

INTERNATIONAL EVIDENCE ON GOVERNMENT SUPPORT AND RISK-TAKING IN THE BANKING SECTOR*

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* These slides and associated remarks represent only the authors' current opinions, not those of the Board of Governors of the Federal Reserve System or the International Monetary Fund.

There are certainly better ways to deal with excessive risk-taking behaviour by banks, but we must not allow the perfect to become the enemy of the good. In the absence of these better mechanisms, it makes perfect economic sense to restrict commercial banks' investments in very risky activities, because their deposits are insured. Short of removing that insurance – and I doubt commercial banks are ready for that – restricting the set of activities they undertake is the simplest way to cope with the burden that banks can impose on taxpayers.

**Luigi Zingales, “Why was I won over by Glass-Steagall”,
Financial Times, June 10, 2012**

Questions

- Is bank risk-taking related to government support of banks?
- Does bank regulation mitigate the link between government support of banks and risk-taking?

What is the relation between government support of banks and risk-taking?

- Market discipline: Investors do not demand higher risk premiums from riskier banks. This increases risk-taking by supported banks.
 - Bond yields: Schich and Lindh (2012)
 - Stock returns: Correa, Lee, Sapriza, and Suarez (2012)
- Charter value of banks: Government support increases a bank's charter value. The possibility of losing these rents decreases risk-taking.
 - Keeley (1990), Hakenes and Schnabel (2010)

Bank regulation and risk-taking

- Bank regulation and banking crises: Barth, Caprio, and Levine (2004)
 - Capital stringency: Not robustly associated with banking crises.
 - Supervision: Not associated with banking crises.
 - Restriction on activities: Positively associated with likelihood of crisis.
- Bank regulation, banks' charter values, and bank risk-taking: Gonzalez (2005)
 - "Stricter regulation": Leads to lower charter values and increased risk-taking.
- Bank regulation and bank ownership: Laeven and Levine (2009)
 - Capital stringency: Increases risk-taking for banks with large owner.
 - Restriction on activities: Increases risk-taking for banks with large owner.

Other relevant studies

- Deposit insurance and risk-taking: Merton (1977), Hovakimian and Kane (2000), Gropp and Vesala (2004), Forssbaeck (2011).
- “Too big to fail” and risk-taking: Boyd and Gertler (1994), Stern and Feldman (2004), Ennis and Malek (2005) .
- Capital injections and risk-taking: Black and Hazelwood (2012).
- Government ownership and risk: Iannotta, Nocera, & Sironi (2011) .
- Government support, competition, and risk-taking: Gropp, Hakenes, and Schnabel (2011) .

Contribution to the literature

- We are the first to study the relation between government support, bank regulation, and bank risk-taking.
- We use a large cross-section of banks across roughly 50 countries for two periods: 2003-2004 and 2009-2010.
- Our estimations use different ratings-based measures of government support.

Preview of the results

- More government support is associated with increased risk-taking by banks.
- This result is stronger in the recent financial crisis.
- We also find that restricting banks' range of activities ameliorates the moral hazard problem posed by government support.
- The main results are robust to using different government support measures and risk-taking proxies.

Data

- Government support: We use information on standalone ratings and issuer ratings from Moody's and Fitch to construct measures of government support of banks.
- Bank financial information: Bankscope.
- Bank Regulation: Barth, Caprio, and Levine – Bank regulation and supervision database (2003, 2008).
- Deposit insurance: Demirgüç-Kunt, Kane, and Laeven (2008) and International Monetary Fund.
- Investor protection and enforce: World Bank.
- Ownership: Bankscope, Capital IQ, SNL Financial, and banks' websites.

Number of banks by region and cross-section

	<i>2003-2004</i>	<i>2009-2010</i>
Australia	8	9
Canada	6	6
Japan	30	19
United States	24	23
Europe (DM)	127	133
Other Developed Markets†	13	14
Emerging Markets	122	143
Total	330	347

† DM according to current MSCI Developed Markets Index

- Totals above refer to banks for which we have ratings information.

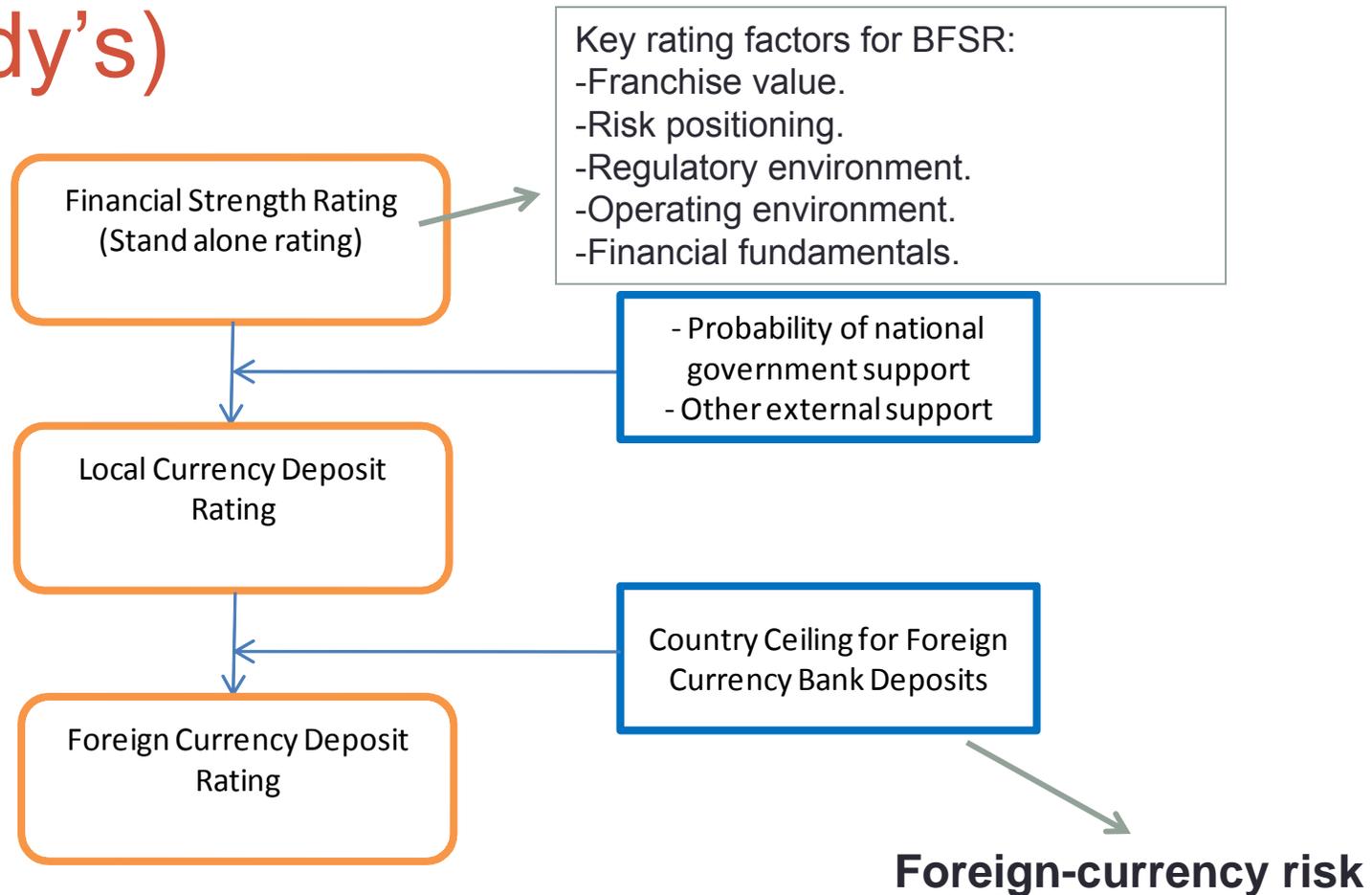
Z-score

$$z - score = \frac{(ROA + (E / A))}{\sigma(ROA)}$$

Notes:

- We calculate the std. dev. of the ROA over a 5 year rolling window.
- z-score is skewed. We use the natural logarithm of z-score in our regressions (normally distributed).

Measures of government support (Moody's)

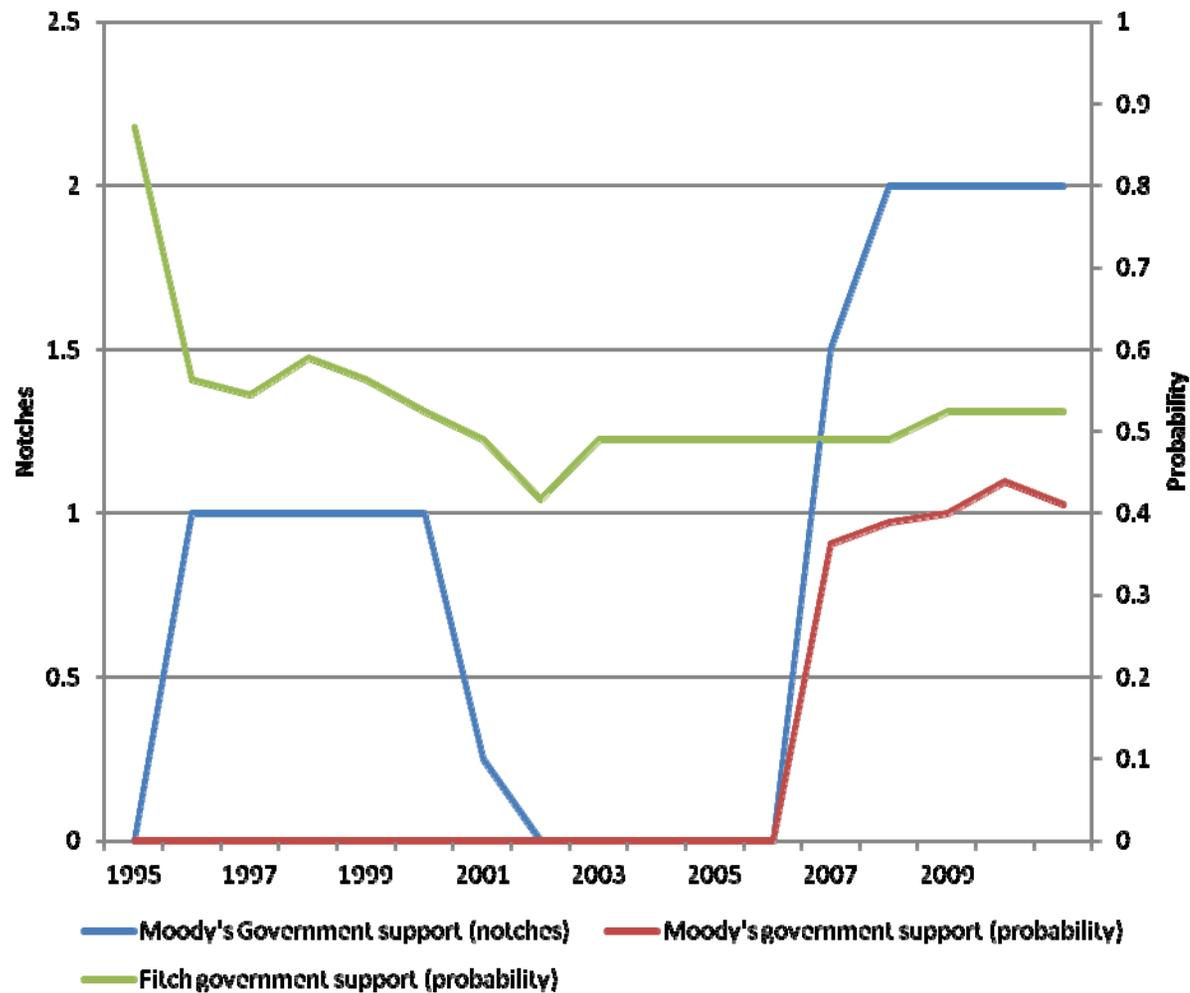


Measures of government support: Rating notches

Support in rating notches = Foreign
currency deposit rating (Local currency
deposit rating) – Financial Strength
Rating

Note: Following Gropp, Hakenes, and Schnabel (2011), we also compute a ratings-based measure of support probability using both Fitch and Moody's rating [information](#).

Measures of government support



Measures of government support

	Size	Liquidity	Moody's government support (notches)	Moody's government support (probability)	Fitch government support (probability)
Panel A: 2003-2004					
Size	1.000				
Liquidity	-0.034	1.000			
Moody's government support (notches)	0.153***	-0.003	1.000		
Moody's government support (probability)	0.030	0.007	0.843***	1.000	
Fitch government support (probability)	0.289***	0.030	0.439***	0.270***	1.000
Panel B: 2009-2010					
Size	1.000				
Liquidity	-0.019	1.000			
Moody's government support (notches)	0.306***	0.023	1.000		
Moody's government support (probability)	0.413***	0.097*	0.714***	1.000	
Fitch government support (probability)	0.184**	0.027	0.521***	0.371***	1.000

*** p<0.01, ** p<0.05, * p<0.1

Summary statistics

	<i>2003-2004</i>				<i>2009-2010</i>			
	N	Mean	Median	Std. dev.	N	Mean	Median	Std. dev.
z-Score	286	3.30	3.41	1.14	321	3.02	3.17	0.94
Return on Assets (in %)	313	0.99	0.81	1.03	332	0.66	0.56	2.44
Std. Dev. Return on Assets	288	0.68	0.27	1.67	323	1.06	0.38	6.94
Equity to Assets Ratio (in %)	313	7.53	6.48	5.94	332	8.29	7.43	15.88
Loan Loss Provisions (in %)	307	0.43	0.31	0.53	325	0.83	0.53	1.03
Revenue growth	311	0.20	0.18	1.00	329	-0.07	0.11	4.70
Size (in \$ billions)	313	128.6	32.5	240.6	332	225.0	49.3	456.0
Liquidity	314	18.02	11.23	20.05	332	32.96	20.09	65.23
Moody's support (in ratings notches)	331	1.03	0.00	2.60	348	1.66	2.00	2.64
Moody's support (in probability)	331	0.26	0.00	0.36	348	0.42	0.40	0.36
Fitch support (in probability)	137	0.54	0.62	0.39	205	0.55	0.61	0.37

Empirical Strategy

$$Z = \alpha + \beta X + \varepsilon$$

Concern: Risk-taking and the rating agencies' perception of government support of banks are jointly determined. $\text{Cov}(\varepsilon, X) \neq 0$ thus OLS is not consistent.

Solutions:

1. Instrument our measure of government support (average support to competitors from same country).
2. Saturate the regression with many bank and country specific measures to capture as much of the error term as possible (Bitler, Moskowitz, and Vissing-Jorgensen, 2005; Laeven and Levine, 2009).

Hypothesis 1: Is bank risk-taking related to government support of banks?

$$Z_{b,c,t} = \beta_0 + \beta_1 GS_{b,c,t-1} + \beta_2 X_{b,c,t-1} + \beta_3 W_{c,t-1} + \varepsilon_{b,c}$$

b: bank

c:country

t: 2003-2004,2009-2010

GS: Government support

X: Bank-specific controls

W: Country-specific controls

Hypothesis 1: Is bank risk-taking related to government support of banks?

VARIABLES	2003-2004				2009-2010			
	Bank controls	Instrumental variables	Country fixed effects		Bank controls	Instrumental variables	Country fixed effects	
Government support	-0.048 [0.052]	-0.068 [0.051]	0.003 [0.094]	-0.133*** [0.034]	-0.081*** [0.030]	-0.080*** [0.028]	-0.082** [0.038]	-0.134*** [0.037]
Revenue growth	0.101 [0.668]	0.227 [0.600]	0.292 [0.607]	0.686** [0.329]	0.017*** [0.005]	0.018*** [0.004]	0.018*** [0.004]	0.013*** [0.004]
Size		0.156** [0.064]	0.127* [0.069]	-0.008 [0.053]		-0.002 [0.043]	-0.004 [0.044]	0.004 [0.044]
Liquidity		-0.011*** [0.003]	-0.011*** [0.004]	-0.017*** [0.003]		-0.002** [0.001]	-0.002** [0.001]	-0.001** [0.000]
Observations	286	286	275	286	321	320	310	320
R-squared	0.01	0.10	0.06	0.58	0.06	0.07	0.08	0.40
Countries	54	54	44	54	54	54	48	54

Hypothesis 1: Is bank risk-taking related to government support of banks?

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	2003-2004			2009-2010		
	Country controls	Ownership	Support in 2001	Country controls	Ownership	Support in 2007
Government support	-0.117*** [0.029]	-0.121*** [0.033]	-0.099*** [0.035]	-0.079*** [0.028]	-0.068** [0.027]	-0.046* [0.027]
Revenue growth	0.548 [0.336]	-0.086 [0.654]	-0.072 [0.658]	0.018*** [0.004]	0.018*** [0.005]	0.018*** [0.005]
Size	0.026 [0.049]	0.028 [0.075]	0.028 [0.084]	-0.011 [0.043]	-0.035 [0.049]	-0.049 [0.048]
Liquidity	-0.007** [0.003]	-0.008** [0.003]	-0.008*** [0.003]	-0.001* [0.001]	-0.001** [0.001]	-0.001** [0.001]
Per capita income	0.634*** [0.203]	0.585*** [0.192]	0.617*** [0.192]	-0.341*** [0.112]	-0.366*** [0.126]	-0.376*** [0.121]
Inflation	-0.010 [0.026]	-0.007 [0.032]	-0.004 [0.033]	-0.044* [0.023]	-0.043** [0.021]	-0.035* [0.020]
Inflation volatility	-0.090** [0.041]	-0.104* [0.056]	-0.115* [0.062]	-0.071* [0.041]	-0.066* [0.037]	-0.054 [0.035]
Capital requirements	0.079*** [0.025]	0.102*** [0.025]	0.113*** [0.026]	-4.927 [8.608]	-6.712 [8.423]	-7.757 [8.262]
Investor protection index	-0.000 [0.080]	0.013 [0.085]	0.048 [0.086]	-0.002 [0.052]	-0.013 [0.050]	-0.008 [0.051]
Deposit insurance	-0.542*** [0.158]	-0.434** [0.179]	-0.444** [0.180]	-0.183 [0.212]	-0.168 [0.209]	-0.095 [0.200]
Enforce	0.004** [0.002]	0.004** [0.002]	0.006*** [0.002]	0.000 [0.002]	-0.000 [0.002]	-0.000 [0.002]
Herfindahl index	-0.265 [0.248]	-0.152 [0.346]	0.050 [0.359]	-0.115 [0.248]	-0.150 [0.274]	-0.135 [0.284]
Cash flow rights		-0.002 [0.003]	-0.003 [0.003]		-0.005** [0.002]	-0.005** [0.002]
Government ownership		0.557** [0.273]	0.653** [0.304]		0.052 [0.169]	0.044 [0.169]
Institutional ownership		0.262 [0.225]	0.429* [0.241]		0.359** [0.146]	0.335** [0.147]
Individual ownership		0.524 [0.352]	0.520 [0.327]		-0.266 [0.172]	-0.267 [0.170]
Observations	250	183	177	317	305	302
R-squared	0.37	0.34	0.35	0.13	0.17	0.17
Countries	49	44	44	53	53	53

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

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Revenue growth	0.548 [0.336]	-0.086 [0.654]	-0.072 [0.658]	0.018*** [0.004]	0.018*** [0.005]	0.018*** [0.005]
Size	0.026 [0.049]	0.028 [0.075]	0.028 [0.084]	-0.011 [0.043]	-0.035 [0.049]	-0.049 [0.048]
Liquidity	-0.007** [0.003]	-0.008** [0.003]	-0.008*** [0.003]	-0.001* [0.001]	-0.001** [0.001]	-0.001** [0.001]
Per capita income	0.634*** [0.203]	0.585*** [0.192]	0.617*** [0.192]	-0.341*** [0.112]	-0.366*** [0.126]	-0.376*** [0.121]
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Deposit insurance	-0.542*** [0.158]	-0.434** [0.179]	-0.444** [0.180]	-0.183 [0.212]	-0.168 [0.209]	-0.095 [0.200]
Enforce	0.004** [0.002]	0.004** [0.002]	0.006*** [0.002]	0.000 [0.002]	-0.000 [0.002]	-0.000 [0.002]
Herfindahl index	-0.265 [0.248]	-0.152 [0.346]	0.050 [0.359]	-0.115 [0.248]	-0.150 [0.274]	-0.135 [0.284]
Cash flow rights		-0.002 [0.003]	-0.003 [0.003]		-0.005** [0.002]	-0.005** [0.002]
Government ownership		0.557** [0.273]	0.653** [0.304]		0.052 [0.169]	0.044 [0.169]
Institutional ownership		0.262 [0.225]	0.429* [0.241]		0.359** [0.146]	0.335** [0.147]
Individual ownership		0.524 [0.352]	0.520 [0.327]		-0.266 [0.172]	-0.267 [0.170]

Hypothesis 1: Is bank risk-taking related to government support of banks? (Components of z-score)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	2003-2004			2009-2010		
	ROA	Std. ROA	Equity/Assets	ROA	Std. ROA	Equity/Assets
Government support	-0.086*** [0.027]	0.050** [0.021]	-0.091 [0.094]	-0.119** [0.054]	-0.001 [0.026]	-0.495*** [0.152]
Revenue growth	0.048 [0.147]	0.999 [0.603]	-3.323** [1.437]	0.006** [0.003]	-0.002 [0.004]	0.014 [0.027]
Size	-0.167** [0.079]	-0.024 [0.034]	-1.721*** [0.579]	-0.150* [0.083]	-0.170*** [0.045]	-1.972*** [0.516]
Liquidity	0.001 [0.003]	-0.001 [0.003]	-0.009 [0.012]	0.011** [0.004]	0.009** [0.003]	0.079*** [0.015]
Per capita income	0.131 [0.140]	-0.557*** [0.168]	0.823 [0.570]	-0.382** [0.160]	0.154 [0.101]	0.047 [0.640]
Inflation	0.044 [0.030]	-0.028 [0.024]	0.10 [0.108]	0.006 [0.034]	-0.002 [0.017]	-0.092 [0.103]
Inflation volatility	-0.008 [0.076]	0.188*** [0.047]	0.253 [0.178]	0.066 [0.056]	0.029 [0.033]	0.113 [0.232]
Capital requirements	0.012 [0.018]	-0.044** [0.017]	-0.069 [0.089]	-18.600* [9.722]	3.39 [6.480]	-29.972 [34.843]
Investor protection index	0.044 [0.065]	-0.077 [0.050]	0.053 [0.213]	-0.013 [0.127]	0.104* [0.055]	0.467 [0.412]
Deposit insurance	-0.630** [0.307]	0.318 [0.189]	-0.952 [1.002]	-0.577 [0.345]	0.070 [0.226]	-1.364 [1.447]
Enforce	0.002 [0.002]	-0.004* [0.002]	-0.001 [0.006]	-0.002 [0.002]	-0.001 [0.001]	-0.010 [0.009]
Herfindahl index	0.405 [0.391]	0.225 [0.332]	2.066 [1.569]	0.138 [0.347]	-0.028 [0.280]	0.878 [2.148]
Cash flow rights	-0.002 [0.002]	-0.001 [0.002]	-0.027** [0.012]	-0.004 [0.003]	0.003 [0.002]	-0.010 [0.011]
Government ownership	0.253 [0.260]	-0.195 [0.145]	2.567 [1.572]	-0.014 [0.460]	0.402 [0.269]	1.336 [1.376]
Institutional ownership	-0.018 [0.178]	-0.209 [0.153]	2.506* [1.365]	0.218 [0.177]	-0.035 [0.100]	1.659 [1.459]
Individual ownership	0.720* [0.393]	-0.344 [0.311]	2.187* [1.249]	0.677** [0.279]	0.711** [0.308]	4.105* [2.357]
Observations	198	183	198	312	306	312
R-squared	0.43	0.55	0.65	0.32	0.41	0.61
Countries	45	44	45	53	53	53

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

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	ROA	Std. ROA	Equity/Assets	ROA	Std. ROA	Equity/Assets
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Hypothesis 2: Does bank regulation mitigate the link between government support of banks and risk-taking?

$$Z_{b,c,t} = \beta_0 + \beta_1 GS_{b,c,t-1} + \beta_2 R_{c,t-1} + \beta_3 GS_{b,c,t-1} * R_{c,t-1} + \beta_4 X_{b,c,t-1} + \beta_5 W_{c,t-1} + \varepsilon_{b,c}$$

b: bank

c:country

t: 2003-2004,2009-2010

GS: Government support

R: Country-specific regulatory standards

X: Bank-specific controls

W: Country-specific controls

Hypothesis 2: Does bank regulation mitigate the link?

VARIABLES	2003-2004				2009-2010			
	Capital stringency	Official supervisory powers	Activity restrictions	All	Capital stringency	Official supervisory powers	Activity restrictions	All
Government support	0.098 [0.127]	-0.275 [0.175]	-0.146 [0.164]	-0.126 [0.168]	-0.026 [0.091]	-0.416*** [0.126]	-0.425*** [0.075]	-0.432*** [0.145]
Capital stringency	0.10 [0.071]			0.052 [0.066]	0.065 [0.055]			0.076 [0.060]
Support x Capital stringency	-0.048 [0.032]			-0.019 [0.028]	-0.016 [0.023]			-0.018 [0.018]
Official supervisory power		0.002 [0.046]		0.027 [0.033]		0.008 [0.041]		0.005 [0.041]
Support x Official supervisory power		0.019 [0.016]		0.009 [0.012]		0.032*** [0.011]		0.014 [0.012]
Activity restrictions			-0.093 [0.060]	-0.090* [0.049]		0.063** [0.026]	0.073** [0.031]	
Support x Activity restrictions			0.011 [0.018]	0.001 [0.019]		0.034*** [0.008]	0.026*** [0.010]	
Observations	250	250	250	250	266	266	266	266
R-squared	0.31	0.3	0.31	0.4	0.15	0.18	0.23	0.25
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	49	49	49	49	47	47	47	47

So what is the secret of the watchdogs' failure? The answer is simple. Or rather, it is complexity. For what this paper explores is why the type of complex regulation developed over recent decades might not just be costly and cumbersome but sub-optimal for crisis control. In financial regulation, less may be more.

Andrew G. Haldane and Vasileios Madouros, “The dog and the frisbee”. Speech given at the Federal Reserve Bank of Kansas City’s 36th economic policy symposium, Jackson Hole, Wyoming.

Summary and further work

- More government support is associated with increased risk-taking by banks.
- This result is stronger during the recent financial crisis.
- Association is robust to alternative specifications of risk or government support.
- Restricting banks' range of activities ameliorates the moral hazard problem posed by government support.
- We need to understand why. Directly restricting risk-taking? Reducing complexity of banks?
- We want to assess if better bank governance also reduces the moral hazard problem.

ADDITIONAL SLIDES

Measures of government support – Rating notches: An example

Median ratings of largest banks as of
August 2011:

	<i>Bank financial strength</i>	<i>Deposits rating</i>	<i>Government support</i>
Greece	Caa1	B3	1
Ireland	Ba3	Ba2	1
Portugal	Ba2	Ba1	1
Spain	Baa1	A2	2

Measures of government support: Probability of support

Based on Gropp, Hakenes, Schnabel (2011)

Probability of support = $1 - (\text{Prob. default deposit rating} / \text{Prob. default standalone rating})$

Average cumulative issuer-weighted global (one-year ahead) default rates, 1998-2010

Rating	Default probability
Aaa	0
Aa1	0
Aa2	0
Aa3	0.052
A1	0.116
A2	0.114
A3	0.083
Baa1	0.19
Baa2	0.226
Baa3	0.364
Ba1	0.459
Ba2	0.778
Ba3	1.197
B1	1.742
B2	3.535
B3	5.864
Caa1	9.985
Caa2	19.193
Caa3	30.037
Ca-C	43.446

Source: Moody's
Investors Services
(2011)

Measures of government support: Probability of support (Adjustments)

Probability of support = $1 - (\text{Prob. default deposit rating} / \text{Prob. default standalone rating})$

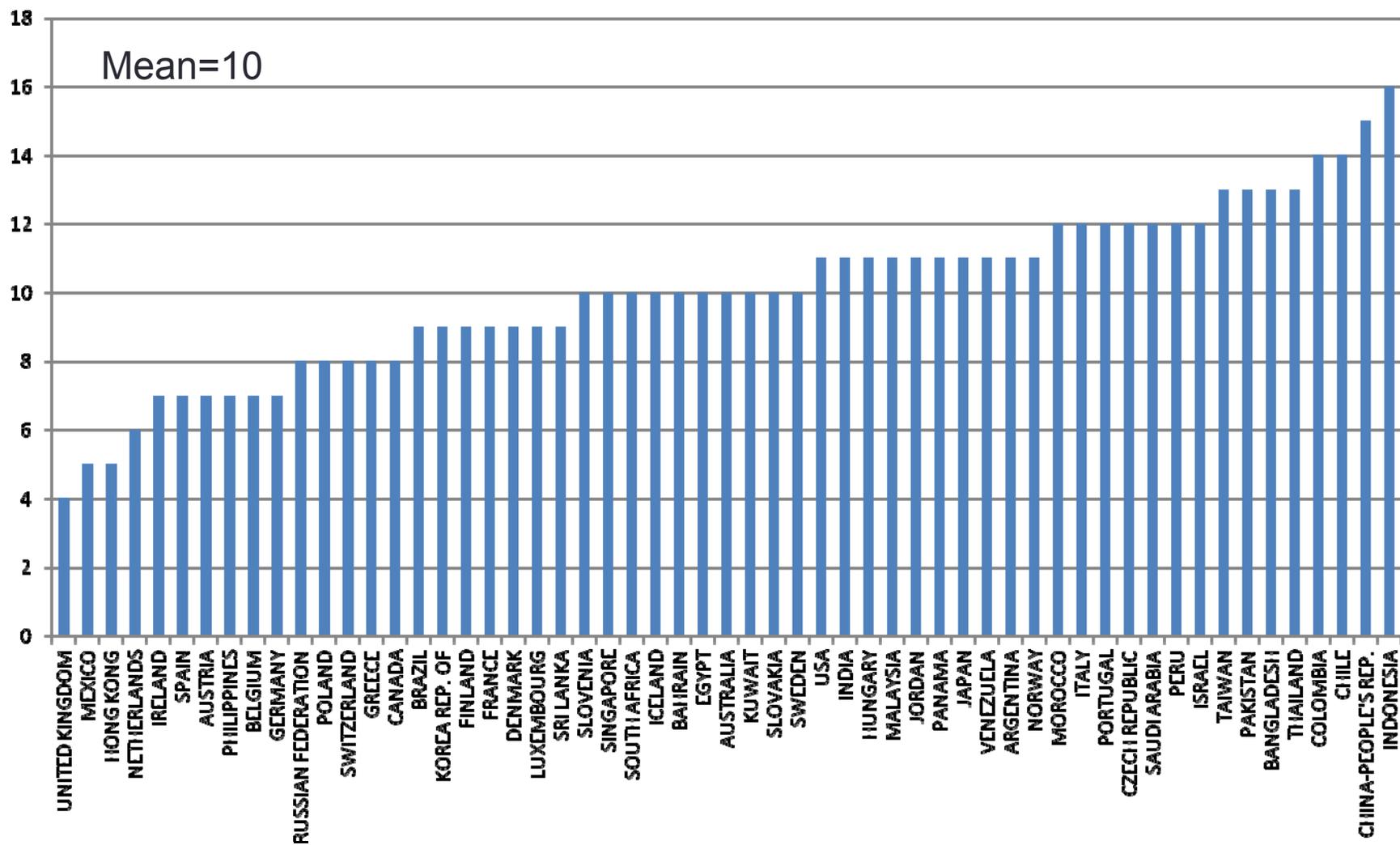
1. Prob. of support = 0 if prob. default standalone rating = 0 and prob. default deposit rating = prob. default standalone rating
2. Prob. of support = 1 if prob. default standalone rating = 0 \neq prob. default deposit rating and rating support ≥ 3
3. Prob. of support = 0.75 if prob. default standalone rating = 0 \neq prob. default deposit rating and rating support = 2
4. Prob. of support = 0.5 if prob. default standalone rating = 0 \neq prob. default deposit rating and rating support = 1
5. Prob. of support = 0 if prob. of support < 0

Activity restriction (Barth et al. 2008)

Activities

- | | | |
|-----|---|---|
| 4.1 | What are the conditions under which banks can engage in securities activities? 4 categories | 1.Unrestricted; A full range of these activities can be conducted in directly in banks, 2. Permitted; A full range of these activities are offered but all or some of these activities must be conducted in subsidiaries or in another part of a common holding |
| 4.2 | What are the conditions under which banks can engage in insurance activities? 4 categories | 1.Unrestricted; A full range of these activities can be conducted in directly in banks, 2.Permitted; A full range of these activities are offered but all or some of these activities must be conducted in subsidiaries or in another part of a common holding |
| 4.3 | What are the conditions under which banks can engage in real estate activities?4 categories | 1Unrestricted;A full range of these activities can be conducted directly in banks, 2Permitted;A full range of these activities are offered but all or some of these activities must be conducted in subsidiaries or in another part of a common holding company |
| 4.4 | Can banks own voting shares in nonfinancial firms? 4 categories | 1Unrestricted; A bank may own 100% of the equity in any nonfinancial firm, 2.Permitted;A bank may own 100% of the equity in a nonfinancial firm but ownership is limited based upon a bank's equity capital, 3. Restricted ; A bank can only acquire less than |

Activity restriction (2008)



Hypothesis 1: Is bank risk-taking related to government support of banks? (Robustness – Loan loss provisions)

VARIABLES	2003-2004		2009-2010	
	Fixed effects	Country controls	Fixed effects	Country controls
Government support	0.034*	0.018	0.013	0.024
	[0.019]	[0.015]	[0.029]	[0.039]
Revenue growth	-0.003	0.012	-0.005**	-0.003
	[0.024]	[0.019]	[0.002]	[0.003]
Size	-0.031	-0.040*	-0.054*	-0.05
	[0.021]	[0.021]	[0.031]	[0.036]
Liquidity	-0.001	-0.001	0.001	0.001
	[0.001]	[0.001]	[0.002]	[0.001]
Per capita income		-0.095*		0.221**
		[0.053]		[0.089]
Inflation		0.012		0.072*
		[0.013]		[0.038]
Inflation volatility		-0.012		0.123*
		[0.023]		[0.069]
Capital requirements		0.006		9.136
		[0.008]		[12.432]
Investor protection index		0.012		0.047
		[0.024]		[0.065]
Deposit insurance		0.07		0.485
		[0.091]		[0.380]
Enforce		0.001***		0
		[0.000]		[0.002]
Observations	306	265	321	318
R-squared	0.35	0.15	0.52	0.09
Countries	56	50	54	53

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Hypothesis 1: Is bank risk-taking related to government support of banks? (Robustness – Probability of support – Moody's)

VARIABLES	2003-2004				2009-2010			
	Bank controls	Country fixed effects	Country fixed effects	Country controls	Bank controls	Country fixed effects	Country fixed effects	Country controls
Government support	-0.468*	-0.499**	-0.522**	-0.473**	-0.448***	-0.434***	-0.474**	-0.314**
	[0.245]	[0.214]	[0.222]	[0.188]	[0.160]	[0.154]	[0.192]	[0.147]
Revenue growth	0.127	0.252	0.620*	0.568	0.019***	0.019***	0.012**	0.019***
	[0.678]	[0.610]	[0.343]	[0.356]	[0.005]	[0.005]	[0.005]	[0.004]
Size		0.144**	-0.01	0.03		0.004	0.039	0.006
		[0.065]	[0.058]	[0.052]		[0.045]	[0.049]	[0.042]
Liquidity		-0.011***	-0.018***	-0.008**		-0.002**	-0.001*	-0.001
		[0.003]	[0.003]	[0.003]		[0.001]	[0.000]	[0.001]
Per capita income				0.562***				-0.353***
				[0.200]				[0.105]
Inflation				0.012				-0.023
				[0.022]				[0.020]
Inflation volatility				-0.097**				-0.035
				[0.042]				[0.038]
Capital requirements				0.079***				-4.757
				[0.025]				[8.684]
Investor protection index				0.011				0.003
				[0.081]				[0.056]
Deposit insurance				-0.613***				0.025
				[0.167]				[0.188]
Enforce				0.003**				0.000
				[0.001]				[0.002]
Herfindahl index				-0.252				-0.107
				[0.249]				[0.249]
Observations	286	286	286	250	321	320	320	317
R-squared	0.02	0.10	0.56	0.34	0.04	0.05	0.39	0.11
Countries	54	54	54	49	54	54	54	53

Hypothesis 1: Is bank risk-taking related to government support of banks? (Robustness – Probability of support – Fitch)

VARIABLES	2003-2004				2009-2010			
	Bank controls	Country fixed effects	Country fixed effects	Country controls	Bank controls	Country fixed effects	Country fixed effects	Country controls
Government support	-0.213 [0.240]	-0.372* [0.198]	-0.26 [0.172]	-0.036 [0.193]	-0.274 [0.199]	-0.234 [0.174]	-0.458*** [0.159]	-0.277* [0.165]
Revenue growth	-0.056 [0.765]	0.076 [0.714]	0.992 [0.710]	0.744 [0.587]	0.024*** [0.004]	0.024*** [0.004]	0.010** [0.004]	0.023*** [0.005]
Size		0.107 [0.073]	0.014 [0.105]	0.119* [0.060]		-0.011 [0.041]	0.075 [0.054]	-0.013 [0.038]
Liquidity		-0.006** [0.002]	-0.005** [0.002]	-0.012*** [0.004]		-0.004 [0.004]	-0.001 [0.001]	-0.003 [0.003]
Per capita income				0.617*** [0.195]				-0.375*** [0.128]
Inflation				0.014 [0.023]				-0.03 [0.034]
Inflation volatility				-0.046** [0.022]				-0.061 [0.061]
Capital requirements				0.128*** [0.042]				6.139 [8.006]
Investor protection index				0.032 [0.100]				-0.011 [0.081]
Deposit insurance				-0.510** [0.193]				-0.084 [0.203]
Enforce				0.005** [0.002]				0.000 [0.002]
Herfindahl index				0.619 [0.396]				0.147 [0.418]
Observations	175	175	175	127	269	268	268	261
R-squared	0.01	0.06	0.57	0.35	0.03	0.05	0.44	0.11
Countries	43	43	43	39	50	50	50	49

Regulators need a clear “bright line” that they can apply to bank activities. The aim should be to permit innovation, and prudent risk taking, while also creating less varied and complex boundaries that banks cannot cross and that everyone can understand. The new simplicity should establish a clear ability to determine when to say yes, and when to say no; and the meaning of “no” should be unambiguous..

Nicholas Brady, “We need much simpler rules to rein in the banks”, Financial Times, August 27, 2012

<http://www.ft.com/cms/s/0/32fcc07a-ec70-11e1-8e4a-00144feab49a.html#ixzz24l58dV4F>