

IMPACT OF CORPORATE SOCIAL RESPONSIBILITY PERFORMANCE ON THE VALUE OF CASH HOLDINGS

Hoontaek Seo and Daniel L. Tompkins

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WEB APPENDIX

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Equation 1.

$$\begin{aligned} \ln\left(\frac{Cash_{i,t}}{Sales_{i,t}}\right) = & \beta_0 + \beta_1 Net\ Assets_{i,t} + \beta_2 \frac{Cash\ Flow_{i,t}}{Net\ Assets_{i,t}} + \beta_3 \frac{Net\ Working\ Capital_{i,t}}{Net\ Assets_{i,t}} \\ & + \beta_4 Bond\ Rating_{i,t} + \beta_5 \frac{Market_{i,t}}{Book_{i,t}} + \beta_5 CSR_{i,t} + Year\ Dummies \\ & + Firm\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (1)$$

Equation 2.

$$\begin{aligned} \frac{Market_{i,t}}{Book_{i,t}} = & \beta_0 + \beta_1 \frac{Excess\ Cash_{i,t}}{Sales} + \beta_2 \frac{Excess\ Cash_{i,t}}{Sales} \times CSR_{i,t} \\ & + \beta_3 CSR_{i,t} + \beta_4 Net\ Assets_{i,t} + \beta_5 \frac{PPE_{i,t}}{Net\ Assets_{i,t}} + \beta_2 \frac{Cash\ Flow_{i,t}}{Net\ Assets_{i,t}} \\ & + Year\ Dummies + Firm\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (2)$$

Equation 3.

$$\begin{aligned} ROA_{i,t} = & \delta_0 + \delta_1 \frac{Excess\ Cash_{i,t-1}}{Sales_{i,t-1}} + \delta_2 CSR_{i,t-1} + \delta_3 \frac{Excess\ Cash_{i,t-1}}{Sales_{i,t-1}} \times CSR_{i,t-1} \\ & + \delta_4 Asset_{i,t} + \delta_5 \frac{PPE_{i,t}}{Net\ Assets_{i,t}} + \delta_6 ROA_{i,t-1} + Year\ Dummies \\ & + Firm\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Table 1: Summary Statistics of the Key Variables

This table shows the summary statistics of the key variables for the period of 1991 to 2013. Variable definitions are in the Appendix. All continuous variables (except the CSR variable) are winsorized at the 1st and 99th percentiles.

	N	Mean	Median	Std. Dev.	Minimum	Maximum
Cash/Sales	26953	0.50	0.11	1.64	0.00	13.6582
Net Assets (\$ mil)	27096	4975.68	1082.58	11680.46	8.79	80390.88
Cash Flow/Net Assets	25245	0.02	0.09	0.50	-3.84	0.50589
NWC/Net Assets	26293	0.04	0.06	0.27	-1.46	0.50473
CSR	27096	-0.27	0.00	2.43	-9.00	18
Rating	27096	0.63	1.00	0.48	0.00	1
Market to Book	27096	3.23	1.79	4.77	0.73	35.411
Sales Growth	26662	0.62	0.27	1.48	-0.67	10.9391
PPE/Net Assets	27064	0.31	0.25	0.23	0.01	0.91288

Table 2: A Pearson Correlation Matrix of the Key Variables

The table shows the Person correlation matrix between the variables used in the regressions. Variable definitions are in the Appendix. All continuous variables (except the CSR variable) are winsorized at the 1st and 99th percentiles. The labels ***, **, and * indicate statistical significances at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Cash Holdings	1.00								
(2) Net Assets	-0.13***	1.00							
(3) Cash Flow/Net Assets	-0.35***	0.07***	1.00						
(4) NWC/Net Assets	-0.35***	-0.04***	0.55***	1.00					
(5) CSR	0.01**	0.18***	0.06***	0.00	1.00				
(6) Rating	-0.04***	0.26***	0.07***	-0.01	0.07***	1.00			
(7)Market to Book	0.45***	-0.11***	-0.62***	-0.51***	0.01*	-0.03***	1.00		
(8) Sales Growth	0.19***	-0.06***	-0.11***	-0.14***	-0.03***	-0.06***	0.26***	1.00	
(9) PPE/Net Assets	-0.17***	0.07***	-0.01	-0.13***	-0.04***	0.01**	-0.05***	-0.00	1.00

Table 3: Predicting the Level of Cash

This table reports the regression results for level of cash. All models are run as fixed effects. The dependent variable is Cash Holdings, measured as the natural logarithm of the ratio of cash divided by sales. CSR is the net score of CSR rating (total strengths minus total concerns), based on seven categories of KLD data. All other variable are defined in the Appendix. All continuous variables (except the CSR variable) are winsorized at the 1st and 99th percentiles. Model (1) shows the results of instrumental variables (IV) estimation. Sales Growth and R&D/Sales are used as instruments for Market to Book in the first stage. The results of the first stage of the IV model (Market to Book as dependent variable) are given in the last column. Model (2) shows the results of regression with no instruments. T-statistics are in parentheses below parameter estimates. The labels ***, **, and * indicate statistical significances at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	First Stage of (1)	
Net Assets	0.000*** (-9.94)	0.000*** (-6.24)	Net Assets	0.000*** (-13.2)
Cash Flow/Net Assets	-0.553*** (-12.34)	0.065** (2.38)	Cash Flow/Net Assets	-2.143*** (-26.21)
NWC/Net Assets	-0.971*** (-10.47)	-0.284*** (-5.95)	NWC/Net Assets	-3.862*** (-27.54)
CSR	0.016*** (4.61)	0.016*** (5.05)	CSR	-0.003 (-0.31)
Bond Rating	0.179***	0.150***	Bond Rating	0.189***

	(7.85)	(7.69)		(3.22)
Market to Book	-0.149***	0.034***	Sales Growth	0.288***
	(-7.58)	(15.24)		(18.6)
Capex/Net Assets		0.589***	R&D/Sales	-0.213***
		(4.21)		(-2.8)
Leverage		0.084**		
		(2.44)		
R&D/Sales		0.542***		
		(21.77)		
Dividend Dummy		0.006		
		(0.25)		
Year fixed effects	Yes	Yes	Year fixed effects	Yes
Firm fixed effects	Yes	Yes	Firm fixed effects	Yes
Observations	24058	24244	Observations	24107
Adjusted R2	0.76	0.82	Adjusted R2	0.724

Table 4: Excess Cash Summary Statistics

This table reports summary statistics of excess cash. The sample is divided into firms with high excess cash (>0) and firms with low excess cash (<0). All variables are defined in the Appendix. The significance for differences in means (medians) between firms with high excess cash and firms with low excess cash is based on t-tests (Wilcoxon rank-sum tests). The labels ***, **, and * indicate statistical significances at the 1%, 5%, and 10% levels, respectively.

	Subsample of High				Subsample of Low		Test of Difference	
	Full Sample		Excess Cash: A		Excess Cash: B			
	(N=24357)		(N=12145)		(N=12212)		(A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Excess Cash/Sales	0.001	0.000	0.003	0.000	-0.002	0.000	0.005***	0.001***
Cash/Net Assets	0.483	0.099	0.620	0.140	0.346	0.059	0.274***	0.081***
Net Assets (\$ mil)	4972.600	1155.630	5016.110	1076.050	4929.330	1220.500	86.780	-144.450***
Cash Flow/Net Assets	0.028	0.095	0.031	0.101	0.024	0.089	0.008	0.012***
NWC/Net Assets	0.045	0.062	0.048	0.066	0.042	0.059	0.006*	0.006***
CSR	-0.242	0.000	-0.259	0.000	-0.225	0.000	-0.034	0.000
Rating	0.624	1.000	0.619	1.000	0.628	1.000	-0.009	0.000
Market to Book	3.074	1.778	3.639	1.896	2.511	1.679	1.129***	0.217***

Sales Growth	0.613	0.266	0.588	0.248	0.637	0.284	-0.049***	-0.036***
PPE/Net Assets	0.321	0.261	0.324	0.268	0.317	0.254	0.007**	0.014***

Table 5: Analysis of Impact of CSR on Value of Excess Cash

This table reports the results for the value regression. The dependent variable is Market to Book. CSR is the net score of CSR rating (total strengths minus total concerns), based on seven categories of KLD data. All other variable are defined in the Appendix. All continuous variables (except the CSR variable) are winsorized at the 1st and 99th percentiles. The model is estimated as fixed effects regression. T-statistics are in parentheses below parameter estimates. The labels ***, **, and * indicate statistical significances at the 1%, 5%, and 10% levels, respectively.

Dependent variable: Market to book	
Excess Cash/Sales	107.667*** (28.12)
Excess Cash x CSR	7.080*** (3.94)
CSR	0.008 (0.66)
Net Assets	0.000*** (-10.27)
PPE/Net Assets	1.732*** (5.37)
Cash Flow/Net Assets	-1.220*** (-12.83)
Year fixed effects	Yes
Firm fixed effects	Yes

Observations	12143
Adjusted R ²	0.88

Table 6: Analysis of Impact of CSR on Operating Performance

This table reports the results for the return on assets (ROA) regression. The dependent variable is return on asset (ROA). CSR is the net score of CSR rating (total strengths minus total concerns), based on seven categories of KLD data. All other variable are defined in the Appendix. All continuous variables (except the CSR variable) are winsorized at the 1st and 99th percentiles. The model is estimated as fixed effects regression. T-statistics are in parentheses below parameter estimates. The labels ***, **, and * indicate statistical significances at the 1%, 5%, and 10% levels, respectively.

Dependent variable: ROA	
Lag Excess Cash/Sales	-3.902*** (-7.65)
Lag Excess Cash x CSR	1.132*** (4.32)
Lag CSR	0.001 (0.47)
Net Assets	0.000*** (-3.09)
PPE/Net Assets	-0.309*** (-6.72)
Lagged ROA	0.109*** (7.28)
Year fixed effects	Yes
Firm fixed effects	Yes

Observations	7471
Adjusted R ²	0.84

Definition of Variables

Variables	Definition
CSR	Net score of CSR rating (total strengths minus total concerns), based on seven categories of KLD data, i.e., community, corporate governance, diversity, employee relations, environment, human rights, and product characteristics
Cash Holdings	Natural logarithm of the ratio of cash to sales $CHE/SALE$
ROA	Operating income before depreciation divided by total assets net of cash $OIBDP/(AT-CHE)$
Net Assets	Book value of total assets minus cash plus marketable securities $AT-CHE$
Cash Flow /Net Assets	Ratio of earnings after interest, dividends and taxes but before depreciation to the book value of net assets $(OIBDP-XINT-TXT-DVC)/(AT-CHE)$
NWC/Net Assets	Ratio of net working capital to the book value of net assets $(ACT-LCT-CHE)/(AT-CHE)$
Bond Rating	An indicator variable that equals to one if the firm reports a long-term debt (DLTT) and the firm has a bond rating (SPLTICRM), and zero otherwise
Market to Book	The book value of net assets minus the book value of equity plus the market value of equity, divided by the book value of net assets $(AT-CHE-CEQ+CSHO*PRCC_F)/(AT-CHE)$
Capex/Net Assets	Ratio of capital expenditures to the book value of net assets $CAPX/(AT-CHE)$
Leverage	Sum of long-term debt and debt in current liabilities divided by the book value of

	net assets
	$(DLTT+DLC)/(AT-CHE)$
R&D/sales	Ratio of research and development expenditure to sales. If research and development expenditure is missing, the ratio is set equal to zero.
	$XRD/SALE$
Dividend Dummy	An indicator variable that equals to one in years in which a firm pays a common dividend (DVC) and zero otherwise
Sales Growth	3-year compound sales growth
PPE/net assets	Ratio of Net Property, Plant, and Equipment to net assets
	$PPENT/(AT-CHE)$
