks (Aguirregabiria et al., 2016), compete against large entrants (Cohen and Mazzeo, 2010), gain large markets with high productivity and low competition (Ji et al., 2022) and economies of scale (Kuehn, 2018). Banks contract to cut costs during financial crises (Rysman et al., 2023)
- ▶ The structures of English banks contributed to the stability of the banking system during the Great Depression (Grossman, 1994).
- ▶ This paper shows how financial panic affected the liability status and the branching decision of banks. It provides evidence about the impacts of the accountability of shareholders.

Contribution

Firm entry

- ▶ Entry models of firms (Jia, 2008; Igami, 2017) and entry of banks into different markets (Aguirregabiria et al., 2016; 2020). The impacts of entry of large banks on local small banks (Kuehn, 2018).

Ownership of firms

- ▶ Firms arrange ownerships in many different ways according to their environments (Hansmann, 1996) and will lead to different principal-agent problems and accountability of owners (Hart, 1995).

Historical background

- ▶ On October 2nd, 1878, the City of Glasgow Bank went bankrupt unexpectedly, leaving a deficit of 5.2 million pounds.
- ▶ The failure of the City of Glasgow Bank led to a liquidity shock to not only Scottish banks, but also banks in England and Wales. The deposits of London banks went down by more than 10% (Collins and Baker, 2003). 40% of the banks outside London lost more than 10% of their deposits and acceptances.
- ▶ The proportion of liquid assets that banks held increased from about 30% to 40% between 1875 and 1885 (Collins and Baker, 2003)
- ▶ Not very disastrous: The West of England and South Wales District Bank (9th) was the only major bank to fail, four other small banks failed (Turner, 2014).

Historical background

- ▶ The failure of the Glasgow bank and the misery of shareholders was spread across the country by newspapers. More than 85% of the shareholders went bankrupt due to unlimited liability (Turner, 2014).
- ▶ The Companies Act 1879 was passed in August 1879 and became effective in 1880.
- ▶ The sudden death of unlimited liability: Unlimited liability vs Limited liability = 43 : 27 in 1878, 5 : 60 in 1885.

Coventry Union Bank

- ▶ Established in 1836
- ▶ Stock prices remained unchanged during the panic
- ▶ One of the very few banks that did not change to limited liability
- ▶ Amalgamated with Birmingham and Midland Bank Limited in 1889



Source: Me

Manchester and Salford Bank

- ▶ Established in 1836
- ▶ It lost 15% of its market value from September to October and then 10% again by the end of the year
- ▶ £19.5→£16.75→£15.75
- ▶ Turned into limited liability as early as July 1881
- ▶ Amalgamated with The Royal Bank of Scotland in 1930



Source: Google Map

Data source

- ▶ *Banking Almanac*: Bank branches numbers and locations, subscribed capital paid-in capital, reserves
- ▶ *The Investors Monthly Manual*: Stock prices of joint-stock banks on the last business day of each month (made available through The International Center for Finance at Yale University)
- ▶ *The 1895 Newspaper Press Directory*: Newspaper names, themes, starting years and locations
- ▶ *The Economists*: Balance sheets of joint-stock banks in England and Wales

Empirical strategy

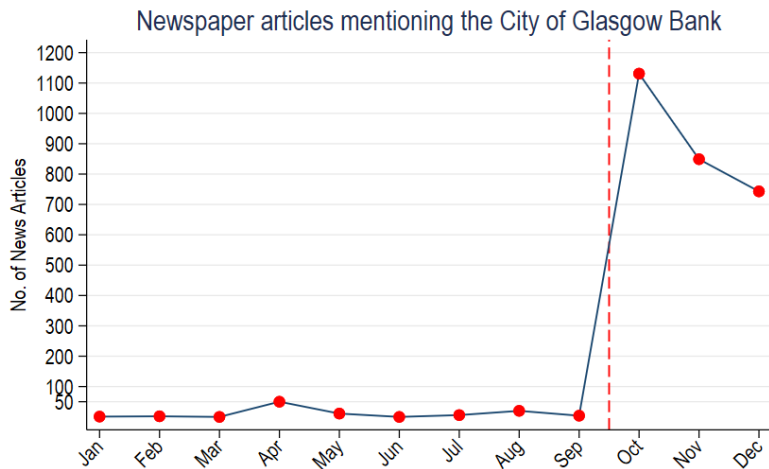
$$\begin{aligned} asinh(offices_{i,j,t}) = & \beta_0 + \beta_1 * asinh(\% \Delta Market Value_{i,j}) * (Post Crisis_t) \\ & + x'_{j,t} + \delta_i + \eta_t + \varepsilon_{i,j,t} \end{aligned} \quad (1)$$

- ▶ $asinh(\% \Delta Market Value_{i,j})$ is the percentage change in market value of bank i whose headquarter is in j between September and December in 1878
- ▶ $(Post Crisis_t)$ is the dummy for being after 1878 when the City of Glasgow Bank failed
- ▶ $x'_{j,t}$ includes the dummy for limited liability

Identification

- ▶ Concerns about endogeneity: Omitted variables, banks that were more risk-taking might have expanded faster and had larger drop in their market values during the panic
- ▶ Instrument: $asinh(News_{j,1877}) * (PostCrisis_t)$
- ▶ Intuition: the news about the collapse of the City of Glasgow Bank was spread by the English press. Banks with more newspapers in their headquarters were more likely to be exposed to larger shocks
- ▶ Exogeneity assumption: The numbers of newspapers in districts were not correlated with the failure of City of Glasgow Bank
- ▶ Exclusion restriction assumption: The number of newspapers did not affect the number of branches via other channels than the shocks to banks

Press during the Panic



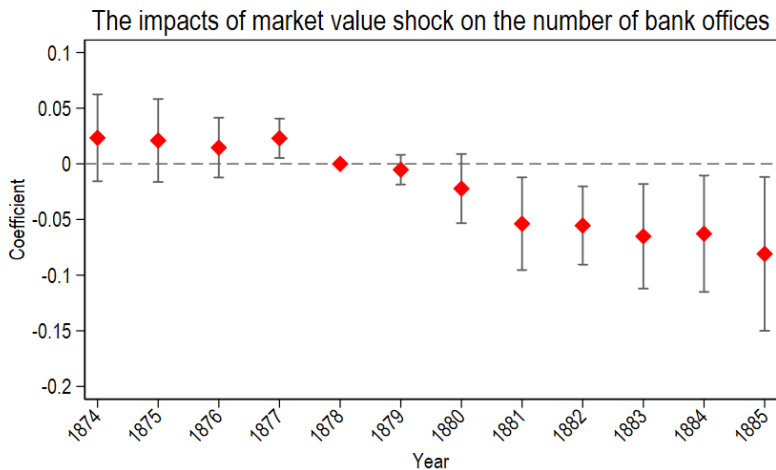
Baseline results

Table 2 Baseline results

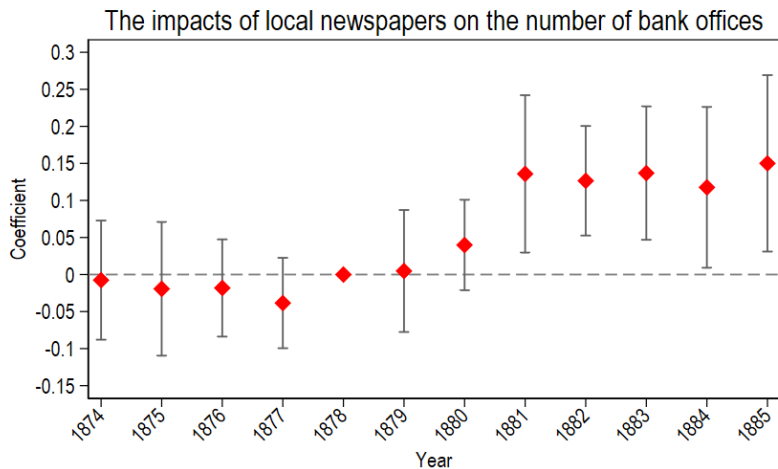
	(1)	(2)	(3)	(4)
		IHS(officer)		Shock X Post Crisis
Shock X Post Crisis	-0.0608*** (0.0195)		-0.0993** (0.0427)	
News X Post Crisis		0.139** (0.0529)		-1.398*** (0.288)
Observations	817	817	817	817
Within R2	0.0447	0.0426		0.373
Model	OLS	Reduced	IV	First Stage
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	Yes	Yes	Yes	Yes
Kleibergen-Paap F			23.60	

Notes: Shock is the inverse hyperbolic sine transformation of percentage changes in the market values of banks. News is the inverse hyperbolic sine transformation of the number of newspapers in the headquarter town of bank i . Column (1) reports OLS regression estimates of Eq. (1) and column (2) reports the reduced form estimates. Column (3) reports the IV estimate and column (4) reports the first-stage result. Time-varying controls include the dummy of limited liability. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Event studies



Event studies



Responses to the panic

- ▶ The effects are larger for banks with limited liability and banks more familiar with branching
- ▶ Banks with limited liability expanded
- ▶ Banks more familiar with branching did not expand in response to the Panic but collected more deposits

Heterogeneity analysis

Table 3 Heterogeneity analyses

	(1)	(2)	(3)	(4)
	IHS(office)			
Shock X Post Crisis	-0.0540** (0.0249)	-0.0320** (0.0122)	-0.129* (0.0646)	-0.116** (0.0429)
Shock X Post Crisis X Characteristic	-0.0167 (0.0260)	-0.0333* (0.0197)	0.0857 (0.0599)	0.0766** (0.0356)
Observations	817	817	817	817
Within R2	0.0458	0.0496	0.0696	0.0701
Characteristics	1877 Lim- ited	Limited	More cap- ital	More branches
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year

Notes: Shock is the inverse hyperbolic sine transformation of percentage changes in the market values of banks. Column (1) shows the different impacts of the financial panic on banks initially with limited. Column (2) shows the different impacts on banks with limited liability in different years. Column (3) shows the different impacts on banks with above-median paid-in capital in 1877. Column (4) shows the different impacts on banks with above-median number of branches in 1877. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Changes in the balance sheets

- ▶ Banks with fewer branches (0-3) in 1877 expanded more and increased the liquidity of their assets, but their new branches did not bring in more deposits. Banks with more branches expanded less and their new branches brought in more deposits that made them stronger.
 - ▶ Changes in paid-in capital and net assets: no evidence of self-strengthening
 - ▶ New branches led to increases in the liabilities of banks with more branches in 1877: Deposits, Acceptances, Notes, Drafts, Bills and Rebate Accounts
 - ▶ Banks with more branches in 1877 increased the amount and proportion of liquid assets that they held: Cash plus Investments in government bonds and railway stocks

Self-strengthening?

Table 4 The changes in paid-in capital and net assets

	(1)	(2)	(3)	(4)
	IHS(capital paid)	IHS(net asset)		IHS(office)
Shock X Post Crisis	0.0062 (0.0175)	0.0163 (0.0341)	-0.0630*** (0.0157)	-0.0680*** (0.0153)
IHS(capital paid)			0.435** (0.188)	
IHS(net asset)				0.473*** (0.168)
Observations	816	816	816	816
Within R2	0.0473	0.0163	0.126	0.157
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	Yes	Yes	Yes	Yes

Notes: Shock is the inverse hyperbolic sine transformation of percentage changes in the market values of banks. Column (1) and column (2) show the impacts of the financial panic on the paid-up capital and net assets of banks. Column (3) shows the impacts of paid-in capital on branching and column (4) shows the impacts of net assets, the sum of paid-in capital, reserve funds and contingent funds. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Changes in liabilities

Table 5 The impacts of branching on liabilities

	(1)	(2)	(3)	(4)
	IHS(Liabilities)			
IHS(Office)	0.291*** (0.0653)	0.154 (0.123)	0.194** (0.090)	0.079 (0.160)
IHS(Office) X Characteristic	-0.126 (0.127)	0.045*** (0.0132)	0.0172 (0.188)	0.293** (0.128)
Observations	499	499	499	499
Within R2	0.0891	0.0985	0.0849	0.1156
Characteristics	1877 Limited	Limited	More capital	More branches
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	Yes	Yes	Yes	Yes

Notes: Shock is the inverse hyperbolic sine transformation of percentage changes in the market values of banks. Column (1) shows the different impacts of the financial panic on banks initially with limited liability. Column (2) shows the different impacts on banks with limited liability in different years. Column (3) shows the different impacts on banks with above-median paid-in capital in 1877. Column (4) shows the different impacts on banks with the above-median number of branches in 1877. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Changes in Assets

Table 6 The impacts of branching on liquid assets

	(1)	(2)	(3)	(4)
	IHS(Liabilities)			
Shock X Post Crisis	0.0239 (0.127)	0.0329 (0.113)	0.0775 (0.108)	0.179* (0.0961)
Shock X Post Crisis X Characteristic	0.0249 (0.130)	0.0018 (0.0397)	-0.0494 (0.103)	-0.194*** (0.0633)
Observations	422	422	422	422
Within R2	0.0030	0.0023	0.0040	0.0402
Characteristics	1877 Limited	Limited	More capital	More branches
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	Yes	Yes	Yes	Yes

and * indicate significance at the 1%, 5%, and 10% levels respectively.

Changes in Assets

Table A3 The impacts of branching on Liquid Asset Ratio

	(1)	(2)	(3)	(4)
	% of Liquid Assets			
Shock X Post Crisis	-0.280 (1.218)	0.339 (1.289)	-0.426 (2.208)	2.723** (1.208)
Shock X Post Crisis X Characteristic	0.857 (1.532)	-0.276 (0.640)	0.595 (2.708)	-3.566** (1.579)
Observations	419	419	419	419
Within R2	0.0022	0.0002	0.0007	0.0330
Characteristics	1877 Limited	Limited	More capital	More branches
Fixed Effects	Bank, Year	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	Yes	Yes	Yes	Yes

Notes: Shock is the inverse hyperbolic sine transformation of percentage changes in the market values of banks. Column (1) shows the different impacts of the financial panic on banks initially with limited liability. Column (2) shows the different impacts on banks with limited liability in different years. Column (3) shows the different impacts on banks with above-median paid-in capital in 1877. Column (4) shows the different impacts on banks with the above-median number of branches in 1877. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Conclusion

- ▶ This paper shows that a financial panic led to the geographical expansion of banks that preceded an amalgamation wave.
- ▶ Banks turned from unlimited liability to limited liability and expanded faster.
- ▶ Banks that already had a practice of branching expanded less but their new branches brought about deposits.
- ▶ Initially smaller banks acquired more liquid assets after the financial panic than larger banks.

Future plans

- ▶ Investigate how the assets of banks were affected. The weighted proportion of liquid assets that banks held rose from about 27% to about 38% after the panic (Collins and Baker, 2003).
- ▶ Investigate the locations that banks entered after the panic in 1877
- ▶ Introduce models, investigate the estimation of people about unlimited liability and how changes in expectations affected the decisions of banks in branching, capital and assets

Robustness checks

Table A1 Using newspapers with finance news for the instrument

	(1)	(2)	(3)
		IHS(office)	IHS(shock)X1(Post Crisis)
IHS(shock)X1(Post Crisis)	-0.0588*** (0.0165)	-0.0999** (0.04886)	
asinh(Fin news)X1(Post Crisis)			-1.459*** (0.382)
Observations	817	817	817
Within R2	0.0453		0.288
Model	OLS	IV	First Stage
Fixed Effects	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	None	None	None
Kleibergen-Paap F		14.62	

Notes: Column (1) reports OLS regression estimates of Eq. (1) and column (2) reports the IV estimates. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Robustness checks

Table A2 Reduced form estimation

	(1)	(2)	(3)
		IHS(office)	
IHS(news)X1(Post Crisis)	0.108*** (0.0420)		
IHS(Fin news)X1(Post Crisis)		0.107*** (0.0455)	
ln(1+news)X1(Post Crisis)			0.138*** (0.0523)
Observations	1,136	1,136	1,136
Within R2	0.0333	0.0271	0.0354
Fixed Effects	Bank, Year	Bank, Year	Bank, Year
Time-Varying Controls	None	None	None

Notes: Column (1) reports OLS regression estimates of Eq. (1) and column (2) reports the IV estimates. Standard errors clustered at the registration district level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.