Financial Development, Corporate Governance and Cost of Equity Capital

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Prior work

- Firm level corporate governance attributes are associated with the cost of equity capital

- Beneficial impact of country level legal institutions and regulations on the cost of equity

- Very little research has delved into the impact of the combination of the two factors on the cost of equity

Financial development

- No paper explicitly investigates the role of financial development in influencing the corporate governance-cost of equity capital relationship.

- Financial development strongly influences the economic growth of a country and that this effect works through firms' abilities to access external finance.

- Country with sound financial system will have access to capital at a lower cost than a firm in a country with weak financial development.

Research questions

- The interactive effect of financial development and firm level corporate governance on its cost of equity capital

- To conduct a "horse race" between the substitution and complementarity hypotheses using a large recent cross-country sample

- To discern the relative impact of these two major factors in influencing the cost of capital

Hypothesis

- **Complementarity hypothesis**

  - Firms operating in a country with a high level of financial development <u>AND</u> high quality firm level corporate governance experience lower cost of equity capital, ceteris paribus.

- **Substitution hypothesis**

  - Firms operating in a country with a high level of financial development <u>OR</u> high quality firm level corporate governance experience lower cost of equity capital, ceteris paribus.

Database

- RiskMetrics- Corporate Governance scores
- I/B/E/S- Implied cost of equity from analysts forecasts data
- Datastream- Control variables
- Financial Development- Khurana et al. (2006)
- Legal origin- La Porta et al. (1997)

Corporate Governance scores

- Fifty-five governance attributes are compiled for each firm

- We score each firm based on whether or not it meets the threshold of good governance for that attributes

- These attributes cover four broad categories: Board, Audit, Anti-takeover and Compensation and Ownership

Implied cost of capital

Gebhardt, Lee and Swaminathan (2001):

$$P_t = BV_t + \sum_{i=1}^{12} \frac{FEPS_{t+i} - (R_{GLS} * BV_{t+i-1})}{(1 + R_{GLS})^i} + \frac{FEPS_{t+12} - (R_{GLS} * BV_{t+11})}{R_{GLS}(1 + R_{GLS})^{12}}$$

Claus and Thomas (2001):

$$P_t = BV_t + \sum_{i=1}^{5} \frac{FEPS_{t+i} - (R_{CT} * BV_{t+i-1})}{(1 + R_{CT})^i} + \frac{FEPS_{t+5} - (R_{CT} * BV_{t+4}) * (1 + g_{lt})}{(R_{CT} - g_{lt})(1 + R_{CT})^5}$$

Ohlson and Juettner-Nauroth (2005):

$$P_t = \frac{FEPS_{t+1}}{R_{OJ}} + \frac{FEPS_{t+2} - FEPS_{t+1} - (R_{OJ} * FEPS_{t+1} * (1 - DPOUT))}{R_{OJ}(R_{OJ} - g_{lt})}$$

Easton (2004):

$$P_t = \frac{FEPS_{t+2} - FEPS_{t+1} + (R_{Easton} * FEPS_{t+1} * DPOUT)}{R_{Easton}^2}$$

Sample Size & Time period

Country	2003	2004	2005	2006	2007
Australia	63	62	92	88	87
Austria	17	14	16	15	17
Belgium	21	16	22	22	23
Canada	125	126	82	117	118
Denmark	18	17	18	17	17
Finland	21	21	23	25	24
France	68	62	68	70	69
Germany	63	66	68	71	69
Greece	36	35	36	31	31
Hong Kong	41	48	93	96	91
Ireland	12	13	13	14	14
Italy	42	31	55	51	50
Japan	404	410	471	479	477
Netherlands	36	35	38	36	27
NZ	10	12	17	16	16
Norway	13	13	13	12	13
Portugal	10	8	10	11	12
Singapore	37	37	45	48	46
Spain	39	30	42	42	41
Sweden	23	24	23	27	25
Switzerland	40	43	46	46	45
UK	114	124	328	312	303
Total	1,253	1,247	1,619	1,646	1,615

Corporate Governance Scores

	Mean	Median		Mean	Median
All countries	**0.438**	**0.410**	Italy	0.409	0.425
Australia	0.498	0.495	Japan	0.363	0.365
Austria	0.434	0.429	Netherlands	0.464	0.466
Belgium	0.361	0.347	New Zealand	0.445	0.447
Canada	0.610	0.613	Norway	0.412	0.399
Denmark	0.420	0.411	Portugal	0.328	0.322
Finland	0.483	0.481	Singapore	0.421	0.422
France	0.452	0.459	Spain	0.399	0.403
Germany	0.464	0.477	Sweden	0.432	0.426
Greece	0.335	0.330	Switzerland	0.476	0.477
Hong Kong	0.406	0.410	United Kingdom	0.507	0.517
Ireland	0.450	0.460			

Implied Cost of Equity estimates using four different models

Implied Cost of Equity Estimates	Mean	Median	25th percentile	75th percentile
Cost of Equity- Average	9.74%	9.06%	7.39%	10.99%
Cost of Equity- GLS	8.16%	7.85%	6.41%	9.24%
Cost of Equity- CT	9.41%	8.21%	5.81%	10.69%
Cost of Equity- OJ	10.88%	10.44%	7.89%	13.14%
Cost of Equity- Easton	11.13%	10.10%	4.25%	12.74%

Cost of equity estimates by country

Country	Mean	St. Dev.	Median
Australia	9.94%	3.38%	9.37%
Austria	10.88%	4.27%	9.89%
Belgium	10.48%	3.14%	9.96%
Canada	10.02%	4.26%	9.33%
Denmark	9.26%	3.88%	8.29%
Finland	10.67%	4.00%	9.73%
France	9.69%	2.65%	9.46%
Germany	10.36%	4.13%	9.58%
Greece	11.77%	5.61%	10.20%
Hong Kong	10.17%	4.85%	9.28%
Ireland	12.94%	6.96%	10.52%
Italy	10.42%	4.90%	9.45%
Japan	8.48%	3.39%	7.87%
Netherlands	9.39%	2.29%	9.11%
NZ	11.53%	5.46%	9.71%
Norway	11.00%	5.17%	10.09%
Portugal	10.08%	4.63%	8.93%
Singapore	12.24%	7.18%	10.24%
Spain	9.66%	2.87%	9.24%
Sweden	9.64%	3.10%	9.01%
Switzerland	9.22%	3.52%	8.52%
UK	10.34%	4.71%	9.96%

Summary statistics of control variables

Control Variables	Mean	Median	25th percentile	75th percentile
Beta	0.974	0.853	0.507	1.313
Log (M/V)	8.001	7.918	7.038	8.930
Log (B/M)	-0.722	-0.647	-1.072	-0.270
Inflation	1.92%	1.95%	0.40%	3.03%
Momentum	9.62%	7.87%	-5.77%	22.43%
Forecast Error	-0.43%	0.06%	-0.35%	0.51%
Liquidity	89.30%	90.77%	87.69%	93.85%
Freefloat	71.88%	77.00%	53.00%	92.00%

Institutional Development in Common Law versus Civil Law Countries

	Common Law Mean (Median)	Civil Law Mean (Median)	t-test differences (prob)
Investor Protection	0.634 (0.612)	0.374 (0.363)	4.67 (0.00)
Private Enforcement	0.678 (0.684)	0.448 (0.443)	4.19 (0.00)
Public Enforcement	0.623 (0.675)	0.459 (0.500)	2.72 (0.01)
Newspaper Circulation	2.620 (2.200)	2.210 (1.630)	0.64 (0.52)

Financial Development and Legal Origin

	Legal Origin					
	Civil Law			**Common Law**		
Country	**FININT**	**SKTMKT**	**Country**		**FININT**	**SKTMKT**
Austria	1.26	-0.74	Australia		0.61	0.42
Belgium	0.62	1.03	Canada		0.59	0.5
Denmark	1.02	-0.05	New Zealand		1.07	-0.39
Finland	0.27	1.63	Singapore		1.25	0.61
France	0.85	0.61	United Kingdom		2.02	2.27
Germany	1.52	0.69				
Italy	0.75	0.38				
Japan	2.71	0.17				
Netherlands	2.14	1.45				
Norway	0.43	-0.1				
Portugal	2.13	-0.28				
Spain	1.36	2.25				
Sweden	-0.05	1.87				
Switzerland	2.14	3.31				
Mean	**1.23**	**0.87**	**Mean**		**1.11**	**0.68**
Median	**1.14**	**0.65**	**Median**		**1.07**	**0.50**

Corporate Governance and cost of equity

Control Variables	Predicted Sign	Coefficient	*p*-value
Corporate Governance	-	-0.029	0.000
Beta	+	0.006	0.000
Log (M/V)	-	-0.004	0.000
Log (B/M)	+	0.008	0.000
Inflation	+	0.428	0.000
Momentum	-	-0.016	0.000
Forecast Error	-	-0.038	0.000
Liquidity	-	-0.012	0.156
Freefloat	?	0.009	0.000

$$\text{Cost of equity}_{average,i,j,t} = \beta_1 + \beta_2 \text{ CG Score}_{i,j,t} + \sum \Phi \text{ Control Variables}_{i,j,t} + \varepsilon_{i,j,t}$$

Cost of equity estimates under different states of investor protection

		Corporate Governance (CG)	N	Adj-R^2
Investor Protection	Low	-0.021	3,723	13.50%
	High	-0.031***	3,657	15.70%
Private Enforcement	Low	-0.009	1,849	15.60%
	High	-0.036***	5,531	15.50%
Public Enforcement	Low	-0.023**	3,680	13.50%
	High	-0.031***	3,700	15.80%
Newspaper Circulation	Low	-0.003	2,517	11.30%
	High	-0.058***	4,524	17.50%

Cost of equity$_{average,i,j,t}$ = β_1 + β_2 CG Score$_{i,j,t}$ + $\sum \Phi$ Control Variables$_{i,j,t}$ + $\varepsilon_{i,j,t}$

*, ** and *** denote significance at 10%, 5% and 1% level respectively

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Corporate Governance & Cost of Equity Regression Results

Dependent key variables		Corporate Governance (CG)	N	Adj-R^2
Unconditional sample		-0.029***	7,380	15.73%
Legal Origin- Common Law		-0.049***	2,860	15.40%
Legal Origin- Civil Law		-0.006	4,520	14.17%
Financial Development	Financial Institution- High	-0.046***	5,123	17.17%
	Financial Institution- Low	-0.015	2,257	12.02%
	Stock Market- High	-0.046***	3,092	17.68%
	Stock Market- Low	-0.007	4,288	12.52%

Cost of equity$_{average,i,j,t}$ = β_1 + β_2 CG Score$_{i,j,t}$ + $\sum \Phi$ Control Variables$_{i,j,t}$ + $\varepsilon_{i,j,t}$

*, ** and *** denote significance at 10%, 5% and 1% level respectively

Legal Origin & Financial Development Regression Results

		Corporate Governance (CG)	N	Adj-R^2
Common Law	Financial Institution- High	-0.096***	1,829	18.97%
	Financial Institution- Low	-0.026	1,031	7.87%
	Stock Market- High	-0.096***	1,829	18.97%
	Stock Market- Low	-0.026	1,031	7.87%
Civil Law	Financial Institution- High	-0.011	3,294	10.66%
	Financial Institution- Low	-0.005	1,226	16.67%
	Stock Market- High	-0.003	1,263	17.71%
	Stock Market- Low	0.013	3,257	12.97%

Note: Sample split for Common Law countries based on Financial Development scores leads to same Financial Institution and Stock Market sub-sample.

*, ** and *** denote significance at 10%, 5% and 1% level respectively

Robustness checks

- Alternative Governance index using Aggarwal et al, 2007

- Alternative Financial Development score based on Global Financial Centres index

- Reclassify missing Financial Development scores of Hong Kong, Ireland and Greece in other categories

Conclusion

- Our study jointly examines the relative effects of institutional and firm level governance attributes on the cost of capital

- We show that firm level governance attributes affect the cost of equity capital only in Common Law countries with high level of financial development

- Our study highlights the complementary effects of legal origin, financial development and firm level governance attributes in influencing cost of equity capital

Implications

- Our study focusing on cost of equity estimates shows that improving firm level corporate governance alone will not be sufficient

- An essential prerequisite is the existence of high quality institutions in the country in which the firm operates

- It is imperative for policy makers to improve the legal institutional framework, before firm level improvements will work