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The Effect of Corporate Visibility on Corporate Social Responsibility

Zhichuan Li
Western University

Taylor Morris
Western University

Brian Young
Wake Forest University

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1 Article

2 The Effect of Corporate Visibility on Corporate 3 Social Responsibility

4 Frank Li ^{1*}, Taylor Morris ², Brian Young ³

5 ¹ Ivey Business School, Western University (Email: fli@ivey.ca);

6 ² Taylor Morris is at the Economics Department, Western University (Email: tmorri46@uwo.ca);

7 ³ Brian Young is at the Finance Department, Wake Forest University (Email: youngbe@wfu.edu).

8 * Correspondence: fli@ivey.ca; Tel.: +1-519-661-4112

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10 **Abstract:** Outside of direct ownership, the general public may feel it is an implicit stakeholder of a
11 firm. As the public becomes more vested in a firm's actions, the firm may be more likely to engage
12 in Corporate Social Responsibility (CSR) activities. We proxy for the public's stake in a firm with
13 public visibility. Based on 3,400 unique newspaper publications from 1994 to 2008, we measure
14 visibility for the U.S. S&P 500 firms with the frequency of print articles per year concerning the firm.
15 We find that visibility has a significant, positive relationship with the CSR rating. Evidence also
16 suggests this relationship may be causal and working in one direction, from visibility to CSR. While
17 the existing literature provides other factors that influence CSR, visibility proves to have the most
18 significant impact when tested alongside those other factors. Visibility also has a mediating effect
19 on the relationship between CSR rating and firm size. CSR rating and firm size relate negatively for
20 the lowest visibility firms and positively for the highest. This paper provides strong evidence that
21 visibility is an important factor to consider for studies on corporate social performance.

22 **Keywords:** Corporate Social Responsibility; Corporate Visibility; Print Media; Firm Size

23

24 1. Introduction

25 There has been a large amount of discussion in the literature regarding the impact of corporate
26 social responsibility (CSR) on firm financial performance. However, there is less discussion on what
27 motivates a firm to participate in social initiatives. Some common hypotheses include firm attributes
28 such as size [1], profitability and financial performance [2,3], regulation and tax incentives [4],
29 executive characteristics and contractual obligations [5,6], and more recently, media exposure or
30 visibility [7,8]. Given that firms care about their reputation and the positive impact CSR has on that
31 reputation, we focus on the visibility motivation. We define visibility for our purposes as the number
32 of print media articles published in a given year that directly report on the U.S. S&P 500 firms in
33 question. In particular, we hand collect our data by searching the ProQuest SeriesSolution news
34 search engine which provides access to over 3,400 unique newspaper publications. We use this data
35 to explore whether there is a relationship between visibility and CSR, and if visibility affects the
36 strength of other factors, such as firm and executive characteristics, that could possibly affect CSR as
37 shown in the previous literature.

38 Stakeholder theory has long suggested that a corporation may be accountable to members of
39 society other than their shareholders (the very definition of CSR) [9,10]. A stakeholder is any person
40 or group that has or claims ownership, rights, or interests in a corporation and its past, present or
41 future activities [9]. This paper focuses on the secondary stakeholder. Secondary stakeholders are
42 those who are influenced or affected by the corporation but do not engage directly in transactions [9].
43 The media and the public are key secondary stakeholders who can mobilize general/public opinion

44 in favor of or in opposition to a corporation. Prominent examples include the protests and media
45 coverage of the Dakota Access Pipeline (opposed) and the positive media response to charities such
46 as McDonald's Ronald McDonald House (in favor). Stakeholder theory has suggested for some time
47 that a firm's exposure to external stakeholder claims impacts corporate decision making and strategy
48 [10]. Cornell & Shapiro [10] argue that a corporation may be responsible to claimants for both implicit
49 and explicit claims. This can be highly relevant to CSR if we presume the media and public have
50 come to expect a degree of social responsibility from a corporation, thus categorizing social
51 responsibility an implicit claim. The International Institute for Sustainable Development (IISD) [11]
52 found that 42% of North Americans care about a company's social responsibility, which implies that
53 CSR is an issue of importance to secondary stakeholders. Media coverage and visibility could increase
54 a corporation's exposure to implicit claims. Failure to comply could lead to negative opinions of the
55 corporation, impact performance, and even lead to regulatory intervention (explicit claim). Therefore,
56 as a corporation's visibility increases, the general public's stake in a firm increases, and strong CSR
57 initiatives will become increasingly necessary.

58 This study makes three contributions to the literature. First, it contributes to the literature with
59 a new measure of visibility and provides evidence for the significant impact of visibility on CSR.
60 Second, it contributes to the literature on CSR by presenting visibility as a more consistent and more
61 powerful predictor of CSR initiatives than other factors previously studied. Third, this paper is the
62 first to show that visibility has important mediating effects on the relationships between commonly
63 used firm and CEO characteristics and CSR. It presents a new opportunity for researchers to
64 understand the antecedents and consequences of CSR in the context of corporate visibility.

65 2. Literature Review and Hypotheses

66 2.1. *Visibility and Corporate Social Responsibility*

67 As stated above, corporate social responsibility has become an important topic in the literature
68 and one of concern to both the media and the public. One important motive for firms to engage in
69 social initiatives is to enhance reputation. Therefore, studying the impact that media coverage and
70 public interest has on a corporation's social responsibility initiatives has become a topic of interest.
71 This paper looks to answer the question: does growing media visibility, proxying for the degree to
72 which the public is a stakeholder in the firm, increase a corporation's CSR initiatives?

73 Existing research has touched on the issues of motivations for CSR and how firms respond to
74 visibility. Useem [12] found that the most important single firm characteristic in determining
75 charitable giving (a form of CSR) was firm size. We will attempt to separate the size and visibility
76 factors to give a more focused interpretation of this trend. Campbell & Slack [7] found in a size-
77 controlled study of visibility, highly visible firms gave more charitable donations than those with low
78 visibility. It is important to note that this paper measured visibility based on a survey of 500 British
79 college students, and we attempt to proxy for visibility with perhaps a broader and more reliable
80 measure. In addition, charitable donations are a subset of CSR actions and therefore cannot be
81 assumed to represent all CSR actions. Erfle & McMillian [13] found that firm and product visibility
82 affected oil companies' reactions to regulatory and price threats for visible products but not invisible
83 ones. This study will add to the current literature by testing the relationship between CSR and
84 visibility (controlling for size) and the direction of causality in the CSR-visibility relationship. More
85 recently studied motivations for CSR include coercive pressure [14] and mimetic force [15].

86 The empirical study of visibility has raised many questions regarding the proper measurement
87 of the visibility metric. Campbell & Slack [7] proposed one method by using name recognition. They
88 performed their study by providing a list of firms from the FTSE 500 index to 500 surveyors and
89 asked them to tick a box if they had "heard of" the firm. From these results they created a "heard of"
90 metric that was sorted into deciles, the top decile being highly visible and the lowest decile being the
91 least. Erfle & McMillian [13] proposed an alternative measure by using an index called the Television
92 News Index and Abstracts (TNIA) collected by Vanderbilt University. This index summarizes the
93 nightly news programs for three major news outlets. They were able to analyze this data and

94 determine the media visibility of their study topic by counting the number of related news segments
95 presented in the news cycle. This study will investigate a different measurement of visibility: the
96 number of newspaper publications in a given year. More details are provided in the data description
97 section of this paper.

98 *2.2. Firm Performance and Corporate Social Responsibility*

99 The literature up to this point has been contentious in developing the relationship between a
100 firm's past and current financial performance and their CSR initiatives. For instance, there are two
101 schools of thought for how CSR should affect profitability. One hypothesis is that profitability should
102 decline with CSR due to the cost of such initiatives [16]. Another argues that some degree of social
103 responsibility will increase profits due to the presence of stakeholders [10] and regulatory bodies [17]
104 which ensure that not engaging in CSR increases a firm's cost through explicit claims. On the other
105 hand, Aupperle et al. [2] found no relationship between CSR and firm profitability. Looking at other
106 performance metrics, McGuire et al. [3] found significant correlations between social responsibility
107 and return on assets (ROA), Debt/Assets, Beta and standard deviation of total returns. More recent
108 studies focus on different aspects of CSR and their impacts on firm outcomes, including labor
109 reputation [18], customer awareness [19], labor productivity [20], and improved transparency [21].
110 In this study, we attempt to use numerous firm and executive characteristics to determine if
111 consistent results can be obtained. This will add to the study by providing a point of reference for the
112 strength of the relationship between visibility and CSR. We also look to determine if visibility is not
113 only a single causal factor affecting CSR, but if it can influence the firm's CSR involvement through
114 other channels by using interaction terms.

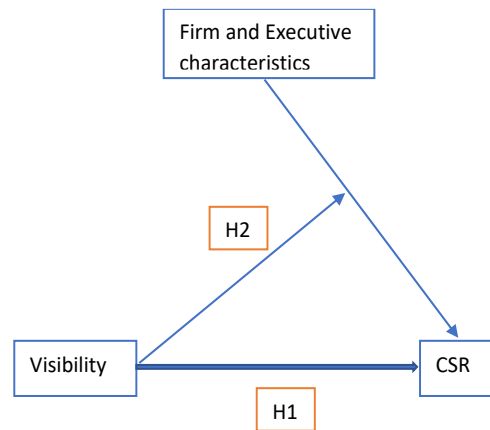
115 *2.3. CEO Characteristics and Corporate Social Responsibility*

116 There is also a branch of literature that links a firm's CSR decisions to the characteristics of its
117 CEO. For example, Manner [5] found that the type of university education, gender, and breadth of
118 experience of a CEO could explain differences in CSR, even when firm and industry effects were
119 controlled for. McGuire et al. [22] found that there was no link between CEO incentives and CSR.
120 Ikram et al. [6] found that there was a distinct correlation between CSR clauses in executive contracts
121 and a firm's CSR involvement. This paper will look to determine if a link between CEO characteristics
122 and CSR can be identified as it has with these previous studies and provide a point of reference for
123 the strength of the relationship between visibility and CSR. In addition, we test whether these
124 relationships are amplified by a visibility instrumental variable.

125 *2.4. Hypotheses*

126 This study will examine the relationship between visibility and corporate social responsibility.
127 There are three hypotheses: (1) visibility increases the firm's exposure to implicit claims made by the
128 media and the general public and therefore will lead to higher CSR; visibility is a more consistent and
129 more powerful predictor of CSR initiatives than other factors previously studied; and (2) visibility
130 can work to amplify the impact of firm and CEO characteristics on CSR.

131 This study hopes to add to the literature by reaffirming the correlation between visibility and
132 CSR and providing evidence on the direction of this relationship. This study also hopes to solidify
133 visibility as one of the main contributing factors to CSR and provide evidence of its indirect effects
134 on firm and CEO factors.



135
136 **Figure 1: Hypothesized Relationships**

137 **3. Data Description**

138 *3.1. Data Construction*

139 Data on CSR ratings are collected from the MSCI database on Wharton Research Data Service
140 (WRDS) website. The ratings are determined quantitatively and qualitatively by MSCI. The MSCI
141 database was originally created by KLD Research & Analytics. This same database has been used for
142 empirical research on CSR by prominent studies such as [22] and [23]. MSCI reports ratings of
143 strengths and concerns for each firm across five categories: community activities, diversity, employee
144 relations, environmental policies, and product development. Following much of the literature on CSR
145 we begin by defining an aggregate CSR score using the data on a firm's strengths (str) and concerns
146 (con) in the community (com), diversity (div), employee (emp), environment (env), human (hum)
147 and product (pro), we sum the total number of CSR strengths and subtract the total number of CSR
148 concerns across these five categories. The firm CSR rating is determined using the equation below:
149

$$150 \text{ CSR Rating} = (\text{com_str_num} - \text{com_con_num}) + (\text{div_str_num} - \text{div_con_num}) + (\text{emp_str_num} \\ 151 - \text{emp_con_num}) + (\text{env_str_num} - \text{env_con_num}) + (\text{hum_str_num} \\ 152 - \text{hum_con_num}) + (\text{pro_str_num} - \text{pro_con_num}).$$

153
154 Data points with missing CSR rating variables are removed from the data set.

155 Data on firm-specific factors (Net Income, Gross Profit, Cash, Total Assets, Total Debt, etc.) in
156 this study are collected from the CRSP database on the WRDS website. The data set is pared down to
157 include only firms in the S&P 500. Test variables are calculated in the following manner:

$$158 \text{ size} = \log(\text{Total Assets})$$

$$159 \text{ Debt ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

$$160 \text{ ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

161 Gross Profit is used as a profitability measurement. Cash is used as a secondary measure of the
162 firm's financial position and access to liquidity. Firms that are missing Total Assets are eliminated as
163 size is an important variable in this study. All monetary values are reported in millions of US Dollars
164 (\$).

165 CEO data is collected from the Capital IQ Execucomp database on WRDS. The data are filtered
166 to contain only CEO data as CEOs are considered the primary decision-makers in a corporation.
167 Variables collected include gender, the date the executive became CEO, and their bonuses. The CEO's
168 tenure is computed, and a dummy variable is assigned for gender.

169 Data on CSR contracts is provided by Ivey Business School at Western University. This dataset
170 was created by Li and associates and was used in the paper *CSR Executive Compensation Contracts* [6].
171 The dataset provides information on the CEOs of firms within the S&P 500 and indicates if the
172 publicly available CEO contracts contain clauses pertaining to CSR obligations or goals using a
173 dummy variable.

174 CSR rating, firm, CEO, and contract datasets are merged to ensure that the dataset has full CSR
175 rating, size and CEO gender data. This is done to create a more consistent data set. There is a total of
176 611 observations in this dataset and it spans the period between 1995-2008.

177 Additionally we collect visibility metrics. As discussed previously, there is ample debate on how
178 to properly measure visibility. Our proxy for visibility is the total number of newspaper articles
179 covering a firm in a single year. Due to data limitations, we cannot eliminate redundant articles, nor
180 can we know how many individuals read each article. In addition, the nature of each article is not
181 known, but we believe the volume of publishing activity suggests the public's interest in the firm.
182 Another limitation of studying print media is that we do not consider social media, which in the last
183 decade has become widely popular and accessible to the public. To the best of our knowledge, this is
184 the first paper to focus on the effect of print media on corporate social performance.

185 To create a comprehensive list of the number of newspaper articles documented for a given firm
186 in a given year, we use the Western University Summon, sponsored by SeriesSolutions: a ProQuest
187 Company, which provides access to over 3,400 unique newspaper publications. The advantage of
188 using this database is the ability to filter search results by company, year, and publication type – a
189 necessary requirement for this study. When performing the searches, the full company name as
190 reported in the CRSP dataset is entered into the advanced search and the time bounds are set to
191 January 1st to December 31st of the required year. The search results yielded are then recorded,
192 providing an empirical measure of newspaper coverage or visibility for that company in that year.
193 Endogeneity between visibility and CSR is a concern for this study. For example, a large CSR
194 initiative undertaken by a firm may warrant high media coverage. To address this, we compute both
195 contemporaneous and one-year lagged CSR for each firm-year. Contemporaneous and lagged
196 relationships are compared throughout the results section.

197 3.2. Basic Statistics

198 The basic statistics for the test variables are presented in Table 1 (contemporaneous CSR).
199 Visibility has a mean of 4,832 (number of articles published per year per firm) and a standard
200 deviation of 9,112. There is much variation in the data, which is understandable given the diversity
201 of the firms being studied which span from dentistry firms to Apple Inc. It is also important to note
202 that there is a large difference in the magnitude of the visibility metric and the CSR rating. To avoid
203 small coefficients in the regression analysis, a standardized variable is to be used for visibility (Z-
204 score).

205 The correlations between all test variables are reported below in Table 2 (contemporaneous
206 CSR). Visibility has a high positive correlation with the CSR rating metric. This is consistent with the
207 hypothesis that more visibility should create incentives for a firm to engage in social initiatives and
208 is also in line with results in the current literature [7]. We are cautious about making conclusions
209 based on correlations because some firm fundamentals could drive the correlation results. For
210 example, there is also a significant (p-value <0.0001) positive correlation between visibility and firm
211 size of 0.30. This is expected as larger firms should have more visibility and access to media. This
212 relationship will drive the positive correlation between visibility and CSR, considering larger firms
213 may also have better social performance. Instead, we rely on multivariate regressions in the next
214 section to draw our conclusions.

215 Visibility also has strong (p-value <0.0001) correlations with both Cash (0.26) and Profit (0.28),
216 which are measures of a firm's financial viability [24]. This is reasonable given that financially secure
217 firms should be more willing to spend on "non-essential" items such as CSR.

218 There is no significant correlation reported between CSR and firm size in our sample. This is
219 inconsistent with the literature up to this point which has supported strong positive correlations

220 between size and CSR [12]. CSR and ROA are positively correlated at the 1% level of confidence.
 221 This finding is consistent with McGuire et al. [3] but is inconsistent with the negative significant
 222 relationship observed between visibility and ROA previously mentioned. There is a significantly
 223 negative correlation between CSR and the debt ratio at the 5% level of confidence. This implies that
 224 firms which participate in more CSR initiatives are more likely to be less leveraged. This is expected
 225 as firms which are highly leveraged should find it more difficult to participate in “non-essential”
 226 spending (CSR) and is consistent with the findings of McGuire et al. [3]. This is further supported by
 227 the positive relationship between cash and CSR. Firms with higher debt and lower cash are less likely
 228 to excel in social performance. There is a non-significant negative relationship observed between
 229 profit and CSR. This relationship could be presumed to be consistent with the school of thought that
 230 believes CSR’s only impact on a firm’s profitability is an increase in costs [17]. However, given that
 231 this relationship is non-significant, conclusions cannot be drawn.

232 Strong correlations are observed between visibility and CEO bonuses and CSR clauses in CEO
 233 contracts. These relationships imply that more visible firms are more likely to provide bonuses and
 234 contractually enforce socially responsible behavior from CEOs. Unexpected results are seen in the
 235 correlations between CSR and CEO characteristics. We would expect to see a positive relationship
 236 between CSR contracts and CSR [6]. However, we observe a negative relationship that is significant
 237 at the 1% level. This implies that CSR contract clauses are hurtful to CSR initiatives.

238 **Table 1. Summary Statistics**

239 This table presents the summary statistics of the data used in the study.

240

	# Observations	Mean	Standard Deviation	Minimum	Maximum
CSR rating	611	0.30115	2.70415	-8	8
Visibility	611	4832	9112	0	58839
Size	611	8.95288	1.42058	4.69428	13.26255
Cash	598	1171	2986	0	35283
Gross Profit	596	3454	5410	-3906	42386
Firm Debt Ratio	457	0.19791	0.16917	0	1.32584
ROA	558	0.07011	0.08569	-0.8526	0.34437
Tenure	608	6.21875	7.30732	-12	38
BONUS	611	1165	2350	0	43512
CSR Contract	546	0.24359	0.42964	0	1

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242 **Table 2. Correlation Table for all Test Factors.**

243 This table presents the correlations between all variables. The superscripts *, **, and *** indicate significance at
 244 the 5%, 1%, and 0.01% levels, respectively. CSR in contemporaneous time is used, correlations where also studied
 245 for lagged time CSR, however results did not differ significantly, so they are not presented.

246

	CSR Rating	Visibility	Firm Size	Cash	Gross Profit	Debt Ratio	ROA	CEO Tenur e	Bonu s
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Firm Specific Factors:

Visibility	0.21***								
Firm Size	-0.04	0.30***							
Cash	0.12**	0.26***	0.49**						
Gross Profit (Loss)	0.02	0.28**	0.62***	0.76***					
Debt Ratio	-0.09*	-0.06	0.19***	0.17**	0.21***				

ROA	0.13**	-0.09*	-0.35***	-0.15**	-0.10**	-0.35***		
CEO Specific Factors:								
Tenure	0.04	0.07	-0.05	-0.06	0.01	-0.08	0.15**	
Bonus	0.01	0.31***	0.21***	0.10**	0.20***	-0.004	-0.02	0.06
CSR Contract	-0.12**	0.14**	0.28***	0.30***	0.33***	0.06	-0.13**	0.004 0.04

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248

Table 3. Univariate Regression Results.

249 The following tables present the univariate regression results for all independent variables (factors)

250 with contemporaneous CSR rating (A) and lagged CSR rating (B) as the dependent variable.

251 Univariate regression results are given from 1995 through 2008. The z-score for visibility is used here.

252 Standard errors are given in brackets with coefficients and intercepts. Pr > F is given in brackets with

253 F stat. The superscripts *, **, and *** indicate significance at the 5%, 1%, and 0.01% levels, respectively.

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Panel A: Univariate Regression Results with Contemporaneous CSR rating as the Dependent Variable

Independent variable:	Coefficient	Intercept	F Statistic	R squared	Adjusted R squared
Firm specific factors:					
Visibility	0.56344*** (-0.10717)	0.30115** (-0.10708)	27.64 (<0.0001)	0.0434	0.0418
Firm Size	-0.0719 (-0.07708)	0.94487 (-0.69872)	0.87 (-0.3513)	0.0014	0.0002
Cash	1.1000E-4** (-0.000003687)	0.18741 (-0.11817)	8.88 (-0.003)	0.0147	0.013
Gross Profit (Loss)	9.17E-06 (-0.00002057)	0.23845 (-0.13194)	0.2 (-0.6558)	0.0003	0.0013
Debt Ratio	-1.4651 (-0.7436)	0.68383 (-0.19351)	3.88 (-0.0494)	0.0085	0.0063
ROA	4.21157 (-1.3481)	-0.09633 (-0.14917)	9.76 (-0.0019)	0.0173	0.0155
CEO specific factors:					
Tenure	0.01459 (-0.01506)	0.21024 (-0.14441)	0.94 (-0.3329)	0.0015	0.0001
Bonus (\$)	1.53E-05 (-0.00004662)	0.28328* (-0.1222)	0.11 (-0.7423)	0.0002	0.0015
CSR Contract	-0.80260** (-0.27507)	0.55448*** (-0.13576)	8.51 (-0.0037)	0.0154	0.0136

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Panel B: Univariate Regression Results with Lagged CSR rating as the Dependent Variable

Independent variable	Coefficient	Intercept	F	R squared	Adjusted R squared
Firm specific factors:					

Visibility	0.54651*** (-0.10395)	0.31365** (-0.10387)	27.64 (<0.0001)	0.0403	0.0389
Firm Size	-0.05061 (-0.07332)	0.76389 (-0.66079)	0.48 (-0.4902)	0.0007	0.0008
Cash	1.2151E-4** (-0.00003692)	0.2003 (-0.11404)	10.83 (-0.0011)	0.0166	0.0151
Gross Profit (Loss)	1.66E-05 (-0.4012)	0.22982 (-0.12702)	0.71 (-0.4012)	0.0011	0.0005
Firm Debt Ratio	-1.27517 (-0.71337)	0.65615** (-0.18515)	3.2 (-0.0745)	0.0064	0.0044
ROA	3.52720** (-1.26156)	-0.03851 (-0.14319)	7.82 (-0.0053)	0.0128	0.0112
CEO specific factors:					
Tenure	0.02007 (-0.01406)	0.18745 (-0.13996)	2.04 (-0.1539)	0.0031	0.0016
Bonus (\$)	2.58E-05 (-0.0004642)	0.28415* (-0.11851)	0.31 (-0.5781)	0.0005	0.001
CSR Contract	-0.59764* (-0.26509)	0.52018*** (-0.13027)	5.08 (-0.0245)	0.0086	0.0069

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The univariate analysis for CSR and lagged CSR shown in Tables 3a and 3b respectively indicate that the only predictor of CSR that is significant at all levels of confidence is visibility. The coefficients on visibility are 0.56344 and 0.54651 for present and lagged CSR respectively. This roughly corresponds to a positive unit of CSR for every 18,000 articles published annually. Visibility also presents with very significant F statistics indicating that it may be able to explain a large portion of the variation in CSR. This is confirmed by the high relative R - Squared value (0.0434). However, even if the R - Squared is relatively high, it should be a point of concern that all the R - squared values in the study are low (between 0.0002 and 0.0434 for present CSR and 0.0005 and 0.0403 for lagged CSR).

The univariate analysis of Cash and CSR has significant coefficients and F statistics at the 1% level for both the contemporaneous time and lagged datasets (Tables 3a and 3b). In contemporaneous time, Cash has a coefficient of 1.1000E-4 which corresponds to approximately 1 unit of CSR for every 10,000 units of cash (\$ millions) held by a firm in the fiscal year. A positive relationship is expected as it is consistent with the theory that positive cash means a more financially secure firm. If a firm is more financially secure, it should be more likely to take on “non-essential spending”. However, the average firm only has 1,172 units of cash, thus, most of the sample has the inability to spend the required 10,000 units needed to increase the CSR rating by one point. Consequently, cash cannot be considered economically significant, even if it is statistically significant. The coefficient for cash with lagged CSR is not significantly different from the contemporaneous (1.2151E-4), while we see an increase in the F statistic from 8.8 to 10.3.

The ROA results for the univariate analysis of the lagged CSR data set (Table 3b) are found to be positive and significant at the 1% level with a coefficient of 3.5272 (0.0353 CSR units for every 1% of ROA). This finding is consistent with those of McGuire et al. [3], although the magnitude of coefficients cannot be compared as the two studies use different CSR metrics. ROA is the measure of income a firm earns in relation to its overall resources. In this way, it can be considered a measure of efficiency. Therefore, this result indicates that more efficient firms, those that generate more income per unit of asset, are more socially responsible. This is expected because more efficient firms tend to be more profitable which allows for more spending on CSR initiatives. The ROA coefficient in the contemporaneous time dataset (Table 3b) is of the same sign and is only slightly larger in magnitude.

287 However, it is insignificant at the 5% level. The same interpretation can, therefore, be applied. Given
 288 that the mean ROA in this sample is ~7%, this result can also be considered economically significant.

289 The CSR contract coefficient is found to be significant and negative in both the contemporaneous
 290 and lagged datasets (tables 3a and 3b respectively). Coefficients are given as -0.80260 (1% level of
 291 confidence) and -0.59764 (5% level of confidence). This implies that some of the variances in CSR can
 292 be explained by the presence of CSR clauses in CEO contracts. However, the R-squares for both
 293 regressions are small at 0.0154 for contemporaneous CSR and 0.0086 for lagged CSR. Thus, the
 294 amount of variance explained is small. Theoretically, the negative relationship between CSR contracts
 295 and CSR involvement does not make sense as it implies that CSR contracts in the current or previous
 296 period diminish a firm's CSR involvement in the current period. This finding is inconsistent with
 297 results found by Ikram et al. [6] but is consistent with the correlation results.

298 All other insignificant variables have coefficients that are consistent with their correlations with
 299 CSR. Descriptions of the theory and implications of these results can be found in the Basic Statistics
 300 section of this paper.

301 It is evident that there is minimal difference between the contemporaneous and the lagged data
 302 sets. This implies minimal endogeneity issues associated with the simultaneous occurrence of CSR
 303 and other factor variables. It also indicates that there are minimal time series effects on CSR rating.
 304 CSR ratings are consistent over time for a given firm, and therefore a lag of one year is ineffectual.
 305 Future studies should investigate if further time horizons impact the results.

306 The results presented thus far are consistent with hypothesis (1) - visibility increases the firm's
 307 exposure to implicit claims made by the media and the public and therefore will lead to higher CSR.
 308 This is shown by the significant positive visibility coefficient in the univariate regression with CSR.
 309 These results are also consistent with hypothesis (2) - visibility is, therefore, a more consistent and
 310 more powerful predictor of CSR initiatives than other factors previously studied. This is shown by
 311 the high significance and size of the visibility coefficient and relatively high R-squared value when
 312 compared with the other benchmark factors. Visibility has the highest R-squared and therefore
 313 explains the greatest amount of the variance in CSR when compared to the other regressors in a
 314 univariate analysis.

315 4. Multivariate Regression Results and Discussion

316 We perform GLM regressions on the firm and CEO models with the addition of visibility. The
 317 models we use in the multivariate analysis are given below.

318
 319 **Firm Factors Model:**

$$320 \text{ CSR rating}_t = \beta_1 \text{visibility}_t + \beta_2 \text{size}_t + \beta_2 \text{Cash}_t + \beta_3 \text{Profit}_t + \beta_4 \text{Debt Ratio}_t + \beta_5 \text{ROA}_t \quad (1.1)$$

$$321 \text{ CSR rating}_t = \beta_1 \text{visibility}_{t+1} + \beta_2 \text{size}_{t+1} + \beta_2 \text{Cash}_{t+1} + \beta_3 \text{Profit}_{t+1} + \beta_4 \text{Debt Ratio}_{t+1} \\ 322 \quad + \beta_5 \text{ROA}_{t+1} \quad (1.2)$$

323 **CEO Factors Model:**

$$324 \text{ CSR rating}_t = \beta_1 \text{visibility}_t + \beta_2 \text{tenure}_t + \beta_2 \text{Bonus}_t + \beta_3 \text{Contract}_t \quad (2.1)$$

$$325 \text{ CSR rating}_t = \beta_1 \text{visibility}_{t+1} + \beta_2 \text{tenure}_{t+1} + \beta_2 \text{Bonus}_{t+1} + \beta_3 \text{Contract}_{t+1} \quad (2.2)$$

326 **Contributions to visibility:**

$$327 \text{ visibility}_t = \beta_0 + \beta_1 \text{CSR Rating}_t + \beta_2 \text{size}_t \quad (3.1)$$

$$328 \quad visibility_{t+1} = \beta_0 + \beta_1 CSR Rating_t + \beta_2 size_{t+1} \quad (3.2)$$

329 **Table 4.** Multifactor Regression Results.

330 This table presents the regression results for firm factor (A, B), and CEO factor (B, C) models with
 331 contemporaneous (A, C) and lagged (B, D) CSR as the dependent variable. Firm effects have been
 332 controlled for, and the z-score visibility metric has been used. Firm effects have been controlled. The
 333 coefficient term for the independent variable is given with corresponding t-statistics; standard errors
 334 given in brackets. The superscripts *, **, and *** indicate significance at the 5%, 1%, and 0.01% levels,
 335 respectively.

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337 **Panel A: Firm Factor Model Regression; Contemporaneous CSR as the Dependent Variable**

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Variable	Beta	t - statistic
Visibility	1.6728*** (0.40550)	4.13
Size	-0.23055 (0.23098)	-1.00
Cash	3.1595E-4*** (4.7660)	6.63
Profit	-1.5884E-5 (4.5700E-5)	-0.35
Firm Debt Ratio	-1.1977 (0.99537)	-1.20
ROA	2.2463* (0.99918)	2.25
Adjusted R-Squared	0.78	

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Note: GLM procedure is used for linear regression over the period 1999-2008, 471 observations are used. Model given by equation 1.2.

Panel B: Firm Factor Model Regression; Lagged CSR as Dependent Variable

Independent Variable	Beta	t - statistic
Visibility	1.2040*** (0.29800)	4.04
Size	0.14125 (0.20024)	0.71
Cash	2.6779E-4*** (4.4760E-5)	5.98
Profit	-7.8261E-5 (4.632E-5)	-1.69

357	Firm Debt Ratio	-0.48010	-0.49
358		(0.97438)	
359	ROA	2.2793*	2.44
360		(0.93470)	
361	Adjusted R-Squared	0.77	

362

363 Note: GLM procedure is used for linear regression over the period 1999-2008, 471 observations are used. Model given by
364 equation 1.2.

365

366 Panel C: CEO Factor Model Regression; Contemporaneous CSR as the Dependent Variable

367

368	Independent		
369	Variable	Beta	t - statistic
370	Visibility	0.88179***	2.75
371		(0.32033)	
372	Tenure	-1.8773E-3	-0.16
373		(0.01176)	
374	Bonus	-4.9093E-5	-1.52
375		(3.2350E-5)	
376	Contract	0.32929	1.15
377		(0.28545)	
378	Adjusted R-Squared	0.74	

379 Note: GLM procedure is used for linear regression over the period 1995-2008, 544 observations are used. Model given by
380 equation 2.1.

381

382 Panel D: CEO Factor Model Regression; Lagged CSR as the Dependent Variable

383

384	Independent Variable	Beta	t - statistic
385	Visibility	0.26101	0.308
386		(0.25579)	
387	Tenure	0.00375	0.33
388		(0.01121)	
389	Bonus	-4.5794E-5	-1.43
390		(3.2090E-5)	
391	Contract	0.59848*	2.14
392		(0.27974)	
393	Adjusted R-Squared	0.74	

391 Note: GLM procedure is used for linear regression over the period of 1995-2008, 544 observations are used. Model
392 given by equation 2.2.

393 **Table 5.** Linear Regression of CSR and Firm Size Model with Visibility as Dependent Variable

394 This table presents the results for the GLM linear regression models given in equations 3.1 and 3.2.
 395 The independent variables are CSR rating in contemporaneous (A) and lagged (B) time and firm size
 396 and the dependent variable is the visibility metric (z-score). Firm effects are controlled in both
 397 regressions. Coefficients for each independent variable is given with the corresponding t-statistic;
 398 standard errors are given in brackets. The superscripts *, **, and *** indicate significance at the 5%,
 399 1%, and 0.01% levels, respectively.

400

401 **Panel A: Linear Regression, size and contemporaneous CSR as independent variables, visibility**
 402 **as dependent variable**

Independent Variable	Beta	t-statistic
CSR Rating	0.01802** (0.00610)	2.95
Size	0.04967* (0.02053)	2.42
Adjusted R-Squared	0.74	

409

410 Note: GLM procedure is used for linear regression over the period of 1995-2008, 611 observations are used.

411

412 **Panel B: Linear Regression, size and Lagged CSR as independent variables, visibility as**
 413 **dependent variable**

414

Independent Variable	Beta	t-statistic
CSR Rating	0.00946 (0.00702)	1.35
Size	0.06712** (0.02207)	3.04
Adjusted R-Squared	0.74	

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422 Note: GLM procedure is for linear regression over the period of 1994-2008, 660 observations are used.

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Tables 4a and 4b report the results from the firm models with contemporaneous CSR (equation 1.1) and lagged CSR (equation 1.2) respectively as the dependent variables. The visibility metric is found to be significant and positive at all levels of significance (p-value < 0.0001) in the GLM multivariate regressions for CSR rating in both contemporaneous and lagged time. The coefficients for visibility in the contemporaneous time and lagged time are 1.6728 (t-statistic 4.13) and 1.2040 (t-statistic 4.04) respectively. The positive relationship between CSR and visibility is consistent with hypothesis (1) and the findings in the literature [7]. As visibility is standardized here, a one unit increase in visibility means an increase of approximately 9,000 articles (one standard deviation) published annually and either a 1.6728 or 1.2040 increase in a firm's CSR rating. This indicates that the coefficients on visibility are not only statistically significant but also economically significant as many firms meet or exceed this amount of tracked publications. It is also interesting to note that the effect is diminished when CSR is lagged to control for endogeneity, as seen by the decline in the coefficient and the t-statistic. This is consistent with the conjecture mentioned earlier that an increase in CSR could warrant media coverage and therefore increase visibility in the same year (variables are determined simultaneously in the model). By utilizing a lagged variable, we can control for this effect. However, we do not yet know if this is a causal relationship with visibility as the initiator. This is explored in Tables 5a and 5b.

441 Tables 5a and 5b show the results from a linear regression as given by the models in equations
442 3.1 and 3.2, where visibility is the dependent variable and the independent variables are CSR rating
443 and size. These variables were chosen to determine the relationship between CSR and visibility (i.e.
444 the direction of the interaction) and if size is a significant contributor to visibility as hypothesized by
445 Useem [12]. Table 5a reports significant relationships between visibility and both CSR rating (1%
446 level of confidence) and size (5% level of confidence). The coefficients are 0.01802 and 0.04967
447 respectively. Table 5b reports a significantly positive relationship between visibility and size at the
448 1% level and an insignificant and positive relationship between visibility and CSR rating. The
449 coefficients are 0.0671 (t-statistic 3.04) and 0.0095 (t-statistic 1.35) respectively. First, these results
450 indicate that the direction of the relationship between CSR rating and visibility may be in favor of
451 hypothesis (1) - visibility effects CSR. The model in equation 1.1 and the coefficient reported in Table
452 4a indicate that a unit of CSR is added for approximately every 5,380 articles published. The model
453 in equation 3.3 and presented in Table 5a indicates that approximately 162 articles are added for every
454 unit of CSR. The combination of these two tests suggest that CSR's effect on visibility is very small
455 given the mean visibility of 4,832 articles. This is further seen by the smaller and less significant
456 coefficient that is presented in Table 5b. Secondly, we can see that from Table 5a and 5b that visibility
457 and size are positively related. The model given by equation 3.1 and reported in Table 5a gives a
458 coefficient on firm size of 0.0497, significant at the 5% level of confidence (t-statistic of 2.42). The
459 model given by equation 3.2 and reported in Table 5b gives a coefficient on the firm size of 0.0671,
460 significant at the 1% level of confidence (t-statistic of 3.04). These results indicate that size is indeed
461 linked to visibility and is therefore consistent with the findings in [12]. This could indicate that size
462 is the factor that truly influences CSR [1] by working through visibility as larger firms are inherently
463 more visible. However, the results presented in Tables 4a and 4b, firm factor models for consistent
464 and lagged time, show non-significant negative and positive relationships between size and CSR and
465 therefore provide some evidence against this theory. If size and visibility were closely related, we
466 would expect size to have positive, significant coefficients in the firm factor models, which we do not.
467 Thus, the relationship between CSR and firm size is inconclusive. Therefore, we can say with some
468 degree of confidence that the results presented here are consistent with hypothesis (1) - visibility
469 affects the CSR involvement of a firm through a causal relationship, independent of the size factor
470 hypothesized by [1].

471 As discussed, visibility has a strong relationship with CSR that may even be causal, but does it
472 do a better job than other predictors explored in the current literature? We can see that in the firm
473 model for both consistent and lagged time (Tables 4a and 4b) the only other significant regressors are
474 Cash and ROA. Cash has coefficients for contemporaneous and lagged time of $3.1595E-4$ (t-statistic
475 6.63) and $2.6779E-4$ (t-statistic 5.98) respectively, both of which are significant at all levels of
476 confidence. This implies, as was previously discussed in the correlation and univariate analysis
477 sections, that Cash is positively related with CSR. This relationship most likely exists because Cash
478 can be an indicator of financial stability which allows for spending on "non-essential" items like CSR.
479 However, as previously discussed, the economic significance of this regressor and coefficient is
480 questionable given the number of cash units (\$ millions) needed to effect CSR change is quite large.
481 ROA also shows significance in both the contemporaneous and lagged time regressions. The
482 coefficients of 2.2463 (t-statistic of 2.25) and 2.2793 (t-statistic of 2.44) respectively are significant at
483 the 5% level. These results indicate that for every 1% increase in ROA there is approximately a 0.0226
484 increase in CSR in either the current period or the next. As discussed previously in the univariate
485 analysis section, given that the mean ROA for this sample is ~7%, this result is mildly economically
486 significant. A 7% increase means approximately 0.16 additional units of CSR. All other factors in the
487 firm models for contemporaneous and lagged time are insignificant and have directions that
488 correspond with their correlations in Table 2. The CEO models shown in equations 2.1 and 2.2 and
489 reported in Tables 4c and 4d show significant results only for visibility in contemporaneous time and
490 CSR contract in lagged time. The coefficients are given as 0.8818 significant at all levels (t-statistic of
491 2.75) and 0.5985 significant at the 5% level (t-statistic of 2.14) respectively. A positive relationship
492 between CSR contracts and lagged CSR makes sense and is consistent with the findings in the

493 literature [6]: as executives become contractually obligated to meet CSR requirements, the CSR rating
 494 of the firm should increase in the next period (year). This finding contradicts the correlation result
 495 reported in Table 2.

496 The findings discussed here support hypothesis (2) - visibility is a more consistent and more
 497 powerful regressor than other firm or CEO factors studied in the literature. ROA shows both
 498 economic and statistical significance, but as discussed, it still lacks the economic power that visibility
 499 offers. Using lagged CSR, the CSR rating is 0.5985 greater with the presence of a CSR contract.
 500 However, as this result is inconsistent with the correlation study and the univariate analysis, further
 501 research is required before conclusions can be drawn. Visibility is consistent and significant in all
 502 studies except for the CEO factor model in lagged time. Therefore, of all variables studied, visibility
 503 offers the most consistency and strength.

504 A visibility interaction term (High_vis) is used to test hypothesis (3) - visibility may impact the
 505 strength of firm or CEO variables. The interaction term was created by dividing the data into quartiles
 506 based on the visibility metric. High_vis is a dummy variable equal to one for the highest visibility
 507 quartile, zero for the lowest, and null for the remainder. CSR rating differs significantly between the
 508 groups based on the difference in the means test. The mean CSR rating is -0.5247 for the lowest
 509 visibility quartile and 1.3610 for the highest visibility quartile; the two groups are significantly
 510 different at all confidence intervals (p-value 2.1270e-11). We repeat the firm factor and CEO factor
 511 tests as specified in equations (1) and (2) with the addition of visibility interaction terms for each
 512 variable. The models for CEO effects were found to be insignificant so results are not reported. Firm
 513 models are reported in Tables 6a and 6b.

514 **Table 6.** Linear Regression results for Firm Factor Models.

515 This table presents the results for the firm factor linear regression models with contemporaneous CSR
 516 (A) and lagged CSR (B) as the dependent variables. Regression coefficients are presented for each
 517 independent variable in the model and standard errors are given in brackets. Firm effects have been
 518 controlled for. High_vis is an interaction term equal to one if the data is in the top quartile of visibility,
 519 and 0 if it's in the bottom, null value given otherwise. The superscripts *, **, and *** indicate
 520 significance at the 5%, 1%, and 0.01% levels, respectively.

521

522 **Panel A: Linear Regression for Firm Factors with Contemporaneous CSR as Dependent Variable**

523

Independent	Beta	t-statistic
Size	-1.3725* (0.60335)	-2.27
Size*High_vis	2.2960** (0.78975)	2.91
Cash	-2.8606E-4 (3.2657E-4)	-0.88
Cash*High_vis	5.5356E-4 (3.1653E-4)	1.68
Profit	2.9748E-4 (3.1100)	0.96
Profit*High_vis	-3.3904E-4 (3.1653)	-1.07
Debt Ratio	-1.6438 (2.6432)	-0.62

Debt Ratio* High_vis	-5.9916 (2.6432)	-1.69
ROA	1.5810 (1.6983)	0.93
ROA*High_vis	-3.7279 (3.4714)	-1.07
Adjusted R-squared	0.75	

524

525

Note: GLM procedure is used for linear regression over the period of 1999-2008, 224 observations are used.

526

527

Panel B: Linear Regression Results for Firm Factors with Lagged CSR as Dependent Variable

528

Independent	Beta	t-statistic
Size	-1.0836* (0.52980)	-2.05
Size*High_vis	2.2687** (0.68324)	3.32
Cash	2.9301E-4 (3.2580)	0.09
Cash*High_vis	-6.7563E-5 (3.2929E-4)	-0.21
Profit	2.5396E-4 (3.0125E-4)	0.84
Profit*High_vis	-3.5146E-4 (3.0747E-4)	-1.14
Debt Ratio	-0.84197 (2.6352)	-0.32
Debt Ratio* High_vis	-7.1662* (3.6274)	-1.98
ROA	1.6012 (1.7450)	0.92
ROA*High_vis	-0.08334 (2.6708)	-0.03
Adjusted R-squared	0.70	

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Note: GLM procedure is used for linear regression over the period of 1994 - 2008, 283 observations are used.

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Size is negative and significant in both Tables 6a and 6b. This is consistent with univariate and multivariate regressions conducted previously in this study. It is interesting to note that the size and visibility interaction term has a coefficient that is positive and significant. Coefficients for the size and visibility interaction terms are 2.2960 and 2.2687, both significant at the 1% level, for contemporaneous and lagged time respectively. In addition, these coefficients are greater than the associated size coefficients. This is interpreted as size having a negative effect for low visibility firms but being a positive factor for high visibility firms. In other words, when the firm is not visible to the

539 public through print media the size negatively impacts CSR (larger invisible firms are less socially
540 responsible), but for high visibility firms size positively affects CSR (larger, visible firms are more
541 socially responsible). This is indicated by the larger coefficient on the interaction term than on the
542 size factor alone. Thus, the weight given to size when a firm is visible will be the sum of the two
543 terms, which will be positive. Therefore, when the firm is visible, the relationship between CSR and
544 size is consistent with the findings of [12]. It is evident that visibility changes the way size affects
545 CSR, which is consistent with hypothesis (3).

546 The remainder of the results from Tables 6a and 6b are statistically insignificant and therefore
547 will not be discussed.

548 5. Conclusion

549 As society continues to progress and evolve, we are growing more enlightened to the important
550 impact organizations have on people and our environment. Under the assumption that firms must
551 continue to progress with social responsibility, it is important to understand what actors and
552 mechanisms can advance this agenda. Our work demonstrates that one such group is the general
553 public and that firms will respond to the public when people have a high awareness of a firm's
554 activities. Thus the implication is that greater media visibility will continue to increase Corporate
555 Social Responsibility as long as firms believe it is important to the public.

556 We demonstrate the existence of this visibility – CSR relationship through the support of three
557 hypotheses. Hypothesis (1) proposes that visibility increases the firm's exposure to implicit claims
558 made by the media and the public and therefore will lead to higher CSR. In support of hypothesis
559 (1), this study has shown highly significant positive relationships between visibility and CSR
560 demonstrated in correlations, univariate and multivariate analyses. These results are consistent
561 throughout the study and with findings in the literature [7]. This study is also able to establish
562 evidence of causality and direction consistent with the hypothesis (1). We demonstrate the relative
563 economic significance of visibility produced due to CSR is quite small and insignificant compared to
564 CSR that is caused by visibility (Tables 4b and 5b). These results hold when endogeneity is controlled
565 for using lagged CSR rating. Multiple linear regression models demonstrate that among all factors
566 considered, visibility is the strongest and most consistent predictor of a firm's CSR rating (Tables
567 4a,b). These results are consistent with hypothesis (2). Next, the effects of the high/low visibility
568 interaction term significantly impact the effect of size on CSR. Size negatively impacts CSR when the
569 firm is in the lowest quantile for visibility, but size positively affects CSR when the firm is in the
570 highest quantile for visibility. These findings provide evidence that visibility influences the
571 relationship between other factors and CSR which supports hypothesis (3). Therefore, this study has
572 shown that visibility is a significant factor that must be considered when discussing a firm's level of
573 corporate social responsibility involvement. We contribute to the literature with a new measure of
574 visibility, provide evidence for the direction of causation between visibility and CSR, and explore the
575 impact of visibility on other factors. This paper presents a new opportunity for researchers to
576 understand the antecedents and consequences of CSR in the context of corporate visibility.

577 6. Limitations of the Study and Next Steps

578 There are a few limitations of this study that are associated with the visibility metric. For one,
579 we do not consider the effects of corporate governance. Our future research is to study the mediating
580 effects of corporate governance measures, such as industry competition [25], mutual monitoring
581 among managers [26,27], inside debt [28], job market competition [29]. In addition, researchers
582 should consider more managerial characteristics, especially the proxies for managerial power [30]
583 and the unobservable managerial ability and risk aversion [31], all of which can capture managerial
584 incentives to influence corporate visibility and CSR initiatives. Second, it is unclear as to whether the
585 Summons Database is subject to any selection bias. Should this be the case, the number of articles
586 would be biased downward because it only includes articles that are recorded on the Summons
587 Database, not all articles published during our sample period. However, given that all data points
588 are pulled from the same source, the bias is likely to affect all firms similarly given we know of no

589 specific selection criteria. This still needs more research to determine the possible effect. Second,
 590 when searching for published articles, “formal” CRSP company names are used, not the common
 591 informal company names (for example: Amazon.com Inc not just Amazon), since we attempt to avoid
 592 counting wrong firms and some trivial mentions of the firms. This again may have biased the
 593 visibility metrics downward. In this case, we might assume that this would have a more significant
 594 effect on companies who are more visible as they are more likely to have common or informal names
 595 in the media. Future efforts may attempt to mitigate this issue in the dataset. Last, the size of the
 596 dataset is quite small, and the data are only available through 2008. Further work could be done to
 597 expand it to improve statistical significance.

598 For future studies, it would be interesting to investigate a combined visibility metric that looks
 599 at a variety of visibility factors. Factors to be considered include social media presence, google search
 600 hits (google trends), and product and name recognition. By looking at these factors as well as print
 601 media presence, a more complete measurement of visibility in the modern age could be achieved to
 602 allow for more meaningful studies into the impact of visibility on CSR. More importantly, future
 603 researchers should attempt to open the black box to explore the channels, such as industry
 604 tournament and competition [29] and CSR-linked compensation [6, 32], through which visibility
 605 affects corporate social performance.
 606

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