Bank-Firm Relationship and Soft Budget Constraint in Emerging Economies

Mamoru Nagano
Seikei University

1. Research Motivation

- A number of literature assert that bank-firm relationship is the foundation of the market competitiveness for commercial banks. (Boot[2000], Berger and Udell[1995])
- Few existing literature focus on bank-firm relationship in emerging economies where soft budget constraints (SBCs) are more likely to exist. (Dewatripont and Maskin[1995])
- Literature conclusions are diversified. Some assert government ownership of banks increases the bank risk appetite, but others assert that decreases.(Hossain et al.[2013], Iannotta et al.[2007]
- Our study examines whether or not bank lending relationship the bank risk taking behavior by bank-firm relationship type.

2. Literature Survey

A. Government-Owned Banks

Literature	Sample Country	Sample Period	Main Conclusions
Hossain et al.(2013)	61 Countries 222,597 Banks	1990-2009	Passive Risk Appetite
Berger et al.(2005)	Argentine 2,290 Banks	1993-1999	Poorly Performed
Bonin et al. (2005a)	11Transition Economies 256 Banks	1996-2000	Cost Inefficient
Bonin et al. (2005b)	6 Transition Economies 451 Banks	1994-2002	Cost Inefficient
Iannotta et al.(2007)	EU 15 Countries 1,086 Banks	1999-2004	Aggressive Risk Appetite

B. Business Group-Owned Banks

Literature	Sample Country	Sample Period	Main Conclusions	
Barry et al.(2011)	EU 16 Countries 249 Banks	1999 - 2005	Risk Appetite +	Risk Appetite -
			Institutional investor Ownership	Personal Investor Business group Bank ownership
Boubakri et al.(2005)	22 Emerging Countries 81 Banks	1986 - 1998	Business group	
Taboada(2011)	63 Countries 1,799 Banks	1995 - 2005	Any ownership concentration increases loan contracts with poor borrowers.	
Iannotta et al.(2007)	EU 16 Countries	1999 -	High ownership concentration banks have high loan asset	

C. Foreign-Owned Banks

Literature	Sample Country	Sample Period	Main Conclusions
Pennathur and Vishwasrao (2014)	India	2006 and 2009	Foreign banks are likely to limit their lending activity due to their informational disadvantage in lending market.
Berger et al.(2009)	China 266 Banks	1994-2003	High foreign ownership ratio of banks increases the cost efficiency
Lensink et al.(2008a)	105 Countries 2,095 Bank	1998-2003	Foreign ownership ratio and cost efficiency are negatively related, but well legislative environment improves the inefficiency.
Naaborg and Lensink(2008)	EU, Central and Eastern Europe, and Central Asia 22 Countries	2001	Foreign ownership ratio and profitability are negatively related, and overhead costs are also negatively related

D. State Owned Borrowers and the Soft Budget Constraint

Literature	Sample Country	Sample Period	Main Conclusions
Mueller and Peev(2007)	11 East European Country Firms	1999-2003	The fixed asset investment of state-owned firms is less sensitive to the internal fund.
Moore(2009)	5 East European Country Firms	1995-2006	Ex-state owned firms increase sensitivity of the fixed asset investments to their capital costs after EU.
Chung et al.(2012)	China	1999-2008	The government ownership does not always improves the external funding availability of the firm.

3. Hypotheses

- **Hypothesis 1:** The bank-firm relationship between government owned bank and government or bank owned borrower lowers the degree of bank risk appetite in bank operations.

- **Hypothesis 2:** The bank-firm relationship between government owned bank and business group owned borrower encourages risk taking behavior of the bank in lending operations.

- **Hypothesis 3:** The bank-firm relationship between business group owned bank and business group owned borrower encourages risk taking behavior of the bank in lending operations.

- **Hypothesis 4**: The individual risk appetite of a foreign owned bank is passive, but the probability of an increase in the internal financial risk amplified by external market turbulence increases as the domestic banking market is

4. Empirical Models

$$BankRisk_{ijt}^{F} = X^{Owner}\,\delta_{1}^{F} + X^{Relation}\,\delta_{2}^{F} + X^{Firm}\,\delta_{3}^{F} + X^{Market}\,\delta_{4}^{F} + \varepsilon^{F}_{ijt}$$

$$R_{jT} = \alpha_{0} + \beta^{s}_{MKT} R_{MKT} + \beta^{s}_{IN} R^{s}_{INT} + e_{jT}$$

X^{Owner} : bank and borrower ownership variables

$X^{Relation}$: bank-firm relationship variables

X^{Firm} : borrower performance variables

X^{Market} : local banking market structural variables

R_{jT}: stock price return of bank j

R_{MKT}: market index return of home country

R_{sINT}: short-term policy interest rate of home country

5. Data

A. Number of Observations by Country

	Indonesia	Thailand	Philippines	Malaysia	India	Pakistan	Singapore	Korea	China	Turkey	Russia	Total
	Number of Relationship Partner Banks											
2000	1	6	1	1	0	0	0	0	0	0	0	9
2001	6	7	4	2	24	6	3	10	6	11	1	80
2002	11	7	6	4	24	6	3	10	8	12	1	92
2003	14	7	6	4	28	8	3	11	9	14	2	106
2004	14	7	10	8	29	9	3	11	10	17	2	120
2005	14	7	12	9	30	9	3	12	12	17	4	129
2006	14	7	12	9	34	10	3	13	12	17	6	137
2007	14	7	12	9	34	11	3	13	12	17	6	138
2008	14	7	12	9	34	11	3	13	12	17	6	138
2009	14	7	12	9	33	11	3	12	11	16	4	132
Total	116	69	87	64	270	81	27	105	92	138	32	1,081
	Number of Relationship Partner Borrowers											
2000	2	38	2	1	0	0	0	0	0	0	0	43
2001	41	92	34	55	141	17	41	298	17	28	24	798
2002	63	106	61	96	269	18	85	337	29	53	29	1,166
2003	73	114	66	124	396	21	89	534	36	59	36	1,558
2004	74	121	68	128	532	25	99	675	41	61	36	1,900
2005	81	127	78	153	790	25	93	764	49	66	34	2,280
2006	82	130	93	160	1,044	26	99	797	69	67	34	2,661
2007	82	131	94	160	1,085	25	99	804	70	69	35	2,714
2008	79	111	78	136	1,024	22	81	732	59	54	29	2,165
2009	74	114	56	105	905	22	70	727	44	36	27	2,200
Total	651	1,084	630	1,118	6,186	201	756	5,668	414	493	284	17,485

B. Distributions by Ownership

B-1 Commercial Banks

	Government	Non-Financial Firms	Foreigners
100%	0	0	0
100-50%	487	22	131
50-33%	18	133	24
33-0%	351	843	865
0%	225	83	61
Total	1,081	1,081	1,081

B-2 Borrowers

	Government	Commercial Banks	Family Business Group	Foreigners
100%	43	45	109	200
100-50%	77	155	289	350
50-33%	26	90	640	128
33-0%	187	696	2,889	418
0%	17,152	16,499	13,558	16,389
Total	17,485	17,485	17,485	17,485

C. Distributions by Lending Relationship

C-1 More than 33% Ownership Relations

		Ownership Ratio of Banks		
		Government	Non-Financial Firms	Foreigners
Ownership Ratio of Borrowers	Government	94	52	33
	Commercial Banks	170	45	25
	Family Business Group	565	185	224
	Foreigners	450	75	74

C-2 More than 50% Ownership Relations

		Ownership Ratio of Banks		
		Government	Non-Financial Firms	Foreigners
Ownership Ratio of Borrowers	Government	69	4	18
	Commercial Banks	116	3	14
	Family Business Group	276	12	42
	Foreigners	381	6	50

6. Results

A. Government Owned Bank & Government (Bank) Owned Borrower

	(A) Total Risk	(B) Unsystematic Risk	(C) Unsystematic Risk
$Bank^{Gov}$	0.312*** (8.010)	0.064* (1.620)	0.064* (1.620)
Average Marginal Effect Government Ownership Ratio of Borrower >33.3 %	0.104*** (8.010)	0.021* (1.620)	0.015* (1.620)
$Borrower^{Gov}$	−0.137*** (−2.870)	−0.142*** (−2.870)	
$Borrower^{Bank}$			−0.073* (−1.720)
Loan to Bank Cap	0.074*** (3.270)	0.175*** (7.750)	0.300*** (2.570)
Specification	Random Effect	Random Effect	Random Effect
Sargan-Hansen Statistics	1,185.3***	2,701.0***	1,229.1***
Observations	17,485	17,485	17,485

B. Government (Business Group) Owned Bank & Family Business Group Owned Borrower

	(A) Unsystematic Risk	(B) Unsystematic Risk	(C) Systematic Risk
$Bank^{Gov}$	0.067* (1.680)		
Average Marginal Effect Family Group Ownership Ratio of Borrower >33.3 %	0.005* (1.680)		
$Bank^{Group}$		0.198*** (3.460)	−3.534*** (−12.530)
Average Marginal Effect Family Group Ownership Ratio of Borrower >33.3 %		0.096*** (3.460)	−1.741* (−12.530)
$Borrower^{Family}$	0.018* (1.850)	0.028* (1.850)	−0.042 (−0.580)
Specification	Random Effect	Random Effect	Random Effect
Sargan-Hansen Statistics	1,014.2***	2,560.6***	1,255.2***
Observations	17,485	17,485	17,485

C. Foreign Owned Bank & Foreign Owned Borrower

	(A) Total Risk	(B) Unsystematic Risk	(C) Systematic Risk
Bank^{Foreign}	0.078 (1.370)	−0.261*** (−4.500)	0.507* (1.780)
Borrower^{Foreign}	−0.011 (−0.490)	0.004 (0.170)	−0.134 (−1.210)
Market Share x Bank^{Foreign}	0.028 (1.120)	−0.009 (−0.350)	0.331*** (2.600)
Liberalization x Bank^{Foreign}	−0.116** (−2.520)	−0.165*** (8.130)	0.366* (1.690)
Market Develop x Bank^{Foreign}	0.065* (1.670)	0.052 (1.330)	0.662*** (3.410)
Specification	Random Effect	Random Effect	Random Effect
Sargan-Hansen Statistics	1,276.1***	2,711.9***	1,408.2***
Observations	17,485	17,485	17,485

7. Conclusions

- The bank–firm relationship between government owned bank and government or bank owned borrower lowers the degree of bank risk appetite in bank operations.

- The bank–firm relationship between government owned bank and family business group owned borrower encourages risk taking behavior of the bank in lending operations.

- The bank–firm relationship between business group owned bank and business group owned borrower encourages risk taking behavior of the bank in lending operations.

- The individual risk appetite of a foreign owned bank is generally passive, but the probability of an increase in the internal financial risk amplified by external market turbulence increases as the domestic banking market is developed and liberalized.

7. Conclusions (–*continued.*)

Government Owned Bank

Business Group Owned Bank

Foreign Owned Bank

(A) Government Owned Borrower

(B) Bank Owned Borrower

(C) (D) Business Group Owned Borrower

(E) Foreign Owned Borrower

(A) Bank Risk Appetite Diminishes

(B) Bank Risk Appetite Diminishes

(C) Bank Risk Taking Behavior is Promoted

(D) Bank Risk Taking Behavior is Promoted

(E) Bank Risk Appetite Depends on Market Development