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A META-ANALYTICAL INVESTIGATION OF THE RELATIONSHIP BETWEEN CORPORATE SOCIAL AND FINANCIAL PERFORMANCE

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The impact of Corporate Social Responsibility on Firm Performance continues to attract the interest of researchers, policy makers and the community in general. This interest has motivated a considerable body of research examining the impact of Corporate Social Performance (CSP) on Corporate Financial Performance (CFP). Although many reviews of these studies have been published (Aldag & Bartol, 1978; Arlow & Gannon, 1982 ; Ullman, 1985; Griffin & Mahon, 1997; Roman, Haybor & Agle, 1999; Margolis & Walsh, 2003; Allouche & Laroche, 2005), there have been little attempts to use formal statistical tools to synthesize the results. Orlitsky, Schmidt & Rynes (2003) obviously made valuable contributions, presenting the first meta-analysis of the empirical evidence on the impact of CSP on firm financial performance. However, since this last meta-analytic review, dozens of studies examining the link between CSP and CFP have been published in academic journals and recent studies have also focused on the effect of CSP on CFP in a broader international context. In this paper, we provide a new meta-analytic synthesis of published research on the relationship between CSP and CFP and identify promising directions for future research. Unlike previous meta-analytic reviews, we employ a multivariate framework and regression analysis (known as meta-regression) using 373 observations from 82 studies.

Finally, our study makes multiple contributions beyond Orlitsky, Schmidt & Rynes (2003). First, our meta-analysis is based on a larger sample of published studies (82 *vs* 53), allowing better estimation of the population value for the relationship between CSP and CFP. Second, our study is the first to cumulate research findings for US and other countries, especially UK studies. The Orlitsky et al. (2003) study includes only US studies. Third, our meta-analysis cumulates also research findings for both social performance as a dependent variable and as an independent variable. The Orlitky et al. (2003) study does not include all studies with CFP as a determinant of CSP even if their meta-analytic data set examined for temporal association and causality. We therefore sought to use all the knowledge created in the field to assess the slack resources theory.

Fourth, while Orlitsky et al. (2003) used subgroup meta-analysis to evaluate potential moderation, we use meta-regression analysis to facilitate the identification of moderating effects, a significant contribution of our study. Finally, our use of up-to-date meta-analytic methods, especially Meta-Significance Testing (MST), facilitates the identification of selection and publication bias in this literature. An interesting issue that has never been addressed before in this field of research.

Specifically, the aims of our meta-analysis are to: (1) provide a statistical integration of the existing research on the relationship between CSP and firm financial performance; (2) assess the competing claims made about the impact of CSP on CFP; (3) examine the effect of moderators such as risk, size and industry; (4) assess the impact of measurement issues, such as the measurement of social and financial performances; (5) explore the sensitivity of empirical results across varying contexts (industries and countries) and time periods; and (6) investigate the presence of publication bias. It is well known that methodological, specification and data differences impact on empirical estimates. The issue is how to quantify that impact. Meta-analysis is a set of statistical techniques that has been developed to identify and quantify associations drawn from an existing body of literature (see Wolf, 1986; Hunter and Schmidt, 1990; and Stanley, 2001). Meta-analysis is based on a pronounced examination of differences in specification and data sets, and is used in this paper to quantify the impact these have on reported CSP-CFP effects.

The next section discusses the theory of CSP-CFP effects. This is followed by a discussion on the methodology used in section 2. The meta-analysis results are presented and discussed in section 3. We conclude the meta-analysis by discussing implications of the findings and directions for future research.

1. THEORETICAL BACKGROUND

The framework guiding our theoretical discussion focuses on the relationships from Preston & O'Bannon (1997) typology of CSP-CFP links that have been empirically examined in the literature. Theorists have advanced a variety of models to account for Corporate Social Responsibility's influence on corporate financial performance; each proposes mechanisms through which corporate social performance has its effects. Preston & O'Bannon (1997) distinguish between the direction of the relationship – positive, negative or neutral –and the causal sequence – whether one type of performance follows another or whether they are synergistic. They finally arrive at six possible causal and directional hypotheses – social impact, available funding, trade-off, managerial opportunism and synergistic hypotheses. More recently, Moore (2001) suggested to extend this typology in order to allow for more complex relationships between CSP and CFP other than simply linear ones. As Moore (2001:300) noted, "there may be an optimum level of social performance beyond which social expenditures detract from rather than contribute to financial performance". For example, Bowman & Haire (1975) found a statistically significant inverted U relationship between CSP and CFP. Additionally, some other scholars suggest that there are too many intervening variables to detect any direct relationship between social and financial performance (McWilliams & Siegel, 2001).

Positive social-financial performance relationship models

Stakeholder theory suggests that CSP is positively associated with CFP (Freeman, 1984 ; Donaldson & Preston, 1995) because it enhances the satisfaction of various stakeholders – and consequently the firm's external reputation – and lead to better financial performance. Theorists supporting such an hypothesis (Freeman & Evan, 1990) propose that managers typically increase the efficiency of their organization's adaptation to external demands "by addressing and balancing the claims of multiple stakeholders" (Orlitsky et al., 2003:405). Conversely, Cornell & Shapiro (1987) argue that failure to meet the expectations of various stakeholders will generate market fears, and consequently, will increase corporate's risk premium and ultimately result in lost profit opportunities.

Other scholars (McGuire et al., 1988; Kraft & Hage, 1990) suggest that CSP and CFP are positively associated "but that the causal relationship is from financial to social performance" (Preston & O'Bannon, 1997: 423). According to the available funding hypothesis (known also as the slack resource hypothesis), firms will follow the normative rules of good corporate social depending on the financial resource available. Hence, profitability in one time period may increase a firms' ability to fund discretionary social performance projects.

Negative social-financial performance relationship models

There are two models predicting a negative relationship between CSP and CFP: the trade-off hypothesis and the managerial opportunism hypothesis. First, because social accomplishments involve financial costs, the trade-off hypothesis points out that social responsibility may siphon off capital and other resources from the firm as suggested by Friedman (1970), putting it at a relative competitive disadvantage compared to other firms that are less socially active. "Hence, a firm's higher levels of social performance may lower its financial performance as compared to competitors (...)" as noted by Preston & O'Bannon (1997: 421). Second, another possibility is that pursuit of private managerial goals might lead to a negative relationship between CSP and CFP. The managerial opportunism hypothesis states that "when financial performance is strong, managers may attempt to crash in by reducing social expenditure in order to take advantage of the opportunity to increase their own short-term private gains. Conversely, when financial performance weakens, managers may attempt to offset and perhaps appear to justify their disappointing results by engaging in conspicuous social programs" (Preston & O'Bannon, 1997: 423).

The Synergetic model

Several theorists suggest that it is possible that social and financial performance are synergetic (Preston & O'Bannon, 1997; Waddock & Graves, 1997). The positive synergy hypothesis suggests that it can exist a virtuous circle (Waddock & Graves, 1997): a high social performance can lead to better financial performance (social impact hypothesis) which in turn can lead to better social performance (slack resources hypothesis). Conversely, a vicious circle can exist .

Several other scholars have proposed additional theoretical models to explain the link between social and financial performance. For example, McWilliams & Siegel (2001) consider that there is no reason to observe any relationship as a number of other variables can mediate or moderate the relationship between CSP and CFP. Their empirical results indicated that the link between CSP and CFP disappears when more accurate variables are introduced into econometric models, such as research and development intensity. The relationship between CSP and CFP seems finally more complex as suggested by Bowman & Haire (1975) and recently by Barnett & Salomon (2002). These authors discovered a curvilinear relationship between CSP and CFP.

Potential Moderators of the CSP-CFP relationship

As documented later in the meta-analysis, there often is wide variation in the magnitude of the partial correlations reported. Differences between studies may serve as potential explanations for the disparity in the results across the studies. The differences between study results may reflect actual differences in the relationship between CSR and CFP, or they could reflect differences in the nature of the research process. One objective of the meta-analysis, therefore, is to identify the moderators of CSP-CFP effects. These moderators include methodology or study design, sampling, and type of measurement of CSP and CFP.

Methodological Approach. An element that could account for the variance in the magnitude of the effect evidenced in the literature is whether researchers use a correlation analysis or a mean comparison test or a multivariate analysis approach. Each approach has characteristics that could contribute to the variance observed across estimates of relationship strength. Mean comparison tests as well as correlation analyses,

for example, cannot offer the control necessary to eliminate potential confounds. Multivariate analysis is may be more realistic because it can control for interaction effects. Furthermore, the control variables used in each multivariate analysis could play a heightened role in the assessment of the relationship between CSP and CFP. For example, some scholars have indicated a need to control not only for industry, risk and size (Ullman, 1985; Waddock & Graves, 1997; McWilliams & Siegel, 2001) but also for research and development intensity. These results suggest that the type of control variables could account for some variance in the CSP-CFP correlations. Finally, the methodological approach that characterize each study will be examined explicitly in the meta-analysis.

Sampling. An additional element that could account for the variance in the magnitude of the effect size reported in previous studies is whether scholars employed small or large samples. As noted earlier by Cochran & Wood (1984:47), "most of the previous work in this area employed samples that were too small to result in any safety generalizable results". Hence, we anticipate that sample sizes employed by empirical studies will emerge as a significant moderator of the CSP-CFP interaction. Another issue identified in this literature is the continual focus on large cross-sectional studies that incorporate many industries. "By analyzing broad, cross sectional data, the results may mask individual differences for measuring CSP and CFP based on the specific context of an industry" (Griffin & Mahon, 1997: 10). Once again, the difference between industries suggests that it could be an important explanator of the differences in the CSP-CFP effects reported in the literature.

Measurement of CFP. Measurement of CFP is a third methodological variable that might moderate findings. Margolis & Walsh (2002:14), for example, found that 70 measures of financial performance had been used in 122 different studies. Following Orlitsky et al. (2003), we distinguish between three broad subdivisions of CFP measures: market-based, accounting-based and perceptual measures. However, these conceptual definitions embrace a wide range of operational definitions of CFP. Therefore, we also used CFP indicators such as Return on Investment, Retun on Sales, and so on. The choice between employing an accounting-based measure and a market-based measure carries theoretical and empirical implications even if both measures my be suited to answer questions about the CSP-CFP interaction. According to Margolis & Walsh (2002), "without a clear causal theory linking CSP and CFP, the prudent approach is to use both sets of measures and let the empirical evidence inform our theoretical understanding". Finally, the degree to which the different CFP measures bias estimates will be examined in the meta-analysis.

Measurement of CSP. Similarly, the concept of CSP takes on many meanings in different research efforts. CSP has been measured by a variety of rating criteria, such as the use of the Fortune surveys (McGuire et al., 1988; Herremans et al., 1993; Preston & O'Bannon, 1997), the Kinder, Lydenberg Domini (KLD) rating system (Waddock & Graves, 1997; Berman et al., 1999), a survey of business faculty members (Moskowitz, 1972) or business student (Heinze, 1976). CSP has also been evaluated by the quality of a firm's environmental management record (Russo & Fouts, 1997; Dowell et al., 2000), the presence or absence of women and minority directors (Lerner & Fryxell, 1988), and the magnitude of charitable contributions (Fry et al., 1982; Galaskiewicz, 1997). It is quite possible that this wide range of conceptualization and operationalization has resulted in varying strengths of relationships between CSP and CFP.

2. METHODOLOGY

Meta-analysis should be based on the population of studies. In order to construct a comprehensive database, a series of computer searches was conducted on Proquest/ABI Inform, EBSCO and EconLit databases. Additionally, extensive manual searches were also performed to identify additional articles, using the reference lists of each study collected. These searches yielded a total of 82 published empirical studies that reported test statistics on the relationship between Corporate Social Performance (CSP) and Corporate Financial Performance (CFP).

To be included in the meta-analysis, a study was required to examine corporate financial performance. Several measures of financial performance are used in the literature, including return on capital, return on investment, return on assets, Tobin's q, profit to sales ratio, excess market value and so on. In the subsequent meta-regression analysis we test whether the definition of the variable influences the estimated CSP-CFP effect.

Studies included in the meta-analysis had to report also information on sample size and a regression coefficient or another statistic which could be converted to partial correlations, such as standard errors or t-statistics. Following Doucouliagos and Laroche (2003), the partial correlation was chosen as a measure of the CSP-CFP effect, as many studies do not offer sufficient information from which to calculate the percentage impact of CSP on financial performance. The partial correlation is a standardized measure of the degree of association between CSP and CFP, controlling for the influence of other factors.

Close examination resulted in several studies been excluded from the meta-analysis. We eliminated literature reviews and essays that were not based on data (11 articles), 17 published articles without quantifiable effect sizes, 5 studies in which methodological problems posed serious questions, 9 studies lacking clear measures of financial performance, and 3 studies whose data came from another study included in the meta-analysis. Several classic studies were eliminated because of confounding variables or methodological problems. Results of Moskowitz (1972) and Vance (1975) have often been cited in the previous narrative reviews. However, these classic studies that stimulated interest and research in CSP, are also plagued by methodological problems. For example, Roman et al. (1999: 117) pointed out that the estimates in the Moskowitz study rely on small group of firms that made the effect size computed from it misleading. We excluded also event studies and socially responsible investing (SRI) studies as these are also not comparable(1). Hence, we do not include the studies by authors such as Shane & Spicer (1983), Bromiley & Marcus (1989) and Davidson & Worrell (1988, 1992).

From this process of literature search and elimination, we found 82 studies that contained quantifiable estimates of the relationship between CSP and CFP. Of these, 18 studies were studies in which CSP was the dependent variable and the rest (64 studies) were studies in which CSP was considered as a determinant of corporate financial performance(2). The sample of the meta-analysis consists of 82 published articles reporting a total of 373 partial correlations. Table 2 lists the 82 studies included in the meta-analysis, years of publication, country, sample size, average test scores (t-statistics), number of partial correlation reported by each study and the associated average partial correlation.

Tableau 1. Empirical studies exploring the association between CSP and CFP (n=82)

Study		Country	N	Average t-statistic	Number of r reported	Average r
1	Bragdon & Marlin (1972) a	USA	12	1,86	15	0,488*
2	Fogler & Nutt (1975) a	USA	9	-0,39	1	-0,153
3	Reimann (1975) a	USA	19	3,20	1	0,570***
4	Heinze (1976) a	USA	28	0,27	5	0,050
5	Sturdivant & Ginter (1977) a	USA	20	3,78	2	0,652***
6	Alexander & Buchholtz (1978) a	USA	44	0,91	1	0,063
7	Bowman (1978) a	USA	46	1,56	1	0,227
8	Ingram (1978) a	USA	120	0,25	1	0,023
9	Spicer (1978) a	USA	18	2,32	4	0,508***
10	Abbott & Monsen (1979) a	USA	6	0,08	1	0,038
11	Anderson & Frankle (1980) a	USA	14	1,31	1	0,250
12	Chen & Metcalf (1980) a	USA	18	0,16	4	0,062
13	Levy & Shatto (1980) a	USA	55	4,42	3	0,518***
14	Maddox & Siegfried (1980)	USA	2262	53,22	1	0,746***
15	Kedia & Kuntz (1981) a	USA	30	0,07	5	0,006
16	Freedman & Jaggi (1982) a	USA	109	-0,25	6	-0,025
17	Frey, Keim & Meiners (1982)	USA	36	6,80	1	0,752***
18	Cochran & Wood (1984) a	USA	39	1,94	6	0,503*

19	Aupperle, Carroll & Hatfield (1985) a	USA	228	0,70	8	0,051
20	Newgren, Rasher, LaRoe Zsabo (1985) a	USA	50	5,10	1	0,330***
21	Cowen, Ferreri & Parker (1987) a	USA	95	-0,37	1	-0,041
22	Spencer & Taylor (1987) a	USA	120	3,06	20	0,263***
23	Wokutch & Spencer (1987) a	USA	74	2,00	2	0,232**
24	Lerner & Fryxell (1988)	USA	105	0,28	9	0,030
25	McGuire, Sundgren & Schneeweis (1988) a	USA	131	1,64	5	0,131
26	Aupperle & Pham (1989)	USA	184	0,98	9	0,077
27	Belkaoui & Karpik (1989)	USA	23	1,49	4	-0,086
28	Hansen & Wernerfelt (1989) a	USA	60	2,33	1	0,600***
29	Lashgari & Gant (1989)	USA	475	2,79	1	0,127***
30	O'Neill, Saunders & McCarthy (1989) a	USA	157	-0,09	4	-0,017
31	Cottrill (1990)	USA	180	2,18	1	0,162**
32	Fombrun & Shanley (1990) a	USA	154	1,79	7	0,149
33	McGuire, Schneeweis & Branch (1990)	USA	131	-0,17	5	-0,013
34	McGuire, Schneeweiss & Branch (1990)	USA	131	1,89	5	0,143
35	Preston & Sapienza (1990)	USA	108	1,21	2	0,115
36	Patten (1991)	USA	128	0,26	4	0,023
37	Riahi-Belkaoui (1991) a	USA	139	4,12	3	0,335***
38	Jaggi & Freedman (1992)	USA	13	0,65	5	0,184
39	Roberts (1992) a	USA	80	1,66	1	0,203*
40	Herremans, Akhataporn & McInnes (1993) a	USA	38	1,70	12	0,220*
41	Blackburn, Doran & Shrader (1994) a	USA	88	-0,16	9	-0,020
42	Brown & Perry (1994) a	USA	234	4,59	4	0,287***
43	Cormier, Magnan & Morard (1994)	Canada	56	1,74	1	0,244*
44	Dooley & Lerner (1994) a	USA	86	1,13	4	0,123
45	Graves & Waddock (1994) a	USA	430	1,90	2	0,090*
46	Simerly (1994) a	USA	110	2,50	14	0,231***
47	Brown & Perry (1995) a	USA	232	3,32	20	0,241***
48	Simerly (1995) a	USA	84	2,49	1	0,265***
49	Hart & Ahuja (1996)	USA	127	1,40	12	0,126
50	Nehrt (1996)	USA	44	1,94	1	0,316*
51	Pava & Krausz (1996) a	USA	106	0,46	8	0,044
52	Galaskiewicz (1997)	USA	140	3,19	1	0,270***
53	Preston & O'Bannon (1997)	USA	67	3,05	2	0,355***
54	Preston & O'Bannon (1997)	USA	67	3,59	2	0,407***
55	Russo & Fouts (1997) a	USA	486	2,43	6	0,130***
56	Waddock & Graves (1997) a	USA	469	2,52	6	0,117***
57	Turban & Greening (1997) a	USA	160	1,20	6	0,095
58	Adams & Hardwick (1998)	UK	100	2,38	1	0,237***
59	Balabanis, Phillips & Lyall (1998)	UK	56	0,17	12	0,023
60	Balabanis, Phillips & Lyall (1998)	UK	58	0,68	18	0,094
61	Brown (1998)	USA	173	2,31	1	0,174***
62	Judge & Douglas (1998)	USA	170	2,00	1	0,150**
63	Stanwick & Stanwick (1998a)	USA	121	5,87	6	0,482***
64	Stanwick & Stanwick (1998b)	USA	100	0,91	1	0,096
65	Verschoor (1998)	USA	376	2,71	1	0,139***
66	Berman, Wicks, Kotha & Jones (1999)	USA	486	1,56	4	0,071
67	Graves & Waddock (1999)	USA	658	1,30	7	0,051
68	Johnson & Greening (1999)	USA	252	1,65	3	0,112*
69	Maignan, Ferrell & Hult (1999)	USA	210	3,01	2	0,186***
70	Ogden & Watson (1999)	UK	60	2,63	2	0,330***
71	Carter, Kale & Grimm (2000)	USA	437	1,96	1	0,094**
72	Christmann (2000)	USA	88	0,32	3	0,043
73	Dowell, Hart & Yeung (2000)	USA	338	2,70	1	0,148***
74	Karagozoglu & Lindell (2000)	USA	83	3,90	1	0,404***
75	McWilliams & Siegel (2000)	USA	524	-0,03	3	-0,002
76	Graves & Waddock (2000)	USA	36	3,56	4	0,520***
77	Hillman & Keim (2001)	USA	308	0,65	11	0,038
78	Moore (2001)	UK	8	0,70	2	0,271
79	Ruf, Muralidhar, Brown, Janney & Paul (2001)	USA	488	1,48	12	0,022
80	Simpson & Koher (2002)	USA	385	2,14	1	0,111**
81	Moore & Robson (2002)	UK	8	1,98	2	0,747**
82	Seifert, Morris & Bartkus (2003)	USA	68	0,30	5	0,040

*, **, *** statistically significant at the 10%, 5% and 1% levels, respectively. a indicates studies included in the Orlitsky, Schmidt & Rynes (2003)' meta-analysis

It can be seen from Table 1 that most of the studies (75 out of 82) are US studies. Of the 82 studies, 75 found a positive effect. Fifty percent of the studies found a statistically significant positive effect. Conversely, a minority of the studies found a negative effect.

3. META-ANALYTIC FINDINGS

The meta-analysis of the data and the reporting of findings proceed in three phases. First, we describe the partial correlations in term of direction, statistical significance and sample size. Second, we present the findings from the analysis of the selection and specification effects. This stage of data analysis centers on identifying publication bias and significant moderators of the CSP-CFP relationship.

Descriptive Analysis

Meta-analysis commences with the calculation of weighted effect sizes and confidence intervals. The effect sizes are the estimates of the effect of CSP on CFP from all the available literature, while the confidence intervals indicate whether these effect sizes are statistically significantly different from zero. These statistics were calculated for the total set of 373 partial correlations and a cumulative sample size of 57,409 observations. Sample size was used as weights[3]. The results are presented in Table 2. The entry in column 4 is the weighted average, the figures in brackets are the 95% confidence intervals. The Chi-square test for homogeneity in partial correlation values was applied to all studies[4]. Thus, when all the studies are included, the sample size weighted average partial correlation is +0.14, with a 95% confidence interval of +0.13 to +0.15. The confidence interval does not contain zero, indicating a statistically significant positive relationship between CSP and CFP. However, the sampling error in CSP and CFP explain only 20 percent of the cross-study variance of r, implying that an excessive heterogeneity across partial correlation values still exists (80 %). These results raise questions as to whether the apparent variance in the magnitude of the reported partial correlation results from differences in measures or methods. These questions are addressed subsequently.

Following Orlitsky et al. (2003), Table 2 further document two different conceptualizations of CSP. We divided into two sets the entire meta-analytic set: (a) those studies using narrow definition of social performance, excluding measures of environmental performance and (b) studies of corporate environmental performance only. Results suggest that corporate environmental performance has a similar relationship with CFP (r=0.140) than do all other measures of CSP (r=0.143) as well as 'narrow' social performance (r=0.145). However, measurement error and sampling error explained more of the cross-study variance of partial correlation in the

Tableau 2. Overall Meta-analysis, partial correlations between CSP and CFP

Relationship between…	Sample size N	Cumulative Sample Size	Sample-Size Weighted Average Partial Correlation	%Variance Explained	Heterogeneity
1. CSP and CFP (Entire sample)	**373**	**57,409**	**0.143**	**20.12**	**1,917*** **
2a. CSP and CFP without corporate	289	49,562	**(0.135 to 0.151)**	15.28	1,823***
environmental performance	84	7,847	0.145	39.13	208***
2b. CSP and CFP with corporate	268	43,947	(0.137 to 0.154)	16.06	1,631***
environmental performance	77	8,081	0.140	7.81	832***
3. CSP and CFP without CSP			(0.118 to 0.162)		
reputation			0.120		
4. CSP and CFP with philanthropic			(0.110 to 0.129)		
donation			0.277		
			(0.257 to 0.298)		

Figures in brackets are 95 percent confidence intervals. *** denotes heterogeneity is statistically significant at the 1% level, Chi-square test.

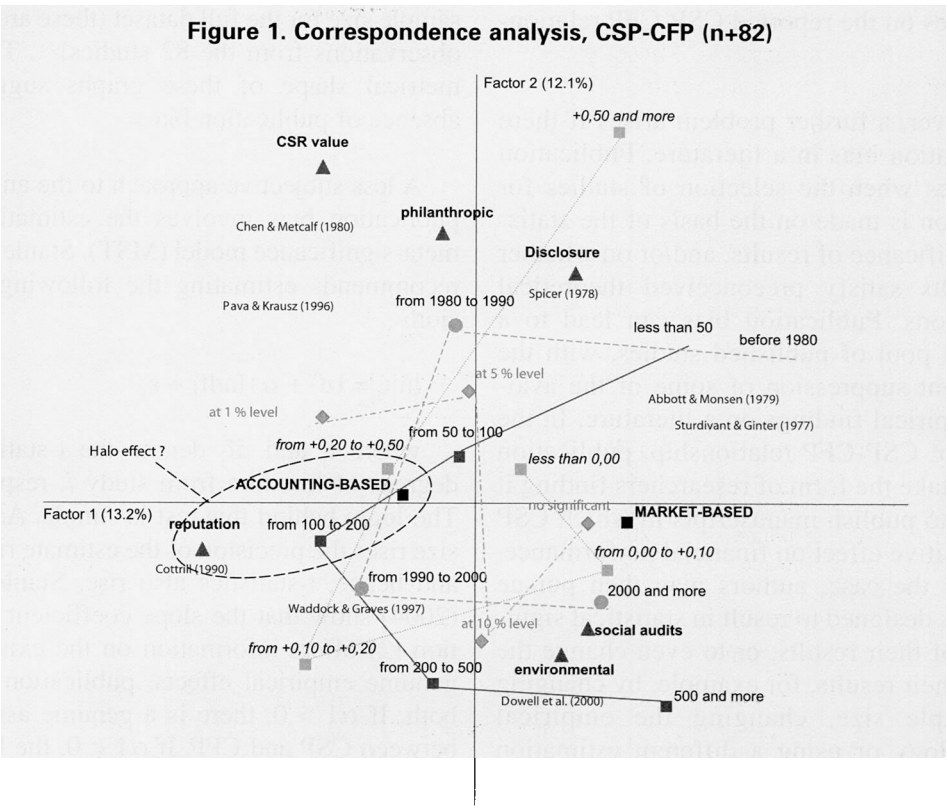
corporate environmental performance (39.13 % *vs* 20.12%), suggesting that the positive relationship observed is much more consistent across study contexts.

Furthermore, Table 2 illustrates that the observed relationship remains positive even after we removed studies using reputation ratings. Although the weighted average partial correlation is smaller than in the entire data set (0.120 *vs* 0.143), we can conclude that these findings generally support the hypothesis of a positive relationship between CSP and CFP. Table 2 also shows analysis for corporate philanthropy. Our findings suggest that philanthropic donations has a higher relationship with CFP (r=0.277) than do all other measures of CSP behaviors. It was expected that there would be a positive relationship between corporate philanthropy and CFP (Levy & Shatto, 1980; Kedia & Kuntz, 1981). However, this result is not conclusive because the heterogeneity of the subsample is very significant.

A correspondence analysis (CA) has also been used to generate a perceptual map that portrays the spatial location of the 82 existing studies and approximate the closeness/distance among them. The aim of this CA is also to facilitate the analysis of the structure relationship among an array of study characteristics (see Figure 1).

The map corroborates the fact that studies using *accounting-based* measures tend to indicate more strongest link between CSP and CFP. Conversely, the partial correlation between measures of CSP and *market-based* measures of CFP are close to zero. As illustrated in Figure 1, studies published in the 70s tend to demonstrate a higher positive relationship between CSP and CFP. These studies generally used small sample size (less than 50 observations) and social disclosure as a proxy of CSP. The findings also support that studies using reputation indices as proxies for CSP demonstrate a highest average correlation with CFP, partially due to a possible halo effect (Brown and Perry, 1994). In line with Orlitsky et al. (2003), the findings indicate that studies using environmental performance are also those showing a smaller relationship with CFP. Conversely, philanthropic donations are highly related with CFP as well as CSR value. Finally, the results of this correspondence analysis are consistent with Orltisky et al.'s results and permit to detect the existence of potential moderators.

Figure 1. Correspondence analysis, CSP-CFP (n+82)



Analysis of the Selection and Specification Effects

In order to conclude that CSP has a positive effect on CFP it is necessary that the meta-analysis statistics establish a positive association between CSP and CFP. However, this is not sufficient. It is also necessary to investigate the existence of selection and specification effects. The association between genuine and observed partial correlations can be expressed as:

$$r_o = f(rg, s, p, u) \quad (1)$$

where r_o is the observed partial correlation, r_g denotes the genuine partial correlation between CSP and financial performance, s is systematic specification differences, p is the impact of publication bias and u denotes random specification differences. The genuine partial correlation is not observed and must be inferred from the available literature. The r_o is the estimated r_o based on the population of published studies. However, it is well known that specification differences can affect reported study outcomes potentially distorting the estimates of r_g. Meta-regression analysis can be used to identify the impact of specification differences on the reported CSP-CFP relationships.

However, a further problem arises if there is publication bias in a literature. Publication bias arises when the selection of studies for publication is made on the basis of the statistical significance of results, and/or on whether the results satisfy preconceived theoretical expectations. Publication bias can lead to a truncated pool of published studies, with the consequent suppression of some of the available empirical findings on a literature. In the context of CSP-CFP relationship, publication bias can take the form of researchers finding it difficult to publish manuscripts in which CSP has a positive effect on financial performance. If this is the case, authors may then pursue strategies designed to result in statistical significance of their results, or to even change the sign on their results, for example, by changing the sample size, changing the empirical methodology or using a different estimation technique.

Publication Bias

The sample provide 373 estimates of the impact of CSP on financial performance. Of these 134 or 36% are positive and statistically significant. Hence, it is clear that insignificant results are published in this literature. The existence of selection bias (or publication bias) can be identified formally through graphical and statistical analysis. Standard statistical theory suggests that smaller studies will have larger standard errors, and hence, smaller studies will have larger variation around the true population effect (Stanley, Florax & De Groot, 2004). Thus, we would expect that larger studies will be closer to the population genuine effect and that smaller studies will vary around this. A funnel graph traces the relationship between sample size and an effect. A symmetrical funnel graph indicates the absence of publication bias, while asymmetry indicates publication bias. If small studies with statistically insignificant effects are published, then we should have symmetry in the distribution of partial correlations around the true population effect (Doucouliagos, Laroche & Stanley, 2004).

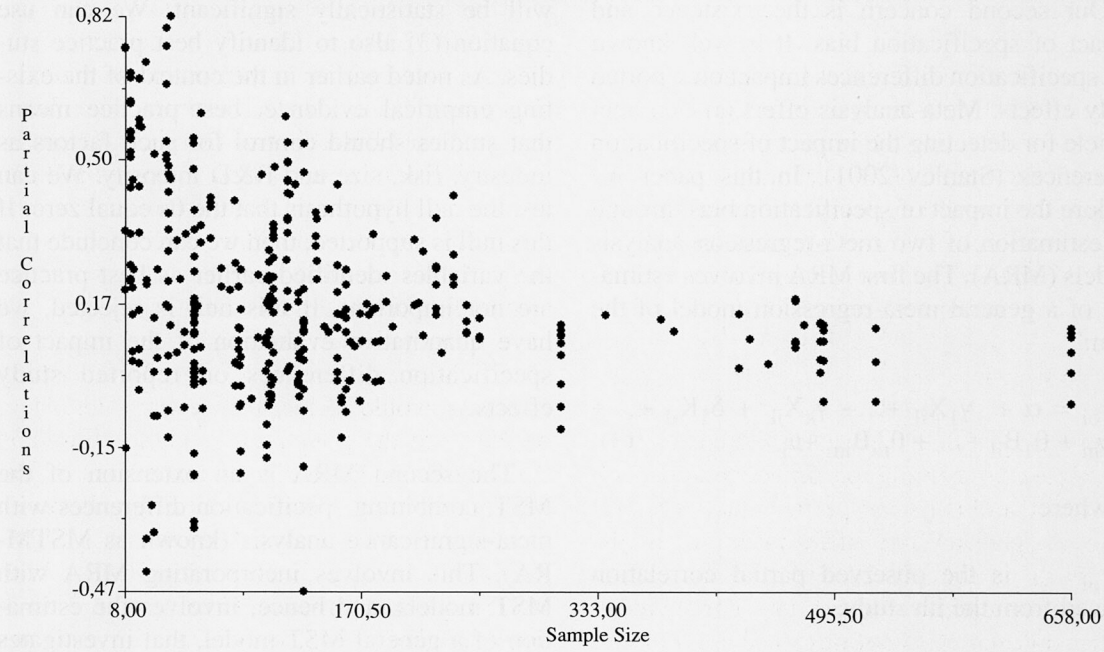
Figure 2 presents a funnel graph showing the relationship between the partial correlations and sample size for the full dataset (these are the 372 observations from the 82 studies)[5]. The symmetrical shape of these graphs suggests an absence of publication bias.

A less subjective approach to the analysis of publication bias involves the estimation of a meta-significance model (MST). Stanley (2001) recommends estimating the following regression:

$$\ln|t_i| = \alpha 0 + \alpha 1 \ln df_i + \varepsilon_i \quad (2)$$

where t_i and df_i denote the t-statistic and degrees of freedom from study i, respectively. The logic behind this test is simple. As sample size rises the precision of the estimate rises also, and hence, t-statistics also rise. Stanley *et al.* (2004) show that the slope coefficient in equation (2) offers information on the existence of genuine empirical effects, publication bias, or both. If $\alpha 1 > 0$, there is a genuine association between CSP and CFP. If $\alpha 1 < 0$, the literature is contaminated by selection effects, or publica-

Figure 2. Partial correlations of CSP and CFP (full sample, n=372)



tion bias. If $0 < \alpha 1 < 0.5$, then there is a genuine association between CSP and CFP, as well as publication bias in the literature.

Table 3 presents the MST results. As can be seen from this table, for the one-study-one-sample dataset (n = 82), the slope coefficient is equal to the value of 0.30, and is statistically significant. When the full dataset is used (n = 369) $\alpha 1 = 0.15$. This is solid evidence of a genuine CSP-CFP effect, as well as evidence of publication bias, since $\alpha 1 < 0.5$.[6] Note that since the dependent variable is the absolute value of the t-statistic, the slope coefficient measures only the strength of the association. However, with the majority of studies having a positive partial correlation, we conclude that the MST supports strongly the finding of a positive association between CSP and CFP.

Tableau 3. Meta-significance testing, CSP and CFP

Variable	Y= ln_ti_ one sample group	Y= ln_ti_ all estimates
Constant	-1.08	-0.37
	(-2.17)**	(-1.63)
$\ln df_i$	0.30	0.15
	(2.80)***	(2.95)***
Number of Studies	82	369
Adjusted R-squared	0.18	0.12

*, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. t-statistics in brackets. Y: Dependent variable.

Specification Effects

Our second concern is the existence and impact of specification bias. It is well known that specification differences impact on reported study effects. Meta-analysis offers an excellent vehicle for detecting the impact of specification differences (Stanley 2001). In this paper we explore the impact of specification bias through the estimation of two meta-regression analysis models (MRA). The first MRA involves estimation of a general meta-regression model of the form:

$$r_{oi} = \alpha + \gamma_1 X_{il} + \ldots + \gamma_k X_{ik} + \delta_1 K_{il} + \ldots + \delta_n K_{in} + \theta_1 B_{il} + \ldots + \theta_m B_{im} + u_i \quad (3)$$

where

r_{oi} is the observed partial correlation derived from the ith study,

α is the constant,

Xs are dummy variables representing characteristics associated with the ith study,

Ks are the mean values of any quantifiable variables,

Bs are variables representing best practice characteristics, and

u_i is the disturbance term, with usual Gaussian error properties (see Stanley and Jarrell 1998).

If specification differences impact on CSP-CFP relationship, then the g and d coefficients will be statistically significant. We can use equation (3) also to identify best practice studies. As noted earlier in the context of the existing empirical evidence, best practice means that studies should control for such factors as industry, risk, size and R&D intensity. We can test the null hypothesis that the θs equal zero. If this null is supported, then we can conclude that the variables identified earlier as best practice are not important. If this null is rejected, we have quantitative evaluation of the impact of specification differences on reported study effects.

The second MRA is an extension of the MST, combining specification differences with meta-significance analysis (known as MSTMRA). This involves incorporating MRA with MST models, and hence, involves the estimation of a general MST model, that investigates the existence of a genuine union-profit effect, after controlling for specification and data differences:

$$\ln t_i = \alpha_0 + \alpha_1 \ln df_i + \alpha_2 Z_i + \varepsilon_i \quad (4)$$

Equation 4 is basically an extension of Stanley (2001) to include MRA variables.[7]

We constructed a number of variables to test the effects of specification differences on the magnitude of the relationship between CSP and CFP. Table 4 lists the moderator variables included in the MRAs, together with means and standard deviations.

Tableau 4. Moderators variables definitions, and descriptive statistics

Variables	Abbreviation	Mean Value	Standard Deviation
Dummy variable equal to 1 if the US data used and 0 otherwise.	USA	0.90	0.30
Dummy variable equal to 1 if CSP is considered as a dependent variable in the study and 0 otherwise	DEPENDENT	0.18	0.39
Dummy variable equal to 1 if the article was published in an accounting journal and 0 otherwise	JACCOUNT	0.14	0.35
Dummy variable equal to 1 if the article was published in the *Academy of Management Journal* and 0 otherwise	AMJ	0.15	0.36
Dummy variable equal to 1 if the article was published an ethics journal (such as *Business Ethics, Journal of Business Ethics*,...) and 0 otherwise	JETHICS	0.25	0.43

Dummy equal to 1 if the data relates to 1960s and 0 otherwise	Y1960	0.06	0.23
Dummy equal to 1 if the data relates to 1970s and 0 otherwise	Y1970	0.16	0.37
Dummy equal to 1 if the data relates to 1980s and 0 otherwise	Y1980	0.50	0.50
Dummy equal to 1 if the data relates to 1990s and 0 otherwise	Y1990	0.29	0.46
Dummy variable equal to 1 if OLS was used and 0 otherwise	OLS	0.35	0.48
Dummy variable equal to 1 if statistical tests (Student, Wilcoxon, Chi_, Mann-Whitney,...) was used and 0 otherwise	TESTS	0.12	0.33
Dummy variable equal to 1 if correlation analysis (Pearson, partial, semi-partial, ...) was used and 0 otherwise	CORREL	0.25	0.43
Dummy variable equal to 1 if social disclosure was used to measure corporate social performance and 0 otherwise	DISCLOS	0.09	0.29
Dummy variable equal to 1 if reputation index was used to measure corporate social performance and 0 otherwise	REPUTA	0.28	0.45
Dummy variable equal to 1 if CSR value was used to measure corporate social performance and 0 otherwise	CSRVALUE	0.05	0.22
Dummy variable equal to 1 if responsibility to the stakeholders was used to measure corporate social performance and 0 otherwise	STAKE-HOLD	0.16	0.37
Dummy variable equal to 1 if environmental performance was used to measure corporate social performance and 0 otherwise	ENVIRON	0.26	0.44
Dummy variable equal to 1 if corporate philanthropy was used to measure corporate social performance and 0 otherwise	CHARITA	0.09	0.29
Dummy variable equal to 1 if KLD rating was used to measure corporate social performance and 0 otherwise	KLD	0.15	0.36
Dummy variable equal to 1 if marketing-based measure was used to measure corporate financial performance and 0 otherwise	MARKETB	0.28	0.45
Dummy variable equal to 1 if accounting-based measure was used to measure corporate financial performance and 0 otherwise	ACCOUNTB	0.69	0.46
Dummy variable equal to 1 if return on sales was used to measure corporate financial performance and 0 otherwise	ROS	0.12	0.32
Dummy variable equal to 1 if return on investments was used to measure corporate financial performance and 0 otherwise	ROI	0.06	0.25
Dummy variable equal to 1 if return on assets was used to measure corporate financial performance and 0 otherwise	ROA	0.23	0.42
Dummy variable equal to 1 if return on equity was used to measure corporate financial performance and 0 otherwise	ROE	0.10	0.31
Dummy variable equal to 1 if excess market value was used to measure corporate financial performance and 0 otherwise	EMV	0.03	0.18
Dummy variable equal to 1 if market returns was used to measure corporate financial performance and 0 otherwise	RETURNS	0.08	0.26
Dummy equal to 1 if industry dummies were included as a control variable and 0 otherwise	DINDUST	0.13	0.34
Dummy equal to 1 if firm size and/or capital intensity were included as a control variable and 0 otherwise	DSIZE	0.23	0.42
Dummy equal to 1 if risk was included as a control variable and 0 otherwise	DRISK	0.05	0.21
Dummy equal to 1 if R&D intensity was included as a control variable and 0 otherwise	DRD	0.02	0.12

Country effects: The first characteristics we consider are national differences in the CSP-CFP association. To control for this possibility, we constructed one country dummy variables for US studies (USA). We anticipated that the magnitude of the relationship between CSP and CFP depends on the institutional context as suggested in the literature (Griffin & Mahon, 1997; Balabanis et al., 1998).

Temporal Sequence effects: Margolis & Walsh (2002:13) noted that "little attention has been devoted to specifying the causal mechanisms that might account for an observed link". Only few studies used time periods greater than or equal to five years. It is clear that lead/lag studies are important in helping to establish the causal relationship between CSP and CFP and support the available fund hypothesis. To test this hypothesis, we constructed one dummy

variable for studies that employed social performance as a dependent variable (DEPENDENT). We anticipated a positive impact of financial performance on social performance but we had no prior expectations about the magnitude of this relationship.

Journal effects: We constructed three dummies variables to explore differences in published results across different publication outlets. We included controls for the three journals that have published research in this area: *Business Ethics or Journal of Business Ethics* (JETHICS), accounting journals such as *Accounting, Organization and Society* (JACCOUNT) and *Academy of Management Journal* (AMJ).We had no prior expectations about which type of journals would published larger or smaller negative or positive effects estimates.

Data, measurement and industry effects: To examine how the effects of CSP on CFP change over time, we included four dummies variables equal to one if the data relate to 1960 (Y1960), 1970 (Y1970), 1980 (Y1980), and 1990 (Y1990) and zero otherwise. Some of the studies used OLS regressions, others used correlation analysis and others used mean comparison between groups. To control for this, we used a dummy variable (OLS) equal to one if OLS regression was used and zero otherwise. Similarly, we used two other dummies variables labeled (CORREL) and (TEST).

As Orlitsky et al. (2003:408) suggested, we used four broad measurements of social performance: CSP disclosures (DISCLOS), CSP reputation ratings (REPUTA), social audits, CSP processes and observable outcomes (AUDITS) and managerial CSP principles and values (CSRVALUE)[8]. We also used dummy variables to control for the use of environmental performance (ENVIRON), responsibility of stakeholders (STAKEHOLD), corporate philanthropy (CHARITA) and KLD rating (KLD). Thus, eight variables explore differences in the measurement of corporate social performance. We expected CSP reputation indices to be more highly correlated with CFP than other measures of CSP (Orlitsky et al., 2003).

The effects of CSP on CFP are also likely to be influenced by the type of the CFP measure employed. Thus, we constructed a dummy variable indicating whether each study uses a market-based measure of CFP (MARKETB) or an accounting-based measure (ACCOUNTB) or not. More specifically, some of the studies used accounting-based measures of CFP such as return on sales (ROS), return on investment (ROI), return on assets (ROA), and return on equity (ROE) and others used market-based measures such as excess market value (EMV) and market returns (RETURN). We used six dummies variables to investigate the influence of the CFP measure. As suggested by Orlitsky et al. (2003), we expected CSP to be more highly correlated with accounting-based measures of CFP than with market-based measures.

Best practices effects: Several dummy variables were included to capture specifications differences, relating to variables that are deemed by many to be vital. The effects of CSP on CFP are likely to be influenced by firm size and industry conditions (Cottrill, 1990 ; Fry & Hock, 1976 ; Margolis & Walsh, 2001). Some of the studies control the possibility that risk and R&D intensity are also important issues to address when studying the impact of CSP on CFP (Waddock & Graves, 2001). Thus, we used four dummies variables that are set equal to one for studies which control for firm size (DSIZE), industry (DINDUSTRY), risk (DRISK), R&D intensity (DRD) and zero otherwise. We expected that the omission of these factors positively correlated with CFP will bias the CSP-CFP estimates and overestimate the positive impact of social performance.

Interactive terms: We consider also the importance of interaction effects. The social disclosure dummy can be interacted with the accounting dummy to capture differences in the CSP-CFP effects across social disclosure studies (D¥ACCOUNT). We introduced also several other interaction terms (see Table 5).

The MRA results are reported in columns 2, 3 and 4 of Table 7. Column 2 is a general MRA, with the full set of explanatory variables included. Column 3 is a general MRA with the eight interactive terms included[9]. Column 4 presents the results of the specific MRA derived from sequentially eliminating any variables that were not statistically significant at least at the 10%

level. A negative coefficient means that that variable decreases the positive association between CSP and CFP. Several interesting results emerge from this meta-regression analysis.

- All other things equal, the dummy variable for the US is statistically significant and negative. There are seven studies using UK data and one using canadian data, most of them are statistically significant and very positive (cf. Table 2). This means that US studies indicate more often a negative effect than those studies.

- The interactions are clearly important as they increase the explanatory power of the meta-regression significantly, as measured by the adjusted R-squared. The social disclosure-market-based and accounting-based interaction terms indicate that social disclosure is less highly correlated with CFP measure than other CSP measures. Similarly, the social audits-market-based interaction term shows that social audits is less highly related to market-based measure than other CSP measures, in accordance with Orlitsky et al.'s results (2003:422). Conversely, the CSP reputation indices and the CSR values and attitudes measure are particularly highly correlated with accounting measures of CFP. As noted earlier by Orlitsky et al. (2003:422), "this high correlation [between CSP reputation indices and accounting measures] may partially be due to halo (Brown & Perry, 1990)".

- Studies that employed OLS regression or mean comparison tests find larger positive effects, suggesting that using OLS or statistical tests results in attributing methodological effects to CFP that more appropriately should be attributed to CSP.

- Studies that considered financial performance as a determinant of CSP find a greater positive correlation between CSP and CFP. These findings suggests the existence of a virtuous cycle between the two entities as the impact of CSP on CFP is also positive.

- Studies that control for firm size do not find neither a smaller nor greater positive effects, suggesting that failing to control for size does not influence the magnitude of the impact of CSP on CFP. In other words, firm size does not confound the relationship between CSP and CFP as already suggested by Orlitsky (2001). Similarly, studies that control for industry, risk and R&D do not find neither a smaller nor greater positive effect.

- Results of the MRA further reveal that both environmental performance and charitable donations are less highly correlated with CFP than the other CSP measures. This result is consistent with Orlitsky et al. (2003:422) who suggest that "capital market participants dismiss certain concrete behavioural measures of CSP (such as charitable donations), perhaps because they are perceived as direct attempts by firms to manage external impressions".

- The measure of the corporate financial performance does influence the magnitude of the CSP-CFP effect. The use of accounting-based measures has a negative affect on reported CSP-CFP effects. In other words, accounting-based measures are less highly correlated with CSP than market-based and subjective CFP measures. However, the use of certain measures of financial performance, such as return on sales, return on assets, and return on equity leads to greater reported effects.

- It is difficult to explain the results for the use of data relating to 1960 and 1980. However, it does suggest that after controlling for all other factors, CSP-CFP effects were larger in the 1960s and smaller in the 1980s.

The results from combining the MST with the MRA, capturing both meta-significance as well as specification bias, are presented in columns 5 and 6, Table 6. The key variable of interest here is the coefficient on the degrees of freedom. This is positive and statistically significant, confirming that in this literature there exists a genuine effect, since as the sample size rises the t-statistic also rises. However, the coefficient on degrees of freedom is less than 0.5, confirming that there is *both* publication bias as well as a genuine effect in this literature. Note that the dependent variable in this regression is

the *absolute* value of the t-statistic (not the partial correlation) and that this is a test for the existence of a genuine effect. Hence, the coefficient on the degrees of freedom does not tell us the direction of the genuine CSP-CFP effect. However, from Tables 4 and 6 it is clear that there is a positive CSP-CFP effect.

Tableau 5. MRA AND MSTMRA, CSP AND CFP

Variables	General MRA Coefficient (t-statistic) Y = r	General MRA Coefficient (t-statistic) Y = r	Specific MRA Coefficient (t-statistic) Y = r	General MSTMRA Coefficient (t-statistic) Y= ln_ti_	Specific MSTMRA Coefficient (t-statistic) Y= ln_ti_
Constant	0.31 (3.56)***	0.30 (3.35)***	0.38 (7.32)***	3.86 (3.57)***	3.89 (5.36)***
log(df)	-	-	-	0.02 (5.61)***	0.02 (7.76)***
Country Effects					
USA	-0.12 (-2.25)***	-0.10 (-1.87)*	-0.14 (-3.34)***	-1.83 (-2.75)***	-1.48 (-3.13)***
Temporal Sequence Effects					
DEPENDENT	0.05 (1.79)*	0.05 (1.85)*	0.06 (2.21)**	1.43 (4.07)***	1.30 (4.16)***
Journal Effects					
JETHICS	0.02 (0.69)	0.02 (0.62)	-	-0.09 (-0.25)	-
JACCOUNT	0.03 (0.83)	0.03 (0.75)	-	-0.47 (-0.88)	-
AMJ	-0.01 (-0.20)	-0.01 (-0.29)	-	-0.22 (-0.51)	-
Data, Measurement and Industry Effects					
Y1960	0.28 (5.15)***	0.28 (5.11)***	0.29 (6.29)***	2.81 (4.20)***	3.09 (5.67)***
Y1970	0.06 (1.40)	0.06 (1.48)	-	0.22 (0.42)	
Y1980	-0.05 (-1.09)	-0.04 (-1.04)	-0.06 (-2.35)**	-1.72 (-3.38)***	-1.48 (-4.17)***
Y1990	-0.01 (-0.12)	-0.01 (-0.14)	-	-1.24 (-2.20)**	-1.02 (-2.54)**
OLS	0.09 (2.45)**	0.08 (2.34)**	0.10 (3.51)***	0.22 (0.51)	-
TEST	0.20 (4.24)***	0.20 (4.20)***	0.22 (5.67)***	0.87 (1.50)	-
CORREL	0.01 (0.41)	0.01 (0.30)	-	-0.45 (-1.13)	-
DISCLOS	-0.14 (-3.18)***	-	-	-	-
REPUTA	0.19 (4.56)***	-	-	-	-
CSRVALUE	0.21 (4.11)***	-	-	-	-
STAKEHOLD	0.04 (1.01)	0.04 (1.03)	-	-0.26 (-0.49)	-
ENVIRON	-0.06 (-1.61)	-0.06 (-1.69)*	-0.06 (-1.96)**	0.31 (0.74)	-
CHARITA	-0.10 (-2.54)**	-0.09 (-2.38)**	-0.10 (-2.70)***	-0.16 (-0.34)	-
KLD	-0.09 (-1.87)*	-0.09 (-1.87)*	-0.07 (-1.97)**	-2.79 (-4.56)***	-3.05 (-6.51)***
MARKETB	-0.15 (-2.17)**	-	-	-	-
ACCOUNTB	-0.21 (-3.10)***	-0.21 (-3.04)***	-0.21 (-5.40)***	-2.80 (-3.33)***	-2.77 (-6.36)***
ROS	0.14 (3.87)***	0.14 (3.78)***	0.11 (3.45)***	1.37 (3.11)***	1.19 (3.13)***
ROI	0.06 (1.32)	0.06 (1.37)	-	0.13 (0.23)	-
ROA	0.10 (3.32)***	0.10 (3.24)***	0.07 (2.68)***	1.15 (3.16)***	0.94 (3.00)***
ROE	0.07 (1.95)*	0.07 (1.79)*	-	0.44 (0.88)	-
EMV	0.09 (1.64)*	0.10 (1.74)*	0.10 (1.89)*	0.59 (0.87)	-
RETURNS	-0.04 (-1.00)	-0.04 (-0.88)	-	-0.01 (-0.03)	-
Best Practice Effects					
DINDUST	0.05 (1.45)	0.05 (1.39)	-	-0.13 (-0.28)	-
DSIZE	0.01 (0.03)	0.01 (0.19)	-	-0.97 (-2.38)**	-1.10 (-3.14)***
DRISK	-0.05 (-0.74)	-0.05 (-0.76)	-	0.15 (0.18)	-
DRD	0.03 (0.05)	0.03 (0.06)	-	0.09 (0.10)	-

Interactions					
D ¥ MARKET	-	-0.31 (-3.29)***	-0.38 (-5.53)***	-3.11 (-2.64)***	-3.02 (-3.94)***
D ¥ ACCOUNT	-	-0.13 (-2.65)***	-0.13 (-2.76)***	-0.68 (-1.09)	-
R ¥ MARKET	-	0.03 (0.40)	-	0.63 (0.65)	-
R ¥ ACCOUNT	-	0.18 (4.21)***	0.18 (4.90)***	2.38 (4.59)***	2.04 (5.55)***
A ¥ MARKET	-	-0.15 (-2.13)**	-0.21 (-4.73)***	-2.12 (-2.41)**	-1.96 (-4.12)***
A ¥ ACCOUNT	-	-	-	-	-
CSR ¥ MARKET	-	0.22 (1.42)	-	-0.76 (-0.41)	-
CSR ¥ ACCOUNT	-	0.19 (3.42)***	0.16 (2.92)***	1.89 (2.75)***	1.91 (3.32)***
Adj R-squared	**0.30**	**0.40**	**0.41**	**0.56**	**0.57**
Number of Estimates	**373**	**373**	**373**	**373**	**373**

*, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. t-statistics in brackets. Y: Dependent variable.

The MSTMRA confirms that this effect is not simply due to artefact. It is not derived from publication bias nor from specification bias. Once publication and specification issues are controlled for, a genuine positive CSP-CFP effect remains. Hence, we conclude that all the available evidence establishes that CSP have a positive impact on corporate financial performance.

CONCLUSION AND FUTURE DIRECTIONS

We have presented findings from an additional meta-analysis of the CSP-CFP relationship literature. Exploiting the fact that there are more and more published articles and numerous estimates, we examined the influence of a number of factors on the relationship between CSP and CFP. Meta-regression analysis was used to assess the literature and to draw inferences from it. This research supports some current wisdom about the effects of CSP and extends our knowledge of the process in important ways. First, the meta-analysis provides some support for the conclusions reached by Orlitky, Schmidt & Rynes (2003). The results show conclusively that CSP has a positive impact on corporate financial performance and that this is strongest in the UK context. We can now make quite precise statements about the magnitude of the effect of CSP on financial performance. In addition, strong evidence exists for a consistent and substantial effect of research setting in these studies, because consideration of this methodological variable considerably reduces variance among studies. Our analysis indicates specific factors that may enhance or constrain the effect of CSP. For instance, there is evidence that CSP reputation indices has a more substantial effect on CFP and it appears that social disclosure does not have a strong effect on CFP.

Additionally, the existence of publication bias and specification bias was investigated. The results indicate that while some publication bias exists in this literature, its effects are moderate. That is, it is still possible to identify a genuine underlying positive effect of CSP on CFP. Specification effects were also identified with respect to industry, firm size, risk and R&D intensity. Where data is available, it is desirable to include firm size as control variables but it appears that studies that control for industry, risk and R&D do not find neither a smaller nor greater positive effect.

These conclusion provide some clear avenue for future research. Since the publication of Moskowitz in 1972, scholars have accumulated a wealth of empirical evidence on the effects of CSP. Unfortunately, these studies tend to be long on description but short in theoretical explanation. Theoretical model of CSP are partial which limit our understanding of what CSP do to CFP. Empirically based studies rarely engaged in any systematic way the theoretical models nor do they attempt to distinguish bet-

ween them. The development of innovative theoretical models calls for the recognition of multiple CSP dimensions. Our findings suggest that all CSP dimensions are not influenced by the same factors and that CSP dimensions do not affect financial performance in a similar manner. It is also important to use CSP measurements better anchored in the theory. In several existing studies, CSP measurements are based on a direct use of social or environmental ratings (for example, KLD ratings) without conceptual framework.

The search for a universal explanation of the relationship between CSP and CFP seems to be difficult to reach. Future research should rather pass by the recognition and the identification of the multiple contingency factors affecting the relationship between CSP and CFP. The identification of these mechanisms will thus permit to confound more specifically the link between CSP and CFP. There are also no reasons to believe that all stakeholders develop behaviors having the same financial consequences (Wood & Jones, 1995). Research contrasting the effects of different stakeholders in relation to specific issues on financial performance could lead to an important clarification of the impact of stakeholders. Recently, Greening & Turban (2000) suggest that some CSP dimensions affect the employee attractiveness of the firm, considering CSP as a competitive advantage in attracting a quality workforce.

More specifically, it is important for scholars to conduct research that can test the relationships between CSR values and attitudes and market-based measures, as relatively few studies have been conducted. Future research could also usefully consider the development of this relationship over time and institutional context. Conventional assumptions about CSP-CFP relationship should be recast in a broader international context, exploring new data-sets through a multi-theoretical approach. Finally, explicating nonrecursive effects – by estimating a structural equation model or by using a Two- or Three-stage Least Square (2 or 3SLS) Regression model – could further improve understanding by documenting how CFP has an impact on CFP and how CFP has an impact on CSP. These research directions also tie in with previous calls for longitudinal research that could help clarify the causal structure of the relationships between CSP and CFP (Margolis & Walsh, 2003; Orlitsky et al., 2003).

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NOTES

(1) These studies are not listed in Table 1. For a meta-analytic review of event studies, see Frooman (1997). For a recent review of studies on the relationship between SRI and market performance, see for example, Conine & Madden (1986) and Bauer, Koedijk & Otten (2002).

(2) Meta-analysis involves the identification and calculation of the association between variables of interest (known as 'effect size') by considering all the available literature. Hence, it is possible to combine these studies together as the effect size here is the association between CSP and CFP. The causal relationship is simply a theoretical hypothesis.

(3) Doucouliagos and Laroche (2003) recommend also using citations as weights (such as those from the Social Science Citation Index). Doing so does not change the conclusions drawn in the text.

(4) We also performed an effect size file drawer analysis to address the possibility of availability bias. The overall substantive conclusion of the meta-analysis does not change.

(5) We excluded one study (Maddox & Siegfried, 1980) for a better graphical presentation but it does not change the conclusion drawn from this funnel graph analysis.

(6) Card and Krueger (1995) and Stanley et al. (2004) point out that statistical theory predicts that the t-ratio will be related to the square root of degrees of freedom, such that E(lnltil) = _0 + _1lndfi . In a double log relationship with a genuine effect, _1=_.

(7) Stanley et al. (2004) recommend also the use of Funnel Asymmetry Tests (FAT). These tests are not reported here but are consistent with the results presented in the text.

(8) For a more detailed presentation of these measurements, see Orlitsky, Schmidt & Rynes (2003:408).

(9) A number of other variables were investigated also. For example, separate dummy variables were used for manufacturing and single industry. These were never statistically significant. Other interactive terms were included but these too were not statistically significant.