THE OBJECTIVE FUNCTION OF GOVERNMENT-CONTROLLED BANKS IN A FINANCIAL CRISIS

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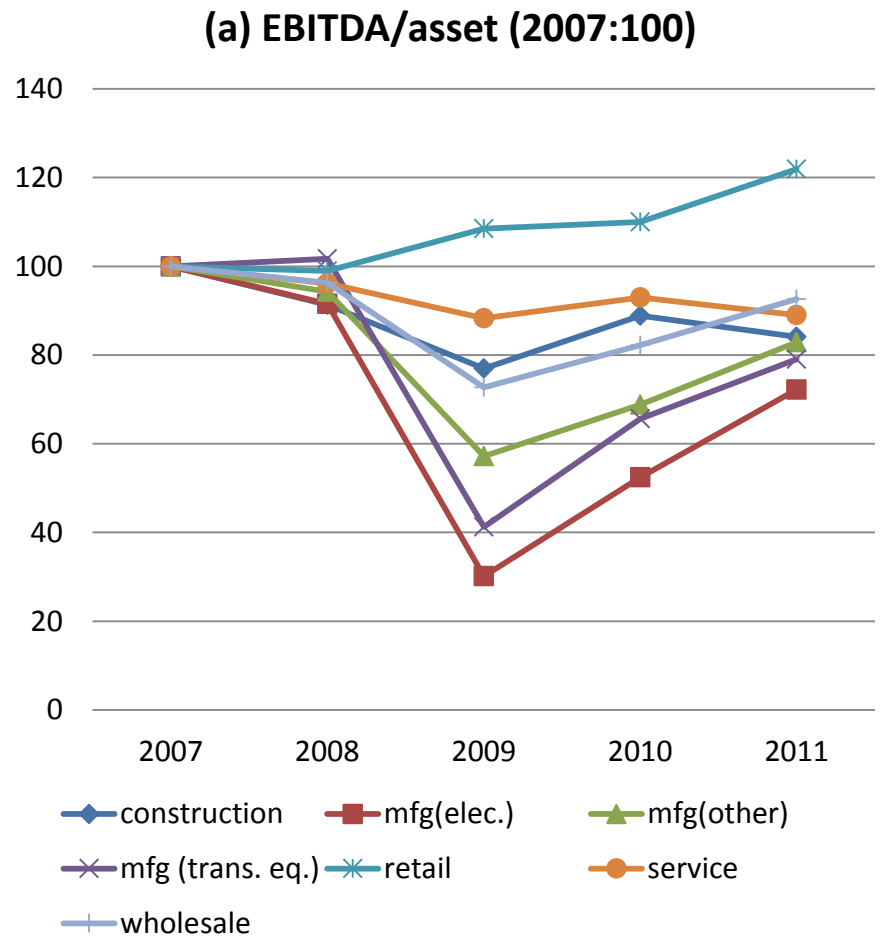
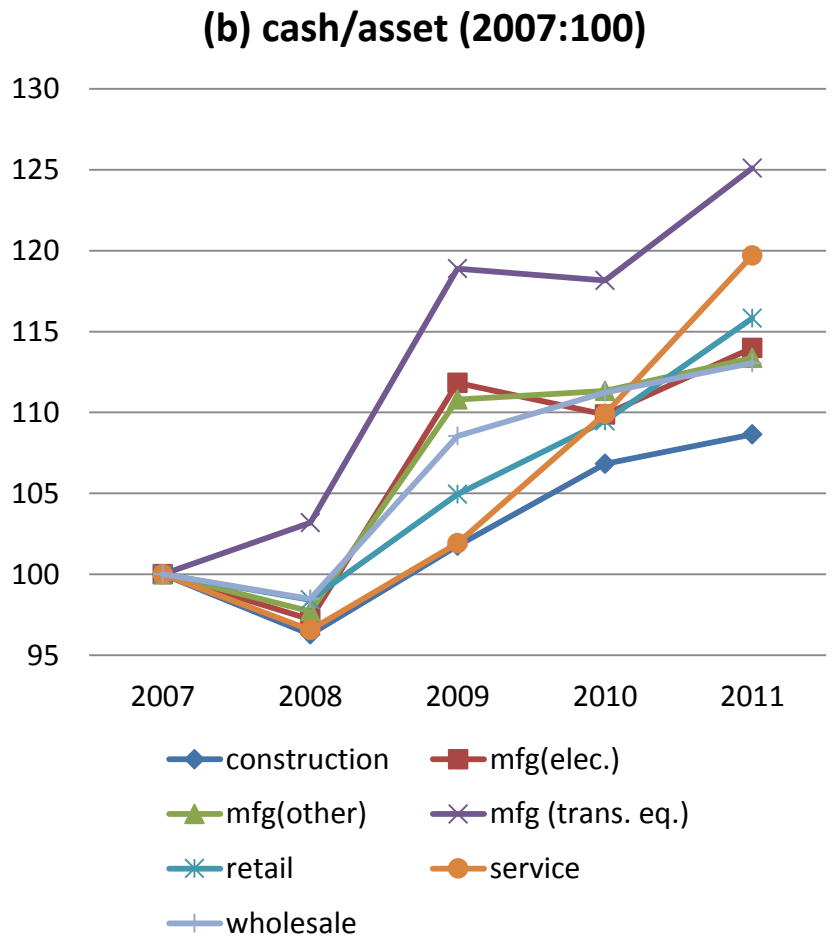
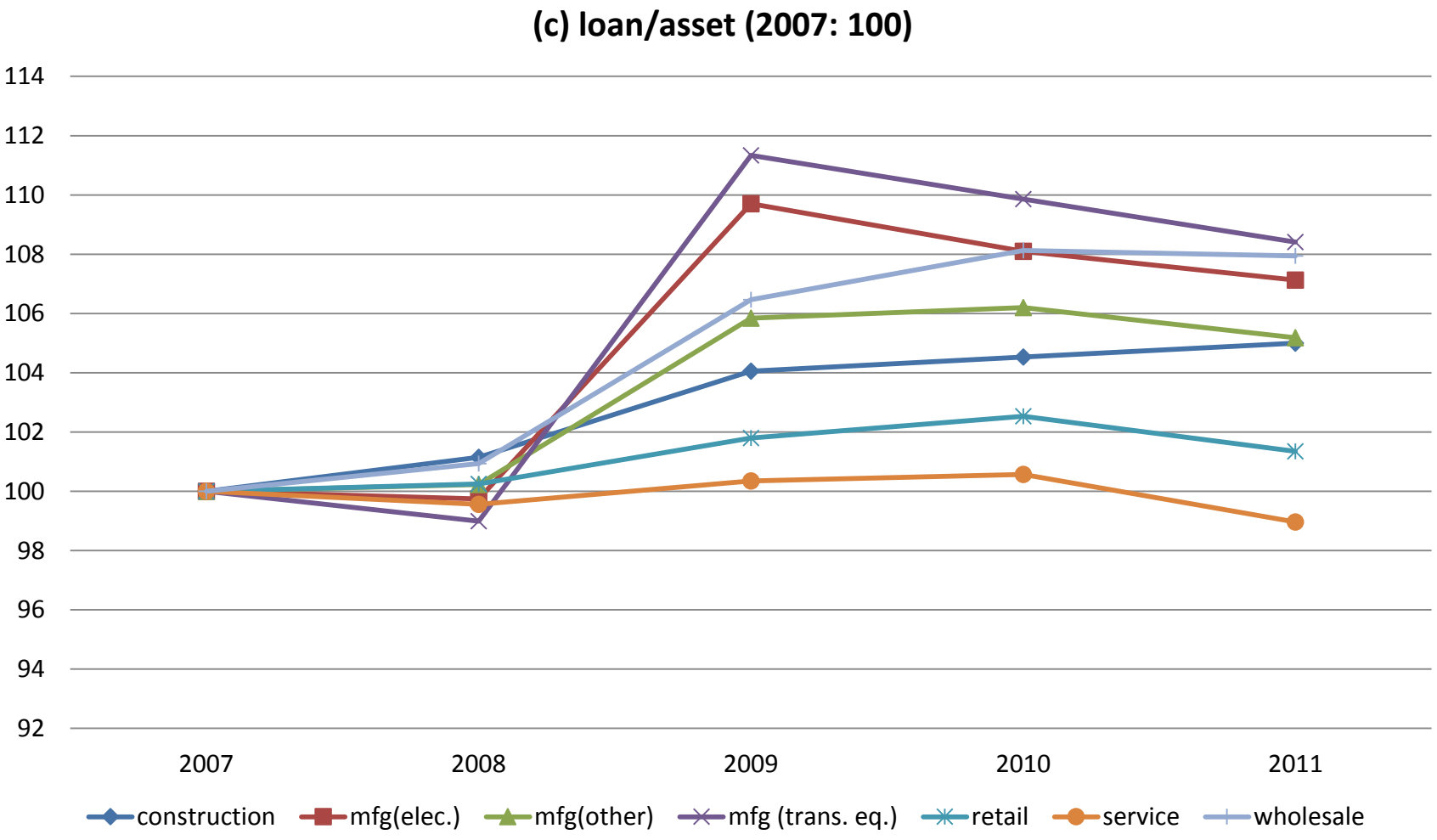
Japanese exporters were severely damaged by the financial crisis in early 2009 ⇒Increased cash holding





(source) Author's calculation with the loan book data of the Small and Medium Enterprise Unit, Japan Finance Corporation. Aggregated the value in the accounting period ending each calendar year.

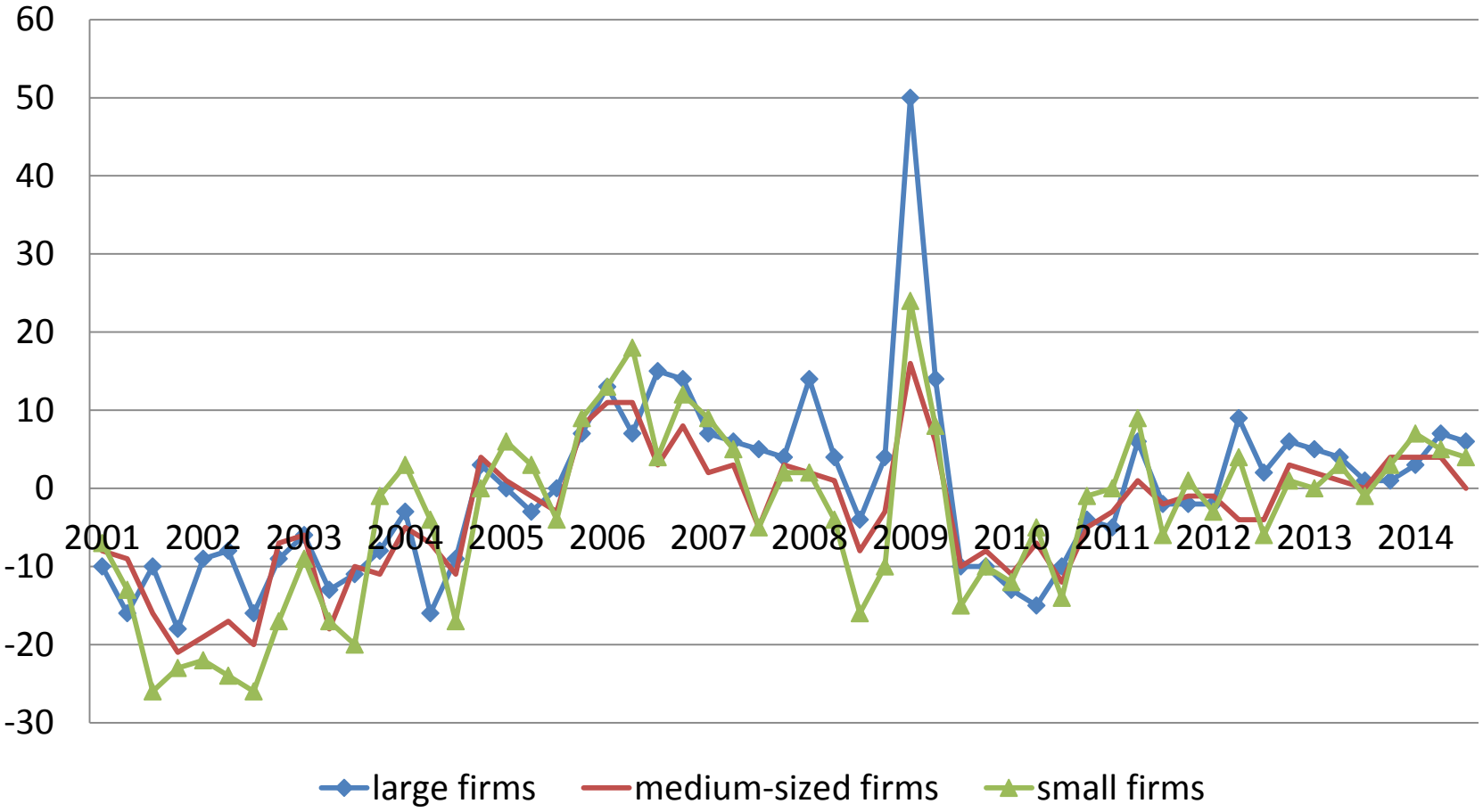
Cash were financed mainly by bank lending



(source) the same as the previous figure.

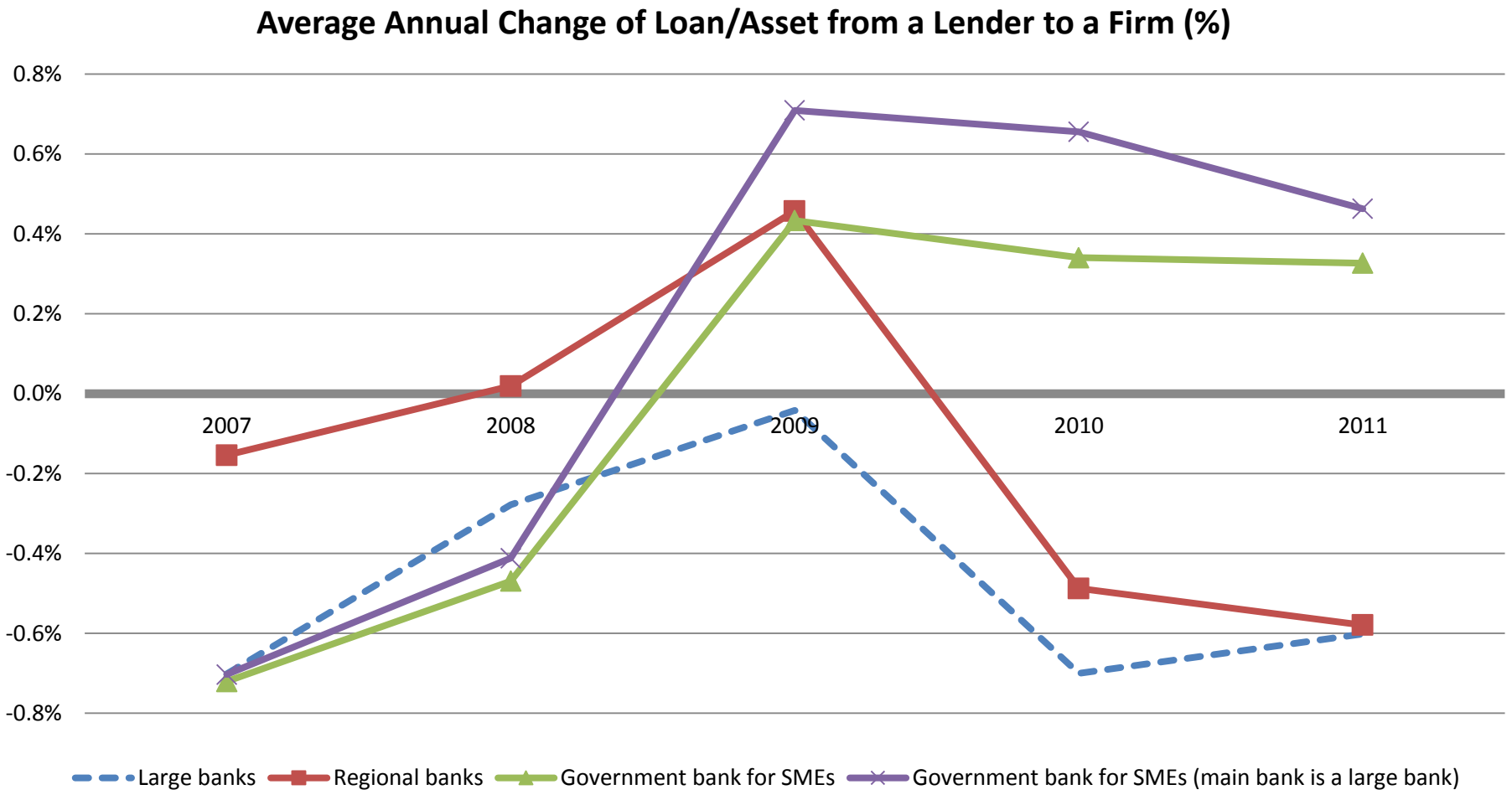
Fund Demand DI (bank loan)

(ratio of "increase") + (ratio of "increase somewhat") /2 —(ratio of "decrease") — (ratio of "somewhat decrease"/2), in the last 3 months, %



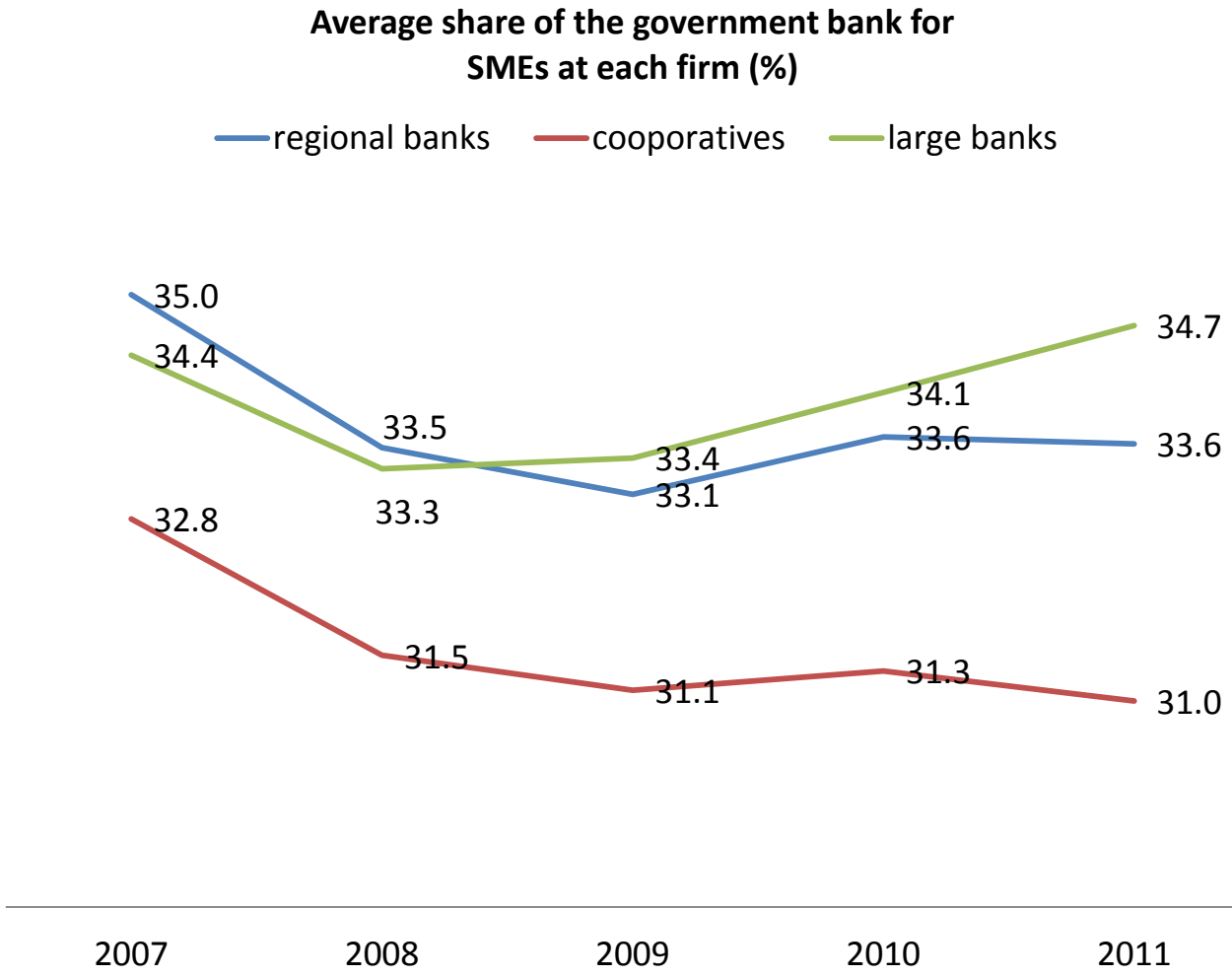
(source) *Senior Loan Officer Opinion Survey on Bank Lending Practices at Large Japanese Bank*s, Bank of Japan

Government-controlled banks (Japan Finance Corporation, Shoko Chukin Bank), and regional/corporative banks increased lending to SMEs, whereas major banks did not.



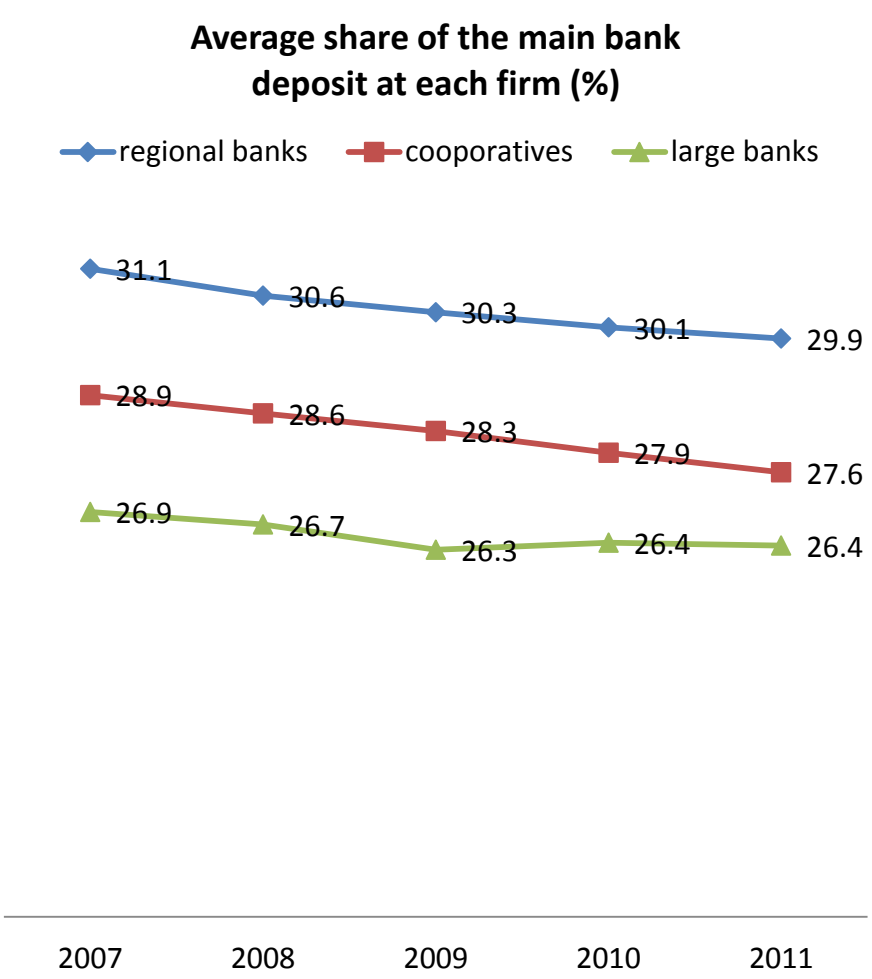
(source) the same as the previous figure.

SMEs whose main bank is a major (city) bank increasingly dependent on gov. banks.

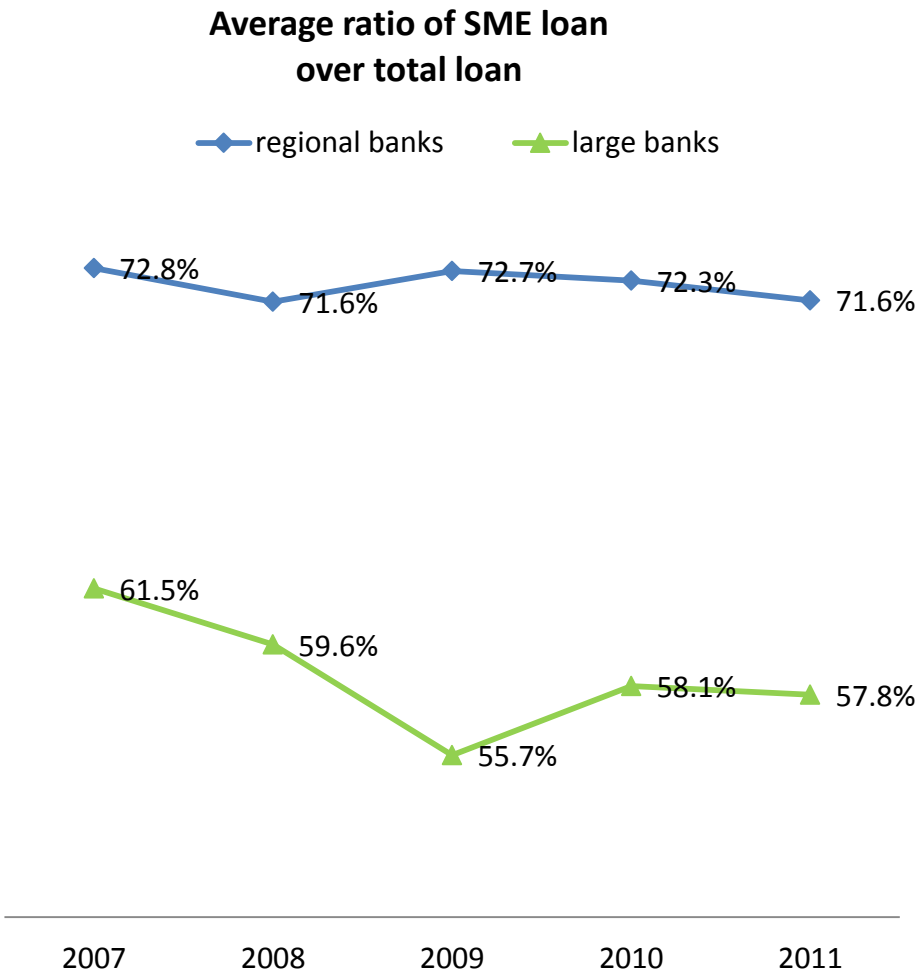


(source) Author's calculation with the loan book data of the Small and Medium Enterprise Unit, Japan Finance Corporation. Aggregated the value in the accounting period ending each calendar year. The government banks for SMEs include the SME unit and the Micro Business and Individual unit of JFC, and Shoko Chukin Bank.

Relationships of SMEs and large banks are weak.



(source) Author's calculation with the loan book data of the Small and Medium Enterprise Unit, Japan Finance Corporation. Aggregated the value in the accounting period ending each calendar year.



(source) Nikkei NEEDS (for publicly traded banks) , Japanese Bankers' Association Website (for privately held banks) . Regional banks includes those participating in the Regional Banks Association of Japan or the Second Association of Regional Banks.

Frequency of main bank switches by types of main banks

		Type of the main bank in the previous year					
		Regional banks		Large banks		All	
	From the previous year	#obs	(ratio of ii)	#obs	(ratio of ii)	#obs	(ratio of ii)
2007	i. no switch	23,082		8,171		31,253	
	ii. switch	474	2.1%	283	3.5%	757	2.4%
2008	i. no switch	22,517		7,835		30,352	
	ii. switch	446	2.0%	286	3.7%	732	2.4%
2009	i. no switch	21,489		7,499		28,988	
	ii. switch	567	2.6%	304	4.1%	871	3.0%
2010	i. no switch	20,874		7,579		28,453	
	ii. switch	490	2.3%	327	4.3%	817	2.9%
2011	i. no switch	20,367		7,594		27,961	
	ii. switch	282	1.4%	190	2.5%	472	1.7%

(source) Author's calculation with the loan book data of the Small and Medium Enterprise Unit, Japan Finance Corporation. Aggregated the value in the accounting period ending each calendar year.

Research Question

1. Fact finding: Did gov. banks fill the excess demand due to insufficient loan supply by large main banks in the financial crisis?
   a. Is it still true after controlling for firm characteristics, and other bank characteristics?
   b. Is the increased dependence on gov. banks due to,
      i. the surge of policy lending, or
      ii. due to the reduction in lending by private banks.

2. Are this behavior of gov. banks consistent with the welfare maximization, or the profit maximization?

Literature: Government-Controlled Banks

- **Negative view** (developing countries, or south Europe)

  La Porta et al (2002), Sapienza (2004), Dinç (2005), Iannotta et al (2011), Pereira et al (2013), Illueca et al (2014)

- **Neutral view**

  Altunbas et al (2001), Lazzarini et al (2011), Cull and Martinez-Peria (2013),

- **Positive view**（Germany, Japan, and Brazil）

  Behr et al (2013), Bertay et al (2014), Coleman and Feler (2015), Sekino et al (2014).

Data

- Internal loan book data and borrowers' financial data of the SME unit, JFC, including financial statement information, amount of loans from each of JFC and other institutions (up to fourth largest lenders).
- 2007-2011 (before and after the financial crisis).
- Sample firms are dropped if they do not borrow for several consecutive years ⇒ unbalanced panel.
- # obs with full information is some 30,000 in each year.
- Two-way panel of firm × year for the first analysis.
- Three-way panel of firm × year × bank for the full analysis.
- Variable definitions are in the appendix.

Descriptive statistics

variable	N	mean	sd	min	p10	p50	p90	max
borrow/asset	151,586	0.536	0.236	0.000	0.198	0.556	0.839	1.000
MB loan share	150,296	0.337	0.242	0.000	0.000	0.316	0.680	1.000
MB deposit share	148,596	0.290	0.151	0.000	0.074	0.298	0.485	1.000
Gov. bank for SMEs share	151,416	0.335	0.252	0.000	0.058	0.279	0.700	1.000
MB's capital ratio	151,586	6.997	3.521	-3.940	3.770	6.650	10.280	63.760
MB's ROA	151,586	0.143	0.500	-5.622	-0.246	0.214	0.414	5.803
MB's NPL ratio	151,586	3.831	2.402	0.484	1.667	3.261	6.583	31.798
MB's SME ratio	148,229	0.750	0.148	0.252	0.566	0.731	1.000	1.000
#lenders	151,586	3.310	0.920	1	2	4	4	4
credit rating	151,586	9.269	2.506	1	6	10	12	12
Δcredit rating	151,586	-0.102	1.466	-10	-2	0	1	11
Δln(sales)	151,586	-0.025	0.243	-6.248	-0.244	-0.011	0.181	4.865
profitability	151,586	0.071	0.334	-69.000	-0.011	0.046	0.193	1.090
tangibility	151,586	0.449	0.241	0.000	0.139	0.431	0.796	1.000
asset	151,586	1545.74	2984.77	3.70	185.90	770.00	3428.80	225251.40
age	151,586	51.28	32.19	1	19	47	86	1003
int. cover.	151,586	12.65	67.55	0	0	3.86	22.02	7927.33
liquidity short	151,586	26.55	233.78	0.00	0.00	0.00	28.10	25271.60

Sectors of firms in the dataset

	2007	2008	2009	2010	2011	total	(share)	Economic Census 2009	
communication	307	310	330	450	517	1,914	1.3%	46,747	2.7%
construction	2,738	2,548	2,410	2,347	2,293	12,336	8.1%	331,079	18.9%
logistics	1,976	1,917	1,851	1,800	1,820	9,364	6.2%	56,444	3.2%
manufacturing (electronics)	907	908	850	870	868	4,403	2.9%	21,776	1.2%
manufacturing (transportation equipment)	548	539	526	552	553	2,718	1.8%	11,381	0.7%
manufacturing (other)	12,780	12,352	11,769	11,332	11,075	59,308	39.1%	241,873	13.8%
real estate	2,378	2,354	2,307	2,090	1,975	11,104	7.3%	182,060	10.4%
retail	2,534	2,429	2,311	2,229	2,192	11,695	7.7%	279,626	16.0%
service	2,876	2,915	2,874	2,966	3,005	14,636	9.7%	386,427	22.1%
wholesale	4,543	4,396	4,246	4,279	4,348	21,812	14.4%	189,621	10.8%
others	491	468	452	445	440	2,296	1.5%	2,583	0.1%
total	32,078	31,136	29,926	29,360	29,086	151,586	100.0%	1,749,617	100.0%

(source) The column of the Economic Census 2009 is based on the number of companies (excluding sole proprietorships) in the 2009 Economic Census for Business Frame (Kiso Chosa), Statistics Bureau, Ministry of Internal Affairs and Communications, Japan. Three sectors in the manufacturing sector are calculated by the author based on this statistic. The other parts are from Panel (3), Table 1, in page 285, the Statistical Appendix of the 2012 White Paper on Small and Medium Enterprises in Japan.

Preliminary: Types of main banks and the gov. bank dependence

Fixed effect of year and firm

(base: main bank is a regional or coop. banks, in 2007）

$$\ln(gov.bank\ for\ SMEs\ share_{it}) = \beta_0 + \beta_1 \cdot MB\ large_{it} + \sum_{s=2008}^{2011} \beta_s \cdot MB\ large_{is} \cdot FY(s)_t + \delta' X_{it} + \theta_t + \mu_i + \varepsilon_{it.} \quad (1)$$

- i: firm ID, t: year (= 2007, …, 2011)
- ln(gov. bank for SMEs share): ln(gov.share/(1-gov.share)), (gov.share is replaced with 0.9999 if 1, with 0.0001 if it is 0).
- MB large: dummy indicating main bank is major (city, trust) banks.
- X： Control variables (incl. sector dummy × year dummy）
- θ_t :year FE, μ_i : firm FE, ε_{it} : error term

Those whose main bank is a major bank increased the gov.bank dependence, and reduced the main bank share, and the leverage after 2009.

Dep. Var.	(1) ln(gov. bank for SMEs share)		(2) ln(MB loan share)		(3) borrow/asset	
Ind. Var.	Coef.	S. E.	Coef.	S.E.	Coef.	S.E.
MB large	-0.075	0.066	-1.607	0.148***	-0.003	0.003
MB large * FY(2008)	0.053	0.025**	-0.092	0.034***	-0.004	0.001***
MB large * FY(2009)	0.124	0.032***	-0.117	0.042***	-0.006	0.001***
MB large * FY(2010)	0.171	0.040***	-0.068	0.050	-0.006	0.002***
MB large * FY(2011)	0.329	0.048***	0.022	0.057	-0.006	0.002***
FY(2008)	-0.151	0.042***	0.043	0.050	0.000	0.002
FY(2009)	-0.233	0.051***	0.139	0.062**	0.010	0.002***
FY(2010)	-0.248	0.060***	0.030	0.073	0.013	0.003***
FY(2011)	-0.413	0.074***	-0.179	0.085**	0.019	0.003***
MB's capital ratio	-0.002	0.004	-0.011	0.006*	0.000	0.000*
MB's ROA	0.016	0.014	-0.037	0.018**	-0.002	0.001***
MB's NPL ratio	-0.002	0.007	-0.030	0.010***	-0.001	0.000*
#lenders	0.010	0.018	-0.183	0.023***	0.004	0.001***
credit rating	0.020	0.007***	-0.035	0.008***	-0.012	0.000***
Δcredit rating	-0.028	0.005***	0.044	0.006***	0.006	0.000***
Δln(sales)	-0.037	0.027	0.088	0.033***	-0.017	0.001***

(cont.)

(s.e. : firm-clustered s.e.)

ln(asset)	-0.476	0.078***	1.030	0.081***	0.040	0.004***
ln(firm age)	-0.630	0.241***	0.274	0.244	-0.077	0.008***
profitability	0.027	0.030	0.055	0.037	0.005	0.002**
tangibility	0.189	0.184	0.679	0.197***	0.229	0.009***
ln(int.cover)	0.119	0.015***	-0.173	0.015***	-0.026	0.000***
ln(liquid.short)	0.005	0.003*	-0.019	0.004***	0.002	0.000***
Firm fixed effect	yes		yes		yes	
N	151,416		150,296		151,586	
#groups	40,838		40,722		40,852	
R-sq: within	0.013		0.022		0.208	
between	0.051		0.093		0.254	
overall	0.046		0.084		0.252	

Constant term, and sector × year dummies are omitted from the report. Sectors include communication, logistics, manufacturing(electronics, transportation equipment, and other), real estate, retail, service, wholesale, and others (base: construction).

THEORY OF MIXED OLIGOPOLY

Mixed oligopoly: private banks and a government-controlled bank are operating.

(Sketch of the model)

- Main bank undertakes relationship banking. The service is differentiated.

  E.g.: Expectation that the main bank is willing to support the firm under a temporary financial distress (Chemmanur et al 1994, Dinç 2000).

  -> loan demand for the main bank is **less price-elastic**.

- Compare the loan supply functions in the following cases. A gov. bank decides its supply
  1. to maximize its own profit (Cournot),
  2. to maximize the social surplus (sum of bank profits and borrowers profits) in the loan market (mixed Cournot).

Mixed Cournot: 1 main bank, n-2 other banks, and 1 government-controlled bank

- Loan demand function of a firm (L_m: loan by main bank, L_o : loan by non-main banks, L_g : loan by gov. banks, ）

$$L_m = \alpha - \delta\beta R_m + \gamma R_o + \gamma R_g, \quad (2)$$

$$L_o = \alpha - \beta R_o + \gamma\delta R_m + \gamma R_g, \quad (3)$$

$$L_g = \alpha - \beta R_g + \gamma\delta R_m + \gamma R_o, \quad (4)$$

where, $\gamma/\beta < \boxed{\delta < 1}$、$\beta > \gamma > 0$、$\alpha > 0$.

- Key: demand for main bank loan is less price-elastic.
- Using the inverse demand function based on these functions, calculate the Nash equilibrium in the two cases.

Proposition

The increment of the amount of lending by a welfare-maximizing government-controlled bank is decreasing in the strength of the relationship between the borrower and its main bank. The increment of the amount of lending by a profit-maximizing government-controlled bank is independent of the strength of the relationship between the borrower and its main bank.

(Restatement)

In response to the demand surge (larger α), banks increase their loans.

The welfare-max. gov. bank increases less to a firm with stronger relationship with its main bank.

The profit maximizing gov. bank does not make such adjustment.

Stronger relationship = less price elasticity = higher marginal utility

-> It is socially desirable to keep a utility-improving relationship.

-> Welfare-max gov. bank avoids interrupting the relationship.

HYPOTHESIS TEST

Strategy for Hypothesis Test: DID

1. **Difference in differences** w.r.t. the response of gov bank loan supply against a loan demand surge between
   a. firms with strong main bank relationship, and
   b. those without it.
2. Exogenous demand shock: the loan demand surge in the first quarter of 2009 is plausibly an exogenous and surprise event.
3. Weaker relationship between large banks and SMEs, and stronger relationship between regional banks and SMEs (descriptive statistics, and the existing literature, Cole et al 2004, Uchida et al 2008).
4. Three-way panel data: loan amounts from each bank to each firm in each year.

   -> Enable to control for the differences in the magnitude of the shock and other time-varying unobservable firm factors by introducing the firm-year fixed effect.

Specification

Firm × year fixed effect (base: 2007, regional banks incl. shinkins)

$$\Delta loan/asset_{ijt} = \beta_0 + \beta_1 \cdot large\ bank_{jt} + \sum_{s=2008}^{2011} \beta_s \cdot large\ bank_{js} \cdot FY(s)_t$$

$$+\gamma_1 \cdot gov\ bank\ for\ SME_{jt} + \sum_{s=2008}^{2011} \gamma_s \cdot gov\ bank\ for\ SME_{js} \cdot FY(s)_t$$

$$+\lambda_1 \cdot gov\ bank\ for\ SME_{jt} \cdot MB\ large_{it}$$

$$+ \sum_{s=2008}^{2011} \lambda_s \cdot gov\ bank\ for\ SME_{js} \cdot FY(s)_t \cdot MB\ large_{is}$$

$$+\theta_t + \rho_{it} + \varepsilon_{ijt.} \quad (19)$$

Gov. bank increased loans to those whose main bank is a large bank in 2009?

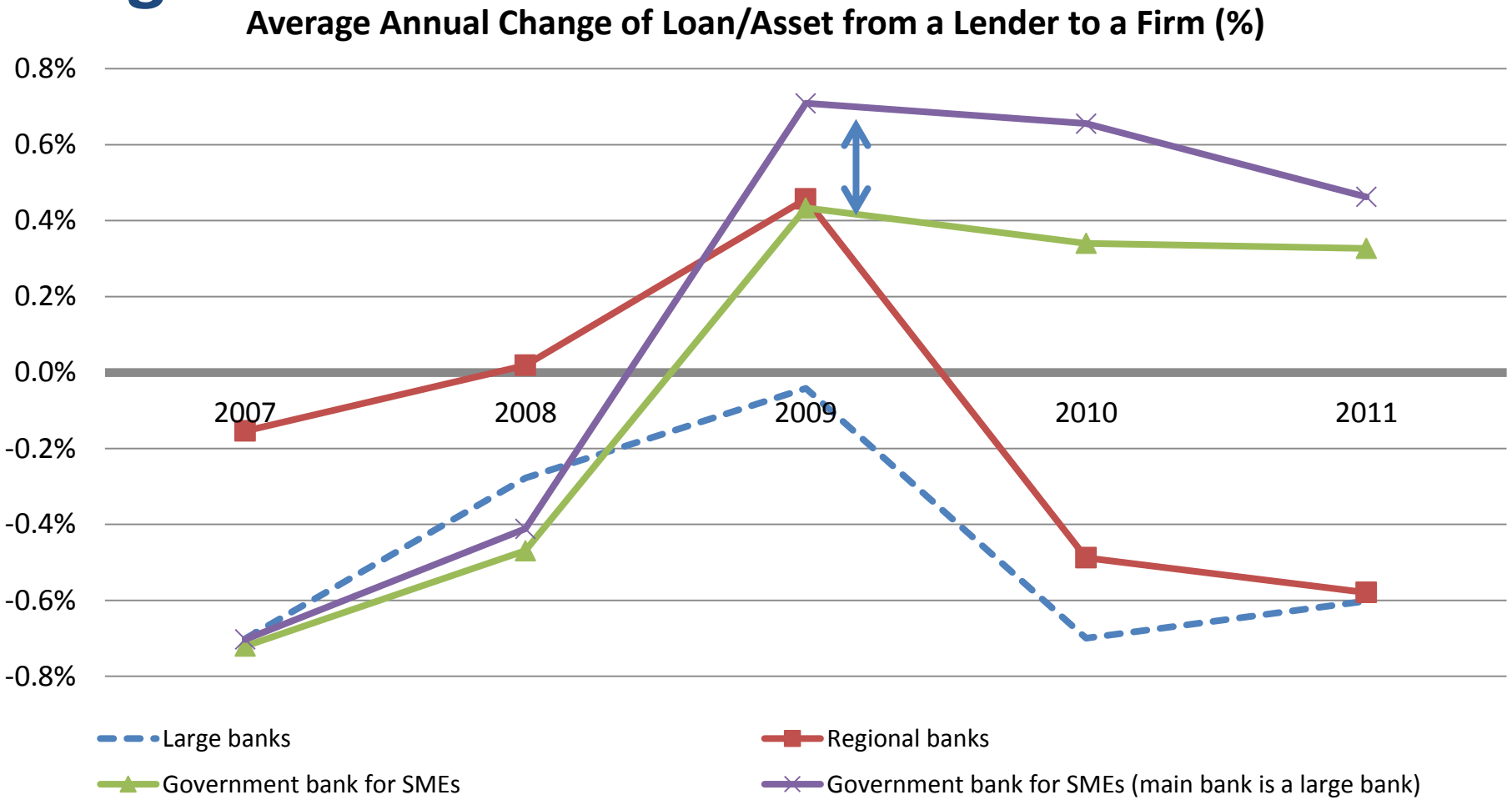
- i: firm ID, j: bank ID, t=2007,…,2011.
- $\Delta loan/asset_{ijt}$: change in loan/asset from bank j to firm i in year t
- $large\ bank_j$ ($gov\ bank\ for\ SME_j$): dummy indicating bank j is a large bank (gov. bank) .
- ρ_{it} : Firm × year FE, θ_t : year FE, ε_{ijt} : error term.

Sample

About 40,000 firms × 5 types × 5years ≒ 1,000,000 obs.

	2007	2008	2009	2010	2011	Total
Large banks	31,296	33,362	33,088	31,927	30,274	159,947
Regional banks	73,459	75,185	74,040	71,001	65,550	359,235
Government banks for SMEs	60,677	61,633	60,247	57,519	54,663	294,739
Other government banks	479	490	486	461	440	2,356
Other institutions	74,610	74,469	74,211	70,305	65,891	359,486
Total	240,521	245,139	242,072	231,213	216,818	1,175,763

Gov. banks increase loans to SMEs. Especially, to those whose main bank is a large bank.



(source) Author's calculation with the loan book data of the Small and Medium Enterprise Unit, Japan Finance Corporation. Aggregated the value in the accounting period ending each calendar year.

Result : gov. banks increased a lot in 2009—11. Especially, for those whose main is a large bank and in need of liquidity.

（Dependent variable: $\Delta loan/asset_{ijt}$, s.e. is firm*year clustered s.e.）

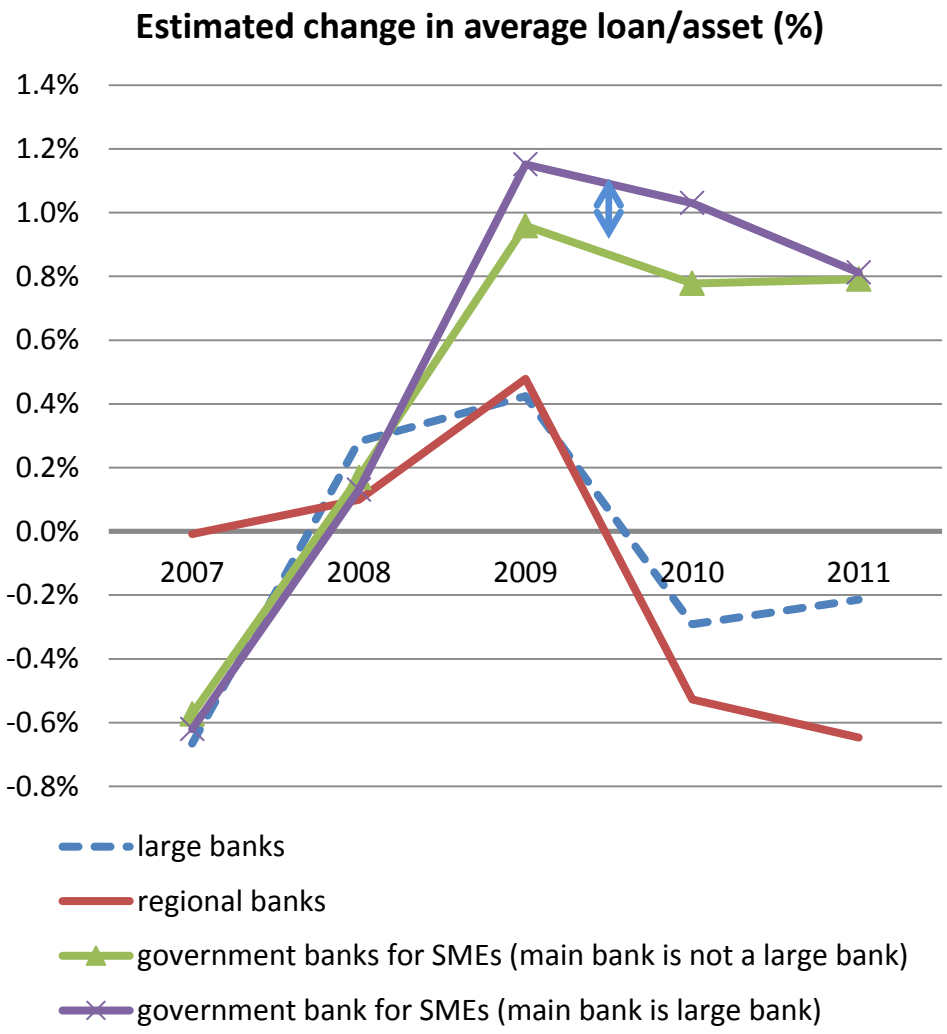
	(1) Baseline		(2) Size of shock		(3) Complete panel	
	Coef.	(S.E.)	Coef.	S.E.	Coef.	S.E.
gov. bank for SMEs	-0.0056	(0.0004)***	-0.0054	(0.0004)***	-0.0040	(0.0005)***
gov. bank for SMEs * FY(2008)	0.0007	(0.0005)	0.0005	(0.0005)	-0.0019	(0.0006)***
gov. bank for SMEs * FY(2009)	0.0048	(0.0005)***	0.0051	(0.0005)***	0.0033	(0.0006)***
gov. bank for SMEs * FY(2010)	0.0131	(0.0005)***	0.0134	(0.0005)***	0.0089	(0.0006)***
gov. bank for SMEs * FY(2011)	0.0144	(0.0005)***	0.0142	(0.0006)***	0.0073	(0.0006)***
gov. bank for SMEs * MB large	-0.0005	(0.0005)	-0.0010	(0.0005)*	-0.0005	(0.0006)
gov. bank for SMEs * FY(2008) * MB large	-0.0004	(0.0007)	-0.0010	(0.0007)	-0.0004	(0.0008)
gov. bank for SMEs * FY(2009) * MB large	0.0019	(0.0007)***	0.0003	(0.0008)	0.0027	(0.0009)***
gov. bank for SMEs * FY(2010) * MB large	0.0025	(0.0007)***	0.0014	(0.0008)*	0.0019	(0.0008)**
gov. bank for SMEs * FY(2011) * MB large	0.0002	(0.0008)	0.0000	(0.0008)	-0.0002	(0.0008)
gov. bank for SMEs * MB large * ln(liquid.short)			0.0015	(0.0004)***		
gov. bank for SMEs * FY(2008) * MB large * ln(liquid.short)			0.0010	(0.0005)**		
gov. bank for SMEs * FY(2009) * MB large * ln(liquid.short)			0.0012	(0.0004)***		
gov. bank for SMEs * FY(2010) * MB large * ln(liquid.short)			0.0016	(0.0005)***		
gov. bank for SMEs * FY(2011) * MB large * ln(liquid.short)			0.0000	(0.0005)		
FY(2008)	0.0011	(0.0004)***	0.0014	(0.0004)***	0.0022	(0.0004)***
FY(2009)	0.0049	(0.0004)***	0.0051	(0.0004)***	0.0061	(0.0004)***
FY(2010)	-0.0052	(0.0004)***	-0.0049	(0.0004)***	-0.0025	(0.0004)***
FY(2011)	-0.0064	(0.0004)***	-0.0056	(0.0004)***	-0.0006	(0.0004)*
large bank	-0.0066	(0.0004)***	-0.0066	(0.0004)***	-0.0067	(0.0005)***
large bank * FY(2008)	0.0018	(0.0006)***	0.0020	(0.0006)***	0.0030	(0.0007)***
large bank * FY(2009)	-0.0005	(0.0006)	-0.0003	(0.0006)	0.0012	(0.0007)*
large bank * FY(2010)	0.0024	(0.0006)***	0.0027	(0.0006)***	0.0035	(0.0006)***
large bank * FY(2011)	0.0043	(0.0006)***	0.0044	(0.0006)***	0.0041	(0.0006)***

(cont.)

other gov. bank	-0.0074	(0.0020)***	-0.0067	(0.0021)***	-0.0064	(0.0019)***
other gov. bank * FY(2008)	-0.0027	(0.0032)	-0.0043	(0.0034)	-0.0061	(0.0031)**
other gov. bank * FY(2009)	-0.0094	(0.0033)***	-0.0106	(0.0033)***	-0.0085	(0.0026)***
other gov. bank * FY(2010)	0.0048	(0.0032)	0.0053	(0.0034)	0.0009	(0.0029)
other gov. bank * FY(2011)	-0.0021	(0.0034)	-0.0029	(0.0035)	-0.0020	(0.0029)
other institutions	-0.0055	(0.0003)***	-0.0063	(0.0003)***	-0.0052	(0.0004)***
other inst. * FY(2008)	0.0043	(0.0004)***	0.0047	(0.0004)***	0.0030	(0.0005)***
other inst. * FY(2009)	0.0104	(0.0004)***	0.0111	(0.0004)***	0.0108	(0.0005)***
other inst. * FY(2010)	0.0050	(0.0004)***	0.0055	(0.0004)***	0.0021	(0.0005)***
other inst. * FY(2011)	0.0068	(0.0005)***	0.0073	(0.0005)***	0.0049	(0.0005)***
Firm & Year fixed effect	yes		yes		yes	
N	1,175,763		1,111,007		717,338	
#groups	60056		58698		32160	
R-sq: within	0.0048		0.0054		0.006	
between	0.0021		0.0029		0.0041	
overall	0.0044		0.005		0.0056	

(note) Liquid.short: “decrease in operating cash flow that cannot be covered by the cash at hand,” Max(0, - (operating cash flow[t] - operating cash flow[t-1] + cash and deposit [t-1])), where Operating Cash Flow equals EBITDA minus the increase in the working capital from the previous year. Working capital equals (inventory) + (bills receivable) - (bills payable). million JPY.

Summary of the result



1. Loans by gov banks increased dramatically in the crisis and kept the high level after that.
2. This impact is larger for firms whose main bank is a large bank.
3. No visible difference between regional banks and major banks. Both increased less extent.

⇒ Regional banks set a priority to firms for which they are serving as a main bank. Major banks do not.

Gov bank fill in the loan shortage for firms whose main bank is a large bank.

(note) estimated marginal effect of the bank type dummies in the baseline regression

What the large bank dummy captures : Weak relationship + Crowding out by large companies

	(1) Relationship		(2) Relationship & SME ratio	
	Coef.	(S.E.)	Coef.	(S.E.)
gov. bank for SMEs	-0.0053	(0.0006)***	-0.0083	(0.0015)***
gov. bank for SMEs * FY(2008)	0.0011	(0.0008)	0.0009	(0.0020)
gov. bank for SMEs * FY(2009)	0.0064	(0.0008)***	0.0096	(0.0021)***
gov. bank for SMEs * FY(2010)	0.0165	(0.0008)***	0.0222	(0.0022)***
gov. bank for SMEs * FY(2011)	0.0139	(0.0009)***	0.0168	(0.0023)***
gov. bank for SMEs * MB deposit share	-0.0023	(0.0017)	-0.0025	(0.0018)
gov. bank for SMEs * FY(2008) * MB deposit share	0.0007	(0.0023)	0.0015	(0.0024)
gov. bank for SMEs * FY(2009) * MB deposit share	-0.0002	(0.0024)	-0.0012	(0.0026)
gov. bank for SMEs * FY(2010) * MB deposit share	-0.0065	(0.0025)**	-0.0095	(0.0027)***
gov. bank for SMEs * FY(2011) * MB deposit share	-0.0047	(0.0026)*	-0.0046	(0.0027)*
gov. bank for SMEs * MB SME ratio			0.0039	(0.0018)**
gov. bank for SMEs * FY(2008) * MB SME ratio			0.0002	(0.0024)
gov. bank for SMEs * FY(2009) * MB SME ratio			-0.0032	(0.0025)
gov. bank for SMEs * FY(2010) * MB SME ratio			-0.0058	(0.0027)**
gov. bank for SMEs * FY(2011) * MB SME ratio			-0.0032	(0.0028)
FY(2008)	0.0002	(0.0003)	0.0001	(0.0004)
FY(2009)	0.0044	(0.0004)***	0.0043	(0.0004)***
FY(2010)	-0.0054	(0.0004)***	-0.0056	(0.0004)***
FY(2011)	-0.0055	(0.0004)***	-0.0057	(0.0004)***
large bank	-0.0067	(0.0004)***	-0.0068	(0.0005)***
large bank * FY(2008)	0.0022	(0.0006)***	0.0024	(0.0006)***
large bank * FY(2009)	-0.0004	(0.0006)	-0.0001	(0.0006)
large bank * FY(2010)	0.0028	(0.0006)***	0.0030	(0.0006)***
large bank * FY(2011)	0.0045	(0.0006)***	0.0048	(0.0006)***

other gov. bank	-0.0082	(0.0021)***	-0.0068	(0.0022)***
other gov. bank * FY(2008)	-0.0013	(0.0031)	-0.0027	(0.0033)
other gov. bank * FY(2009)	-0.0088	(0.0032)***	-0.0102	(0.0034)***
other gov. bank * FY(2010)	0.0062	(0.0036)*	0.0060	(0.0039)
other gov. bank * FY(2011)	-0.0022	(0.0036)	-0.0028	(0.0033)
other institutions	-0.0052	(0.0003)***	-0.0052	(0.0003)***
other inst. * FY(2008)	0.0034	(0.0004)***	0.0036	(0.0004)***
other inst. * FY(2009)	0.0102	(0.0004)***	0.0106	(0.0005)***
other inst. * FY(2010)	0.0041	(0.0004)***	0.0043	(0.0005)***
other inst. * FY(2011)	0.0048	(0.0005)***	0.0049	(0.0005)***
Firm & Year fixed effect	yes		yes	
N	1,083,961		999,167	
#groups	53096		47672	
R-sq: within	0.005		0.0052	
between	0.0021		0.0022	
overall	0.0045		0.0047	

Conclusion and limitation

Those whose main bank is a large bank increased the dependence on gov banks. Especially, for those in need of liquidity.

1. Relations between large banks and SMEs are weak.
2. Large corporations crowded out SMEs at large banks.

-> Proposition indicates that the former is consistent with the welfare maximizing gov banks.

-> Perhaps, the loan demand surge from large corporations beyond ability caused the crowding-out against SMEs at a large bank（Holmström and Tirole 1997）。

Limitation: We don’t know the welfare improvement by gov banks is large enough to justify the cost for it.