Effectiveness and (In)Efficiencies of Compensation Regulation: Evidence from the EU Banker Bonus Cap

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Motivation

Compensation in the finance industry and the crisis of 2008–09:

- **Empirics:** Compensation practices have contributed to excessive risk-taking in the financial crisis (e.g., Bhagat and Bolton, 2014; Efing et al., 2015)
- **Theory:** Capping bonuses can lead to more beneficial outcomes at the bank-level (e.g., Bénabou and Tirole, 2016)

Does a decrease in incentives solve the problem?

> *The common folklore that giving options to agents will make them more willing to take risks is false.*
>
> Ross (2004)

Research Question

EU bankers' bonus cap as a shock to compensation structure:

- Effective from 2014 onwards, EU bankers' compensation is subject to new regulation.
- Applying a discount rule, **maximum** variable compensation is capped at 250% of fixed compensation.

Goal of the EU bankers' bonus cap:

→ Cap was implemented "in order to avoid excessive risk taking" (CRD IV)

→ Cap increases banks' costs of incentivisation, i.e. it **internalises social costs of incentivisation**

Our question: Which (unintended) consequences does a change in the variable-to-fixed compensation ratio come with?

→ What are the effects on managerial mobility and human capital?

→ How do banks adjust compensation packages?

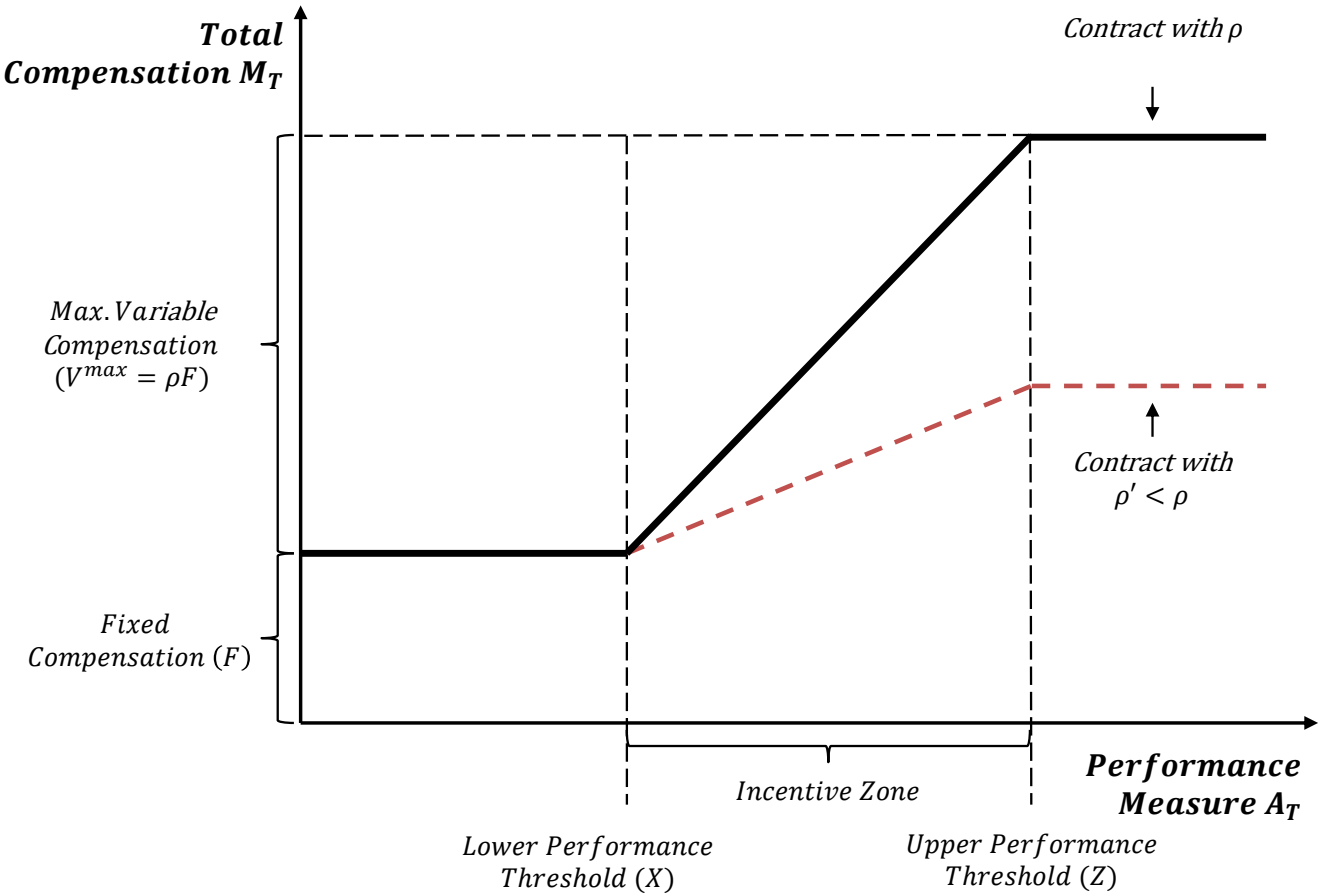
→ In which way is risk-taking and bank performance affected?

Contribution and Preview of Results

We find

- → Changes in compensation policy point towards **indemnification of bankers** for the loss in variable compensation
- → **No clear evidence on flight responses** by bankers
- → Bank-level analysis: Lower (risk-adjusted) performance driven by **increased risk**

Sketch of a Compensation Plan

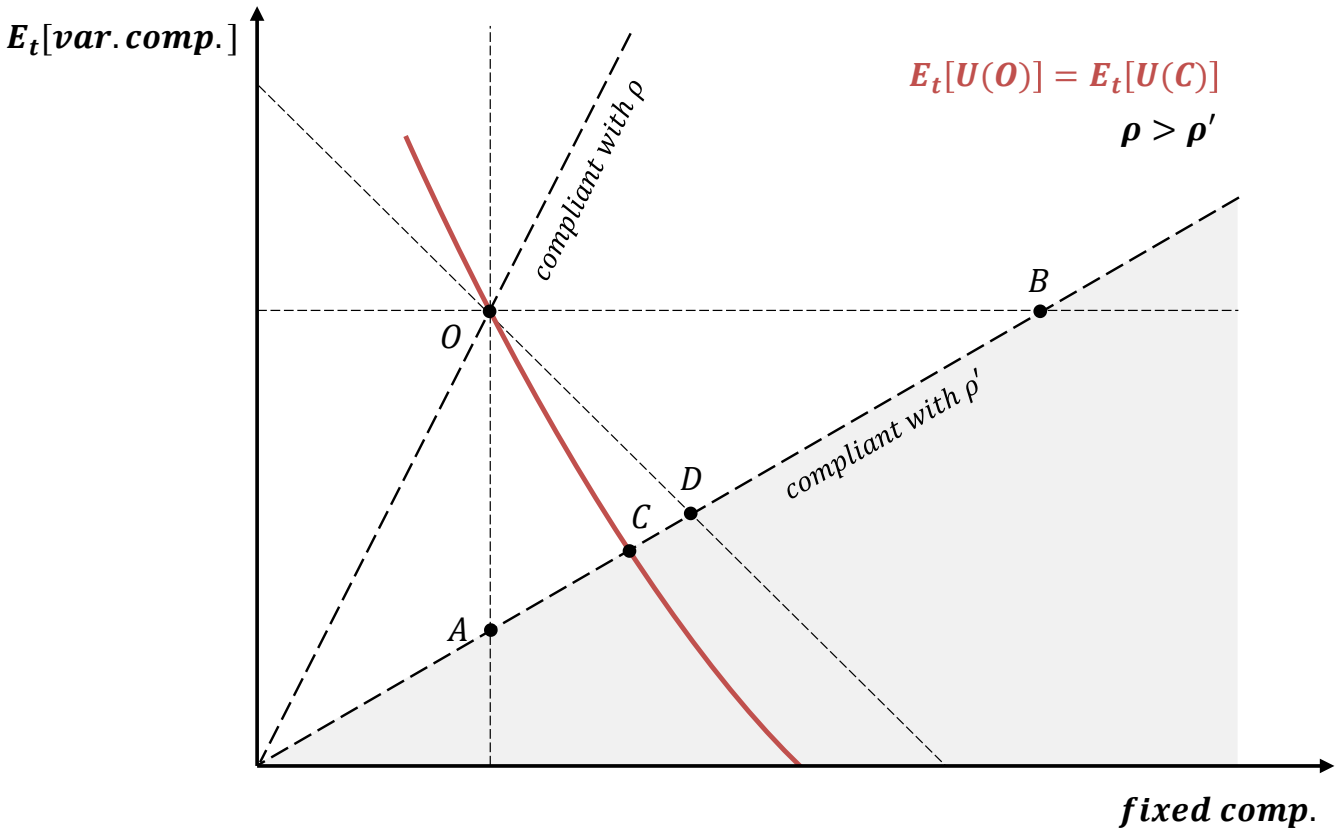


Bonus cap sets upper limit for variable pay relative to fixed pay

→ Bonus cap is an **upper limit on ρ**

▸ Pre-bonus cap variable compensation ▸ Formal representation

Compensation Structure and Directors' Preferences (cont'd)

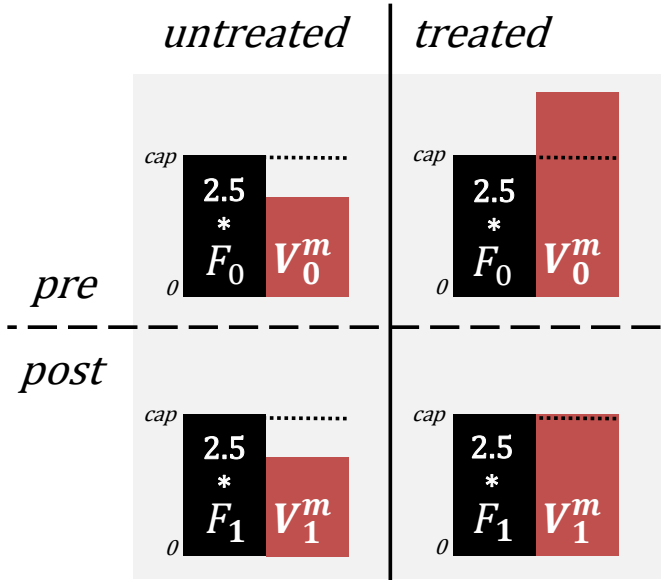


▸ Results on effectiveness ▸ Results on compensation structure ▸ Results on expected value

Empirical Model

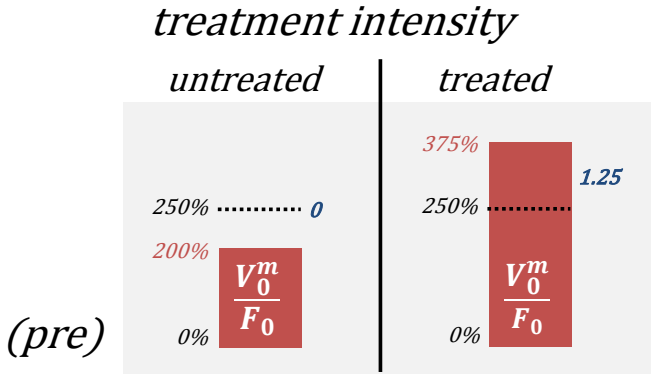
Difference-in-differences set-up:

- Who is treated:
  - We look at compliance with bonus cap prior to its implementation
  - Treated if variable cap of a director was above feasible threshold in 2013
- Post-period: when the cap became effective (2014 onwards)
- Control group: Untreated directors at EU (US) banks



We consider **treatment intensity**:

- For untreated directors: 0
- For treated directors: Difference between max.-var.-to-fixed and 250%, e.g. $d_j = 375\% - 250\% = 1.25$



Empirical Model (cont'd)

$$y_{ijt} = \beta_0 + \beta_1 d_i + \beta_2 p_t + \beta_3 d_i p_t + \boldsymbol{\gamma x_{it}} + \boldsymbol{\theta z_{jt}} + \mathbf{1}\boldsymbol{\alpha_{ijt}} + \epsilon_{ijt}$$

Dependent variables y_{ijt}:

- **Director turnover**
- Measures of **compensation**
- **Bank performance** (bank-level regressions using y_{jt})

Independent variables:

- Treatment(-intensity) indicator d_i and post indicator p_t
- Director-level controls $\boldsymbol{x_{it}}$ (age, experience, managerial skills ...)
- Bank-level controls $\boldsymbol{z_{jt}}$ (total assets, size of board, bank performance ...)
- Vector of fixed effects $\boldsymbol{\alpha}_{ijt}$ (director, bank, year ...)

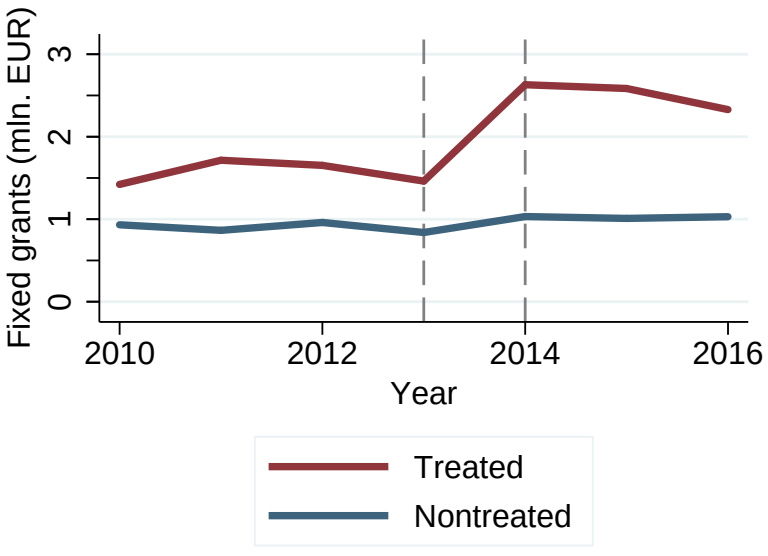
Data

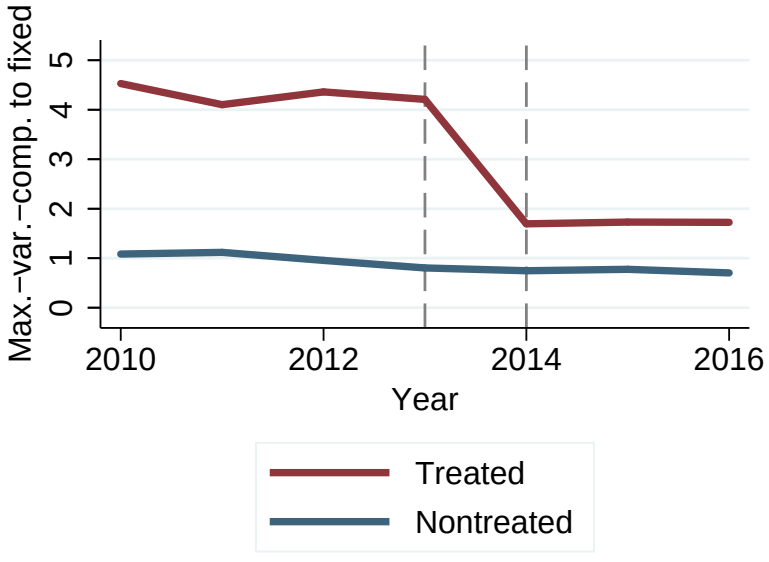
Our dataset is a **panel with executive director-bank-year observations**:

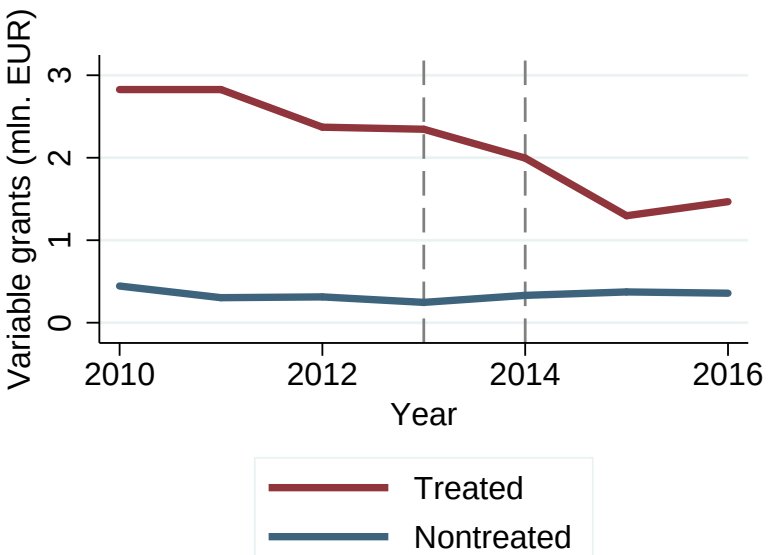
- BoardEx Europe and BoardEx UK supply information on boards and directors of banks
- Bank-level data is taken from BvD Bankscope (2010-2015) and BvD Orbis Bank Focus (2016)
- Stock market data stems from TR Datastream
- Systemic risk data from NYU V-Lab
- US Executives: Compensation data from Execucomp, CRSP for stock market data and Compustat for bank financials
- Post-evaluation grants and information on the structure of compensation were hand-collected from publicly available remuneration reports

▸ Grant-date pay vs. realised pay vs. post-evaluation pay ▸ Summary Statistics

Trends in Bank Executives' Compensation







Effectiveness of the Bonus Cap Regulation

Dependent variable:	Max.-var.-comp. to fixed			Variable compensation		
	(1)	(2)	(3)	(4)	(5)	(6)
Treat. int.	1.268***	0.923***		852.785***	634.795***	
	(5.98)	(4.20)		(11.95)	(5.42)	
Post × Treat. int.	-1.008***	-1.009***	-0.946***	-672.274***	-661.932***	-658.906***
	(-6.14)	(-5.75)	(-6.75)	(-3.48)	(-4.37)	(-4.21)
Bank and director controls	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Bank fixed effects		X	X		X	X
Director fixed effects			X			X
Mean(y)	1.185	1.187	1.203	553.121	553.121	556.980
S.D.(y)	1.238	1.239	1.249	1,078.022	1,078.022	1,080.785
R^2	0.641	0.825	0.859	0.478	0.713	0.777
N	754	753	734	866	866	860

▸ Indemnification graph ▸ US control group

Compensation Structure Changes Point Towards Indemnification

Dependent variable:	Fixed compensation			Max. variable compensation		
	(1)	(2)	(3)	(4)	(5)	(6)
Treat. int.	136.240***	-124.386		2,317.748***	1,676.805***	
	(3.29)	(-0.84)		(12.49)	(9.19)	
Post × Treat. int.	312.721**	327.873***	331.925***	-1,027.553***	-1,049.634***	-945.509***
	(2.37)	(3.03)	(2.87)	(-7.23)	(-8.57)	(-7.62)
Bank and director controls	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Bank fixed effects		X	X		X	X
Director fixed effects			X			X
Mean(y)	1,097.188	1,097.188	1,103.125	1,624.259	1,626.163	1,661.127
S.D.(y)	762.868	762.868	761.825	2,500.710	2,501.825	2,523.622
R^2	0.456	0.698	0.807	0.671	0.813	0.895
N	866	866	860	754	753	734

▸ Indemnification graph ▸ US control group

Bankers Appear to be Indemnified

Dependent variable:	Expected pay, pre-probabilities				Expected pay, post-probabilities			
	director-level prob.		board-level prob.		director-level prob.		board-level prob.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat. int.	629.646***		516.029***		640.182***		587.977***	
	(5.02)		(3.35)		(3.68)		(4.38)	
Post × Treat. int.	-56.274	-62.094	-67.096	-49.295	-474.584*	-481.029	-392.647	-398.771
	(-0.30)	(-0.31)	(-0.43)	(-0.29)	(-1.71)	(-1.68)	(-1.66)	(-1.68)
Bank and director controls	X	X	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X	X	X
Bank fixed effects	X	X	X	X	X	X	X	X
Director fixed effects		X		X		X		X
Mean(y)	1,844.484	1,876.137	1,842.392	1,874.288	1,851.688	1,885.764	1,839.916	1,871.297
S.D.(y)	1,801.510	1,808.878	1,768.650	1,775.403	1,762.273	1,768.972	1,729.891	1,735.814
R^2	0.809	0.904	0.810	0.896	0.791	0.871	0.786	0.873
N	636	621	636	621	641	625	645	630

- Expected pay relies on a risk-neutral approach
- Literature on executive compensation suggests risk-averse directors (Hall and Murphy, 2002; Fernandes et al., 2013)
  - → Overestimation of levels of expected pay
  - → But: **underestimation of differential changes**, given $F \uparrow$, $V_{max} \downarrow$

▸ Indemnification graph ▸ Hall and Murphy (2002) adjustment

Treated Directors are More Likely to Leave

Dependent variable:	Turnover				Turnover (poor perf.)	
	(1)	(2)	(3)	(4)	(5)	(6)
Treat. int.	-0.007	-0.023	-0.006	-0.023	-0.012	0.008
	(-1.17)	(-1.28)	(-0.70)	(-1.02)	(-1.09)	(0.50)
Post × Treat. int.	0.045**	0.048**	0.034*	0.027	0.054**	0.037*
	(2.40)	(2.08)	(2.01)	(1.29)	(2.36)	(1.95)
Bank and director controls	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Bank fixed effects		X		X	X	X
Full sample	X	X			X	
Ex-CEO			X	X		X
Mean(y)	0.096	0.096	0.110	0.111	0.078	0.089
S.D.(y)	0.295	0.295	0.314	0.314	0.269	0.286
R^2	0.167	0.223	0.182	0.244	0.234	0.261
N	500	499	381	380	499	380

▸ Empirical approach ▸ US control group ▸ Leavers vs. new directors ▸ Career trajectories

Exodus of Good Directors or Stronger Governance?

Results suggest that bankers are indemnified:

- Null of expected utility equal to before the cap cannot be rejected
- KPIs unchanged, no differential changes in pay-for-performance sensitivity of bonus plans ▸ p-f-p sens.
- Indemnification scheme: fixed ↑, face value of bonuses ↓

Two alternative explanations: **Exodus of good directors** in bad times...

- Insurance effect of higher fixed pay in times of poor performance also applies to good types
- No differential change in turnover rates for directors with higher experience or who outperformed in the past

... or **stronger governance** due to change in compensation structure?

- No differential change in turnover-performance sensitivity

Bank Performance and Idiosyncratic Risk Taking

Dependent variable:	Sharpe ratio (in %)	Stock return (in %)	Stock return volatility (in %)	Log 5-year excess CDS spread
	(1)	(2)	(3)	(4)
Post × Treat. int.	-0.283*	-5.578	5.343**	0.118**
	(-1.69)	(-0.90)	(2.55)	(2.07)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	-0.004	-6.275	34.207	1.112
S.D.(y)	1.035	44.423	16.445	0.741
R^2	0.528	0.647	0.706	0.901
N	145	145	145	118

Systemic Risk and Systematic Risk

Dependent variable:	Systemic risk		Systematic risk	
	SRISK%	LRMES	Beta	Corr.
	(1)	(2)	(3)	(4)
Post × Treat. int.	2.230*	3.846***	0.145***	0.010
	(1.91)	(3.06)	(2.95)	(1.01)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	25.868	50.540	1.423	0.480
S.D.(y)	26.452	11.094	0.418	0.109
R^2	0.965	0.774	0.754	0.843
N	138	138	138	138

Funding Structure and Loan Policy

Dependent variable:	Deposits over total liabilities		ln (Interbank assets)		Corporate loans over total assets	
	(1)	(2)	(3)	(4)	(5)	(6)
Post × Treat. int.	-0.020*	-0.032*	-0.028	-0.261**	0.017***	0.016**
	(-1.94)	(-1.74)	(-0.44)	(-2.17)	(3.00)	(2.44)
Year fixed effects	X	X	X	X	X	X
Bank fixed effects	X	X	X	X	X	X
Country-year fixed effects		X		X		X
Mean(y)	0.438	0.432	10.390	10.472	0.118	0.117
S.D.(y)	0.158	0.157	1.612	1.716	0.077	0.069
R^2	0.924	0.949	0.972	0.982	0.938	0.970
N	145	120	145	120	81	64

Potential Channels of Bank-level Results

- Increase in cash-to-variable pay of risk-averse executives can increase risk-taking (Carlson and Lazrak, 2010) $\rightarrow$ **Insurance effect**
- Executives are portfolio managers of their bank; lower effort exertion might lead to lower performance at higher risk (Martinez-Miera and Repullo, 2017) $\rightarrow$ **Moral hazard**
- Indemnification increases operating leverage and decreases resilience in times of crises (Efing et al., 2018) $\rightarrow$ **Higher fixed costs**

Alternative Explanations of Bank-level Results

Are results driven by pre-crisis risk-taking decisions?

- **Falsification test**: exposure to peripheral sovereign debt
  → Sovereign debt exposure cannot explain our results

Are results driven by dissimilarities of the treated and the untreated?

- Use of executive directors from largest **US banks as control group**
  → Results hold

Are results driven by country specific regulation or is this a pure UK effect?

- Inclusion of **country-year FE** in bank-level analysis
  → Results hold

▸ Robustness 1 ▸ Robustness 2 ▸ Robustness 3

Conclusion

→ Increase in turnover is more likely related to stronger governance than to exodus of most skilled directors

→ Bank performance decreases in terms of risk:

- Lower risk-adjusted returns, higher market risk, and higher systematic risk
- Higher credit risk and higher systemic risk

→ **Potential channels**: Insurance effects, incomplete adjustment of compensation plans (moral hazard and agency costs), and increase in operative leverage

→ This poses concerns about the ability of the cap to reach its primary goal, namely avoiding excessive risk-taking

Literature I

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Sketch of a performance based compensation plan:

- Variable compensation opportunities for executive directors are usually **capped at a maximum level** (see e.g. Murphy, 2001; Bettis et al., 2016)
- Within the **incentive zone** ($X \leq A_T \leq Z$) directors participate in firm performance $\Pi = A_T - X$ at participation rate p
- Variable compensation can be expressed as a ratio of fixed compensation ρF where ρ represents the level of the cap ratio
- At the end of a period the compensation contract has the value:

$$M_T = F + \underbrace{(\overbrace{\rho F}^{V_{max}})/(Z - X)}_{p}[\max\{\underbrace{A_T - X}_{\Pi}, 0\} - \max\{A_T - Z, 0\}] \ .$$

$\Rightarrow$ The **EU bonus cap** limits the value of ρ to 100% (/200%/250%)

back

Like the bonus, the LTPA also has an upper limit (cap). If the three-year average of the RTSR is greater than 100 %, then the value of the LTPA increases proportionately to an upper limit of 125 % of the target figure. If the three-year average of the RTSR is lower than 100 %, however, the value declines disproportionately, as follows. If the RTSR is calculated to be between 90 % and 100 %, the value is reduced for each lower percentage point by three percentage points. The value is reduced by another two percentage points for each lower percentage point between 70 % and 90 %; and by another three percentage points for each percentage point under 70 %. If the three-year average does not exceed 60 %, no LTPA is granted.

This relation can be seen in the following chart.

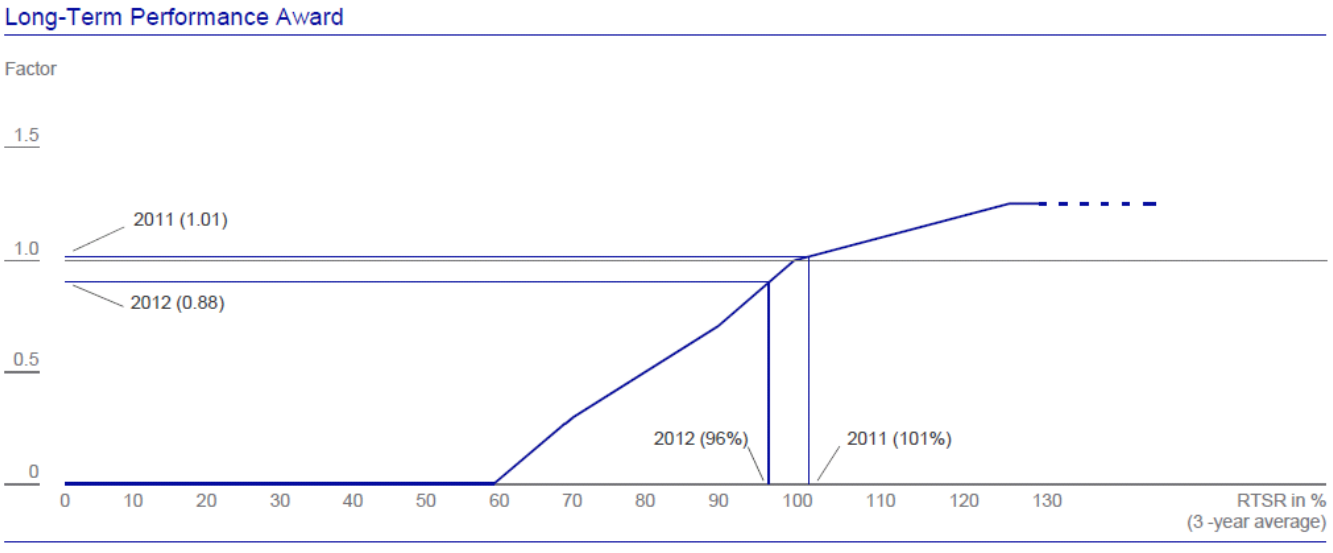
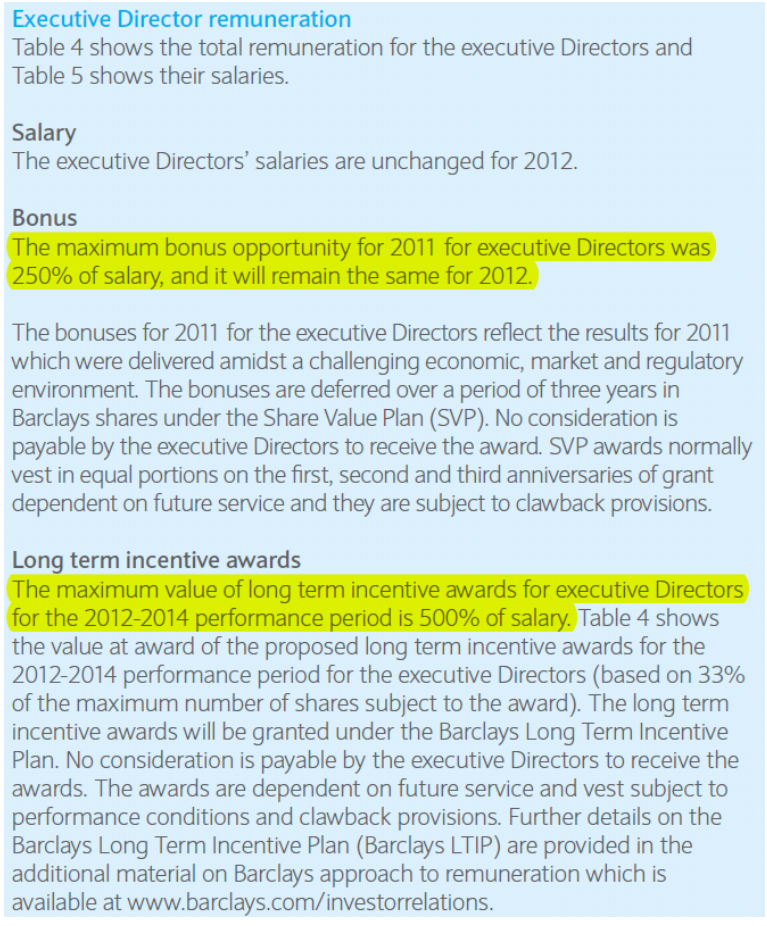


Figure: Source: Deutsche Bank AG Annual Report of 2012, p. 211

back Barclays PLC



Executive Director remuneration

Table 4 shows the total remuneration for the executive Directors and Table 5 shows their salaries.

Salary

The executive Directors' salaries are unchanged for 2012.

Bonus

The maximum bonus opportunity for 2011 for executive Directors was 250% of salary, and it will remain the same for 2012.

The bonuses for 2011 for the executive Directors reflect the results for 2011 which were delivered amidst a challenging economic, market and regulatory environment. The bonuses are deferred over a period of three years in Barclays shares under the Share Value Plan (SVP). No consideration is payable by the executive Directors to receive the award. SVP awards normally vest in equal portions on the first, second and third anniversaries of grant dependent on future service and they are subject to clawback provisions.

Long term incentive awards

The maximum value of long term incentive awards for executive Directors for the 2012-2014 performance period is 500% of salary. Table 4 shows the value at award of the proposed long term incentive awards for the 2012-2014 performance period for the executive Directors (based on 33% of the maximum number of shares subject to the award). The long term incentive awards will be granted under the Barclays Long Term Incentive Plan. No consideration is payable by the executive Directors to receive the awards. The awards are dependent on future service and vest subject to performance conditions and clawback provisions. Further details on the Barclays Long Term Incentive Plan (Barclays LTIP) are provided in the additional material on Barclays approach to remuneration which is available at www.barclays.com/investorrelations.

Figure: Source: Barclays PLC Annual Report of 2011, p. 54

▸ back ▸ Deutsche Bank AG

Principal components of professional experience

	Component 1	Component 2	Component 3	Component 4	Component 5
Numb. exec. dir.	0.4429	0.2374	-0.5702	0.6441	-0.0864
Numb. of industries	0.3200	0.6496	0.6752	0.1399	0.0129
Numb. of firms	0.4831	0.2487	-0.3363	-0.6711	0.3760
Numb. of positions	0.5258	-0.3312	0.1299	-0.2237	-0.7395
Numb. of superv. dir.	0.4377	-0.5917	0.2984	0.2552	0.5515

Eigenvalues and proportion explained, by principal components

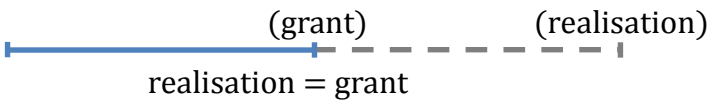
	Eigenvalue	Difference	Proportion expl.	Cumulative
Component 1	2.82033	1.89646	0.5641	0.5641
Component 2	0.92387	0.236646	0.1848	0.7488
Component 3	0.687224	0.277375	0.1374	0.8863
Component 4	0.409849	0.251123	0.0820	0.9683
Component 5	0.158726	–	0.0317	1.0000

- Custódio et al. (2013) use a similar set of variables to proxy general managerial skills
- We use a principal component analysis for each year separately (above: 2015)

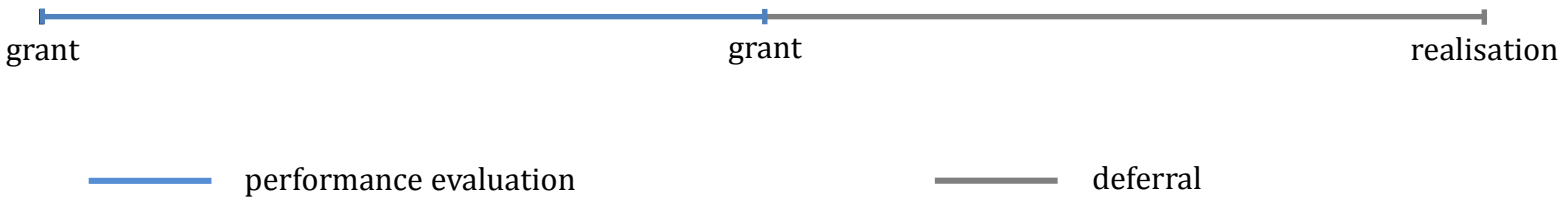
back

Stock option:

Bonus plan (with deferral):



LTIP:



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Summary Statistics

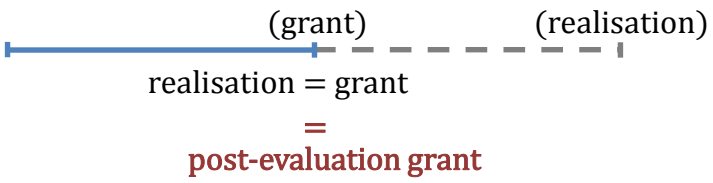
Table A.1: Summary statistics for the whole sample

	Treated				Control			
	N	Average	S.e.	Median	N	Average	S.e.	Median
Director characteristics:								
Turnover	130	0.131	0.338	0.000	912	0.100	0.300	0.000
Prof. experience	105	0.545	1.628	0.240	804	0.034	1.480	-0.278
Director age	105	52.705	4.666	52.000	783	54.994	8.202	53.000
Compensation structure:								
Fixed comp. (thd. EUR)	130	1,970.700	964.875	1,826.516	907	946.486	614.580	834.455
Var. comp. (thd. EUR)	130	2,159.633	1,803.417	1,952.500	907	328.508	625.563	100.000
Max. var. comp. (thd. EUR)	130	5,705.763	3,051.810	5,470.645	771	880.599	1,246.286	557.143
Bank-level information:								
Total assets (bln. USD)	49	1,209.406	769.252	1,051.019	184	645.390	765.365	328.580
ROA	49	0.182	0.390	0.140	184	0.086	0.745	0.240
ROE	49	2.934	6.435	3.360	184	0.211	22.770	5.390
Stock return	49	1.565	20.670	-0.061	129	-1.352	36.584	0.086
Stock return volatility	49	31.067	11.462	30.050	99	35.754	18.069	32.606
Sharpe ratio	49	-0.071	1.004	-0.206	98	0.042	1.046	0.190
Log 5-year excess CDS spread	42	1.382	0.518	1.300	111	1.188	0.785	1.301
CEO-turnover	49	0.122	0.331	0.000	186	0.081	0.273	0.000

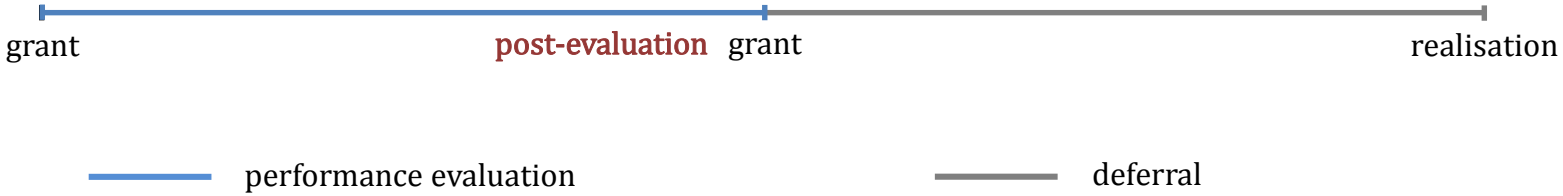
▸ Professional experience ▸ back

Stock option:

Bonus plan (with deferral):



LTIP:



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Effectiveness of the EU Bonus Cap Regulation and Indemnification (cont'd)

Table A.2: Expected utility of compensation packages to risk-averse directors

Dependent variable:	Expected utility, pre-probabilities				Expected utility, post-probabilities			
	director-level prob.		board-level prob.		director-level prob.		board-level prob.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat. int.	421.588***		339.783**		434.260**		391.389***	
	(3.29)		(2.24)		(2.68)		(2.83)	
Post × Treat. int.	50.428	46.764	42.636	55.979	-248.121	-253.953	-191.502	-195.362
	(0.30)	(0.27)	(0.30)	(0.36)	(-1.08)	(-1.07)	(-0.98)	(- 0.99)
Bank and director controls	X	X	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X	X	X
Bank fixed effects	X	X	X	X	X	X	X	X
Director fixed effects		X		X		X		X
Mean(y)	1,648.540	1,676.150	1,647.034	1,674.818	1,653.282	1,682.965	1,647.037	1,674.424
S.d.(y)	1,500.465	1,505.255	1,480.813	1,485.227	1,466.557	1,470.674	1,446.378	1,450.007
R^2	0.803	0.897	0.801	0.891	0.787	0.870	0.783	0.874
N	636	621	636	621	641	625	645	630

- We apply a discount on the expected value of the variable component
- Discount is set to 28% which is the most conservative value used by Hall and Murphy (2002)

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Table A.3: Characteristics of leaving directors and new directors over the post-EU bonus cap period

Panel A: Directors at treated banks

	Leaving Directors				New Directors			
	N	Mean	S.E.	Median	*N*	Average	S.E.	Median
Director age	11	55.182	5.193	54.000	17	52.176	5.503	51.000
Professional experience (pca)	11	-0.086	1.060	-0.212	17	-0.206	2.034	-0.984
Female	11	0.000	0.000	0.000	17	0.176	0.393	0.000
Number of ED positions held	12	2.167	1.115	2.500	17	2.294	1.687	2.000
Number of SD positions held	12	4.500	4.189	3.500	17	2.882	4.742	2.000
Number of previous sectors	12	1.333	0.492	1.000	17	1.647	0.931	1.000
Number of previous firms	12	4.250	1.913	4.000	17	4.529	2.918	4.000

Panel B: Directors at untreated banks

	Leaving Directors				New Directors			
	N	Average	S.E.	Median	*N*	Average	S.E.	Median
Director age	35	57.086	8.315	55.000	51	53.431	9.003	51.000
Professional experience (pca)	36	0.128	1.490	-0.247	53	-0.578	1.314	-0.786
Female	36	0.056	0.232	0.000	53	0.208	0.409	0.000
Number of ED positions held	31	2.226	1.454	2.000	52	2.173	1.630	2.000
Number of SD positions held	31	4.129	4.145	3.000	52	2.269	3.069	1.000
Number of previous sectors	31	1.194	0.477	1.000	52	1.135	0.397	1.000
Number of previous firms	31	5.194	2.613	5.000	52	4.827	2.662	4.000

back

Table A.3: Career trajectories after turnovers

	All banks		Listed banks	
	tot.	in %	tot.	in%
Executive position	**20**	**22,22%**	**10**	**21,28%**
Exec. dir. at a bank	12	13,33%	5	10,64%
Exec. dir. at a non-bank	8	8,89%	5	10,64%
Supervisory director or non-exec. director	**8**	**8,89%**	**2**	**4,26%**
Management positions	**20**	**22,22%**	**8**	**17,02%**
Self-employed	6	6,67%	3	6,38%
Advisor, to the same bank	6	6,67%	2	4,26%
Advisor, elsewhere	4	4,44%	2	4,26%
Senior management position	4	4,44%	1	2,13%
Politics & regulation	**1**	**1,11%**	**1**	**2,13%**
No information on further employment	**28**	**31,11%**	**18**	**38,30%**
No information on career path afterwards	21	23,33%	16	34,04%
Explicit information on retireemt	7	7,78%	2	4,26%
Others	**13**	**14,44%**	**8**	**17,02%**
None of the above	12	13,33%	7	14,89%
Died in office	1	1,11%	1	2,13%

back

Sample

▸ Bank level results

- US banks in the control group: **25 largest US banks** by assets in 2013
- Definition of banks according to Boyallian and Ruiz-Verdú (2017, p. 7)

Turnover Analysis

▸ Results

- Turnover in the year after the director was last reported
- Intuition: An executive director might earn to little in the last year to be reported
- Results are robust to using the year of last reporting of an exec.

Compensation Analysis

▸ Results

- Compensation figures for the US:
  - $fixed1 = salary + others + pension$
  - $fixed2 = salary$
  - $variable1 = bonus + options + stocks$
  - $variable2 = bonus$
  - $variable3 = bonus$
- Compensation figures for the EU:
  - $fixed1 = salary + fixed\ stock\ grants + others + pension$
  - $fixed2 = salary + fixed\ stock\ grants$
    (so as above: fixed without *others* and *pensions*)
  - $variable1 = total\ variable$
  - $variable2 = variable\ in\ cash$
  - $variable3 = variable\ without\ deferral$ (i.e. up to a year at most)

Preferences and Mobility: Measurement and Identification Assumptions

Directors' Voluntary Turnovers as Revealed Preferences

If directors post-regulation are worse-off/equally-off/better-off, the number of (voluntary) turnovers should increase/stay constant/decrease after the EU bonus cap became effective.

- Reasons for **potential effects** on turnover:
  - → EU bonus cap is **selective**: only EU-based banks and their foreign subsidiaries are affected → **flight responses**
  - → **Earlier retirement** is possible as longer employment might not seem to be that profitable to executive directors any longer
- **Classification** of turnovers:
  - → Literature has focused on forced vs. voluntary turnovers (e.g. Jenter and Kanaan, 2015)
  - → We follow the idea of performance-induced turnovers in the spirit of Jenter and Lewellen (2017)
- Necessary **identifying assumption** for the DID estimation:
  - → No differential changes in **job-switching costs or preferences**

back

Director Turnover: US Bank Executives as Control Group

Table A.5: Differential changes on bank executive directors' turnovers (US control group)

Dependent variable:	Turnover				Turnover (poor perf.)	
	(1)	(2)	(3)	(4)	(5)	(6)
Treat. int.	-0.027***	-0.066***	-0.031***	-0.054***	-0.037***	-0.011
	(-2.85)	(-8.52)	(-3.02)	(-7.11)	(-6.63)	(-1.10)
Post × Treat. int.	0.046	0.046*	0.026	0.029	0.048*	0.030
	(1.69)	(1.90)	(0.91)	(1.12)	(1.83)	(1.04)
Bank and director controls	X	X	X	X	X	X
Year fixed effects	X	X	X	X	X	X
Bank fixed effects		X		X	X	X
Full sample	X	X			X	
Ex-CEO			X	X		X
Mean(y)	0.115	0.115	0.128	0.128	0.050	0.053
S.D.(y)	0.319	0.319	0.334	0.334	0.219	0.223
R^2	0.038	0.067	0.039	0.065	0.104	0.108
N	1,011	1,011	837	837	1,011	837

▸ back ▸ US sample and variable definition

Compensation Results: US Bank Executives as Control Group

Table A.6: Changes in compensation structure after the bonus cap (US control group)

Dependent variable:	Measures of fixed comp.		Measures of var. comp.		
	(1)	(2)	(3)	(4)	(5)
Post × Treat. int.	262.998**	282.529**	-903.012***	-191.430***	-184.426***
	(2.70)	(2.23)	(-8.59)	(-3.95)	(-6.37)
Bank and director controls	X	X	X	X	X
Year fixed effects	X	X	X	X	X
Bank fixed effects	X	X	X	X	X
Director fixed effects	X	X	X	X	X
Mean(y)	1,207.325	749.951	3606.167	680.438	682.819
S.d.(y)	907.029	484.977	3,362.821	1,297.230	1,295.042
R^2	0.759	0.832	0.897	0.880	0.878
N	1,010	1,010	1,010	1,010	1,010

▸ back (1) ▸ back (2) ▸ US sample and variable definition

Table A.7: Sensitivity of variable compensation to performance and risk

Dependent variable:	Var. comp.-to-max. var. comp.					
	(1)	(2)	(3)	(4)	(5)	(6)
Post × Treat. int. × Stock return	0.001	0.001	0.001			
	(0.51)	(0.79)	(0.65)			
Post × Treat. int. × Sharpe ratio				0.014	-0.008	-0.010
				(0.44)	(-0.25)	(-0.32)
Controls	X	X	X	X	X	X
Time fixed effects	X	X	X	X	X	X
Bank fixed effects		X	X		X	X
Director fixed effects			X			X
Mean(y)	0.353	0.354	0.364	0.353	0.354	0.364
S.D.(y)	0.318	0.318	0.317	0.318	0.318	0.317
R^2	0.177	0.531	0.588	0.179	0.526	0.583
N	424	422	406	424	422	406

back

Bank Performance and Risk Taking: Sovereign debt falsification test

Table A.8.1: Bank performance and idiosyncratic bank risk (sov. debt exp.)

Dependent variable:	Sharpe ratio (in %)	Stock return (in %)	Stock return volatility (in %)	Log 5-year excess CDS spread
	(1)	(2)	(3)	(4)
Post × Periph. exposure	0.509	16.635	1.161	-0.076
	(1.46)	(1.29)	(0.22)	(-0.52)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	-0.021	-3.932	35.342	1.200
S.D.(y)	1.015	39.479	15.435	0.758
R^2	0.583	0.619	0.587	0.881
N	125	125	125	173

back

Bank Performance and Risk Taking: Sovereign debt falsification test (cont'd)

Table A.8.2: Measures of systemic risk and systematic risk (sov. debt exp.)

Dependent variable:	Systemic risk		Systematic risk	
	SRISK%	LRMES	Beta	Corr.
	(1)	(2)	(3)	(4)
Post × Treat. int.	1.781	2.023	0.102	0.015
	(0.48)	(0.67)	(0.79)	(0.72)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	35.394	52.403	1.487	0.513
S.D.(y)	25.499	8.786	0.364	0.083
R^2	0.958	0.771	0.752	0.880
N	97	97	97	97

back

Bank Performance and Risk Taking: US Banks as Control Group

Table A.9.1: Bank performance and idiosyncratic bank risk (US)

Dependent variable:	Sharpe ratio (in %)	Stock return (in %)	Stock return volatility (in %)	Log 5-year excess CDS spread
	(1)	(2)	(3)	(4)
Post × Treat. int.	-0.137	-4.192	1.738***	0.117***
	(-1.56)	(-1.46)	(2.91)	(3.39)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	0.711	14.873	24.800	4.181
S.D.(y)	1.238	35.163	10.254	0.638
R^2	0.570	0.434	0.711	0.783
N	218	218	218	117

▸ back ▸ US sample and variable definition

Bank Performance and Risk Taking: US Banks as Control Group (cont'd)

Table A.9.2: Measures of systemic risk and systematic risk (US)

Dependent variable:	Systemic risk		Systematic risk	
	SRISK%	LRMES	Beta	Corr.
	(1)	(2)	(3)	(4)
Post × Treat. int.	1.085***	0.171	0.003	-0.012***
	(4.99)	(0.44)	(0.23)	(-2.68)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Mean(y)	6.180	43.167	1.131	0.586
S.D.(y)	12.580	8.820	0.320	0.107
R^2	0.975	0.830	0.816	0.857
N	218	218	218	218

▸ back ▸ US sample and variable definition

Bank Performance and Risk Taking: Country-year FE

Table A.10.1: Bank performance and idiosyncratic bank risk (country-year FE)

Dependent variable:	Sharpe ratio (in %)	Stock return (in %)	Stock return volatility (in %)	Log 5-year excess CDS spread
	(1)	(2)	(3)	(4)
Post × Treat. int.	0.088	-0.232	8.347**	0.376***
	(0.33)	(-0.02)	(2.27)	(5.87)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Country-year fixed effects	X	X	X	X
Mean(y)	-0.096	-9.483	35.007	1.022
S.D.(y)	1.000	45.201	17.245	0.705
R^2	0.745	0.816	0.835	0.974
N	120	120	120	97

back

Bank Performance and Risk Taking: Country-year FE (cont'd)

Table A.10.2: Measures of systemic risk and systematic risk (country-year FE)

Dependent variable:	Systemic risk		Systematic risk	
	SRISK%	LRMES	Beta	Corr.
	(1)	(2)	(3)	(4)
Post × Treat. int.	6.486***	6.513***	0.226***	0.017
	(5.13)	(3.06)	(2.87)	(0.87)
Year fixed effects	X	X	X	X
Bank fixed effects	X	X	X	X
Country-year fixed effects	X	X	X	X
Mean(y)	16.827	49.890	1.395	0.482
S.D.(y)	16.913	10.972	0.401	0.110
R^2	0.979	0.859	0.855	0.880
N	114	114	114	114

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