

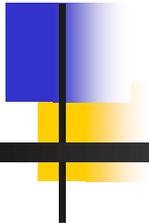
# “Does Corporate Social Responsibility Affect the Cost of Capital?”

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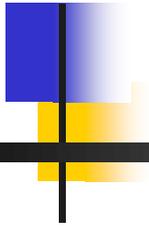
BCG Lab Seminar  
KAIST Business School  
Hyun-Do Kim  
February 2014



# Overview

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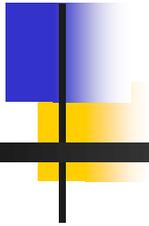
- Introduction & Research Questions
- Corporate Social Responsibility & Cost of Equity Capital
- Data & Variables
- Empirical Results
- Conclusions
- Further Research



# Introduction

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- In recent years, Corporate Social Responsibility (CSR) has become an important topic to corporations
- Large institutional investors (such as CalPERS) invest in firms that pursue specific CSR activities
- More than 50% of the Fortune 1000 companies in the US regularly issue CSR reports



# Research Questions

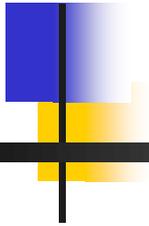
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- Then,

“Is there a relationship between CSR and financial performance of the firm?”

- More specifically,

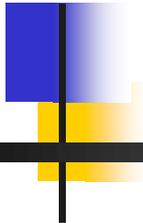
“Does high CSR firms have lower cost of equity capital than low CSR firms? If so, How and Why?”



# Related Literature

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- Related Literature:
  - Botosan (1997)
  - Kempt and Osthoff (2007)
  - Renneboog et al. (2008)
  - Sharfman and Fernando (2008)
  - Jiao (2010)
  - Merton, 1987
  - Heinkel et al., 2001
  - Hail and Leuz, 2006
  - Chen et al. 2009



# CSR and Cost of Equity Capital

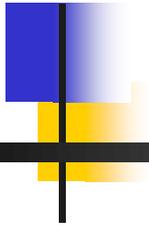
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## *1. Relative Size of a Firm's Investor Base*

- Merton (1987), Heinkel et al. (2001), Hong and Kacperczyk (2009)
- Low CSR firms have smaller investor base due to (i) investor preferences and (ii) information asymmetry

## *2. A Firm's Perceived Risk*

- Frederick (1995), Robinson et al. (2008), Starks (2009)
- Waddock and Graves (1997), Hong and Kacperczyk (2009)
- Higher level of risk (i.e. litigation risks)

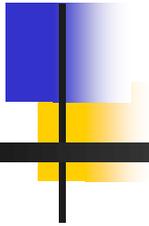


# Relative Size of Investor Base

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## I. Investor Preferences

- Socially conscious investors prefer not to include low CSR firms in their investment portfolios
- Heinkel et al. (2001): Higher expected returns for the lack of risk sharing
- Hong and Kacperczyk (2009): Norm-constrained institutional investors include fewer “sin” stocks (tobacco, alcohol, nuclear power) in their portfolios



# Relative Size of Investor Base

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## II. Information Asymmetry

- Information asymmetry is likely to be more severe for low CSR firms.

### ■ Information transmission process

#### 1) Signaling by the firm

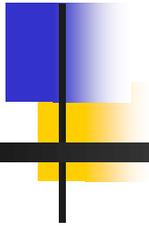
- High CSR firms tend to disclose more information

#### 2) Coverage by the media and analysts

- Analysts and the media are more inclined to spend time analyzing and reporting news about “good” firms, not “sin” firms

#### 3) Reception by investors

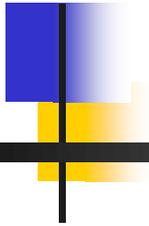
- Socially conscious investors are likely to pay more attention to information related to high CSR firms



# Firm's Perceived Risk

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- Frederick (1995), Robinson et al. (2008), Starks (2009)
  - Investors perceive socially irresponsible firms as having a higher level of risk
- Waddock and Graves (1997)
  - Socially irresponsible firms may face uncertain future explicit claims
- Hong and Kacperczyk (2009)
  - “Sin” firms face higher litigation risks
- ❖ With higher level of non-diversifiable risk, low CSR firms will face a higher cost of equity capital



# Data and Variables

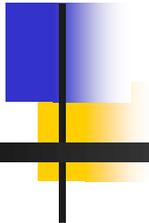
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- Four Databases
  1. I/B/E/S (Thompson Institutional Brokers Earnings Services)
  2. Compustat North America
  3. KLD STATS
  4. CRSP Monthly Return Files
- Sample Period: 1992 to 2007
- Total 12,915 observations with 2809 unique firms

# Data and Variables

**Table 1**  
Sample breakdown by industry and year.

Industry	N	%	Industry	N	%	Industry	N	%
Agriculture	25	0.19	Electrical Equipment	171	1.32	Measuring & Control Equipment	238	1.84
Food Products	269	2.08	Automobiles & Trucks	223	1.73	Business Supplies	279	2.16
Candy & Soda	24	0.19	Aircraft	98	0.76	Shipping Containers	62	0.48
Beer & Liquor	76	0.59	Shipbuilding & Railroad Equipment	56	0.43	Transportation	303	2.35
Tobacco Products	25	0.19	Defense	21	0.16	Wholesale	348	2.69
Recreation	65	0.50	Precious Metals	17	0.13	Retail	896	6.94
Entertainment	116	0.90	Non-Metallic & Industrial Metal Mining	28	0.22	Restaurants, Hotels & Motels	218	1.69
Printing & Publishing	249	1.93	Coal	27	0.21	<b>Banking</b>	<b>1,299</b>	<b>10.06</b>
Consumer Goods	279	2.16	Petroleum & Natural Gas	382	2.96	Insurance	603	4.67
Apparel	223	1.73	<b>Utilities</b>	<b>676</b>	<b>5.23</b>	Real Estate	14	0.11
Healthcare	173	1.34	Communication	286	2.21	Trading	400	3.10
Medical Equipment	335	2.59	Personal Services	149	1.15	Almost Nothing	64	0.50
Pharmaceutical Products	460	3.56		1,11		<b>Total</b>	<b>12,915</b>	<b>100</b>
Chemicals	344	2.66	<b>Business Services</b>	<b>3</b>	<b>8.62</b>			
Rubber & Plastic Products	63	0.49	Computers	455	3.52			
Textiles	53	0.41	<b>Electronic Equipment</b>	<b>722</b>	<b>5.59</b>			
Construction Materials	230	1.78						
Construction	129	1.00						
Steel Works Etc	126	0.98						
Fabricated Products	10	0.08						
Machinery	493	3.82						

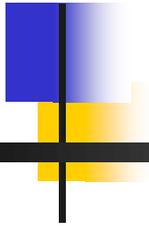


# Data and Variables

<b>Year</b>	<b>N</b>	<b>%</b>
1992	343	2.66
1993	351	2.72
1994	359	2.78
1995	386	2.99
1996	415	3.21
1997	426	3.30
1998	440	3.41
1999	448	3.47
2000	468	3.62
2001	446	3.45
2002	747	5.78
2003	797	6.17
2004	1,841	14.25
2005	1,835	14.21
2006	1,807	13.99
2007	1,806	13.98
<b>Total</b>	<b>12,915</b>	<b>100</b>



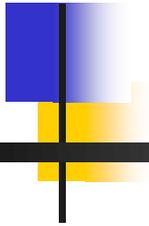
**increase**



# Data and Variables

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- The authors use “*ex ante* cost of equity” implied in current stock prices and analyst forecasts
  - Because Fama and French (1997) provide poor proxies for the cost of equity capital
- Hail and Leuz (2006, 2009) and Chen et al. (2009):
  - Implied cost of capital approach is useful because it isolate cost of capital effects from growth and cash flow effects

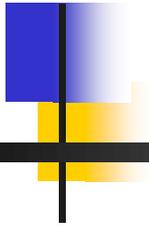


# Data and Variables

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- Cost of Equity Capital, following Hail and Leuz (2006)
  - 1) Claus and Thomas Model (2001, CT):  $r_{CT}$
  - 2) Gebhardt et al. Model (2001, GLS):  $r_{GLS}$
  - 3) Ohlson and Juettner-Nauroth Model (2005, OJ):  $r_{OJ}$
  - 4) Easton Model (2004, ES):  $r_{ES}$

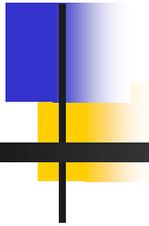
→  $r_{AVG}$
  
- Dhaliwal et al. (2006) and Gode and Mohanram (2003)
  - $r_{GLS}$  = Lower bound
  - $r_{OJ}$  = Upper bound



# Data and Variables

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- Corporate Social Responsibility from KLD STATS
  - Qualitative issues (binary (0/1))
    - (1) Community, (2) Corporate Governance, (3) Diversity, (4) Employee Relations, (5) The Environment, (6) Human Rights, and (7) Product Characteristics
    - ❖ Corporate Governance ignored for the first analysis
  - Controversial business issues (binary (0/1))
    - Alcohol, gambling, tobacco, firearms, the military, and nuclear power



# Data and Variables

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- Control Variables
    - 1) Beta (BETA)
    - 2) Size (SIZE)
    - 3) Book-to-market Ratio (BTM)
    - 4) Leverage (LEV)
    - 5) Analyst forecast attributes
      - Forecast dispersion (DISP)
      - Long-term growth forecast (LTG)
- + Year and Industry effects

# Data and Variables

**Table 2**

Descriptive statistics and correlation coefficients for implied equity premium estimates.

<b>Panel A. Descriptive statistics for implied equity premium estimates</b>					
Variable	Mean	Q1	Median	Q3	St. Dev.
<i>r<sub>CF</sub></i>	3.92	2.51	3.62	4.94	2.62
<i>r<sub>GLS</sub></i>	3.76	2.29	3.70	5.09	3.18
<i>r<sub>OJ</sub></i>	5.61	4.04	5.14	6.55	2.79
<i>r<sub>ES</sub></i>	5.71	3.50	4.92	7.00	3.78
<i>r<sub>AVG</sub></i>	4.75	3.28	4.39	5.76	2.40
1992	4.44	2.70	4.00	5.56	2.49
1993	4.80	3.32	4.39	5.69	2.29
1994	3.88	2.52	3.46	4.66	2.25
1995	4.64	3.17	4.16	5.49	2.18
1996	3.51	2.16	3.05	4.44	2.12
1997	3.29	2.16	3.03	4.07	1.71
1998	3.86	2.64	3.62	4.71	1.92
1999	3.48	1.87	3.17	4.49	2.24
2000	4.75	2.52	4.33	6.20	3.45
2001	4.62	2.78	4.28	5.56	2.83
2002	5.07	3.52	4.71	6.00	2.41
2003	6.07	4.58	5.75	7.00	2.36
2004	4.95	3.61	4.58	5.94	2.11
2005	5.40	4.12	5.05	6.30	2.11
2006	4.93	3.56	4.46	5.68	2.45
2007	4.44	3.13	4.09	5.17	2.27

**Panel B. Pearson correlation coefficients between implied equity premium estimates**

	<i>r<sub>CF</sub></i>	<i>r<sub>GLS</sub></i>	<i>r<sub>OJ</sub></i>	<i>r<sub>ES</sub></i>
<i>r<sub>GLS</sub></i>	0.415			
<i>r<sub>OJ</sub></i>	0.453	0.318		
<i>r<sub>ES</sub></i>	0.367	0.319	0.908	
<i>r<sub>AVG</sub></i>	0.686	0.662	0.877	0.863

# Data and Variables

**Table 3**

Descriptive statistics for corporate social responsibility data.

<b>Panel A. Descriptive statistics for the corporate social responsibility score</b>							
	Mean	Min	Q1	Median	Q3	Max	St. Dev.
1992	0.39	-7	-1	0	2	5	1.99
1993	0.44	-7	-1	1	2	7	2.22
1994	0.35	-7	-1	0	2	7	2.43
1995	0.46	-7	-1	0	2	8	2.54
1996	0.86	-7	-1	1	2	11	2.55
1997	0.93	-8	-1	1	2	9	2.34
1998	0.98	-6	0	1	3	10	2.5
1999	0.96	-7	0	1	3	9	2.51
2000	0.97	-7	-1	1	3	11	2.57
2001	0.94	-6	-1	1	2	11	2.56
2002	0.42	-9	-1	0	2	9	2.27
2003	0.33	-9	-1	0	1	9	2.25
2004	-0.08	-9	-1	0	1	10	1.76
2005	-0.25	-8	-1	0	1	11	1.92
2006	-0.17	-8	-1	0	1	11	2.06
2007	-0.17	-8	-1	0	1	15	2.23
All years	0.19	-9	-1	0	1	15	2.22

# Data and Variables

**Panel B. Frequency distribution for controversial business areas**

Year	<i>CSR_CONT</i> <i>R</i>	<i>CSR_AL</i> <i>C</i>	<i>CSR_GA</i> <i>M</i>	<i>CSR_TO</i> <i>B</i>	<i>CSR_FI</i> <i>R</i>	<i>CSR_MI</i> <i>L</i>	<i>CSR_NU</i> <i>C</i>
1992	12.54%	0.58%	0.29%	0.29%	.	9.91%	2.04%
1993	11.68%	0.85%	0.28%	0.28%	.	8.83%	1.71%
1994	12.81%	0.84%	0.28%	0.56%	.	9.75%	1.67%
1995	11.14%	0.78%	1.04%	0.52%	.	8.03%	1.55%
1996	11.81%	0.72%	1.20%	0.72%	.	8.19%	1.93%
1997	11.97%	0.94%	1.41%	0.70%	.	7.04%	2.58%
1998	10.91%	1.14%	1.14%	0.68%	.	6.14%	2.50%
1999	10.49%	1.12%	0.89%	0.45%	0.00%	4.91%	3.57%
2000	10.68%	1.07%	0.85%	0.64%	0.00%	4.27%	4.06%
2001	12.33%	1.12%	1.35%	0.67%	0.00%	4.93%	4.48%
2002	9.64%	0.94%	1.20%	0.67%	0.27%	3.35%	3.48%
2003	8.91%	0.88%	1.25%	0.50%	0.25%	3.51%	2.89%
2004	7.93%	0.65%	1.36%	0.60%	0.22%	4.13%	1.41%
2005	8.07%	0.71%	1.53%	0.65%	0.27%	4.03%	1.36%
2006	8.36%	0.94%	1.60%	0.44%	0.17%	3.87%	1.83%
2007	7.86%	1.11%	1.33%	0.39%	0.17%	3.54%	1.72%
All years	9.31%	0.88%	1.25%	0.54%	0.19%	4.82%	2.12%

# Data and Variables

**Table 4**

Descriptive data for regression variables.

<b>Panel A. Descriptive statistics for control variables</b>							
	Mean	Min	Q1	Median	Q3	Max	St. Dev.
<i>BETA</i>	1.05	-0.16	0.52	0.91	1.37	3.82	0.76
<i>SIZE</i>	7.85	3.37	6.65	7.73	8.95	14.45	1.70
<i>BTM</i>	0.47	0.01	0.26	0.42	0.61	1.43	0.28
<i>LEV</i>	0.47	0.00	0.05	0.20	0.52	5.81	0.83
<i>LTG</i>	14.21	3.41	10.08	13.08	17.00	38.80	6.28
<i>DISP</i>	0.06	0.00	0.01	0.03	0.06	0.94	0.12

<b>Panel B. Pearson correlation coefficients between regression variables</b>							
	<i>r<sub>AVG</sub></i>	<i>CSR_S</i>	<i>BETA</i>	<i>SIZE</i>	<i>BTM</i>	<i>LEV</i>	<i>LTG</i>
<i>CSR_S</i>	-0.14						
<i>BETA</i>	0.11	-0.01					
<i>SIZE</i>	-0.03	0.13	-0.23				
<i>BTM</i>	0.29	-0.14	-0.12	0.15			
<i>LEV</i>	0.24	0.00	-0.10	0.43	0.32		
<i>LTG</i>	0.04	0.00	0.41	-0.38	-0.36	-0.27	
<i>DISP</i>	0.29	-0.08	0.21	-0.10	0.15	0.07	0.09

# Empirical Results - Univariate Analysis

**Table 5**

Univariate Tests.

<b>Panel A. Means</b>							
		<i>N</i>	<i>r<sub>CT</sub></i>	<i>r<sub>GLS</sub></i>	<i>r<sub>OJ</sub></i>	<i>r<sub>ES</sub></i>	<i>r<sub>AVG</sub></i>
<i>CSR_S</i> ≥ median	(1)	8,065	3.76	3.59	5.40	5.42	4.54
<i>CSR_S</i> < median	(2)	4,850	4.19	4.04	5.97	6.20	5.10
Difference	(1)-(2)		-0.43	-0.45	-0.57	-0.78	-0.56
T-Stat			9.06***	7.87***	11.13***	11.45***	12.84***
<b>Panel B. Medians</b>							
		<i>N</i>	<i>r<sub>CT</sub></i>	<i>r<sub>GLS</sub></i>	<i>r<sub>OJ</sub></i>	<i>r<sub>ES</sub></i>	<i>r<sub>AVG</sub></i>
<i>CSR_S</i> ≥ median	(1)	8,065	3.52	3.54	5.01	4.72	4.25
<i>CSR_S</i> < median	(2)	4,850	3.83	3.97	5.41	5.33	4.64
Difference	(1)-(2)		-0.31	-0.43	-0.4	-0.61	-0.39
Z-Stat			9.63***	11.16***	11.73***	12.55***	13.32***

*Cost of Equity Capital of CSR Score ≥ Median is Lower than Cost of Equity Capital of CSR Score < Median !!!*

# Empirical Results - Multivariate Analysis

Table 6

Corporate social responsibility and the cost of equity capital.

	<i>CSR_S</i>	<i>CSR_S</i>	<i>1992-1995</i>	<i>1996-1999</i>	<i>2000-2003</i>	<i>2004-2007</i>	<i>CSR_COM_S</i>	<i>CSR_DIV_S</i>	<i>CSR_EMP_S</i>	<i>CSR_ENV_S</i>	<i>CSR_HUM_S</i>	<i>CSR_PRO_S</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>CSR</i>	-0.092*** (-5.855)	-0.045*** (-3.271)	-0.036 (-0.883)	-0.036 (-1.593)	-0.073** (-2.416)	-0.039*** (-2.681)	-0.027 (-0.581)	0.002 (0.073)	-0.077** (-2.332)	-0.157*** (-4.097)	0.065 (0.700)	-0.170*** (-3.838)
<i>BETA</i>		0.156*** (3.631)	0.953*** (4.615)	0.363** (2.353)	0.141 (1.043)	0.122*** (2.853)	0.159*** (3.684)	0.158*** (3.665)	0.154*** (3.587)	0.154*** (3.590)	0.124*** (2.858)	0.156*** (3.623)
<i>SIZE</i>		-0.110*** (-5.114)	0.165** (2.045)	-0.220*** (-4.649)	-0.209*** (-4.428)	-0.128*** (-5.761)	-0.115*** (-5.429)	-0.118*** (-5.158)	-0.116*** (-5.412)	-0.133*** (-6.095)	-0.147*** (-7.012)	-0.141*** (-6.341)
<i>BTM</i>		1.878*** (12.154)	1.683*** (4.631)	1.718*** (5.067)	2.516*** (8.330)	1.334*** (7.269)	1.916*** (12.386)	1.919*** (12.393)	1.906*** (12.344)	1.904*** (12.399)	1.897*** (11.954)	1.904*** (12.445)
<i>LEV</i>		0.686*** (11.070)	0.447*** (3.837)	0.348*** (3.826)	0.555*** (4.888)	0.805*** (11.522)	0.688*** (10.892)	0.688*** (10.848)	0.686*** (10.888)	0.688*** (10.921)	0.695*** (10.420)	0.690*** (10.920)
<i>LTG</i>		0.040*** (5.873)	-0.032 (-1.591)	0.002 (0.120)	-0.020 (-1.522)	0.053*** (7.192)	0.040*** (5.822)	0.040*** (5.811)	0.040*** (5.863)	0.040*** (5.898)	0.042*** (6.209)	0.041*** (5.972)
<i>DISP</i>		4.039*** (11.360)	6.224*** (5.009)	5.126*** (6.531)	4.950*** (7.376)	3.119*** (7.111)	4.049*** (11.380)	4.050*** (11.349)	4.044*** (11.369)	4.016*** (11.290)	3.821*** (10.661)	4.040*** (11.321)
INTERCEPT	3.803*** (8.596)	2.318*** (5.178)	1.055 (1.056)	3.646*** (5.003)	6.474*** (5.254)	2.101*** (4.270)	2.435*** (5.437)	2.469*** (5.474)	2.437*** (5.427)	2.464*** (5.676)	2.668*** (5.384)	2.580*** (5.719)
Year effects	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12,915	12,915	1,439	1,729	2,458	7,289	12,915	12,915	12,915	12,915	11,476	12,915
Adj. R <sup>2</sup>	0.164	0.332	0.477	0.369	0.360	0.248	0.331	0.331	0.331	0.333	0.328	0.332

# Empirical Results - Robustness Tests

Table 7

Controversial business areas and the cost of equity capital.

	<i>CSR_CONTR</i>	<i>CSR_ALC</i>	<i>CSR_GAM</i>	<i>CSR_TOB</i>	<i>CSR_FIR</i>	<i>CSR_MIL</i>	<i>CSR_NUC</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>CSR</i>	0.173* (1.893)	0.157 (0.657)	-0.127 (-0.466)	1.180*** (2.792)	0.210 (0.338)	0.165 (1.352)	0.249** (2.004)
<i>BETA</i>	0.165*** (3.781)	0.159*** (3.679)	0.158*** (3.664)	0.158*** (3.676)	0.144*** (3.215)	0.164*** (3.751)	0.158*** (3.677)
<i>SIZE</i>	-0.122*** (-5.620)	-0.117*** (-5.488)	-0.117*** (-5.426)	-0.120*** (-5.589)	-0.155*** (-7.397)	-0.119*** (-5.572)	-0.120*** (-5.532)
<i>BTM</i>	1.912*** (12.406)	1.918*** (12.436)	1.917*** (12.430)	1.908*** (12.399)	1.884*** (11.468)	1.918*** (12.455)	1.912*** (12.360)
<i>LEV</i>	0.688*** (10.888)	0.688*** (10.852)	0.688*** (10.849)	0.689*** (10.869)	0.741*** (11.131)	0.688*** (10.861)	0.690*** (10.883)
<i>LTG</i>	0.040*** (5.799)	0.040*** (5.812)	0.040*** (5.814)	0.039*** (5.795)	0.041*** (6.067)	0.040*** (5.823)	0.040*** (5.796)
<i>DISP</i>	4.058*** (11.393)	4.051*** (11.368)	4.050*** (11.365)	4.037*** (11.341)	3.615*** (9.563)	4.055*** (11.378)	4.053*** (11.372)
INTERCEPT	2.500*** (5.585)	2.463*** (5.529)	2.460*** (5.517)	2.489*** (5.585)	2.611*** (4.991)	2.475*** (5.551)	2.489*** (5.557)
Year effects	Yes						
Industry effects	Yes						
N	12,915	12,915	12,915	12,915	10,195	12,915	12,915
Adj. R <sup>2</sup>	0.331	0.331	0.331	0.332	0.311	0.331	0.331

# Empirical Results - Robustness Tests

**Table 8**

Corporate social responsibility and individual and alternative cost of equity capital estimates.

	Individual Cost of Equity Estimates				Alternative Cost of Equity Estimates			
	$r_{CT}$	$r_{GLS}$	$r_{OJ}$	$r_{ES}$	$r_{FHG}$	$r_{PEG2}$	$r_{PEG5}$	$EPR$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>CSR_S</i>	-0.059*** (-3.873)	-0.027 (-1.393)	-0.040*** (-2.775)	-0.052*** (-2.720)	-0.063*** (-4.610)	-0.050*** (-2.773)	-0.044*** (-3.471)	-0.048*** (-4.267)
<i>BETA</i>	0.018 (0.360)	0.319*** (4.654)	0.013 (0.282)	0.274*** (4.547)	-0.064 (-1.451)	0.451*** (7.816)	0.017 (0.345)	-0.006 (-0.155)
<i>SIZE</i>	-0.031 (-1.236)	-0.152*** (-5.438)	-0.091*** (-3.515)	-0.165*** (-5.380)	-0.002 (-0.067)	-0.182*** (-6.609)	-0.067*** (-2.877)	0.034* (1.765)
<i>BTM</i>	0.517*** (2.845)	3.188*** (12.778)	1.481*** (8.666)	2.326*** (10.960)	1.220*** (7.756)	2.270*** (11.859)	1.204*** (8.717)	0.922*** (7.716)
<i>LEV</i>	0.762*** (12.566)	0.640*** (9.704)	0.613*** (8.105)	0.730*** (7.671)	0.765*** (11.190)	0.622*** (8.833)	0.531*** (12.387)	0.615*** (14.472)
<i>LTG</i>	0.058*** (7.548)	-0.015 (-1.579)	0.084*** (10.718)	0.033*** (3.491)	0.052*** (6.289)	0.077*** (9.202)	0.340*** (32.578)	-0.086*** (-17.446)
<i>DISP</i>	-1.250*** (-3.207)	-0.138 (-0.430)	5.943*** (13.167)	11.601*** (19.511)	-1.321*** (-3.168)	11.172*** (22.101)	-1.587*** (-5.607)	-6.259*** (-34.542)
INTERCEPT	2.019*** (3.839)	2.057*** (3.121)	2.557*** (5.670)	2.639*** (4.738)	0.119 (0.269)	1.909*** (3.772)	0.179 (0.397)	5.350*** (19.633)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12,915	12,915	12,915	12,915	12,914	12,881	12,699	12,915
Adj. R <sup>2</sup>	0.167	0.257	0.275	0.359	0.264	0.428	0.516	0.457

# Empirical Results - Robustness Tests

**Table 9**

Robustness to analyst forecast optimism.

	Forecast optimism bias less than $j$ th percentile					Long-term growth forecast less than $j$ th percentile			
	j=95% (0.031)	j=90% (0.017)	j=75% (0.004)	j=50% (0.000)		j=95% (26.22)	j=90% (22)	j=75% (17)	j=50% (13.09)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>CSR_S</i>	-0.045*** (-3.383)	-0.040*** (-3.163)	-0.036*** (-2.850)	-0.037*** (-2.916)	-0.036** (-2.275)	-0.043*** (-3.197)	-0.043*** (-3.169)	-0.040*** (-2.827)	-0.030* (-1.787)
<i>BETA</i>	0.162*** (3.783)	0.124*** (2.969)	0.134*** (3.156)	0.122*** (2.632)	0.105* (1.907)	0.193*** (4.378)	0.205*** (4.389)	0.212*** (3.669)	0.251*** (2.951)
<i>SIZE</i>	-0.084*** (-4.026)	-0.089*** (-4.368)	-0.075*** (-3.720)	-0.066*** (-3.140)	-0.082*** (-3.324)	-0.115*** (-5.468)	-0.106*** (-4.946)	-0.098*** (-4.230)	-0.059** (-2.133)
<i>BTM</i>	1.743*** (11.458)	1.858*** (12.436)	1.796*** (11.853)	1.740*** (10.969)	1.686*** (9.089)	1.833*** (11.553)	1.794*** (10.964)	1.704*** (9.778)	1.360*** (6.412)
<i>LEV</i>	0.586*** (10.847)	0.607*** (10.972)	0.592*** (10.502)	0.567*** (9.851)	0.542*** (8.640)	0.667*** (10.922)	0.653*** (10.581)	0.632*** (10.232)	0.592*** (8.655)
<i>LTG</i>	0.041*** (6.004)	0.043*** (6.326)	0.042*** (5.965)	0.038*** (5.083)	0.032*** (4.049)	0.027*** (3.434)	0.025*** (2.736)	0.024* (1.879)	0.026 (1.282)
<i>DISP</i>	3.285*** (10.127)	3.302*** (9.300)	3.226*** (8.518)	3.391*** (7.960)	3.403*** (8.328)	4.461*** (11.425)	4.629*** (11.051)	5.058*** (10.704)	6.006*** (10.470)
<i>FBIAS</i>	30.666*** (15.189)								
INTERCEPT	2.263*** (5.849)	2.300*** (6.656)	2.257*** (6.529)	1.995*** (5.751)	1.829*** (4.768)	2.498*** (5.385)	2.385*** (5.006)	2.309*** (4.344)	1.078 (1.403)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12,290	11,676	11,061	9,217	5,890	12,270	11,603	9,670	6,461
Adj. R <sup>2</sup>	0.376	0.326	0.324	0.335	0.326	0.344	0.351	0.368	0.379

# Empirical Results - Robustness Tests

**Table 10**

Robustness to analyst forecast sluggishness.

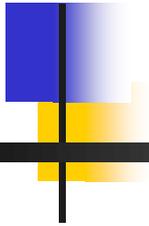
	(1)	(2)	(3)	(4)
<i>CSR_S</i>	-0.042*** (-2.987)	-0.045*** (-3.299)	-0.046*** (-3.306)	-0.048*** (-3.507)
<i>BETA</i>	0.015 (0.347)	0.131*** (3.092)	0.133*** (3.077)	0.152*** (3.494)
<i>SIZE</i>	-0.082*** (-3.789)	-0.103*** (-4.823)	-0.097*** (-4.471)	-0.102*** (-4.696)
<i>BTM</i>	2.223*** (13.905)	1.968*** (12.632)	1.947*** (12.410)	1.705*** (10.881)
<i>LEV</i>	0.750*** (11.765)	0.721*** (11.224)	0.736*** (11.368)	0.711*** (11.236)
<i>LTG</i>	0.055*** (7.857)	0.045*** (6.632)	0.047*** (6.872)	0.049*** (7.141)
<i>DISP</i>	2.963*** (9.049)	3.840*** (10.869)	3.687*** (10.394)	3.616*** (10.100)
<i>MOM3</i>		-3.051*** (-19.486)		
<i>MOM6</i>			-2.281*** (-20.414)	
<i>MOM12</i>				-1.177*** (-16.005)
INTERCEPT	2.201*** (5.432)	2.493*** (5.523)	2.414*** (5.348)	2.399*** (5.363)
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
N	12,879	12,900	12,900	12,900
Adj. R <sup>2</sup>	0.363	0.363	0.367	0.355

# Empirical Results - Robustness Tests

**Table 11**

Robustness to endogeneity.

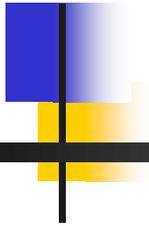
	<i>VAR = INST</i>	<i>VAR = CEO INC</i>	<i>VAR = EI</i>	<i>VAR = ANA</i>	<i>VAR = KZ</i>	IV	GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>CSR_S</i>	-0.033** (-2.546)	-0.048*** (-3.076)	-0.039*** (-2.734)	-0.042*** (-3.119)	-0.054*** (-3.749)	-0.090** (-1.989)	-0.080** (-2.387)
<i>BETA</i>	0.189*** (4.370)	0.115** (2.133)	0.139*** (2.772)	0.198*** (4.656)	0.107** (2.375)	0.153*** (3.557)	0.371*** (5.043)
<i>SIZE</i>	0.260*** (4.910)	-0.049* (-1.783)	-0.081*** (-3.151)	-0.012 (-0.410)	-0.166*** (-7.070)	-0.102*** (-4.494)	0.228*** (10.612)
<i>BTM</i>	1.343*** (7.696)	2.045*** (11.118)	1.932*** (11.284)	1.746*** (10.971)	1.847*** (11.430)	1.837*** (11.659)	3.304*** (12.225)
<i>LEV</i>	0.578*** (9.595)	0.538*** (7.296)	0.628*** (9.239)	0.645*** (10.396)	0.627*** (6.906)	0.684*** (11.218)	0.634*** (5.974)
<i>LTG</i>	0.046*** (6.853)	0.062*** (6.577)	0.040*** (4.915)	0.045*** (6.654)	0.035*** (4.956)	0.040*** (5.914)	0.116*** (13.334)
<i>DISP</i>	3.818*** (10.932)	4.586*** (10.936)	4.460*** (11.558)	4.055*** (11.363)	3.857*** (11.454)	4.031*** (11.334)	4.633*** (6.682)
<i>VAR</i>	-0.876*** (-8.156)	-1.047*** (-7.017)	0.009 (0.396)	-0.340*** (-5.462)	0.160*** (4.227)		
Lag( <i>r<sub>AVG</sub></i> )							-0.401*** (-7.241)
INTERCEPT	4.055*** (8.146)	2.084*** (3.802)	2.233*** (4.585)	2.217*** (5.150)	2.629*** (4.971)	2.169*** (4.634)	
Year effects	Yes						
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	No
N	12,903	7,813	10,499	12,915	10,692	12,914	9,603
Adj. R <sup>2</sup>	0.342	0.381	0.356	0.336	0.341	0.334	



# Conclusions

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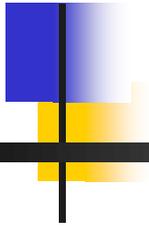
- CSR affects firms' "*ex ante* cost of equity" implied in stock prices and analysts' earnings forecasts
- High CSR firms should have lower cost of equity capital than low CSR firms
  - Low CSR firms having a reduced investor base and higher perceived risk
- Among 6 dimensions of KLD social performance index, (1) Employee Relations, (2) Environmental Policies, (3) Product Strategies lower the firms' cost of equity
  - However, the other three indexes; community relations, diversity, and human rights do not



# Conclusions (Continued)

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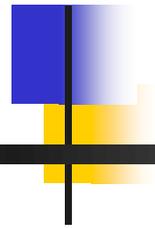
- Beyond corporate governance and other risk factors, investment in CSR activities is very important to firms as it lowers a firm's cost of equity
- Therefore, firms should:
  - Increase/pursue CSR activities
  - High CSR firms should actively disclose information about their CSR activities
  - Socially conscious investors should select high CSR firms



# Further Research

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- How about using a global sample?
  - Investors' perception of strong vs. weak-CSR firms is shaped by a country's culture and religion
- Does the cost of capital effect of CSR cause firms to alter their behavior?
  - Check the change in cost of equity over time when low CSR firms significantly increase their investments in CSR activities
- Is there a relationship between CSR and the cost of private debt financing also?



# Questions

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- Thank you for your attention!

**ANY QUESTIONS?**