By a Silken Thread

regional banking integration & pathways to financial development in Japan's Great Recession

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Background

- The impact of bank liquidity shocks on economic activity depends on
  - the size of the shock to lending supply ("the bank lending channel") AND
  - on borrowers' ability to switch to alternative sources of credit ("the firm borrowing channel")
- Khwaja and Mian (AER 2008): Liquidity shocks have real effects mainly through their impact on small firms because they cannot easily switch banks, cannot accesss bond markets and have little internal funds.
- This paper: focus on (regional)credit reallocation. Regional banking integration can soften the fallout from local borrowers' inability to switch lender. This is because in an integrated banking market, banks allocate funds to the most inelastic borrowers with the highest willingness to pay for credit.

This paper — part I: the crisis of the 1990s

How did regional differences in banking integration affect local real outcomes during Japan's real-estate bust of the 1990s?

- stronger bank lending channel: more integrated prefectures more exposed to the property bust in the big cities.
- weaker firm borrowing channel: integration mitigated the real fallout from lending shocks in prefectures with many bank-dependent firms (manufacturing SMEs)
- Interpretation: credit reallocation (internal capital markets) allowed integrated (nationwide) banks to respond to regional differences in demand while local banks could not.

This paper – part II: historical origins

- The silken thread: Regional variation in the market share of local vs. nationwide banks — our measure of regional banking integration — is the outcome of differential pathways to financial development: In the late 19th century, the ancient silk regions developed a model of export finance centered on small, local, cooperative banks with very tight bank-firm relationships that persists till today. These tight relationships made it difficult for many firms to access credit from financially integrated banks in regions with low financial integration.
- Two lessons
  1. *de facto* segmentation in banking markets can persist as a result of the particular model of financial development, even in a *de iure* integrated financial market
  2. History (silk) provides an instrument for regional banking integration in the 1990s. FollowingKhwaja & Mian (2008), this allows us to sign the OLS bias in our baseline specifications and to shed light on whether the unobserved heterogeneity in bank-firm matches is consistent with our theory.

Why does it matter?

Economics:

- The burst of Japan's property bubble in 1990 ushered in at least one "lost decade" of poor macroeconomic performance.
- Post-GFC, we have seen a global tendency for many (advanced) econmies to settle into Japan-style low growth, deflationary environments.
- Regional banks central to banking systems in much of Europe (Germany, Italy, Spain), often for similar historical reasons. This may imply that similar frictions matter here.

Methodology:

- To assess the medium-to-long term fallout, of a big shock, we often only have regional data sets. Our approach shows how the Mian-Khwaja (2008) method of 'signing' the OLS bias can usefully be applied to such settings to shed light on the transmission mechanism if an instrument is available.

Japan's regionally tiered banking system

Remark

Japan is a centralized country, no major regional differences in banking or financial regulation etc.
Broadly similar levels of financial development (e.g. in terms of credit over GDP, bank branches p.c and area)

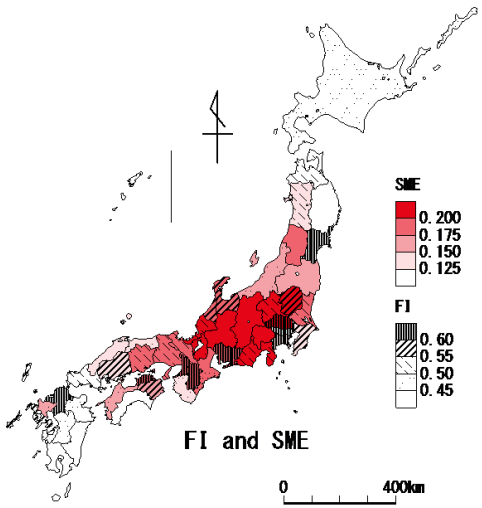
But: a regionally strongly tiered banking system

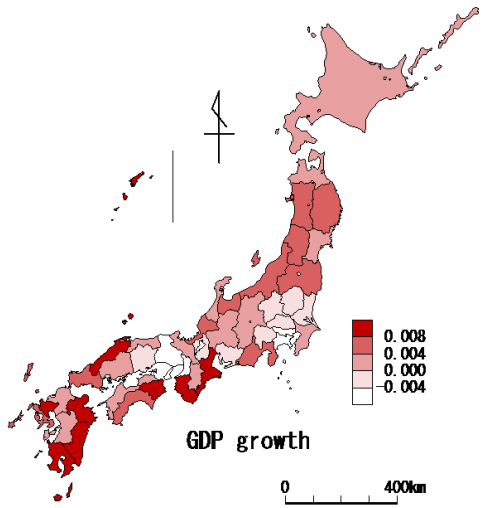
- Integrated banks: 'city' banks & 1st tier regional banks $\rightarrow$ operate nationwide or at least in several prefectures
- Local banks: 2nd tier regional banks (Sogos (mutuals)) and industrial cooperative banks (Shinkin) $\rightarrow$ regional lenders to SMEs, regional deposit base, limited or no access to Interbank market

We exploit variation in (pre-1990) share of integrated banks in prefecture-level lending as measure of banking integration

Pre-1990 lending and SME shares and post-1990 growth

Figure: Geographical distribution of Pre-1990 SME importance and financial integration and post-1990 p.c. GDP growth rates

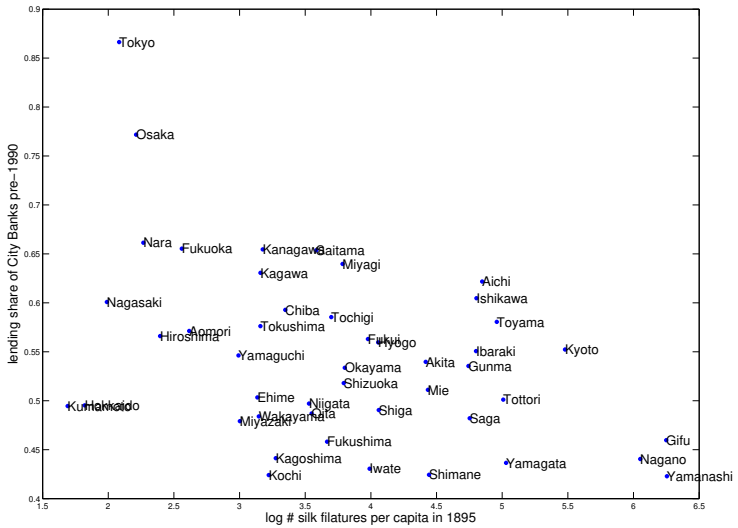


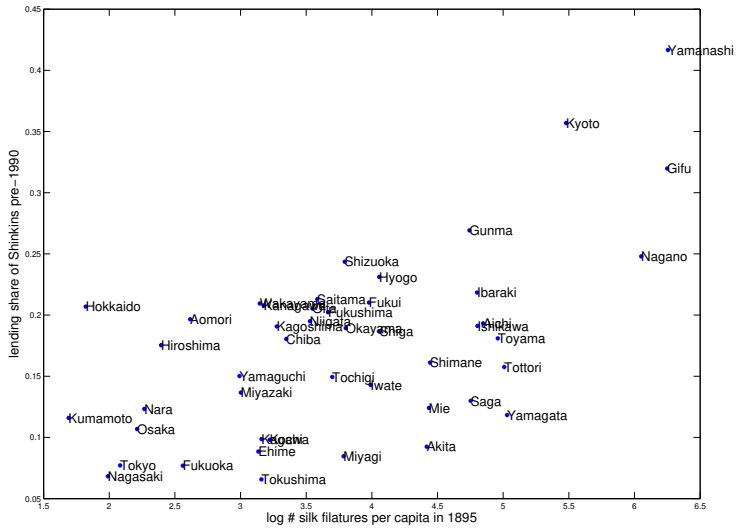


By a Silken Thread

Silk matters for regional variation in banking integration a century later

Figure: City and Regional Bank Lending Shares (pre-1990 (1980-1990) averages) vs. number of silk filatures per head in 1895



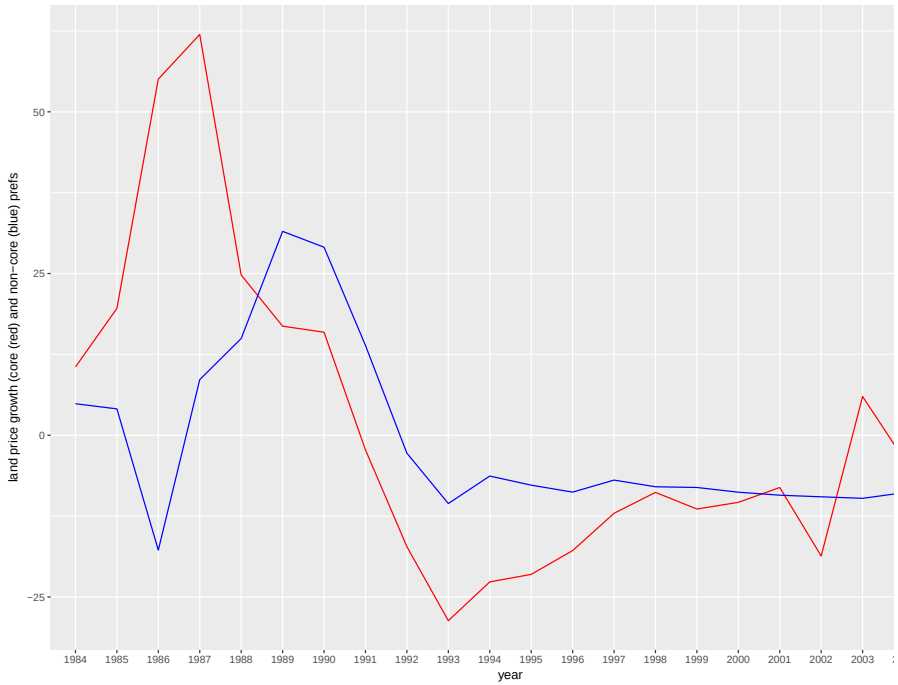


Silk and regional bank integration

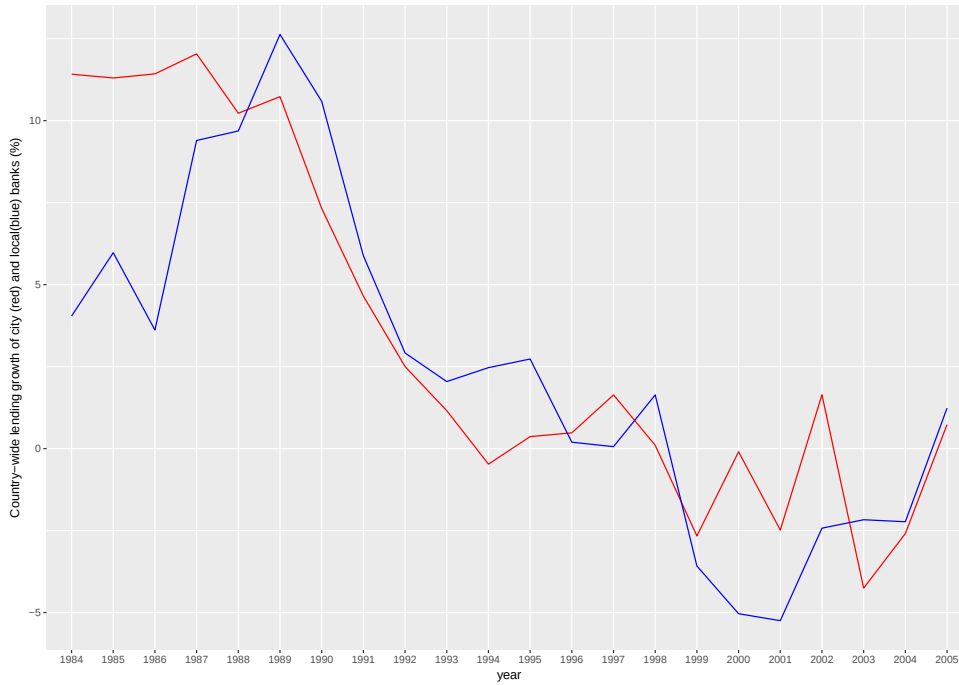
- Silk filatures (i.e. reeling plants) were heavily dependent on working capital:
- cocoons had to be purchased in the spring, reeled silk could only be shipped to the Yokohama market in the late summer.
  - purchase of cocoons amounted to 80 percent of the operating costs of a silk filature.
- Silk reelers were located in remote mountain areas and could not usually borrow from (mainly Yokohama-based) city banks. However, export market for silk was concentrated in Yokohama.
- Local banks in Japan institutional response to this dilemma:
  - local silk reelers' associations and Yokohama silk broker had first-hand knowledge of market conditions and of the quality produced by individual silk reelers. This gave them a huge comparative advantage (relative to city banks) in lending to these local SMEs.
  - Shinkin (cooperatives) and Sougo (mutuals) were founded by Silk merchants and by reelers' cooperatives.
- As the silk industry was superseded by other export industries , these local banks preserved their comparative advantage in lending to SMEs.

The 1990/91 property bust

The bust had different effects on integrated and local banks, but was pervasive.

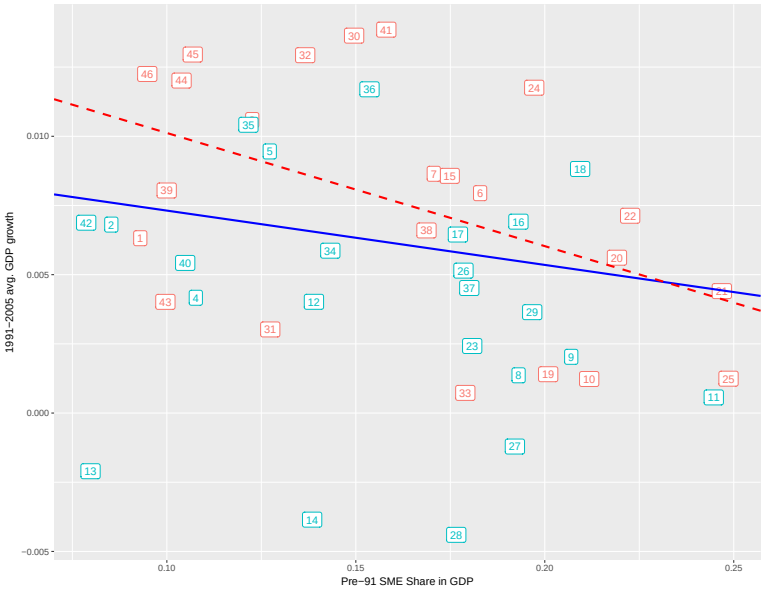


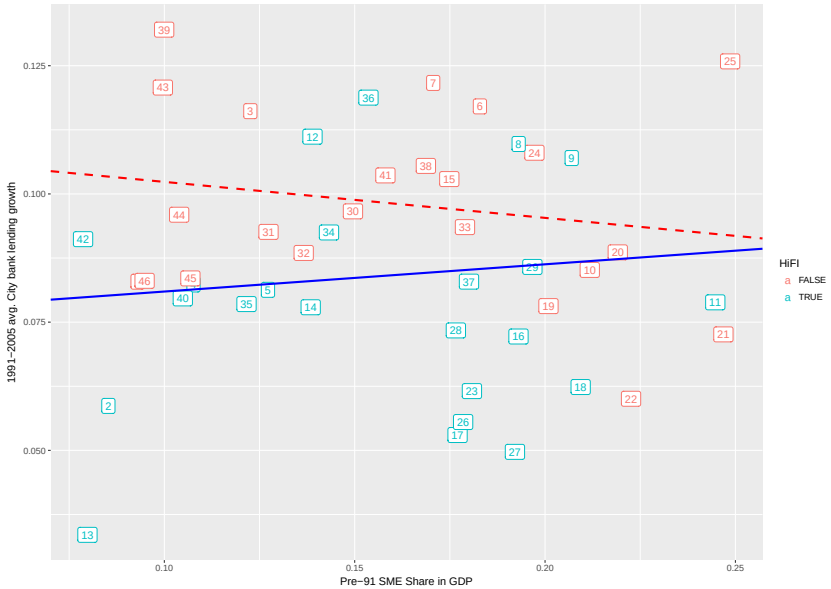
Land prices



Lending growth

Two interesting correlations ...

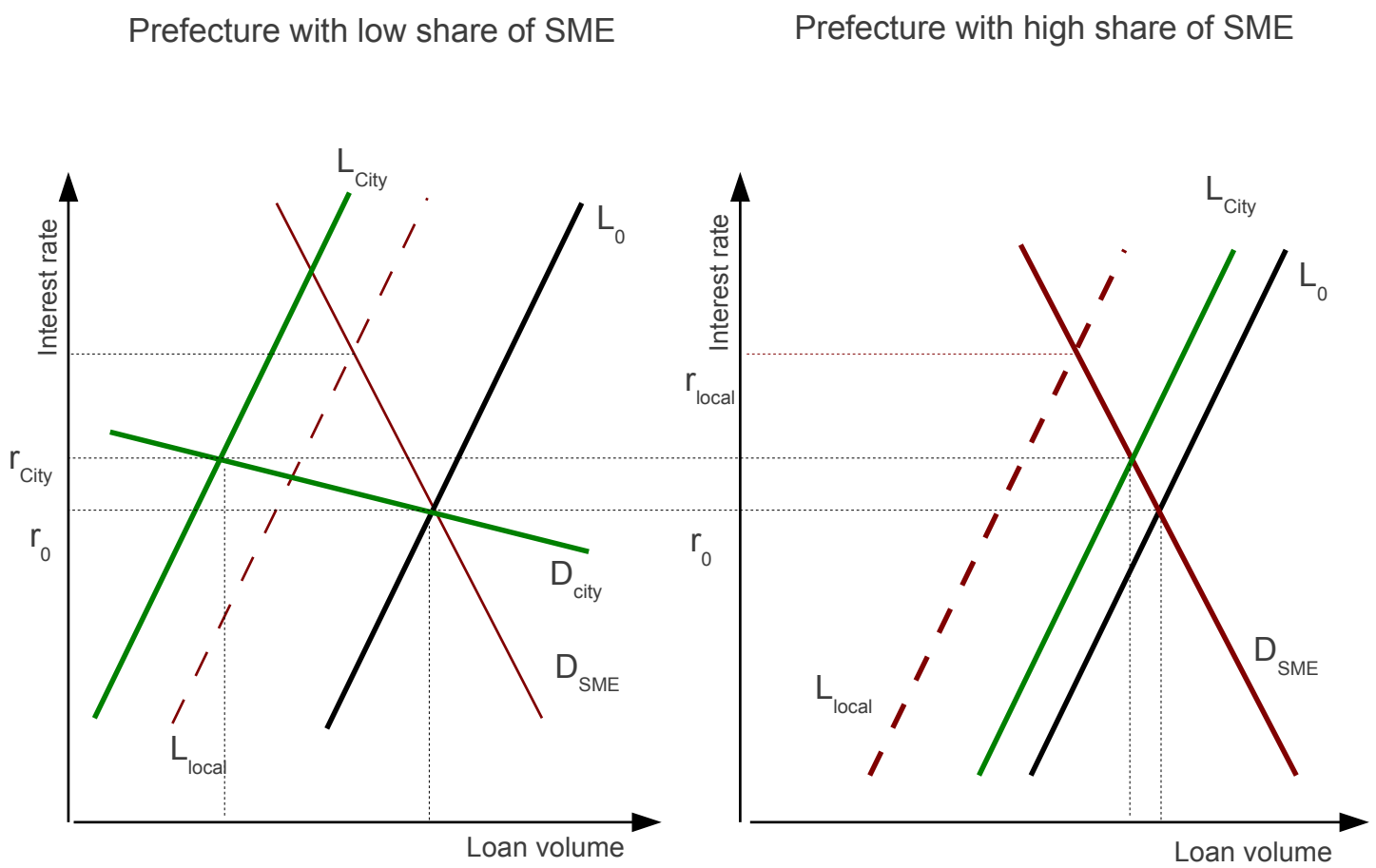




- High-SME prefectures had lower growth after 1991.
- But the link between SME and low growth attenuated in high-FI prefectures.
- Conditional on FI, lending by integrated banks grew more in high-SME areas.

Theoretical considerations

Figure: A stylized interregional banking model



Empirical framework.

As our main measure of the shock, we use the negative land price growth in the biggest city-prefectures (core).

$$\text{SHOCK}_t = -\text{LANDPRICEGROWTHinCORE}_t \tag{1}$$

The stylized model of internal capital markets implies a reduced-form

$$\Delta\text{Lending}_t^k = \left[\beta_0 \text{SME}^k + \beta_1\right] \times \text{FI} \times \text{SHOCK}_t + \xi_t^k \tag{2}$$

where, with $\text{SHOCK}_t > 0$ denoting a negative lending supply shock, we expect $\beta_0 > 0$!
We follow Khwajai and Mian (2008) in postulating a reduced-form equation that links lending growth to real economic activity

$$\Delta\text{GDP}_t^k = \gamma \times \Delta\text{Lending}_t^k + \eta_t^k \tag{3}$$

Here, $\gamma > 0$ captures the firm-borrowing channel. Putting the two equations together, we get

$$\Delta\text{GDP}_t^k = \left[\underbrace{\gamma \times \beta_0 \times \text{SME}^k \times \text{FI}^k}_{\text{firm-borrowing} \times \text{credit-reallocation}} + \underbrace{\gamma \times \beta_1 \times \text{FI}^k}_{\text{firm-borrowing} \times \text{bank-lending}}\right] \times \text{SHOCK}_t + \psi_t^k \tag{4}$$

Main specs and identification

We estimate the main specification

$$\Delta \text{OUTCOME}_t^k = \left[\alpha_0 \times \text{SME}^k \times \text{FI}^k + \alpha_1 \times \text{FI}^k + \alpha_2 \times \text{SME}^k + \boldsymbol{\alpha}_3' \boldsymbol{X}^k\right] \times \text{SHOCK}_t + \mu^k + \tau_t + \mathrm{b}' Z_t^k + \nu_t^k \tag{5}$$

(where OUTCOME_t^k stands in turn for lending and GDP growth) will correctly identify $\alpha_0 = \gamma \times \beta$ iff

$$cov\left(FI^k \times SME^k \text{SHOCK}_t, v_t^k \middle| \text{CTRL}_t^k\right) = 0$$

Given the pervasive nature of the aggregate shock, it is however very likely that

$$\nu_t^k = \delta_k \text{SHOCK}_t + \epsilon_t^k.$$

Hence, the OLS-ID assumption boils down to a restriction on the cross-sectional covariance

$$cov_k\left(FI^k \times SME^k, \delta_k \middle| \text{CTRL}_t^k\right) = 0$$

Is this plausible? We argue (and illustrate using Silk as IV) that the OLS estimate is biased towards zero, so it is actually conservative.

Identification: IV and sign of the OLS bias

High-FI / high-SME regions most exposed to fallout from the aggregate shock through channels unrelated to credit reallocation

- In high-FI / high-SME prefectures weak banks most likely to be linked with weak firms (many SMEs bank with FI banks and many FI-bank customers are SMEs).
- high-FI prefectures most exposed to the property-market (pre-1990) boom and (post-1991) bust.
- high-SME prefectures most dependent on domestic demand.

That would bias our OLS-estimate towards zero (i.e. assuming that $\text{SHOCK}_t > 0$), $cov_k \left(FI^k \times SME^k, \delta_k \middle| \text{CTRL}_t^k \right) < 0$!

- How can we check? No firm-bank-level data as in Mian & Khwaja are available for the lost decade.
- But using $\text{SME} \times \text{SILK}$ as IV for $\text{SME} \times \text{FI}$, we can show that $\left(\alpha_0^{IV} - \alpha_0^{OLS}\right) > 0$, i.e. OLS is biased towards zero!

Table: Regional banking integration and small business importance — Sample-split results

	lending growth		GDP growth	
	(1)	(2)	(3)	(4)
	Hi FI	Low FI	High FI	Low FI
$\text{SME}^k \times \text{SHOCK}_t$	−0.032	−0.246	−0.068	−0.253
	(−0.117)	(−1.958)	(−0.524)	(−2.029)
Adjusted R^2	0.572	0.587	0.701	0.657

The table shows the coefficient α in panel regressions of the form $\Delta\text{OUTCOME}_t^k = \alpha \times SME^k \text{SHOCK}_t + \mu^k + \tau_t + \epsilon_t^k + constant$ where ΔOUTCOME stands in turn for lending and GDP growth in prefecture k and SHOCK is the (negative of) the perecentage decline of land prices in the core prefectures. SME^k and FI^k are the 1980-1990 prefecture-level averages of, respectively, small-business importance and the share of city bank lending in total bank lendiing in prefecture k. The terms μ^k and τ_t are prefecture- and time-fixed effects respectively. The sample of 46 prefectrues is split into a groups of above- and below-median levels of FI. The sample period is 1980-2005 for GDP regressions and 1980-96 for lending regressions. Numbers in parentheses are t-statistics. Standard errors are clustered by prefectures and year.

Example

The instrument: silk filatures and modern-day lending shares

Table: Modern day (pre-1990) lending and silk filatures

	Financial Integration: pre-1990 share in prefecture-level lending by						Financial Development				
	City Banks		Regional Banks: All (Shinkin+Sogo)		Regional Banks: Shinkins only		$\frac{bank\ branches}{population \times area}$ (pre-1990)		Lending/GDP (pre-1990)		
filatures / population (log #)	-0.03 (-3.14)	-0.04 (-4.70)	0.03 (4.22)	0.03 (4.11)	0.04 (4.96)	0.04 (4.53)	0.01 (0.87)	0.01 (0.87)	-0.61 (-1.78)	-0.55 (-1.95)	-0.10 (-0.29)
Relative GDP (pre-90)		0.19 (3.32)		-0.01 (-0.18)		-0.01 (-0.24)		0.09 (1.68)		8.56 (4.21)	6.27 (2.88)
Core Dummy		0.07 (2.46)		-0.001 (-0.02)		0.02 (0.71)		-0.02 (-0.57)		1.92 (1.88)	1.06 (1.02)
Distance to Yokohama (log)		-0.02 (-1.33)		0.01 (0.66)		-0.01 (-0.93)		0.01 (0.74)		0.55 (1.25)	0.74 (1.75)
City Bank Lending											12.20 (2.28)
R^2	0.18	0.60	0.29	0.30	0.36	0.40	0.02	0.08	0.07	0.46	0.53

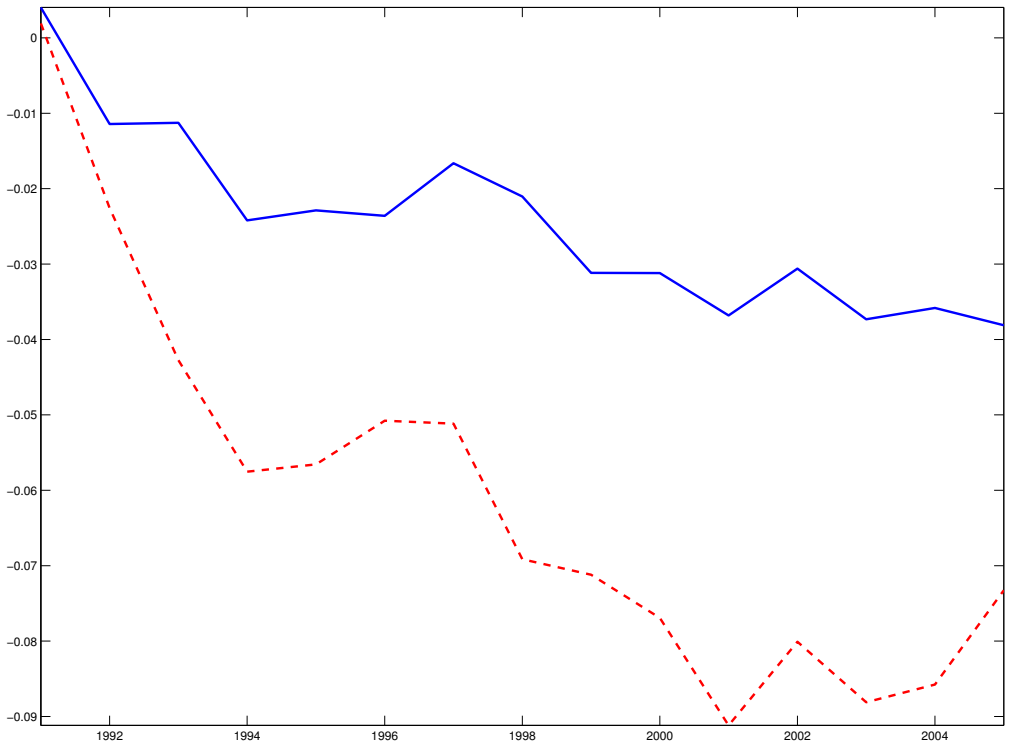
The table shows regressions of modern-day (pre-1990) average prefectural lending shares by bank type on our silk instrument – the number of filatures per head of population in a prefecture in 1895. The control variables are relative (pre-199) per capita GDP, the (log) distance to Yokohama and a dummy for the core areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures).

Table: Main specifications (OLS and IV)

	(1)	(2)	(3)	(4)		(5)	(6)
	OLS		IV			First Stage	
	GDP growth	Lending Growth	GDP growth	Lending Growth		$\text{SME}^k \times \text{FI}^k \times \text{SHOCK}_t$	$\ldots\text{FI}^k \times \text{SHOCK}_t$
$\text{SME}^k \times \text{FI}^k \times \text{SHOCK}_t$	0.960	1.908	1.291	2.973	$\text{SME}^k \times \text{FILATURES}^k \times \text{SHOCK}_t$	−0.06	0.07
	(2.461)	(3.604)	(1.953)	(3.252)		(−4.14)	(0.38)
$\text{FI}^k \times \text{SHOCK}_t$	−0.059	−0.227	−0.071	−0.228	$\text{FILATURES}^k \times \text{SHOCK}_t$	0.00	−0.05
	(−2.051)	(−4.525)	(−1.308)	(−2.122)		(0.27)	(−4.35)
$\text{SME}^k \times \text{SHOCK}_t$	−0.075	−0.136	−0.102	−0.193	$\text{SME}^k \times \text{SHOCK}_t$	0.04	−0.16
	(−0.928)	(−0.983)	(−1.217)	(−1.150)		(1.53)	(−0.49)
Distance to Yokohama $\times \text{SHOCK}_t$	0.00003	−0.00001	0.00002	−0.00002	Distance to Yokohama $\times \text{SHOCK}_t$	0.00001	−0.00002
	(1.846)	(−0.242)	(1.856)	(−0.668)		(2.07)	(−2.80)
Local banks real estate exposure $\times \text{SHOCK}_t$	0.063	−0.058	0.065	−0.053	Local banks real estate exposure $\times \text{SHOCK}_t$	−0.01	0.06
	(0.991)	(−0.501)	(1.052)	(−0.443)		(−1.12)	(0.23)
local land price growth	0.007	0.015	0.007	0.016	local land price growth	−0.00	−0.03
	(1.711)	(1.365)	(1.314)	(1.329)		(−0.32)	(−2.42)
predicted output growth	0.173	0.334	0.170	0.323	predicted output growth	0.01	−0.05
	(1.640)	(1.284)	(1.594)	(1.245)		(1.54)	(−0.39)
adj. R^2	0.698	0.572	0.697	0.570	adj. R^2	0.506	0.5053
					1st-stage F-statistic	16.62	11.51
Prefectures	All, except core		All, except core		All, except core		

The Table shows OLS- and IV-results for our main regression specification (5) $\Delta\text{OUTCOME}_t^k = \left[\alpha_0 \times \text{SME}^k \times \text{FI}^k + \alpha_1 \times \text{FI}^k + \alpha_2 \times \text{SME}^k + \boldsymbol{\alpha}_3' X^k\right] \times \text{SHOCK}_t + \mu^k + \tau_t + \text{b}' Z_t^k + \nu_t^k$where SHOCK_t is the average land- prefectures, $\text{SME}^k$is small-business importance based on the SME share in total employment in prefecture k, FI^k is the measure of regional banking integration, X^k and Z_t^k are vectors of additional controls and μ^k a and time effects respectively. The sample period is 1980-2005 for the GDP growth regressions and 1980-96 for the lending growth regressions and the sample excludes the core prefectures. Standard errors are clu year, t-statistics in parentheses. Columns (5) and (6) report the first-stage regressions for the two endogenous variables, $\text{SME}^k \times \text{FI}^k\text{SHOCK}_t$ and $\text{FI}^k\text{SHOCK}_t$ based on the sample period 1980-2005. The bottom of the col the F-statistics associated with the first stage regression of the interaction term on all instruments and the [?] rank statistics and the associated p-value for the hypothesis of under-identification.

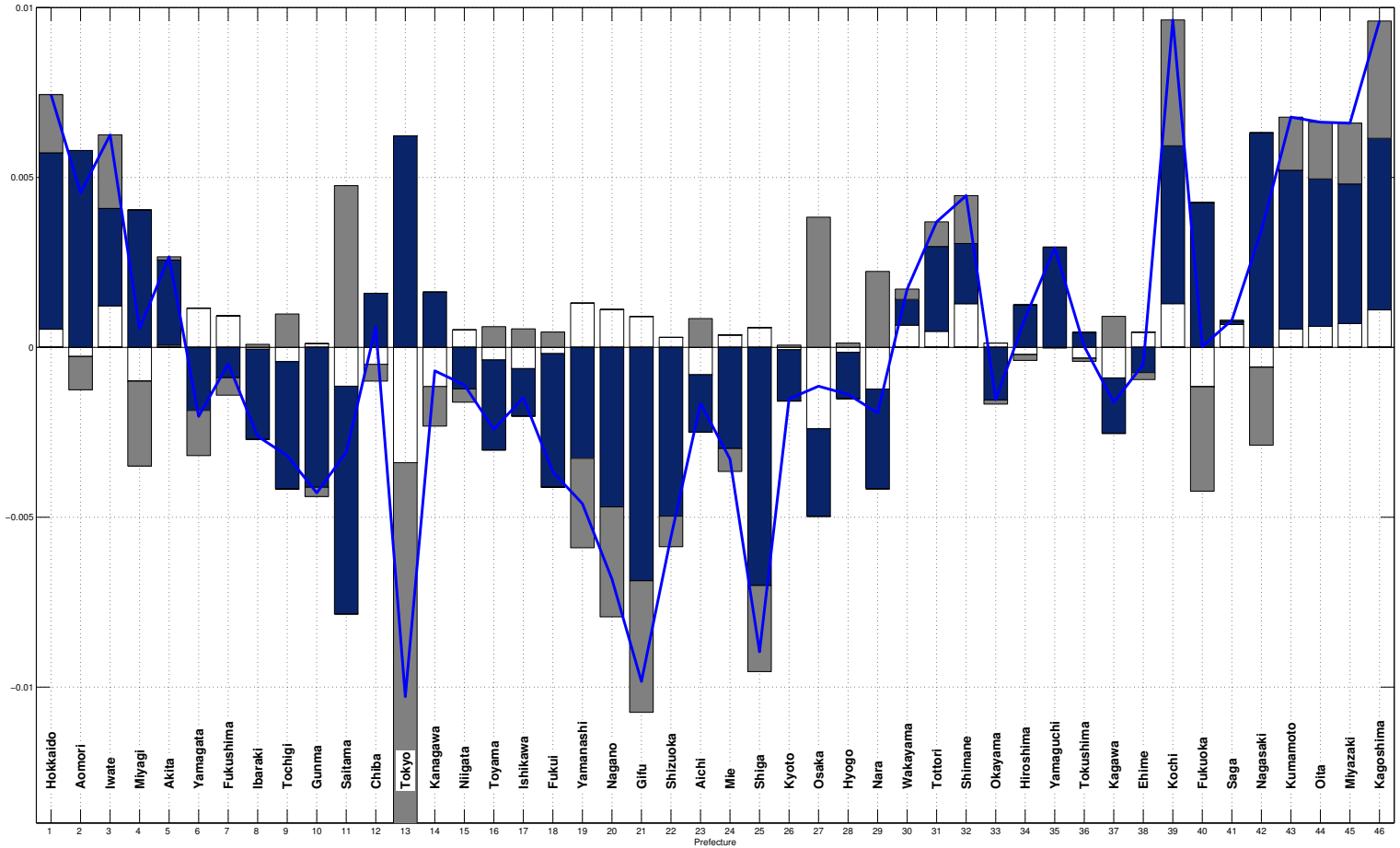
Figure: Cumulative Growth Differential between high and low SME group in two-way sample split (High/Low City Bank Share and High/Low SME share by value added)



Relative cumulative output loss of high-SME prefectures worse with low financial integration (red, dashed line).

Geographical patterns of transmission

Figure: Geographical profile of the interaction between bank dependence and financial integration



NOTES: The prefectures are in their official order, starting in the northeast (Hokkaido,

Transmission channels

Table: Prefecture-level lending and interest rates by type of bank

	(1)	(2)	(3)	(4)	(5)	(6)
	City banks		local banks		local banks' interest rates	
	OLS	IV	OLS	IV	high SME × FI	low SME × FI
$\text{SME}^k \times \text{FI}^k \times \text{SHOCK}_t$	2.816	5.685	0.757	−0.520		
	(3.230)	(2.766)	(0.927)	(−0.196)		
$\text{FI}^k \times \text{SHOCK}_t$	−0.225	−0.167	−0.181	−0.262		
	(−2.475)	(−1.281)	(−1.522)	(−1.477)		
Local banks real estate exposure$\times\text{SHOCK}_t$	−0.046	−0.037	−0.053	−0.053	−0.001	0.053
	(−0.335)	(−0.250)	(−0.351)	(−0.337)	(−0.034)	(2.051)
$\text{SME}^k \times \text{SHOCK}_t$	−0.262	−0.373	−0.051	−0.042	−0.006	0.017
	(−3.384)	(−2.417)	(−0.309)	(−0.222)	(−0.147)	(1.135)
Distance to Yokohama$\times\text{SHOCK}_t$	0.025	0.029	−0.013	−0.017	0.001	−0.001
	(1.427)	(1.579)	(−0.340)	(−0.508)	(0.630)	(−0.597)
local land price growth	0.041	−0.0003	−0.163	−0.134	−0.006	0.005
	(0.134)	(−0.001)	(−0.364)	(−0.307)	(−0.255)	(0.312)
predicted output growth	−0.00000	−0.00003	−0.00001	−0.00001	−0.00000	0.00000
	(−0.098)	(−0.653)	(−0.222)	(−0.254)	(−0.277)	(2.125)
adj. R^2	0.792	0.790	0.726	0.725	0.991	0.985

Memorandum item: *Fraction of SME with City Bank as main bank*$_{2002} = \underset{(tstat=6.49)}{0.6230} \times \textit{CityBankShare}^k_{1980-90} - 0.25$ $\quad R^2 = 0.49$

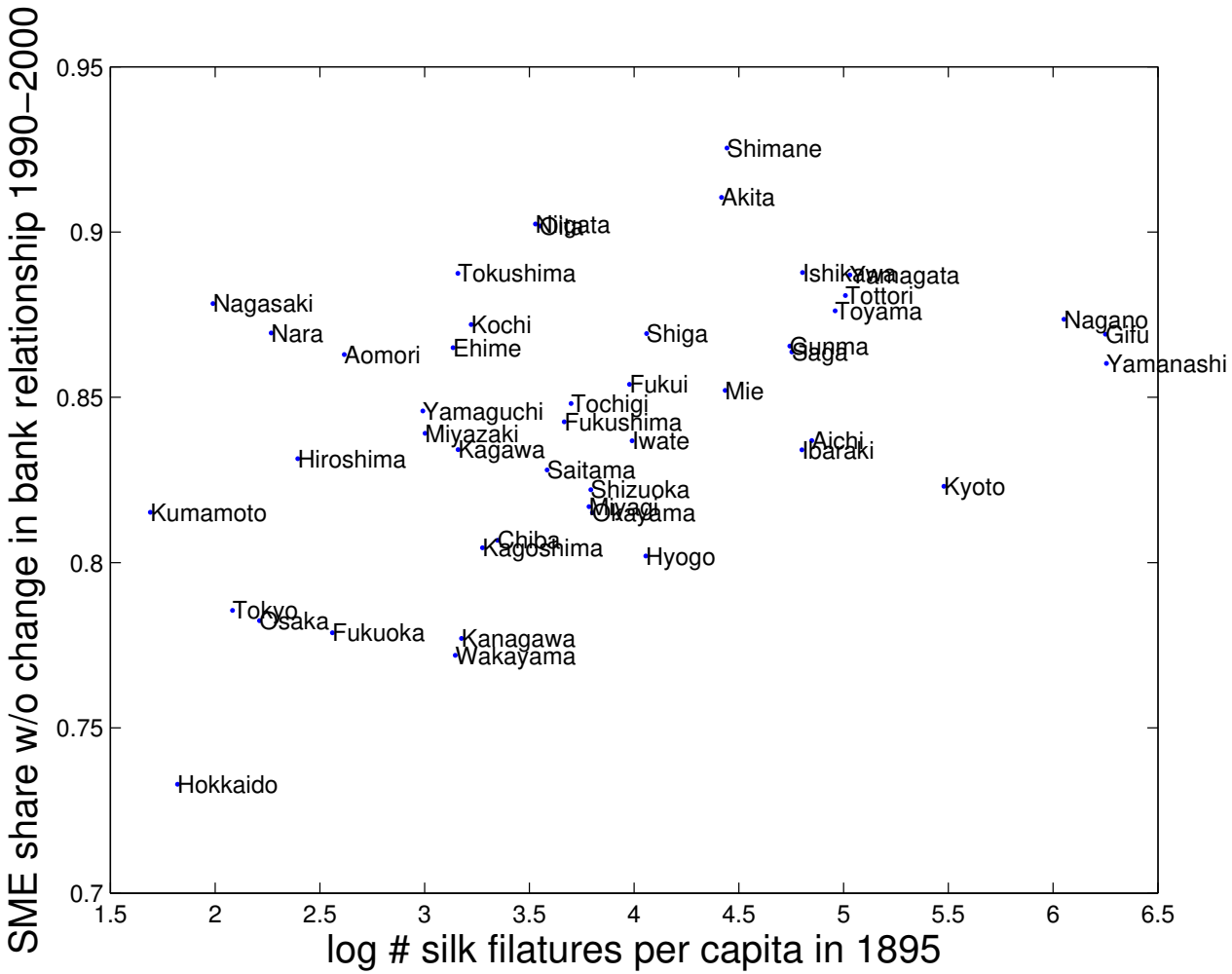
Columns 1-4 of the table show OLS- and IV-results for the regression specification $\text{OUTCOME}^k_t = \left[\alpha_0 \times \text{SME}^k \times \text{FI}^k + \alpha_1 \times \text{FI}^k + \alpha_2 \times \text{SME}^k + \boldsymbol{\alpha}_3' X^k\right] \times \text{SHOCK}_t + \mu^k + \tau_t + \text{b}' Z^k_t + \nu^k_t$ where OUTCOMEis now the lending growth for city and local banks in turn. As before, SHOCK_t is the average land-price growth in the core prefectures, $\text{SME}^k$is small-business importance based on the SME share in total employment in prefecture k, FI^k is the measure of regional banking integration, X^k and Z^k_t are vectores of additional controls and $\mu^k$and τ_t are prefecture-fixed and time effects respectively. The sample period is 1980-1996. In coumns (5) and (6), we regress local banks' average loan interest rates on the interaction Local banks real estate exposure$\times\text{SHOCK}_t$ and a range of controls, splitting the sample into two groups of prefectures with above- and below-median banking integration.

The memorandum item at the bottom of the table reports the regression of the fraction of small firms reporting a city bank as main bank on our pre-1990 measure of financial integration, the average lending share of city banks in a prefecture in 1980-1990.

Transmission channel: further evidence

SME-local bank relationships extremely persistent in the silk regions

Figure: Silken thread and silken fetters



Summary

- Regional differences banking integration affected local transmission of Japan's real-estate bust of the 1990s.
- Our results draw attention to the role of credit reallocation by integrated banks in a financial crisis. banks internal capital amrkets attenuated the real fallout (the firm borrowing channel) from the country-wide shock to bank lending supply.
- History (the 'silken thread') provides us with an instrument for regional banking integration in the 1990s, allowing us to sign the OLS bias in our baseline specifications and to provide evidence that the unobserved heterogeneity in bank-firm matches is likely to be consistent with our theory.
- Key lessons
  1. *de facto* segmentation in banking markets can persist as a result of the particular model of financial development, even in a *de iure* integrated financial market.
  2. Such regional segmentation may not matter in normal times but may explain persistent regional heterogeneity after large macro shocks
  3. Results likely to matter for Europe and its banking unions. In many European countries banking markets are historically segmented along regional lines (Italy, Germany ...)

Bonus slides

Data set

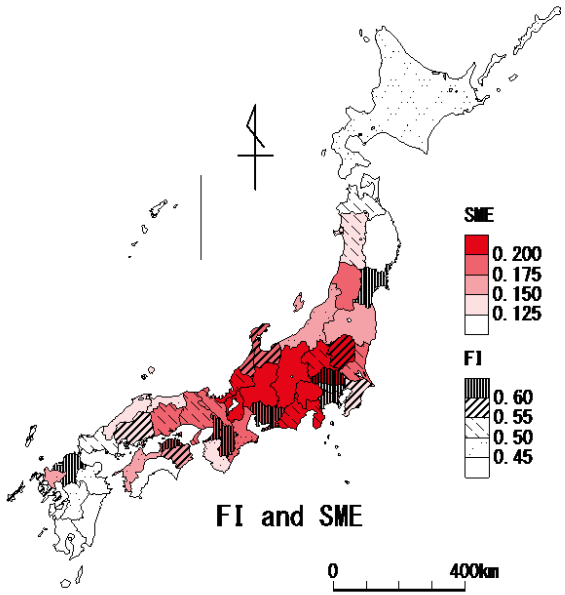
- Panel data set for 46 prefectures (ex Okinawa).
- GDP p.c.
  - Lending by type of bank by prefecture, 1964-96
  - Data on small manufacturing firms by prefecture, employment and value added from the 'Manufacturing Census'. Here focus on SMEs with <300 employees. (This is also the cut-off value for Shinkin membership).
  - Data on number of silk filatures, population etc. in 1895 from various sources
- ....

Our story (I): related findings

- Low financial integration prohibits cross-prefectural pooling of funds (e.g. through nationwide banks' internal capital markets (Cetorelli and Goldberg; JoF forthcoming)).
- The pattern of nationwide banks withdrawing from areas where they have low market share is reminiscent of Japanese banks' behavior overseas after 1990 ((e.g. Peek and Rosengreen (1997)).
- Consistent with 'Evergreening' and the 'Zombie hypothesis' (Caballero, Hoshi and Kashyap (2008), Peek and Rosengreen (2005)): big banks could have withdrawn from their non-core areas to prop up Zombie firms in their core areas of activity.

An example

	prefecture	City lending share	SME share	post-1990 average growth
7	Fukushima	45.81	17.06	0.58
19	Yamanashi	42.29	20.09	-0.14
29	Nara	66.14	19.67	0.08
40	Fukuoka	65.54	10.49	0.26



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Robustness: Post-1990 dummy

Table: Interaction terms and additional controls

Interactions of $Post1990_t$ with ...	I Regional	II City	III Regional	IV City	V Regional	VI City	VII Regional	VIII City
$...SME^k \times RegionalBankShare^k$			-1.50		-1.35		-1.42	
			(-2.72)		(-2.89)		(-3.24)	
$...SME^k \times CityBankShare^k$				0.68		0.72		0.74
				(3.12)		(3.20)		(3.78)
$...RegionalBankShare^k$	0.03		0.27		0.23		0.24	
	(0.82)		(3.04)		(3.23)		(3.87)	
$...CityBankShare^k$		-0.05		-0.15		-0.16		-0.13
		(-2.38)		(-4.56)		(-4.15)		(-5.03)
$...SME^k_{VA}$	-0.09	-0.07	0.33	-0.45	0.29	-0.47	0.32	-0.48
	(-3.87)	(-2.85)	(2.19)	(-3.55)	(2.35)	(-3.66)	(2.72)	(-4.06)
Controls:								
X^k : $...Lending/GDP$					-0.0006	0.0003		
					(-1.31)	(0.60)		
$...CoreArea$							-0.01	-0.008
							(-4.00)	(-2.63)
R^2	0.56	0.57	0.57	0.57	0.57	0.57	0.56	0.56

The Table shows results from the regression $\Delta gdp^k_t = Post1990_t \times \left[\alpha_0 SME^k_{VA} \times FI^k + \alpha_1 FI^k + \alpha_2 SME^k_{VA} + \boldsymbol{\alpha}_3' X^k_t\right] + \mu^k + \tau_t + \epsilon^k_t$ where $Post1990_t$ is a dummy indicating the period after 1990 (1991-2005), SME^k_{VA} is small-business importance based on value added, FI^k is the measure of financial integration (regional and city bank share in total lending in prefecture k), as indicated in the column heading. μ^k and τ_t are prefecture-fixed and time effects respectively. The vector X^k captures various prefecture characteristics. In the regressions it is interacted with our crisis dummy $Post1990_t$ and contains prefecture-level $Lending^k/GDP^k$ (1980-90 average) and $CoreArea^k$, a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). The sample period is 1980-2005. OLS estimates, t-statistics in parentheses. Standard errors are clustered by prefecture.

Robustness: Panel IV regressions with Post-19901 dummy

Table: Panel IV Regressions with filatures / head in 1895 as instrument

Interactions terms of $Post1991_t$ with ...	City Banks	Regional Banks All	Regional Banks Shinkin	City Banks	Regional Banks All	Regional Banks Shinkin	City Banks	Regional Banks All	Regional Banks Shinkin
$SME^k_{VA} \times FI^k$	0.89	-1.57	-1.94	1.04	-1.41	-1.42	0.86	-1.46	-1.65
	(2.15)	(-2.18)	(-2.08)	(1.69)	(-1.50)	(-1.42)	(1.84)	(-1.81)	-1.76
FI^k	-0.18	0.43	0.40	-0.20	0.28	0.27	-0.16	0.31	0.33
	(-2.21)	(2.00)	(1.96)	(-1.58)	(1.28)	(1.28)	(-1.86)	(1.64)	(1.65)
SME^k_{VA}	-0.57	0.32	0.21	-0.65	0.30	0.17	-0.53	0.32	0.22
	(-2.44)	(1.80)	(1.61)	(-1.81)	(1.39)	(1.20)	(-1.92)	(1.73)	(1.63)
Controls	no	no	no	yes	yes	yes	yes	yes	yes
relative GDP				0.01	-0.01	-0.01			
				(0.33)	(-0.60)	(-2.02)			
Core				-0.01	-0.01	-0.01	-0.00	-0.01	-0.01
				(-1.72)	(-2.38)	(-2.51)	(-0.78)	(-1.58)	(-1.85)
Distance to Yokohama							0.00	0.00	0.00
							(0.93)	(1.03)	(2.71)
R^2	0.69	0.69	0.69	0.70	0.70	0.70	0.70	0.70	0.70
1st-Stage F-stat for $SME^k \times FI^k \times Post1991_t$	303.29	288.56	407.01	420.48	279.43	479.21	383.56	297.11	439.05
Kleibergen-Paap rank test	77.26	37.53	41.56	66.78	25.76	38.98	94.57	37.86	44.68
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The Table shows results from the IV regression $\Delta gdp^k_t = Post1990_t \times \left[\alpha_1 \widehat{SME^k \times FI^k} + \alpha_2 \widehat{FI^k} + \alpha_3 SME^k + \alpha'_4 X_t\right] + \mu^k + \tau_t + \epsilon^k_t$ where where $Post1990_t$ is a dummy indicating the period starting in 1991, $SME^k$is small manufacturing firm importance (value-added or employment based) and X_t is a vector of controls. $\widehat{SME^k \times FI^k}$ and $\widehat{FI^k}$ are the first-stage fitted values of $SME^k \times FI^k$ and FI^k using $SME^k \times Silk^k$ and $Silk^k$ as instruments, where $Silk^k$ is the log number of silk filatures per head of population in a prefecture in 1895. *CoreArea* is a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). The sample period is 1980-2005, t-statistics appear in parentheses. The bottom of the Table reports information on instrument relevance: the F-statistics associated with the first stage regression of the interaction term on all instruments and the Kleibergen-Paap (2006) (KP) rank statistics and its associated p-value for the hypothesis of under-identification. The KP-statistics appears in boldface (italics) if it exceeds the Stock-Yogo(2005) weak-instrument critical values of 7.03 (4.58) (see Table 5.2. in Stock and Yogo (2005) , for the case of $n = 2$ endogenous variables and $K = 2$ excluded instruments), This suggests that the instruments can be taken to be sufficiently strong to ensure a maximal size of no more than 10% (15%) for a nominal 5% size Wald Test on the IV-estimates.

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Table: Robustness – interaction terms and additional controls

Interactions of $Post1990_t$ with ...	I Regional	II City	III Regional	IV City	V Regional	VI City
$...SME^k \times FI^k$	-1.28	0.66	-0.66	0.47	-1.09	0.55
	(-3.04)	(3.33)	(-1.23)	(2.51)	(-2.06)	(2.78)
$...FI^k$	0.23	-0.11	0.44	0.02	0.25	-0.06
	(3.59)	(-3.72)	(3.61)	(0.22)	(1.50)	(-0.61)
$...SME^k_{VA}$	0.34	-0.39	0.17	-0.14	0.32	-0.11
	(2.88)	(-3.17)	(0.80)	(-0.79)	(1.48)	(-0.59)
$(FI^k)^2$			-0.55	-0.12	-0.12	-0.03
			(-1.96)	(-1.61)	(-0.30)	(-0.44)
$...(SME^k_{VA})^2$			-0.22	-0.62	-0.12	-0.69
			(-0.38)	(-1.33)	(-0.28)	(-1.49)
Controls:						
X^k : $...CoreArea$	-0.003	-0.003			-0.003	-0.004
	(-0.57)	(-0.44)			(-0.53)	(-0.79)
$...Share\ Lowland\ Areas$	0.01	0.01			0.01	0.01
	(0.62)	(1.01)			(0.62)	(0.94)
$...Share\ \ of\ steep\ areas$	0.003	0.004			0.003	0.003
	(0.44)	(0.61)			(0.58)	(0.45)
...Min. distance to core	0.002	0.002			0.002	0.002
	(1.04)	(0.91)			(1.05)	(0.76)
$...Sectoral\ Specialization$	0.02	0.02			0.02	0.02
	(1.99)	(1.59)			(2.28)	(1.44)
Z^k_t:						
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.57	0.56	0.56	0.56	0.57	0.56

The Table shows results from the regression $\Delta gdp^k_t = Post1990_t \times \left[\alpha_0 SME^k_{VA} \times FI^k + \alpha_1 FI^k + \alpha_2 SME^k_{VA} + \alpha'_3 X^k_t\right] + \delta' Z^k_t + \mu^k + \tau_t + \epsilon^k_t$ where $Post1990_t$ is a dummy indicating the period after 1990 (1991-2005). $SME^k_{VA}$is small-business importance based on value added, FI^k is the measure of financial integration (regional and city bank share in total lending in prefecture k), as indicated in the column heading. $\mu^k$and τ_t are prefecture-fixed and time effects respectively. The vector X^k captures various prefecture characteristics. In the regressions it is interacted with our crisis dummy $Post1990_t$ and contains $CoreArea^k$, a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures), topographical features (the share of lowlands and steep (gradient above 15 degrees) areas in a prefectures total sufrace area), the minimal distance to one of the core prefectures and a index of sectoral specialization. Z^k_t contains fixed effects for the eight regions of Japan (Hokkaido Island, Tohoku, Kanto, Chubu, Kansai, Chugoku (all on Honshu Island), Shikoku Island, and Kyushu Island). The sample period is 1980-2005. OLS estimates, t-statistics in parentheses. Standard errors are clustered by prefecture.

Robustness: X-sectional OLS and IV regressions

Table: Cross-sectional Regressions

	SME_{VA} (output based)						SME_{EMP} (employment based)					
	City Banks		Regional Banks				City Banks		Regional Banks			
			All		Shinkin				All		Shinkin	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
$SME^k \times FI^k$	0.14	0.36	-0.35	-0.77	-0.29	-0.98	0.16	0.56	-0.52	-0.85	-0.44	-1.08
	(1.33)	(1.71)	(-2.12)	(-1.52)	(-1.68)	(-1.55)	(1.12)	(1.70)	(-2.22)	(-1.78)	(-1.94)	(-1.87)
FI^k	-0.04	-0.08	0.06	0.18	0.05	0.22	-0.04	-0.10	0.07	0.16	0.06	0.18
	(-2.36)	(-2.01)	(2.15)	(1.50)	(1.59)	(1.52)	(-1.97)	(-2.01)	(2.18)	(1.92)	(1.79)	(1.90)
SME^k	-0.10	-0.23	0.07	0.15	0.03	0.11	-0.12	-0.34	0.12	0.19	0.05	0.14
	(-1.79)	(-1.94)	(1.48)	(1.25)	(0.79)	(1.25)	(-1.51)	(-1.88)	(1.72)	(1.43)	(1.16)	(1.45)
Controls												
Core	-0.00	-0.00	-0.01	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01
	(-2.73)	(-1.06)	(-4.58)	(-1.99)	(-4.79)	(-3.73)	(-2.89)	(-1.32)	(-4.87)	(-3.36)	(-5.03)	(-4.42)
R^2	0.50	0.46	0.46	0.46	0.44	0.46	0.48	0.46	0.45	0.46	0.44	0.46
First-Stage F-stat for $SME^k \times FI^k$		14.21		10.56		17.07		13.13		6.94		12.40
Kleibergen-Paap rank test		3.50		1.32		1.71		4.19		3.04		3.75
p-value		0.06		0.25		0.19		0.04		0.08		0.05

The Table shows results from the cross-sectional OLS and IV regressions $\Delta gdp^k_{post1990} = \alpha_1 SME^k \times FI^k + \alpha_2 FI^k + \alpha_3 SME^k + \alpha_4' CoreDummy^k + const + \epsilon^k$ where $\Delta gdp^k_{post1990}$ is average post-1990 (1991-2005) *GDP*growth in prefecture k, $SME^k$is small manufacturing firm importance (value-added or employment based) and FI^k our measure of regional banking integration (city bank share, regional bank share, Shinkin share). *CoreArea* is a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). In the IV-regressions, $SME^k \times FI^k$ and FI^k are instrumented using $SME^k \times Silk^k$ and $Silk^k$, where $Silk^k$is the log number of silk filatures per head of population in a prefecture in 1895. The F-statistics below the IV-regression pertain the the test for the significance of instruments in the first-stage regression for $SME^k \times FI^k$. t-statistics in parentheses. The last two rows of the table reports F-statistics associated with the first stage regression of the interaction term on all instruments and the Kleibergen-Paap (2006) rank statistics and the associated p-value for the hypothesis of under-identification.

Is it financial integration or local financial development?

Table: Alternative measures of financial development and financial integration

	I	II	III	IV
	$FI = \frac{City\ Bank\ Lending}{Total\ Lending}$		$FI = \frac{CityBankLending}{GDP}$	$FI = \frac{City\ Bank\ Lending}{Total\ Lending}$
Interactions of $Post1990_t$ with pre1990 variables:	$FD = \frac{\#Branches}{Population \times Area}$	$FD = \frac{Lending}{GDP}$	$FD = \frac{Regional\ Bank\ Lending}{GDP}$	$FD = \frac{Regional\ BankLending}{GDP}$
$...SME^k_{VA}$	-0.48	-0.45	-0.07	-0.55
	(-3.82)	(-3.73)	(-0.81)	(-4.42)
$...FI^k$	-0.14	-0.09	-0.004	-0.14
	(-3.89)	(-2.28)	(-6.76)	(-5.55)
$...SME^k \times FI^k$	0.78	0.46	0.03	0.81
	(3.00)	(1.73)	(4.07)	(4.52)
FD^k	0.07	-0.002	0.01	0.00
	(0.54)	(-2.09)	(1.79)	0.12
$SME^k \times FD^k$	-0.32	0.02	-0.07	0.02
	(-0.43)	(2.61)	(-1.31)	(0.42)
$...CoreArea$	-0.01	-0.01	-0.01	-0.01
	(-2.14)	(-3.43)	-4.85	(-4.01)
R^2	0.56	0.56	0.56	0.56

The Table shows results from the regression

$$\Delta gdp^k_t = Post1991_t \times \left[\alpha_1 SME^k_{VA} + \alpha_2 FI^k + \alpha_3 SME^k_{VA} \times FI^k + \alpha_5 FD^k + \alpha_6 SME^k_{VA} \times FD^k + \alpha_7' CoreArea^k\right] + \mu^k + \tau_t + \epsilon^k_t$$

where where $Post1991_t$ is a dummy indicating the period from 1991, $SME^k_{VA}$is small-business importance based on value added, and FI^k and FD^k are the measures of financial integration and financial development respectively as indicated in the column heading. $\mu^k$and τ_t are prefecture-fixed and time effects respectively. *CoreArea* is a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). The sample period is 1980-2005. OLS estimates, t-statistics in parentheses. Standard errors are clustered by prefecture.

Silk and finance

- Silk filatures (i.e. reeling plants) were heavily dependent on working capital:
- cocoons had to be purchased in the spring, reeled silk could only be shipped to the Yokohama market in the late summer.
  - purchase of cocoons amounted to 80 percent of the operating costs of a silk filature.
- Silk reelers were located in remote mountain areas and could not usually borrow from (mainly Yokohama-based) city banks. However, export market for silk was concentrated in Yokohama.
- Instead of banks, Yokohama silk export merchants would issue a letter of credit to small reelers who would discount it with his local silk cooperative.
- These local coperatives had first-hand insihjt into the quality of the output of their members, making them ideal intermediaries of credit.
- Local cooperatives often were at the origin of regional banks. These banks were purely regional – and stayed it for more than a century.

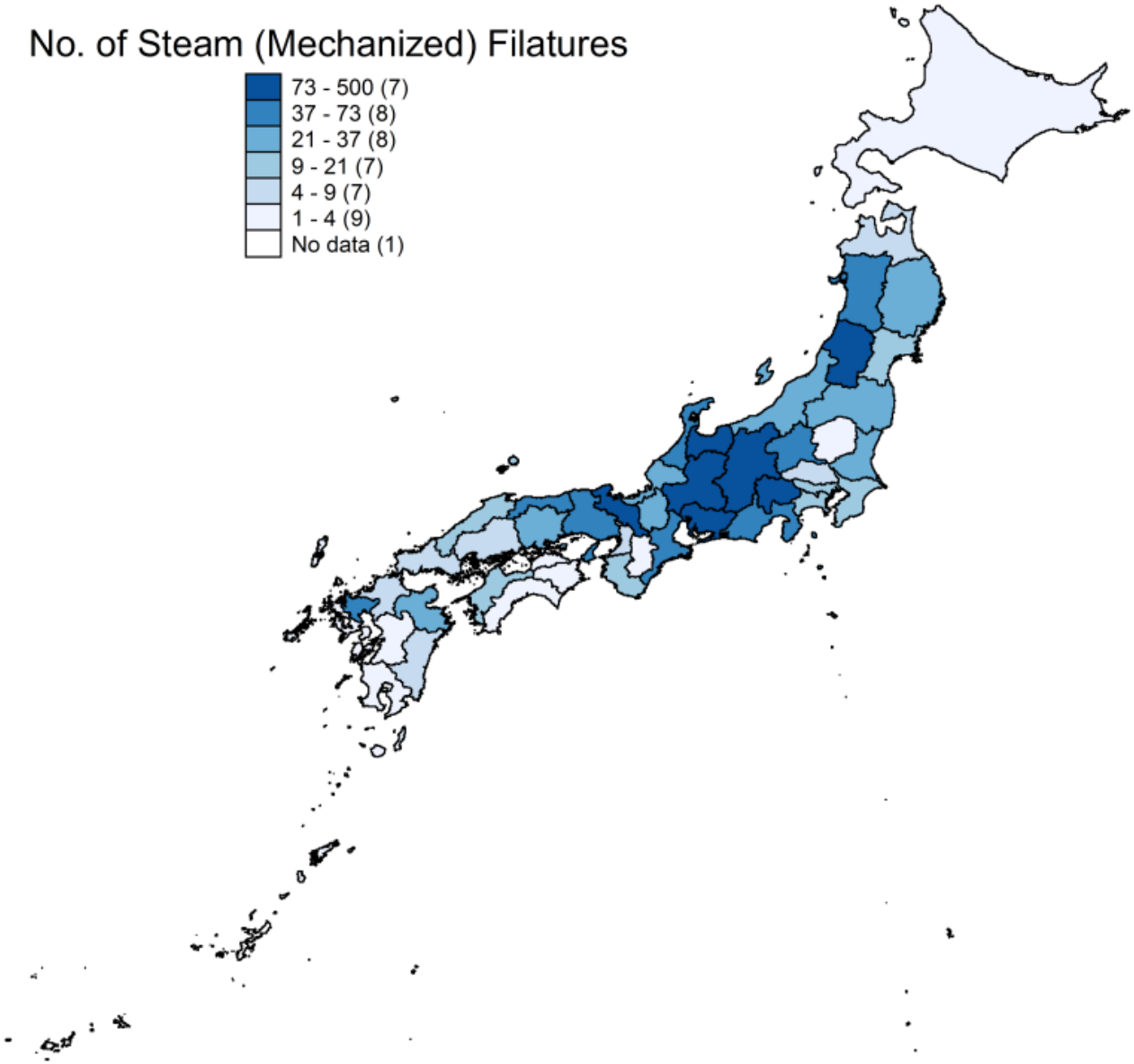
Silk export finance

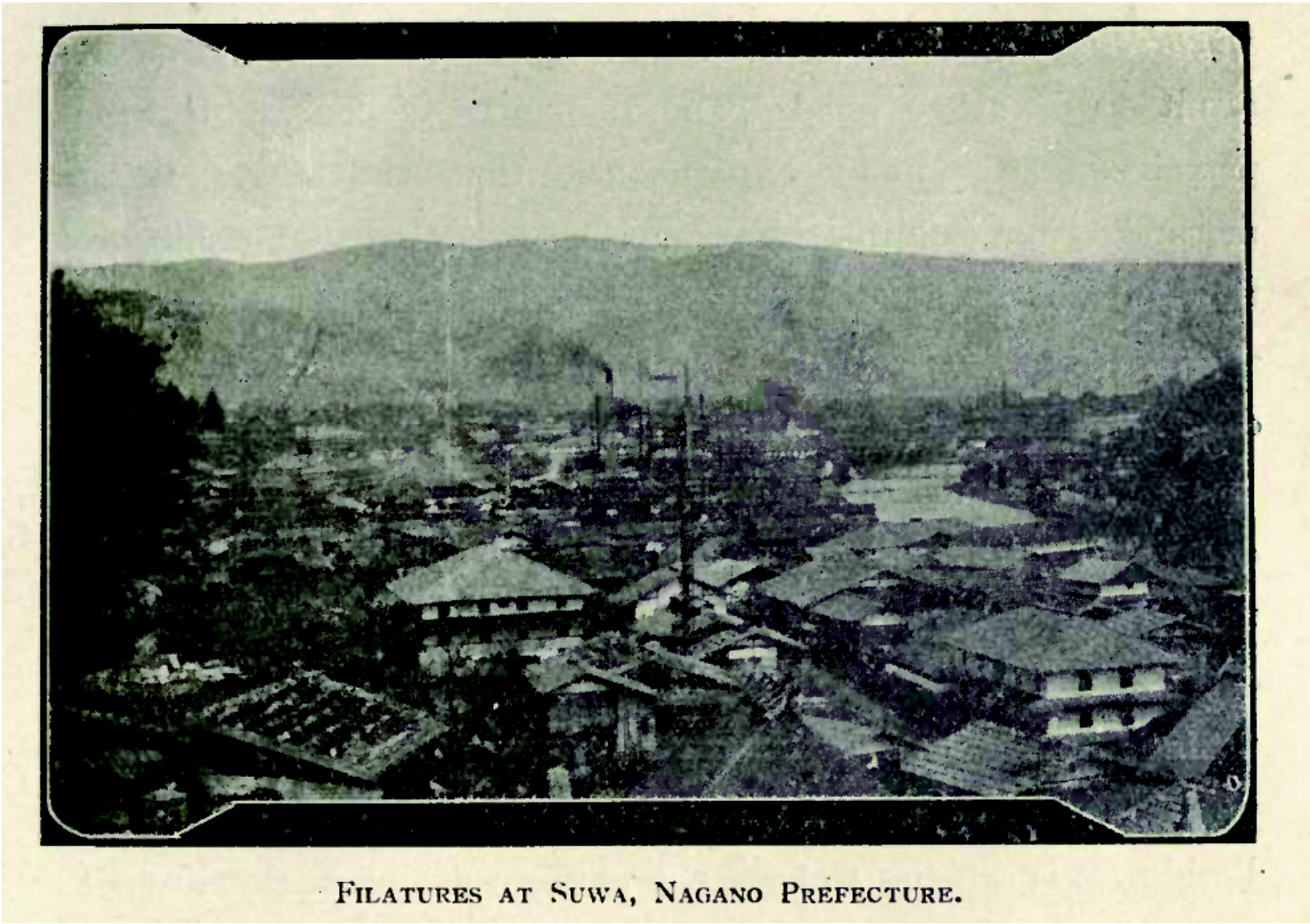
- Yokohama merchant would advance credit to a reeler in the form of a 'documentary bill' issued by a Yokohama bank.
- Reeler would obtain trade credit in the form of an advance on the bill from a local bank.
  - These banks were often cooperative or mutual banks, founded by silk industry associations (Shinkins) or by Yokohama silk merchants.
- After reeling and shipping of the silk to Yokohama, Yokohama bank would issue a bill of acceptance to the reeler who would use this to discount the documentary bill with his local bank.
- Regional bank settled payment of the bill with the issuing bank in Yokohama.
- This system of credit is very much like the system of modern trade finance:
  - ('advising') bank of the exporter borrows and lends locally. 'International' transactions occur only with the big Yokohama banks, which in turn have links to regional banks around the country.
- Regional tiering of Japan's banking system goes back to the institutions of silk export finance.

Silk finance: the role of mechanization

- Huge relative price increase of mechanically vs. hand-reeled silk in the 1890s.
- Mechanization central in the quality improvement. But increased dependence on working capital — it reinforced the separation of cocoon-growing and reeling.
- Early stages of mechanization: cooperatively organized and centralized second (mechanical) reeling process of (possibly manually reeled) silk.
- Centralized re-reeling allowed the implemenation of quality control system and the development of internationallly recognized brands.
- Quality was central in the monitoring of the credit relationship between silk producers and the Yokohama silk merchants: regional banks would provide credit ('advances') against a documentary bill issued by Yokohama silk merchants.
- Ultimately, only those producers could continue to export who mechanized early. These also had access to the trade credit and export finance by the Yokohama silk merchants. The others ended up producing mainly for the domestic market.

Mechanized silk filatures in 1895





FILATURES AT SUWA, NAGANO PREFECTURE.

Table: Modern day (pre-1990) lending and silk filatures

The role of mechanization

Table: Impact of mechanization on pre-1990 financial integration measures and founding year of first industrial cooperative bank in a prefecture.

	(log) share in prefecture-level lending by						Founding year of first Shinkin in prefecture (log)	
	City Banks		Regional Banks					
			All (Shinkin+Sogo)		Shinkins only			
hand filatures (log #)	-0.01 (-1.38)		0.01 (0.94)		-0.00 (-0.08)		-0.00 -0.09	
mechanized filatures (log #)	-0.02 (-3.35)		0.02 (2.85)		0.03 (4.22)		-0.00 (-1.89)	
output: hand reeled (log tons)		-0.00 (-0.61)		-0.00 (-0.42)		-0.01 (-0.62)		0.00 (0.66)
output: machine reeled (log tons)		-0.03 (-3.76)		0.02 (2.65)		0.02 (2.30)		-0.00 (-0.76)
R^2	0.62	0.62	0.22	0.17	0.38	0.21	0.21	0.16
Controls	yes	yes	yes	yes	yes	yes	yes	yes

The table shows results from regression of pre-1991 average prefectural lending shares by bank type (left panel) and of founding year of the firs (Shinkin) in a prefecture (right panel) on our alternative silk industry instruments: the number of hand-powered and machine filatures at pre of hand-powered and machine filatures respectively. Controls are: relative GDP pre-1990, a core area dummy and log distance to Yokohama. in previous tables. The founding year of the first Shinkin is normalized by 1900 (the year of the enactment of the first industrial cooperative of this normalized measure as our dependent variable.

Panel IV regressions

Table: Panel IV Regressions with filatures / head in 1895 as instrument

Interactions terms of $Post1991_t$ with ...	City Banks	Regional Banks		City Banks	Regional Banks		City Banks	Re B
		All	Shinkin		All	Shinkin		All
$SME^k_{VA} \times FI^k$	0.89	-1.57	-1.94	1.04	-1.41	-1.42	0.86	-1.46
	(2.15)	(-2.18)	(-2.08)	(1.69)	(-1.50)	(-1.42)	(1.84)	(-1.81)
FI^k	-0.18	0.43	0.40	-0.20	0.28	0.27	-0.16	0.31
	(-2.21)	(2.00)	(1.96)	(-1.58)	(1.28)	(1.28)	(-1.86)	(1.64)
SME^k_{VA}	-0.57	0.32	0.21	-0.65	0.30	0.17	-0.53	0.32
	(-2.44)	(1.80)	(1.61)	(-1.81)	(1.39)	(1.20)	(-1.92)	(1.73)
Controls	no	no	no	yes	yes	yes	yes	yes
relative GDP				0.01	-0.01	-0.01		
				(0.33)	(-0.60)	(-2.02)		
Core				-0.01	-0.01	-0.01	-0.00	-0.01
				(-1.72)	(-2.38)	(-2.51)	(-0.78)	(-1.58)
Distance to Yokohama							0.00	0.00
							(0.93)	(1.03)
R^2	0.69	0.69	0.69	0.70	0.70	0.70	0.70	0.70
1st-Stage F-stat for $SME^k \times FI^k \times Post1991_t$	303.29	288.56	407.01	420.48	279.43	479.21	383.56	297.11
Kleibergen-Paap rank test	77.26	37.53	41.56	66.78	25.76	38.98	94.57	37.86
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The Table shows results from the IV regression $\Delta gdp^k_t = Post1990_t \times \left[\alpha_1 \widehat{SME^k \times FI^k} + \alpha_2 \widehat{FI^k} + \alpha_3 SME^k + \boldsymbol{\alpha}_4' X_t\right] + \mu^k + \tau_t + \epsilon^k_t$ where where $Post1990_t$ is a dummy indicating the period starting
firm importance (value-added or employment based) and X_t is a vector of controls. $\widehat{SME^k \times FI^k}$ and $\widehat{FI^k}$ are the first-stage fitted values of $SME^k \times FI^k$ and FI^k using $SME^k \times Silk^k$ and $Silk^k$ as instru
of silk filatures per head of population in a prefecture in 1895. *CoreArea* is a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). The s
appear in parentheses. The bottom of the Table reports information on instrument relevance: the F-statistics associated with the first stage regression of the interaction term on all instruments and t
statistics and its associated p-value for the hypothesis of under-identification. The KP-statistics appears in boldface (italics) if it exceeds the Stock-Yogo(2005) weak-instrument critical values of 7.03 (4.
(2005) , for the case of $n = 2$ endogenous variables and $K = 2$ excluded instruments), This suggests that the instruments can be taken to be sufficiently strong to ensure a maximal size of no more than 1
Test on the IV-estimates.

Robustness: X-sectional OLS and IV regressions

Table: Cross-sectional Regressions

	SME_{VA} (output based)						SME_{EMP} (employment based)					
	City Banks		Regional Banks				City Banks		Regional Banks			
			All		Shinkin				All		Shinki	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	
$SME^k \times FI^k$	0.14	0.36	-0.35	-0.77	-0.29	-0.98	0.16	0.56	-0.52	-0.85	-0.44	
	(1.33)	(1.71)	(-2.12)	(-1.52)	(-1.68)	(-1.55)	(1.12)	(1.70)	(-2.22)	(-1.78)	(-1.94)	(
FI^k	-0.04	-0.08	0.06	0.18	0.05	0.22	-0.04	-0.10	0.07	0.16	0.06	
	(-2.36)	(-2.01)	(2.15)	(1.50)	(1.59)	(1.52)	(-1.97)	(-2.01)	(2.18)	(1.92)	(1.79)	(
SME^k	-0.10	-0.23	0.07	0.15	0.03	0.11	-0.12	-0.34	0.12	0.19	0.05	
	(-1.79)	(-1.94)	(1.48)	(1.25)	(0.79)	(1.25)	(-1.51)	(-1.88)	(1.72)	(1.43)	(1.16)	(
Controls												
Core	-0.00	-0.00	-0.01	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01	-0.01	-0.01	
	(-2.73)	(-1.06)	(-4.58)	(-1.99)	(-4.79)	(-3.73)	(-2.89)	(-1.32)	(-4.87)	(-3.36)	(-5.03)	(
R^2	0.50	0.46	0.46	0.46	0.44	0.46	0.48	0.46	0.45	0.46	0.44	
First-Stage F-stat for $SME^k \times FI^k$		14.21		10.56		17.07		13.13		6.94		
Kleibergen-Paap rank test		3.50		1.32		1.71		4.19		3.04		
p-value		0.06		0.25		0.19		0.04		0.08		

The Table shows results from the cross-sectional OLS and IV regressions $\Delta gdp^k_{post1990} = \alpha_1 SME^k \times FI^k + \alpha_2 FI^k + \alpha_3 SME^k + \alpha_4' CoreDummy^k + const + \epsilon^k$ where $\Delta gdp^k_{post1990}$ is average post prefecture k, $SME^k$is small manufacturing firm importance (value-added or employment based) and FI^k our measure of regional banking integration (city bank share, regional bank share, Shi for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). In the IV-regressions, $SME^k \times FI^k$ and FI^k are instrumented using $SME^k \times Silk^k$ number of silk filatures per head of population in a prefecture in 1895. The F-statistics below the IV-regression pertain the the test for the significance of instruments in the first-stage regressi parentheses. The last two rows of the table reports F-statistics associated with the first stage regression of the interaction term on all instruments and the Kleibergen-Paap (2006) rank statist the hypothesis of under-identification.

Is industry structure endogenous?

- RZ-approach has been criticized on the grounds that financially constrained regions have a comparative advantage in less finance-dependent industries.
- Hence, they should specialize in these industries. If this is the case, then we would probably tend to overestimate the aggregate effects of low financial integration.
- What we need is an exogenous measure of growth expectations / industry structure that is not affected by low financial integration.
- We turn to the literature on agglomeration externalities (Glaeser et al 1992) to proxy for the importance of knowledge externalities in manufacturing: distance to the main silk regions (as opposed to share of silk industry in local economy).

Table: Disentangling financial integration & industrial structure

	Industrial structure				Financial Integration		
	Small manufacturing firm share		Manufacturing Share		pre-1990 lending share by		
					City Banks	Regional Banks	
	in *GDP*	in *EMP*	in *GDP*	in *EMP*		All	Shinkin
distance to most highly mechanized silk regions (log)	-0.03	-0.02	-0.06	-0.03	-0.02	-0.01	-0.01
	(-6.28)	(-5.41)	(-5.05)	(-5.26)	(-1.35)	(-1.46)	(-1.07)
filatures / population (log #)	0.01	0.01	0.00	0.01	-0.04	0.02	0.03
	(2.04)	(2.87)	(0.31)	(1.87)	(-4.41)	(3.09)	(3.60)
Core Dummy	-0.01	-0.01	-0.03	-0.02	-0.03	0.01	-0.01
	(-1.68)	(-1.61)	(-2.03)	(-2.32)	(-1.96)	(1.01)	(-0.70)
Distance to Yokohama (log)	-0.03	-0.03	-0.05	-0.03	0.08	-0.01	0.01
	(-2.30)	(-2.77)	(-1.39)	(-1.77)	(2.53)	(-0.46)	(0.37)
R^2	0.69	0.68	0.57	0.65	0.56	0.34	0.42

The table shows regressions of modern-day (pre-1990) industrial structure (left) and average prefectural lending shares by bank type (right) on our two alternative silk-related variables: the (log) distance to the three prefectures with the most highly mechanized silk industry in 1895 (Kyoto, Nagano, Gifu and Shizuoka) and the (log) number of filatures per head in 1895 and a set of controls. The control variables are the (log) distance to Yokohama (the main silk market), a dummy for the Core areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures).

Table: Panel IV Regressions (both credit dependence and financial integration endogenous)

	$CD = SME_{VA}$			$CD = SME_{EMP}$			CD =Manufacturing Share in GDP		
Interactions terms of $Post1990_t$ with ...	City Banks	Regional Banks		City Banks	Regional Banks		City Banks	Regional Banks	
		All	Shinkin		All	Shinkin		All	Shinkin
$CD \times FI^k$	1.30	-3.25	-3.98	2.68	-5.35	-5.78	0.77	-1.70	-3.28
	(1.79)	(-1.94)	(-1.88)	(1.98)	(-2.06)	(-2.03)	(1.54)	(-1.67)	(-1.57)
FI^k	-0.24	0.65	0.80	-0.40	0.86	0.93	-0.20	0.50	0.98
	(-1.93)	(1.90)	(1.86)	(-2.08)	(2.00)	(2.00)	(-1.64)	(1.65)	(1.56)
CD	-0.78	0.76	0.53	-1.56	1.30	0.80	-0.44	0.44	0.49
	(-1.93)	(1.83)	(1.72)	(-2.06)	(2.00)	(1.92)	(-1.68)	(1.55)	(1.46)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
1st-Stage F-stat for $CD^k \times FI^k$	384.83	723.66	726.13	335.05	757.38	776.77	240.39	396.09	534.91
Kleibergen-Paap rank test	33.93	10.87	*8.15*	19.13	*9.08*	*8.14*	23.89	12.71	4.62
p-value	0	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.03

The Table shows results from the IV regression $\Delta gdp_t^k = Post1990_t \times \left[\alpha_1 \widehat{CD^k \times FI^k} + \alpha_2 \widehat{FI^k} + \alpha_3 SME^k + \boldsymbol{\alpha}_4' X^k\right] + \mu^k + \tau_t + \epsilon_t^k$ where where $Post1990_t$ is a dummy indicating the period after 199 CD^k is our measure of credit dependence as indicated in the respective column headings and X^k is a vector of controls. $\widehat{CD^k \times FI^k}$ and $\widehat{FI^k}$ are the first-stage fitted values of $CD^k \times FI^k$ and F using the log numbers of filatures per head ($filatures^k$), the (log) distance to one of the three most mechanized silk regions and the interaction between these two as instruments. Control variates a (log) distance to Yokohama and a dummy for the core economic areas (Tokyo, Osaka, Aichi, Kanagawa, Chiba, Saitama, Hyogo and Kyoto prefectures). The sample period is 1980-2005. t-statistics parentheses. The bottom of the Table reports the F-statistics associated with the first stage regression of the interaction term on all instruments and the Kleibergen-Paap (2006) rank statistics and t associated p-value for the hypothesis of under-identification. Values of the KP-statistics in boldface or italics indicate that the hypothesis of weak identification is rejected. We reject if the asympto bias of the TSLS estimator is less than 5% (KP in bold) or 10% (KP in italics) based on the critical values tabulated in Table 5.1. of Stock and Yogo (2005). Since values for our case $n = 3$ endogenc variables and $K = 3$ instruments are not directly tabulated, we use the more conservative values for $n = 3$ and $K = 5$ which are 9.53 and 6.61 respectively.