

1 **Firm Performance, Business Environment, and Outlook for Social**
2 **and Environmental Responsibility during the Economic Downturn:**
3 **Findings and Implications from the Forest Sector**
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7 **Eric Hansen (corresponding author)**

8 Professor of Forest Products Marketing
9 Department of Wood Science and Engineering
10 College of Forestry
11 Oregon State University
12 119 Richardson Hall
13 Corvallis, OR 97331
14 Eric.Hansen@oregonstate.edu
15

16 **Erlend Nybakk**

17 Researcher
18 Norwegian Forest and Landscape Institute
19 Postbox 115
20 1431 Ås, Norway
21 nye@skogoglandskap.no
22

23 **Rajat Panwar**

24 Assistant Professor of Management
25 Chapple Chair of Corporate Social Responsibility
26 Department of Management
27 1411 Ellis Ave
28 Northland College
29 Ashland, WI-54806, USA
30 rpanwar@northland.edu
31

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33

Abstract

34 The recent economic downturn severely affected the US forest sector from a macro-
35 economic perspective but little is known about changes in firm-level performance. In this
36 study we investigate the changes in financial, social and environmental performance of forest
37 sector firms during a period approximately corresponding to the downturn. We also assess
38 industry dynamism and industry's view about social and environmental responsibility as a
39 competitive tool. We conducted a national survey of wood, furniture and paper companies.
40 Approximately sixty percent of our respondents reported a decline in financial performance
41 during the downturn. With respect to social and environmental performance, customer
42 oriented actions show mixed trends, employee matters remained somewhat unaltered,
43 community engagement significantly decreased, and engagement in environmental activities
44 significantly increased. Respondents view their operating business environment as highly
45 dynamic and difficult and they do not view engagement in social and environmental
46 responsibility activities leading to either financial or non-financial benefits.

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Introduction

50 The forest sector, traditionally considered a relatively unsophisticated and low-growth
51 industry has experienced unprecedented changes in its fundamental character during recent
52 years. In the US particularly, the face of the industry has changed so dramatically during the
53 last decade that its long held identity is quickly fading. Many factors contributed to this
54 transformation and are discussed elsewhere in literature (Lee et al. 2011, Hansen and Juslin
55 2011, Cohen and Kozak 2002). Modern forest sector firms are increasingly market and
56 learning oriented (Han 2013, Nybakk 2012, Hansen et al. 2006), innovative (Nybakk, and
57 Jenssen 2012, Bull and Ferguson 2006, Hansen et al. 2007, Välimäki et al. 2004),
58 technologically adaptive (Hewitt et al. 2011, Könölä et al. 2011), and possess a strategic
59 outlook (Toppinen et al. 2013). In addition, forest sector firms have responded to a clarion
60 call for sustainability through effective integration of their financial, social, and environmental
61 objectives (Chen et al. 2011, Kozak 2013, Li and Toppinen 2011, Toppinen et al. 2012).

62

63 These promising trends notwithstanding, the advent of the Great Recession of 2008 and the
64 accompanying housing slump in the US (hereafter referred to as the Downturn and
65 discussed further in the Results) renewed interest in forest sector firms' ability to remain
66 competitive. Amidst widely reported firm closures and general financial distress surrounding
67 the industry (Hodges et al. 2011, Keegan et al. 2011), common conjectural judgments would
68 suggest that forest sector firms' financial performance has deteriorated, which in turn, may
69 imply that their social and environmental performance has also decreased (e.g., Orlitzky et
70 al. 2003). Prevalence of general financial distress in industry may also mean that the industry
71 context is viewed as highly dynamic which existing and new entrepreneurs often find unsafe
72 and uninviting (Khandwalla 76-77). In this situation individual firms focus on saving their core
73 operations and the goal of achieving competitiveness through social and environmental
74 responsibility may be eclipsed by a diffident posture (Latham & Braun, 2011). There is,

75 however, no study that formally assesses where forest sector firms stand relative to these
76 assumptions. The present study addresses this gap.

77

78 Overall, this descriptive study has three distinct objectives: (i) to assess the impact of the
79 Downturn on forest sector firms' financial, social, and environmental performance, (ii) to
80 assess the level of industry dynamism in the forest sector, and (iii) to assess how forest
81 sector firms' view social and environmental responsibility as a competitive tool. Together
82 these objectives advance empirical knowledge about forest sector firms which has both
83 managerial and policy implications.

84

85 This article is organized as follows: we first describe the methods employed for measuring
86 variables, and for collecting and analyzing the data. In accordance with the objectives of this
87 article, we do not provide an in-depth theoretical background since the purpose here is not to
88 test relationships among variables. We, however, tie our work with existing literature within
89 the results and discussion section, which follows the methods section. We bring closure to
90 the article by suggesting study implications both for practice and future research and outline
91 study limitations.

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Methods

95 In the following sub-sections we explain the methods employed in the study. First, we explain
96 the sample frame and sampling methodology. Next we discuss the various steps involving
97 measurement, questionnaire pretesting, pilot testing, and data collection. Then we describe
98 the analyses conducted to address study objectives.

99

100 **Sampling and Sample Frame**

101 We sought data from manufacturers with fifty or more employees from the wood products
102 (SIC 24), furniture (SIC 25) and paper (SIC 26) sectors and purchased a database made

103 commercially available by the North American Industrial Classification Association. 4120 total
104 firms from throughout the US met our criteria. The database included information about firm
105 size, year the firm was founded, and contact information of CEO/owner. For corporations that
106 had multiple manufacturing sites, firm level information was used. We divided the total
107 sample of 4120 firms into two groups—a randomly selected sample of 400 firms for
108 conducting a pilot study and 3720 firms for final data collection.

109

110 **Measures**

111 All items in the study were assessed using bi-polar, 7-point scales. Appendix A contains all
112 items used to assess the study variables.

113

114 ***Financial performance:*** Obtaining financial data from small firms is difficult. Therefore, we
115 assessed financial performance by adapting subjective measures that are recommended and
116 used in a number of previous studies assessing financial performance of small firms (e.g.,
117 Morgan and Strong 2003, Beal 2000, Dess and Robinson 1984). Specifically, we chose to
118 include in this study the following five items representing different aspects of financial
119 performance: Return on sales, return on investment, rate of sales growth, net profit, and cash
120 flow. Respondents were asked to indicate the changes that may have occurred in their firms
121 during the period between 2008 and 2011. The bi-polar scale consisted of two extremes (1=
122 increased, 7=decreased) and a mid-point (4=no noticeable change).

123

124 ***Social and environmental performance:*** Similar to financial performance, assessment of
125 social and environmental performance for small firms is a challenging endeavor for two
126 reasons. First, unlike large companies, most of which are publicly traded, small firms are not
127 required to report their social and environmental performance. Second, unlike large firms,
128 there is no accepted scheme to rate social and environmental performance of small firms.
129 Further, because social and environmental issues are typically context-specific (Carroll
130 1979), it is problematic to import issues from previous studies conducted in different industry

131 or temporal contexts. For this study, we first drew social and environmental items from
132 previous studies conducted in the forest sector (Han and Hansen 2013, Panwar and Hansen
133 2009). We further generated items from disparate quasi-academic sources to develop an
134 overall initial pool of 25 social and environmental items. Together these items covered four
135 stakeholder groups: customers, employees, community, and the environment. In order to
136 enhance temporal relevance of these items, we presented this list to a group of 329
137 professionals familiar with the US forest sector requesting them to rate items (1= not at all
138 important, 5=important to a great extent) that commonly represent voluntary social and
139 environmental activities in the US forest sector. These professionals were drawn from
140 academia, industry associations, non-governmental organizations, consulting firms, and state
141 and federal forestry agencies. A total of 37 responses (11% response rate) were received. In
142 total, 16 issues (four for each of the four stakeholder groups) were selected based on the
143 highest mean scores.

144
145 Upon conducting a pre-test and a pilot-test (discussed further below), wordings of the various
146 items were further changed and the number of items was reduced to 12. These 12 social and
147 environmental items were used to assess forest sector firms' social and environmental
148 performance in our final questionnaire. A 7-point scale with descriptive items representing the
149 two extremes (Appendix A) was used where the middle point 4 signified no noticeable
150 change. Questionnaire recipients were instructed to provide answers that reflected changes
151 occurred in their firms during the period 2008-2011.

152
153 **Industry dynamism:** Dynamism was measured using a scale originally developed by
154 Khandawala (1976-77), consisting of three items. This scale has been used widely in both
155 organizational theory and strategic management literature (Sim and Teoh 2011, Calantone et
156 al. 1997) and has consistently yielded good reliability. We asked potential respondents to
157 indicate the characteristics of their business environment for the time period 2008-2011.

158

159 ***Social and environmental responsibility as a competitive tool:*** There is no ready-to-use
160 scale for assessing whether firms' view social and environmental responsibility as a
161 competitive tool. We first developed an initial pool of items covering the various competitive
162 benefits that previous literature has identified with these activities (Hart and Ahuja 1996;
163 Kotler and Lee 2005). We divided competitive benefits into two categories comprising
164 financial and non-financial benefits. We identified 22 items and sent them to nine prominent,
165 business and society scholars. Upon two rounds of revisions, the number of items was
166 reduced to sixteen. Development of bi-polar statements further reduced the number to eight,
167 three in financial benefits and five in non-financial benefits categories. Social and
168 environmental responsibility was defined as, "a set of activities in product/customers,
169 employees, communities, and environmental matters which are not required by law but which
170 a firm may voluntarily engage in". Respondents were asked to indicate how they viewed
171 whether engagement in social and environmental responsibility helped (or not) an average
172 firm in their industry in reaping various competitive benefits.

173

174 **Pretesting and pilot testing**

175 The survey instrument was both pre-tested and pilot tested for refining existing measures
176 and for developing new measures. Pre-tests were conducted using two separate
177 conveniently selected small samples involving ten academic colleagues and six industry
178 representatives. The academic sample suggested minor changes but feedback from the
179 industry sample led us to make substantive changes to the wordings and formatting of
180 questions for improving readability and reducing potential for misinterpretation.

181

182 The pilot test was conducted using a randomly selected sample of 400 firms from the overall
183 database and we received a total of 21 responses. Some respondents left subjective
184 comments which were incorporated into item refinement. Notably, one item was added to the
185 list of items for assessing potential benefits of engagement in social and environmental
186 performance activities based on respondents' feedback.

187 **Data collection**

188 Data were collected following the general principles of the Tailored Design Method (Dillman
189 2007). After accounting for undeliverables, a total of 3,408 questionnaires were sent. Four
190 hundred and forty one valid responses were received for an adjusted response rate of 13%.
191 The potential for non-response bias was tested by comparing early versus late respondents
192 (n=100) as recommended by Armstrong and Overton (1977) and by comparing metrics from
193 the database provider. Comparisons were made with respect to company size measured by
194 sales and number of employees. We found no significant differences between early and late
195 respondents. We did find a statistically significant difference between respondents and non-
196 respondents with respect to number of employees. However, there was no statistical
197 difference with respect to company sales. This evidence suggests larger firms may be
198 underrepresented in our study.

199

200 **Data analysis**

201 Consistent with the objectives of this study, descriptive statistical analyses were performed
202 using SPSS 17.0 software. The data were first thoroughly error checked. One-sample t-tests
203 were conducted to assess whether reported changes were significant from a no-change mid-
204 point on the various scales.

205

206 **Results and Discussion**

207 **Financial performance**

208 Our study period approximately corresponds to the Downturn period for forest sector firms.
209 From peak levels in 2005, census data shows significant decline in the forest sector's macro-
210 economic performance. Housing starts fell from all-time highs in 2005 to all-time lows in
211 2009, with the overall housing market falling by nearly 75% (Ince and Nepal 2012). The total
212 employment in wood and furniture sectors plummeted from approximately 1.3 million in 2008
213 to approximately 990,000 in 2011. Similarly, total value of shipments dropped from

214 approximately \$346 billion in 2008 to \$309 billion in 2011 (US Census 2013). The paper
215 sector also shed nearly 60,000 jobs between 2008 and 2011 and the fall in its value of
216 shipments was by \$3 billion to \$176 billion (US Census 2013). Thus, macroeconomic impacts
217 of forest sector decline during the study period have been profound with wood products and
218 furniture sectors experiencing particularly significant decline.

219

220 Our results indicate that firm level financial performance was not, however, comparably
221 dismal. Only approximately 60% of our sample respondents reported a decrease in their
222 financial performance. Thirty-six percent of sample respondents reported no change while
223 4% reported an increase. On average, however, the change in performance was significantly
224 negative (Table 1). The wood sector experienced the largest decrease followed by the
225 furniture sector. The paper sector clearly fared better and did not show any significant
226 change in its financial performance. We speculate that because demand in the wood and
227 furniture sectors is highly dependent upon the housing market, the two sectors may have
228 been hit harder by the downturn than the paper sector.

229

230 Among the various measures of financial performance, net profit was hit the worst for wood
231 sector companies. This may have happened due to increased cost as a direct result of
232 scaled down operations. More prominently, however, we speculate net profits were hit by
233 decreased revenues due to both fallen volumes and prices across most wood products
234 categories.

235

236 Another key measure of financial performance, return on investment, significantly decreased
237 for wood and furniture companies. Since return on investment reflects a firm's financial
238 attractiveness to potential lenders and has implications for the long-term financial health of a
239 firm, an overall decrease in return on investment may adversely affect wood and furniture
240 firms' ability to secure financing.

241

242 *****Table 1*****

243

244 **Social and environmental performance**

245 Table 2 outlines 12 items spanning various social and environmental issues. Concerning
246 customer issues, each of the three industry sub-sectors reported a decrease in selling price
247 of products for the same level of quality, thus suggesting an increase in price affordability.
248 However, a decrease in prices may be reflective of changed consumer spending capacity
249 during the study period and thus unlikely reflects a deliberate industry effort to increase the
250 price affordability of quality products. Relative to customer service quality, paper sector firms
251 claimed significant improvement but other sectors did not report any significant changes. The
252 pattern was similar with respect to promotion of recycling among consumers; the paper
253 sector significantly increased its efforts while the other sectors were largely unchanged. This
254 pattern is not surprising given the inherent recyclability and the relatively shorter life of paper
255 products compared to wood products and furniture. Also, the paper industry has historically
256 been ahead of the curve in promoting recycling among consumers.

257

258 In matters of employees concerns, non-salary benefits were significantly curtailed but worker
259 compensation remained generally steady except for the paper sector where, a slight increase
260 was reported. Juxtaposing these results with the overall decrease in employment in the
261 sector suggest two possible scenarios, either forest sector firms may have chosen to
262 downsize the workforce rather than reducing their employee salaries (or work hours) as has
263 been suggested by several recession strategists (Heifetz et al. 2009), or the decline in
264 employment may have happened due to mill closures which we have not captured in this
265 study.

266

267 Overall, firms also did not report any changes in their efforts to improve workforce diversity,
268 which, beyond ethical considerations, is now also well understood as an important
269 antecedent of firm performance (Richard 2000). Diversity promotion in the forest sector is a

270 complex issue for a variety of reasons. Effective measures to promote diversity across the
271 various hierarchical levels and across the various skill categories would entail innovative
272 approaches and careful goal setting.

273

274 In matters of community engagement, wood sector firms reported significant reductions in
275 their in-kind and cash contributions to community programs and projects and their support to
276 non-profits. This trend is not surprising since philanthropic contributions are closely tied to
277 financial performance and wood sector firms did indeed report significant decline in their
278 financial performance. Paper firms did not report any significant changes in their community
279 engagement which befits the unaltered financial performance they reported. Interestingly,
280 however, furniture firms reported no changes in their community engagement despite a
281 reported decline in their financial performance.

282

283 In the environment domain, firms from all three sectors reported improvement in energy
284 efficiency and waste management systems. Given recent increases in energy prices,
285 investments to improve efficiency are understandable despite the Downturn. In addition, an
286 ongoing impetus for reducing energy consumption and minimizing carbon dioxide (CO₂)
287 emissions (IEA, 2011) may have led to improvement in energy efficiency. Notably, concerns
288 for the environment and energy efficiency are now well recognized for enlisting political and
289 government support (White et al. 2013), promise new market development (Pinkse and
290 Dommissie, 2009) and are therefore increasingly ingrained in a variety of business decisions
291 (Pinkse and Kolk, 2009). Therefore, we expect that there was sufficient external impetus for
292 improvement in energy efficiency during and around the study period. Also, we speculate that
293 improvements in waste management may have targeted improved returns through efficiency
294 gains, development of markets for waste products, and reduction of disposal costs. Furniture
295 and paper companies also increased the proportion of their products that were eco-labeled.

296

297 *****Table 2*****

298

299 **Industry dynamism**

300 The industry context was reported to be highly dynamic wherein business risks remained
301 high, return on investments low, and firms were left with limited ability to control and
302 counteract political, technological, competitive, and international forces facing them. The
303 paper sector firms reported the least turbulence of the three sectors. Notably, the difficulty of
304 obtaining returns on investment was the highest area of concern across the sectors. Overall,
305 respondents felt that their industry context was such that it was hard to stay afloat.

306

307 This kind of challenging operating context can have myriad implications both for individual
308 firms and for an industry. High dynamism may lead to industry decline where. "...all ships are
309 sinking at the same time, but not at the same rate" (Bozeman 2010). Firms may respond to
310 industry decline by retreating/retrenching or by searching for and implementing innovative
311 responses (McKinley et al. 2013). The need for innovation in forest sector firms is primarily
312 described taking a firm performance perspective (Hansen et al. 2007), our results indicate at
313 that need from an industry dynamism perspective. In this sense, we argue that industry
314 dynamism, while presenting challenges to firms especially during financially squeezed times,
315 also brings opportunities for firms to develop innovative ways to better match their strategies,
316 structures, and processes to adapt to an evolving business environment for industry renewal
317 and improved organizational performance (Goll and Rasheed 2004, Miles et al. 1978).

318

319 *****Table 3*****

320

321 ***Social and environmental responsibility as a competitive tool:*** Originally the concept of
322 social and environmental responsibility emerged within an ethical framework, but is now also
323 touted as a means to superior performance and a source of competitive advantage (Porter
324 and Kramer 2006). A large number of studies assume that firms engage in social and
325 environmental responsibility to the extent doing so offers them various competitive benefits

326 (Carroll and Shabana 2010, Porter and Kramer 2006, Weber 2008). Following this
327 assumption, views about social and environmental responsibility as a competitive tool may
328 well be an indicator of outlook for social and environmental responsibility in an industry.

329
330 Our results (Table 4) indicate that forest sector firms do not see engagement in social and
331 environmental responsibility helping them reap any competitive benefit—neither related to
332 direct financial benefits or non-financial benefits. In fact, the average views, especially with
333 respect to potential for financial benefits, were so negative that we returned to the data to see
334 what proportion, if any, were positive about potential benefits of social and environmental
335 responsibility. A great many respondents were neutral about competitive benefits of
336 engagement in social and environmental responsibility; they viewed social and environmental
337 responsibility as neither beneficial nor harmful to businesses. To illustrate, nearly 60% of
338 respondents were neutral with respect to the potential for social and environmental
339 responsibility in improving a firm's access to capital. The proportion of respondents providing
340 overall positive evaluations ranged from 12% to 35% within our sample. The two items that
341 were rated least negatively for their potential were access to capital and brand building. The
342 most negative potential was associated with commanding premium prices through social and
343 environmental responsibility. On balance, potential for non-financial benefits were viewed
344 less negatively relative to financial benefits, especially by furniture firms.

345
346 Overall these results are intriguing in the light of ongoing sustainability debates in the forest
347 sector. On one hand, there is enough evidence that forest sector firms are increasingly
348 engaging in social and environmental responsibility (Han and Hansen 2013, Li and Toppinen
349 2011, Mikkilä and Toppinen 2008), and on the other hand we found that they do not view this
350 engagement yielding business benefits. We offer several explanations for this disconnect.

351
352 Firstly, it is likely that forest sector firms are pursuing social and environmental responsibility
353 for intrinsic, ethical motivations transcending an instrumental view. This argument is

354 consistent with Kozak's (2013) recent observations about the forest sector taking ethical
355 stewardship in sustainability oriented behavior.

356

357 Secondly, it is also plausible that forest sector firms are failing to recognize that engagement
358 in social and environmental responsibility may yield numerous competitive benefits as has
359 been reported elsewhere (Hart and Ahuja, 1996, Porter and van der Linde 1995). Despite
360 recent findings (e.g., Schreiber 2012) of forest certification commanding price premiums,
361 there is a perception in industry that certification has little benefit (Han 2013) and this may
362 have also colored industry perception of potential benefits of social and environmental
363 responsibility and thus industry might have developed a cautious posture toward proclaimed
364 benefits of social and environmental responsibility. If this is true, industry sensitization to
365 strategic social and environmental responsibility would be an apt choice for enabling firms to
366 tie responsibility/sustainability oriented activities with their overall business strategies rather
367 than pursuing them as an ad-hoc set of activities geared to promote social and environmental
368 well-being. Being good can also translate to doing well.

369

370 Thirdly, sampling inconsistencies and measurement errors may explain a disconnection
371 between increasing engagement in social and environmental responsibility and a rather grim
372 view of associated potential benefits. It must be noted that previous studies documenting an
373 increase in forest sector firms' engagement in social and environmental responsibility were
374 conducted in a large firm context, which may be underrepresented in our sample. Large firms
375 may view benefits accruing from social and environmental responsibility much differently than
376 small firms because of both their exposure to risk and capacity to reap benefits. Also,
377 because we used means as an overall estimator of potential benefits, fewer strong negative
378 responses may mitigate moderate positive responses leading to a partially hidden view.

379

380 *****Table 4*****

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Study Implications and Limitations

The financial performance of firms during the study period was not as dismal as would be suggested by the overall economic impact reflected by declining employment and value of shipments during the Downturn. On balance, the industry indeed reported a statistically significant (except for paper sector) yet moderate decrease in financial performance. Also, approximately forty percent of our sample respondents reported either a stable financial performance or even a slight increase.

In part, a rather weak coincidence between economic impact and financial performance can be explained by only a partial overlap between the study period and the official duration of the recession. Previous literature (Gulati et al. 2010, Panwar et al. 2013) suggests that a variety of strategies are available for firms to mitigate potential financial threats during an economic recession and we believe that forest sector firms did a reasonable job of buffering themselves against the financial implications of economic recession. It must not be forgotten that forest sector had experienced a turbulent phase much earlier than the Downturn or the study period and therefore we speculate that survivors of previously prevailing rough weather were fit and well-prepared to combat the recession. In the post-Downturn period, we would expect these survivors to do extraordinarily well as demand for products increases and the supply base remains limited.

An assumption that economic recession necessarily brings industry financial performance down may not be well founded. Previous studies show that this effect can be mitigated by the presence of organizational slack (Latham and Braun 2008) and organizational foresight (Navarro 2009, 2004). Our results align with previous research and provide further evidence that a great many firms in fact can fare well during periods of economic recession. Future research should focus on assessing the effect of firm preparedness on financial performance during recessionary periods.

409

410 Engagement in social and environmental activities also showed mixed results. Here, it must
411 be noted that a number of environmental activities have become economic imperatives and
412 thus may render blurred the boundaries between firms' financially oriented and socio-
413 environmentally oriented actions. Forest sector firms improved their energy efficiency and
414 waste management practices but this may have happened due to efficiency related impetus
415 or policy backed offers. Worker compensation was largely unaffected or even increased but
416 firms continued to fail to address issues of workforce diversity. Our results are also consistent
417 with existing CSR literature suggesting that firms prioritize their responsibility actions
418 differently in different industry contexts. Extending our work, future research may develop
419 qualitative frameworks to understand firms' patterns and motivations to prioritize their social
420 and environmental responsibility activities.

421

422 Industry dynamism is high in the forest sector. Previous research has established that high
423 dynamism may adversely affect firm performance. We argue that dynamism in a traditional
424 sector is a good development and is a stepping stone toward industry renewal. This study is
425 the first to assess industry dynamism in the forest sector, but we used only one measure for
426 assessment. Future studies must broaden the measurement criteria by using other measures
427 and also unravel through focused qualitative studies the various underpinnings of industry
428 dynamism.

429

430 Overall, responding forest sector firms do not view engagement in social and environmental
431 responsibility as offering competitive benefits. Do we conclude that they will be therefore less
432 likely to engage in social and environmental responsibility? Following the popular
433 instrumental view of business engagement in social responsibility, this conclusion would be
434 apt. However, we argue that the instrumental view may not hold well in a natural resource
435 sector where industry legitimacy is intimately related to non-financial performance, especially
436 in the environmental realm. Business and Society scholars would find it useful to examine

437 separately the motivations of social and environmental responsibility in natural resource
438 industries relative to other industries. Our contention is that for forest sector firms, social and
439 environmental responsibility is more sacrosanct in nature than the instrumental view
440 captures. This being said, we also believe that forest sector firms must try to leverage their
441 engagement in social and environmental responsibility for reaping various business benefits.

442

443 The main contributions of this study are threefold: examination of financial, social, and
444 environmental performance during the study period that approximates the Downturn offers
445 results that are generally counter intuitive. Higher dynamism suggests, prima facie, high odds
446 against business performance but in a traditional sector we argue it is a healthy symptom for
447 industry renewal. Finally, engagement in social and environmental responsibility in the forest
448 sector seems to emanate more from ethical than instrumental motivations.

449

450 Future studies must account for limitations of our study. First of all, our response rate is
451 slightly lower than what is typical of other studies in the sector. Engagement and motivations
452 for social and environmental responsibility is a sensitive topic and we cannot rule out the
453 possibility of a social desirability bias even though we designed the survey to minimize this
454 potential. For example, we specifically avoided asking respondents to compare their
455 performance with others. Similarly, we asked them to assess potential benefits of social and
456 environmental responsibility for their industry segment in general and not for their firms. We
457 are confident that social desirability bias was minimized, but future studies must explicitly
458 check for this bias (King and Brunner 2000, Randall and Fernandes 1991). Furthermore, we
459 assessed changes in different activities associated with social and environmental
460 responsibility without knowing the previous base that firms were operating at. In other words,
461 firms that were already ahead of the curve may not have reported significant changes despite
462 a high level of performance. The reach of our results is also restricted by the possible
463 underrepresentation of large firms and by the fact that firms that survived through the

464 Downturn cannot reflect the situation with the many companies that went bankrupt prior to
465 our data collection.
466

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667 **Table 1: Changes in Financial Performance of Responding Firms during 2008-2011**

	Wood Products			Furniture			Paper Products			Forest Sector ¹		
	Mean	SD ²	Diff	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff
Return on Sales	3.02	1.66	- **	3.30	1.63	- **	3.95	1.59	NS	3.43	1.68	- **
Return on Investment	3.04	1.66	- **	3.33	1.69	- **	3.95	1.55	NS	3.44	1.67	- **
Rate of Sales Growth	3.22	1.72	- **	3.47	1.99	- *	3.86	1.61	NS	3.51	1.75	- **
Net Profit	2.99	1.91	- **	3.37	1.78	- **	3.93	1.75	NS	3.42	1.87	- **
Cash Flow	3.32	1.88	- **	3.37	1.70	- **	4.18	1.64	NS	3.66	1.80	- **
Composite Financial Performance	3.12	1.56	- **	3.36	1.58	- **	3.98	1.42	NS	3.50	1.56	- **

668 N in Wood Products=191-192, N in Furniture=76, N in Paper Products=168-169

669 ¹ combination of wood products, furniture, and paper products

670 ² significantly different from scale midpoint representing "no change"; *=5%, **=1%

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673 **Table 2: Changes in Social and Environmental Performance of Responding Firms during 2008-2011**

	Wood Products			Furniture			Paper Products			Forest Sector ¹		
	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff
Customers												
Product affordability	3.14	1.63	- **	3.46	1.45	- **	3.56	1.57	- **	3.36	1.58	- **
Customer service quality	4.01	1.43	NS	4.08	1.60	NS	4.38	1.49	+ **	4.16	1.49	+ *
Promotion of recycling	4.06	1.25	NS	4.19	1.24	NS	4.57	1.55	+ **	4.28	1.39	+ **
Employees												
Worker compensation	3.96	1.49	NS	3.95	1.55	NS	4.27	1.63	+ *	4.08	1.56	NS
Workforce diversity	3.99	.80	NS	4.05	.85	NS	4.04	.78	NS	4.02	.80	NS
Worker non-salary benefits	3.50	1.30	- **	3.89	1.43	NS	4.12	1.29	NS	3.81	1.35	- **
Community												
In-kind community contributions	3.48	1.43	- **	3.97	1.23	NS	4.03	1.12	NS	3.78	1.31	- **
Cash community contributions	3.30	1.49	- **	3.97	1.36	NS	3.97	1.28	NS	3.68	1.43	- **
Non-profit support	3.39	1.50	- **	3.92	1.36	NS	3.96	1.28	NS	3.70	1.42	- **
Environment												
Energy efficiency	4.53	1.10	+ **	4.66	1.23	+ **	4.85	1.25	+ **	4.67	1.19	+ **
Proportion of eco-labeled products	4.11	1.02	NS	4.36	1.23	+ *	4.49	1.18	+ **	4.30	1.13	+ **
Waste management	4.41	1.05	+ **	4.57	1.24	+ **	4.75	1.30	+ **	4.57	1.19	+ **

674 N in Wood Products=189-193, N in Furniture=74-76, N in Paper Products=166-169

675 ¹ combination of wood products, furniture, and paper products676 ² significantly different from scale midpoint representing "no change"; *=5%, **=1%

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680 **Table 3: Industry Dynamism Reported by Responding Firms during 2008-2011**

	Wood Products			Furniture			Paper Products			Forest Sector ¹		
	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff
Business Risk	4.97	1.67	+ **	4.87	1.56	+ **	4.14	1.67	NS	4.63	1.69	+ **
Difficulty of Obtaining Returns	5.22	1.56	+ **	4.97	1.49	+ **	4.38	1.58	+ **	4.85	1.60	+ **
Inability to Control Environment	5.09	1.57	+ **	4.92	1.47	+ **	4.30	1.61	+ *	4.75	1.61	+ **
Overall Dynamism	5.09	1.41	+ **	4.93	1.35	+ **	4.27	1.42	+ *	4.75	1.45	+ **

681 N in Wood Products=191-192, N in Furniture=76-77, N in Paper Products=168-169

682 ¹ combination of wood products, furniture, and paper products683 ² significantly different from scale midpoint with higher values being relatively higher dynamism; * =5%, ** =1%

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686 **Table 4: Potential Financial and Non-financial Benefits of Social and Environmental Responsibility**
 687 **Activities**

	Wood Products			Furniture			Paper Products			Forest Sector		
	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff	Mean	SD	Diff
Potential to reduce cost	3.33	1.30	- **	3.36	1.38	- **	3.66	1.32	- **	3.46	1.33	- **
Potential to command premium price	2.85	1.37	- **	2.99	1.43	- **	3.17	1.41	- **	3.00	1.40	- **
Potential to improve access to capital	3.71	1.12	- **	3.71	1.06	- *	3.70	1.15	- **	3.70	1.12	- **
Total Financial	3.30	1.08	- **	3.36	1.19	- **	3.51	1.09	- **	3.40	1.10	- **
Potential to develop new markets	3.29	1.56	- **	3.59	1.48	- *	3.39	1.60	- **	3.38	1.56	- **
Potential to enhance market intelligence	3.46	1.54	- **	3.79	1.48	NS	3.47	1.46	- **	3.52	1.50	- **
Potential to mitigate reputational risk	3.32	1.49	- **	3.61	1.47	- *	3.51	1.35	- **	3.44	1.43	- **
Potential to attract and retain employees	3.37	1.53	- **	3.72	1.65	NS	3.67	1.54	- **	3.55	1.56	- **
Potential to contribute to brand building	3.57	1.57	- **	3.76	1.58	NS	3.89	1.55	NS	3.73	1.57	- **
Total Non-financial	3.40	1.31	- **	3.69	1.29	- *	3.59	1.25	- **	3.52	1.29	- **

688 N in SIC 24=189-192, N in SIC 25=75-76, N in SIC 26=168-169

689 *=5%, **=1%

690 ¹ combination of wood products, furniture, and paper products

691 ² significantly different from scale midpoint representing "no change"; *=5%, **=1%

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Appendix A: Specific Wording of Measurement Items

Customer Oriented Responsibility Issues	
For the same level of quality, selling prices of our products increased	For the same level of quality, selling prices of our products decreased
We added new staff/software/training programs to improve our customer service quality	We cut back staff/software/training programs related to customer service quality
We increased our efforts to promote among customers/consumers recycling of our products/packaging	We cut back our efforts to promote among customers/consumers recycling of our products/packaging
Employee Oriented Responsibility Issues	
Our workers' compensation levels increased	Our workers' compensation levels decreased
Initiatives to improve diversity (gender, ethnic, etc.) among our employees were introduced/increased	Initiatives related to diversity were cut back
We increased our workers' non-salary benefits	We cut back our workers' non-salary benefits
Community Oriented Responsibility Issues	
In-kind contribution to community programs/events increased	In-kind contribution to community programs/events decreased
We increased our cash contribution to community programs/events	We cut back the amount of cash contribution to community programs/events
We increased our support to non-profits	We cut back our support to non-profits
Environment Oriented Responsibility Issues	
Overall, our energy efficiency improved	Overall, our energy efficiency worsened
We increased the proportion of eco-labeled products in our total production output	We reduced the proportion of eco-labeled products in our total production output
Our waste management system improved	Our waste management system worsened
Industry Dynamism	
Apart from the effect of the economic downturn, our business environment has been safe, with little threat to our survival and well-being	During this period our business environment has been very risky, one false step could mean our undoing
Our business environment has been generally amicable and has been offering rich returns on investments	Our business environment has been very stressful and hostile. It has been hard to stay afloat
We could control and manipulate our business environment to our advantage	Our initiatives counted for very little against tremendous political, technological, competitive, or international forces
Potential Financial Benefits of Social and Environmental Activities	
In our industry, because of the costs involved, social responsibility activities increase firms' financial burden	Social responsibility activities are financially rewarding because they help firms mitigate several types of costs

In our industry, social responsibility activities increase firms' financial burden because associated costs can seldom be passed to customers	Social responsibility activities are financially rewarding because they can help firms command a price premium
In our industry, social responsibility activities limit firms' access to capital because lenders or investors often see such firms as poor investments	Social responsibility activities increase firms' access to capital because these activities make firms more attractive to lenders or investors
Potential Non-financial Benefits of Social and Environmental Activities	
In our industry, engagement in socially responsible activities generally doesn't help firms to find new customers or markets	Social responsibility activities help firms in finding new customers or markets because a considerable number of customers prefer to buy from firms that engage in such activities
In our industry, engagement in social responsibility activities generally doesn't help firms develop any new knowledge about society or markets beyond what they already know	Engaging in socially responsible activities helps firms better understand their social context which also helps them better understand their markets
In our industry, as long as firms are following the law, their external risks (possibility of a media attack, NGO protests etc.) remain the same whether or not they engage in social responsibility activities	By engaging in socially responsible activities firms develop goodwill which protects them from many external risks (possibility of a media attack, NGO protests etc.)
In our industry, engagement in social responsibility generally doesn't help firms attract better talent or reduce turnover	By engaging in social responsibility activities firms may attract better talent or reduce turnover
In our industry, engagement in social responsibility activities is not a very helpful tool for firms for building their brands	Engagement in social responsibility activities is a key component of brand-building for firms