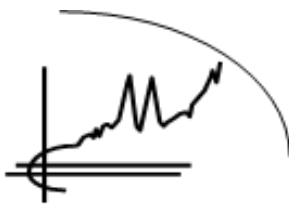# *Corporate Social Responsibility*

and

Bank Risk

by

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AGENDA
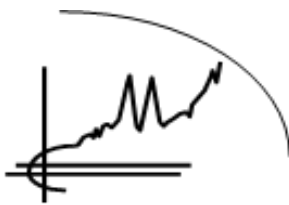
1. Introduction

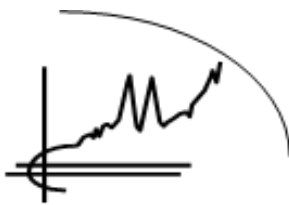**Corporate Social Responsibility of banks gained particularly attention:**

➢ Lessons from the last financial crisis

➢ Dependence of entire economies on individual financial actors

➢ Government bailouts to secure financial stability

Sustainability issues:

➢ Paris Agreement (2015)

➢ EU Action Plan „Financing Sustainable Growth" (2018)

➢ Banks are key players

Aim and research design:

➢ Analysing the effect of CSR on idiosyncratic bank risk

➢ Confirmatory and explorative approach

2. Literature and Hypotheses

Bank related literature

| Author (s) Year	Database	Banks (BYO)	Time frame	CSR measure	Aim of the study
Simpson & Kohers (2002)	US Commercial Banks	385 (770)	1993-1994	CRA rating	Impact of CSR on FP (+)
Scholtens & Dam (2007)	World	83 (83)	2006	EP adoption	Performance differences of EP adopters and non-adopters (mixed)
Wu & Shen (2013)	World	162 (1012)	2003-2009	CSR index	Impact of CSR on FP (+)
Shen et al. (2016)	World	6125 (49.000)	2000-2009	CSR engagement	Impact of CSR activity on FP (+)
Cornett et al. (2016)	US Commercial Banks	235 (1495)	2003-2013	MSCI ESG STATS	Impact of CSR on FP (+)
Esteban-Sanchez et al. (2017)	World	154 (924)	2005-2010	Thomson Reuters ESG-Score (Asset4)	Financial benefits through CSR activity in times of financial distress (+)
Chen et al. (2018)	World	8.325 (38.930)	2003-2010	EP adoption	Impact of EP adoption on bank liquidity (+)
Gangi et al. (2018)	World	142 (655)	2011-2015	Thomson Reuters ESG-Score (Asset4)	Effect of CSR on bank risk (-)
Finger et al. (2018)	World	78 (929)	2003-2015	EP adoption	EP adoption effects on banks' FP in industrialised and developing countries (mixed)
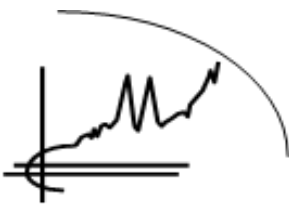
2. Literature and Hypotheses

Theoretical Framework:

> *Stakeholder theory*
> - CSR reduces vulnerability to environmental, financial, operating and social risks

> *Risk management theory*
> - CSR generate moral capital such as loyalty and goodwill

> *Management opportunism theory*
> - CSR activity is primarily motivated by reputation efforts of the management

> *Reputation theory*
> - CSR determines banks' reputation

Hypotheses:

1. CSR reduces idiosyncratic bank risk
2. Sub-components have a reducing effect on idiosyncratic bank risk
3. Controversies enhance idiosyncratic bank risk
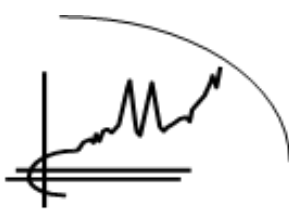
3. Empirical Approach

Sample:

- Banks exclusively (Thomson Reuters' Eikon TRBC „Banking Services")
- 3.392 banks
- Period 2002-2018
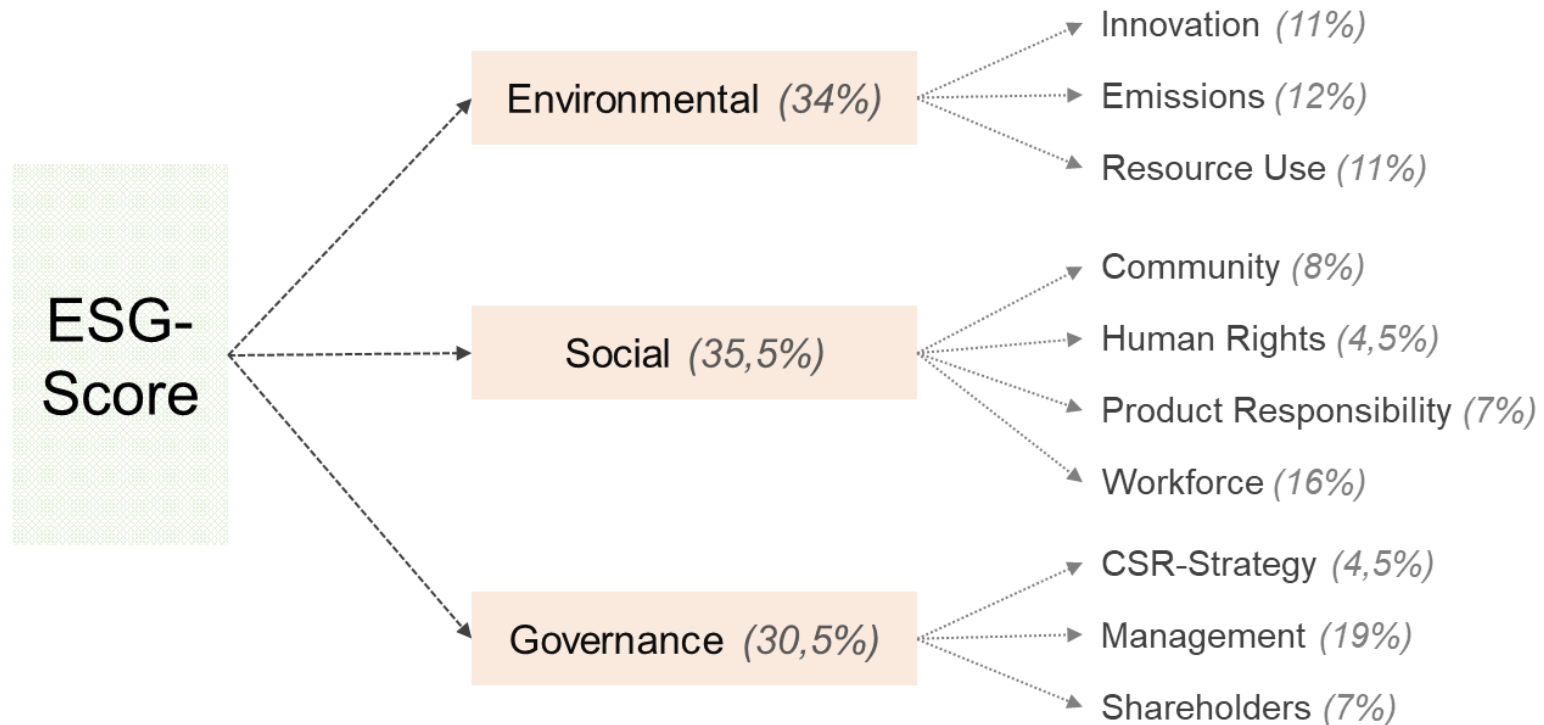- Unbalanced panel

Methodology:

- Hausman-Test suggests fixed effects regression
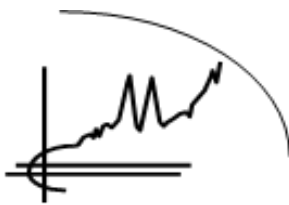- Robust Huber-White-sandwich estimates of variance

Bank risk:

- Default risk: $Z\text{-score} = \dfrac{(ROA+CAR)}{\sigma\, ROA}$
- Portfolio risk: $Risk\; density = \dfrac{RWA}{TA}$

3. Empirical Approach

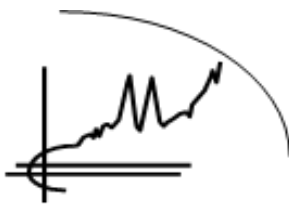Measuring CSR by Thomson Reuters ESG Scores

3. Empirical Approach

Description of Variables

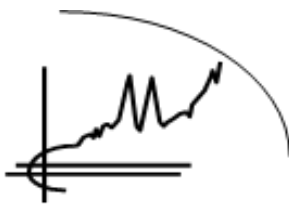| Variable	Description
Panel A:	
z-score	Measure of default risk. It is calculated as the sum of ROA and CAR over the 5 year standard deviation of ROA.
RD	Measure of portfolio risk. It is calculated as risk-weighted assets over total assets and measures the risk on the balance sheet.
Panel B:	
ESG Score	Measure of the overall Corporate Social Responsibility. It is calculated as weighted average of the Environmental, Social, and Governance Score.
Enviromental Score	Measure of company's enviromental performance that indicates the impact on natural systems.
Social Score	Measure of company's social performance about the confidence with employees, customers and society.
Governance Score	Measure of company's governance practice that indicates the systems and processes installed to guarantee that the management acts in the interests of stakeholders.
Controversies Score	Measure of company's charge to Environmental, Social and Governance controversies and negative media coverage.
Resource Use	Reflects company's eco-efficiency in terms of materials, energy or water.
Emissions	Measures company's emission efficiency in the context of its business activities.
Innovation	Reflects company's commitment to sustainability e.g. by offering an innovative sustainable product portfolio.
Workforce	Reflects on the one hand the working conditions in the company and on the other the offered development opportunities.
Human rights	Reflects compliance with human rights conventions by the company.
Community	Reflects company's social responsibility activities and it's business ethics commitment.
Product Responsibility	Reflects the quality and reliability of the offered products.
Management	Reflects management's compliance within the corporate governance guidelines.
Shareholders	Reflects the handling of shareholders and the prevention of takeovers.
CSR Strategy	Reflects company's the adoption, application, and reporting of the CSR-strategy.
Panel C:	
logFTE	Company size is approximated by the natural logarithm of full-time employees.
LRatio	Capital structure is considered as the ratio of total liabilities over total equity, i.e. the leverage ratio.
LoanRatio	Business model indicator which measures the loan exposures as total gross loans over total assets.
DepRatio	Business model indicators which measures the deposits exposures as total deposits over total assets.
ROE	Return on equity measures profitability. It is calculated as net income before taxes over total equity.
Panel D:	
Inflation	Rate of price change in the whole economy. Measured by annual growth rate of GDP implicit deflator. *Source: Worldbank*
GDP_{Cap}	Gross domestic product divided by midyear population. *Source: Worldbank*
GDP_{Cap}^{Growth}	Annual growth rate of GDP per capita. *Source: Worldbank*

4. Results

H1: CSR reduces idiosyncratic bank risk

	(1) z-score Coef./se	(2) z-score Coef./se	(3) z-score Coef./se	(4) RD Coef./se	(5) RD Coef./se	(6) RD Coef./se
L.ESGScore	.8060956*** (0.09)	.7749071*** (0.09)	.6176299*** (0.10)	-.1597867*** (0.05)	-.1367617* (0.07)	-.1572145** (0.07)
L.logFTE		.1782697 (4.19)	2.28845 (4.12)		-3.985946 (5.57)	-3.229061 (5.74)
L.LRatio		-2.07e-06*** (0.00)	-1.49e-06*** (0.00)		2.83e-07 (0.00)	4.42e-07** (0.00)
L.LoanRatio		.1448169 (0.16)	.1201335 (0.16)		.2756572** (0.12)	.2781953** (0.12)
L.DepRatio		.3383253*** (0.11)	.2506779** (0.11)		-.0977298 (0.13)	-.1012708 (0.14)
L.ROE		-.0010081*** (0.00)	-.000605** (0.00)		-.0000605 (0.00)	5.60e-06 (0.00)
L.Inflation			-.0277341 (0.35)			.0332986 (0.10)
$L.GDP_{Cap}^{Growth}$			1.260694*** (0.36)			.3616067* (0.19)
$L.GDP_{Cap}$			.0016176 (0.00)			.0000457 (0.00)
Constant	6.356015 (4.75)	-24.75304 (39.97)	-91.10865* (47.32)	70.39266*** (2.78)	96.10814 (60.31)	87.95768 (61.69)
N	3949	3200	3117	2904	2674	2635
R^2_{adj}	.0413381	.0449983	.0611125	.0059167	.0106991	.0119211

legend: * $p<0.1$; ** $p<0.05$; *** $p<0.01$

4. Results

H2: Sub-components have a reducing effect on idiosyncratic bank risk

	(1) z-score Coef./se	(2) z-score Coef./se	(3) z-score Coef./se	(4) RD Coef./se	(5) RD Coef./se	(6) RD Coef./se
L.EnvInnovation	.3281702***	.3296293***	.2309722***	-.1302166***	-.131471***	-.1464631***
	(0.06)	(0.06)	(0.06)	(0.04)	(0.05)	(0.05)
L.Emissions	.4006542***	.3618054***	.2880228***	-.0839294***	-.0732869**	-.0799216**
	(0.05)	(0.05)	(0.06)	(0.03)	(0.03)	(0.03)
L.ResourceUse	.4638734***	.4278973***	.3644446***	-.0816427***	-.0688482**	-.0726167***
	(0.06)	(0.06)	(0.07)	(0.02)	(0.03)	(0.03)
L.CSRStrategy	.2440186***	.1741567***	.0889481*	-.0623518**	-.0481799*	-.0557311**
	(0.05)	(0.05)	(0.05)	(0.02)	(0.03)	(0.03)
L.Shareholder	.0150206	.0095813	.0116083	-.042315*	-.0326409	-.0313616
	(0.04)	(0.05)	(0.05)	(0.02)	(0.03)	(0.03)
L.ManagScore	.1858784***	.1852987***	.1615169***	-.0306584	-.0163467	-.0177584
	(0.04)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)
L.ProductResp	.1748829***	.1294481**	.0385034	.0360141	.0508851**	.0509938*
	(0.06)	(0.06)	(0.06)	(0.02)	(0.03)	(0.03)
L.Community	.0808493	.0321638	-.0390991	-.0202292	-.01312	-.0156649
	(0.05)	(0.06)	(0.05)	(0.03)	(0.03)	(0.03)
L.HumanRights	.3036854***	.2673619***	.1601793***	-.1268777***	-.1164964***	-.1226839***
	(0.05)	(0.06)	(0.06)	(0.02)	(0.03)	(0.03)
L.WorkforceSc	.343497***	.3182078***	.2485516***	-.0396432	-.0309986	-.0374241
	(0.05)	(0.05)	(0.06)	(0.03)	(0.04)	(0.04)
Bank controls	No	Yes	Yes	No	Yes	Yes
Country controls	No	No	Yes	No	No	Yes
N	3949	3200	3117	2904	2674	2635

legend: * p<0.1; ** p<0.05; *** p<0.01
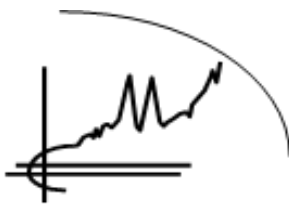
4. Results

H3: Controversies enhance idiosyncratic bank risk

	(1) z-score Coef./se	(2) z-score Coef./se	(3) z-score Coef./se	(4) RD Coef./se	(5) RD Coef./se	(6) RD Coef./se
L.Controversies	-.0998569***	-.0907134**	-.0619662	.0599069***	.048839***	.0472841***
	(0.04)	(0.04)	(0.04)	(0.01)	(0.02)	(0.02)
L.logFTE		10.0989**	9.770428**		-5.312336	-4.803831
		(4.64)	(4.47)		(5.02)	(5.17)
L.LRatio		-9.82e-07***	-6.17e-07**		2.78e-07	4.30e-07**
		(0.00)	(0.00)		(0.00)	(0.00)
L.LoanRatio		.2359458	.186637		.2581679**	.2607774**
		(0.17)	(0.17)		(0.12)	(0.12)
L.DepRatio		.3542814***	.2520212**		-.1032213	-.1062428
		(0.12)	(0.12)		(0.13)	(0.13)
L.ROE		-.0007475***	-.0003904**		-.0000402	.0000215
		(0.00)	(0.00)		(0.00)	(0.00)
L.Inflation			-.300264			.0812178
			(0.36)			(0.12)
L.GDP$_{Cap}^{Growth}$			1.139891***			.3693718*
			(0.36)			(0.19)
L.GDP$_{Cap}$			.001941*			-.0000264
			(0.00)			(0.00)
Constant	52.44985***	-78.41681*	-140.5514***	59.0874***	100.2436*	95.9554*
	(1.75)	(47.10)	(50.62)	(0.62)	(57.35)	(57.81)
N	3949	3200	3117	2904	2674	2635
R$^2_{adj}$	.0016336	.0133924	.0424588	.0023712	.0086728	.0090034

legend: * p<0.1; ** p<0.05; *** p<0.01

5. Robustness

**Robustness tests for different time lags** *(without lag & 2 years lagged)***:**

> ➤ ESG-score: results do not significantly change

> ➤ Controversies: results do not change

Different levels of winsorisation *(5th and 95th %-level & original data)***:**

> ➤ No material effect on the coefficients of the variables of interest

Robustness checks for the z-score measurement:

> ➤ Using SD of ROA for rolling windows of ten years

> ➤ Decomposition of the z-score measurement into:

>> o Changes associated to ROA or equity ratio

> ➤ CSR effects bank default risk through both channels

> ➤ Controversies: risk increasing effect for the equity ratio
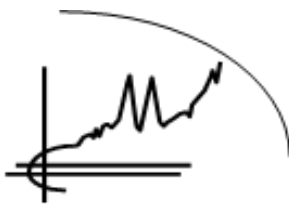
6. Conclusions

Main results:

- ➢ H1: Strongly significant risk-reducing effect of overall CSR for both risk measures

- ➢ H2: Environmental sub-components represent the strongest risk-reducing effect

- ➢ H3: Risk enhancing effect of controversies

Limitations:

- ➢ Unbalanced panel structure

- ➢ Unique use of Thomson Reuters database carries inherent risk of selection bias

- ➢ Additional risk measures (e.g. CDS-spreads or NPLs) could enhance result validity

Future research aspects:

- ➢ Using other risk measures e.g. market based

- ➢ Abstract the share of systematic risk from idiosyncratic risk
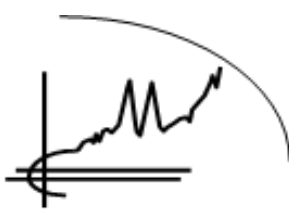
Appendix

Summary Statistics

VARIABLES	(1) N	(2) min	(3) 1%	(4) 50%	(5) mean	(6) 99%	(7) max	(8) sd
Panel A:								
z_score	28448	-1643.14	-1.15	25.03	50.95	248.58	84312.16	767.28
RD	12214	0.00	5.10	64.97	79.05	109.95	59103.43	904.21
Panel B:								
ESGScore	4189	12.30	18.22	48.02	50.78	88.95	93.53	18.93
EnvPillar	4189	7.67	15.09	45.65	50.90	95.37	98.10	24.81
GovPillar	4189	1.72	9.00	51.27	50.88	91.16	99.52	21.79
SocPillar	4189	2.65	9.35	49.21	50.58	94.38	98.01	21.57
Controversies	4189	.08	.88	59.00	49.47	66.67	69.05	20.66
Panel C:								
logFTE	21624	0.00	2.30	6.88	6.91	11.91	13.13	2.09
LRatio	31362	-1470796.00	-120.63	834.00	1162.91	3631.48	3579500.00	29061.10
LoanRatio	23323	-20.34	2.21	63.10	62.92	89.52	60528.52	396.32
DepRatio	23435	0.00	7.54	77.98	77.09	93.18	81571.68	532.62
ROE	31489	-278250.00	-108.56	11.94	9.43	82.89	56620.89	1708.63
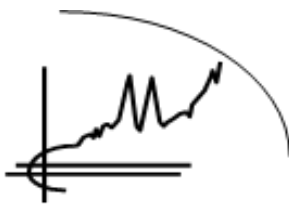
Appendix

Correlation Metrics

	z_score	RD	ESGScore	Controversies	SocPillar	EnvPillar	GovPillar
z_score	1.00						
RD	-0.01	1.00					
ESGScore	-0.11	-0.29	1.00				
Controversies	0.09	0.17	-0.41	1.00			
SocPillar	-0.12	-0.23	0.88	-0.39	1.00		
EnvPillar	-0.13	-0.33	0.88	-0.38	0.72	1.00	
GovPillar	-0.03	-0.14	0.72	-0.24	0.44	0.42	1.00
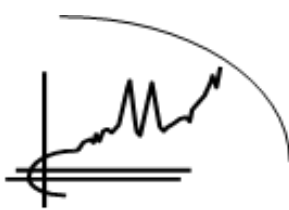
Literature

Chen, N., Huang, H. H., & Lin, C. H. (2018). Equator principles and bank liquidity. *International Review of Economics & Finance*, *55*, 185-202.

Cornett, M. M., Erhemjamts, O., & Tehranian, H. (2016). Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of US commercial banks around the financial crisis. *Journal of Banking & Finance*, *70*, 137-159.

Esteban-Sanchez, P., de la Cuesta-Gonzalez, M., & Paredes-Gazquez, J. D. (2017). Corporate social performance and its relation with corporate financial performance: International evidence in the banking industry. *Journal of cleaner production*, *162*, 1102-1110.

Finger, M., Gavious, I., & Manos, R. (2018). Environmental risk management and financial performance in the banking industry: A cross-country comparison. *Journal of International Financial Markets, Institutions and Money*, *52*, 240-261.

Gangi, F., Meles, A., D'Angelo, E., & Daniele, L. M. (2019). Sustainable development and corporate governance in the financial system: Are environmentally friendly banks less risky?. *Corporate Social Responsibility and Environmental Management*, *26*(3), 529-547.

Neitzert, F., & Petras, M. (2019). Corporate Social Responsibility and Bank Risk. *Available at SSRN 3456754*.

Scholtens, B., & Dam, L. (2007). Banking on the Equator. Are banks that adopted the Equator Principles different from non-adopters?. *World Development*, *35*(8), 1307-1328.

Shen, C. H., Wu, M. W., Chen, T. H., & Fang, H. (2016). To engage or not to engage in corporate social responsibility: Empirical evidence from global banking sector. *Economic Modelling*, *55*, 207-225.

Simpson, W. G., & Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of business ethics*, *35*(2), 97-109.

Wu, M. W., & Shen, C. H. (2013). Corporate social responsibility in the banking industry: Motives and financial performance. *Journal of Banking & Finance*, *37*(9), 3529-3547.
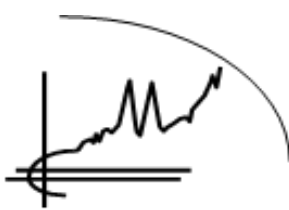
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