Firm Performance, Business Environment, and Outlook for Social and Environmental Responsibility during the Economic Downturn: Findings and Implications from the Forest Sector

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Abstract

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

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

These promising trends notwithstanding, the advent of the Great Recession of 2008 and the accompanying housing slump in the US (hereafter referred to as the Downturn and discussed further in the Results) renewed interest in forest sector firms’ ability to remain competitive. Amidst widely reported firm closures and general financial distress surrounding the industry (Hodges et al. 2011, Keegan et al. 2011), common conjectural judgments would suggest that forest sector firms’ financial performance has deteriorated, which in turn, may imply that their social and environmental performance has also decreased (e.g., Orlitzky et al. 2003). Prevalence of general financial distress in industry may also mean that the industry context is viewed as highly dynamic which existing and new entrepreneurs often find unsafe and uninviting (Khandwalla 76-77). In this situation individual firms focus on saving their core operations and the goal of achieving competitiveness through social and environmental responsibility may be eclipsed by a diffident posture (Latham & Braun, 2011). There is,
however, no study that formally assesses where forest sector firms stand relative to these assumptions. The present study addresses this gap.

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

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

**Methods**

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

**Sampling and Sample Frame**

We sought data from manufacturers with fifty or more employees from the wood products (SIC 24), furniture (SIC 25) and paper (SIC 26) sectors and purchased a database made
commercially available by the North American Industrial Classification Association. 4120 total firms from throughout the US met our criteria. The database included information about firm size, year the firm was founded, and contact information of CEO/owner. For corporations that had multiple manufacturing sites, firm level information was used. We divided the total sample of 4120 firms into two groups—a randomly selected sample of 400 firms for conducting a pilot study and 3720 firms for final data collection.

**Measures**

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

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

**Social and environmental performance:** Similar to financial performance, assessment of social and environmental performance for small firms is a challenging endeavor for two reasons. First, unlike large companies, most of which are publicly traded, small firms are not required to report their social and environmental performance. Second, unlike large firms, there is no accepted scheme to rate social and environmental performance of small firms. Further, because social and environmental issues are typically context-specific (Carroll 1979), it is problematic to import issues from previous studies conducted in different industry
or temporal contexts. For this study, we first drew social and environmental items from previous studies conducted in the forest sector (Han and Hansen 2013, Panwar and Hansen 2009). We further generated items from disparate quasi-academic sources to develop an overall initial pool of 25 social and environmental items. Together these items covered four stakeholder groups: customers, employees, community, and the environment. In order to enhance temporal relevance of these items, we presented this list to a group of 329 professionals familiar with the US forest sector requesting them to rate items (1= not at all important, 5=important to a great extent) that commonly represent voluntary social and environmental activities in the US forest sector. These professionals were drawn from academia, industry associations, non-governmental organizations, consulting firms, and state and federal forestry agencies. A total of 37 responses (11% response rate) were received. In total, 16 issues (four for each of the four stakeholder groups) were selected based on the highest mean scores.

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

Industry dynamism: Dynamism was measured using a scale originally developed by Khandawala (1976-77), consisting of three items. This scale has been used widely in both organizational theory and strategic management literature (Sim and Teoh 2011, Calantone et al. 1997) and has consistently yielded good reliability. We asked potential respondents to indicate the characteristics of their business environment for the time period 2008-2011.
Social and environmental responsibility as a competitive tool: There is no ready-to-use scale for assessing whether firms' view social and environmental responsibility as a competitive tool. We first developed an initial pool of items covering the various competitive benefits that previous literature has identified with these activities (Hart and Ahuja 1996; Kotler and Lee 2005). We divided competitive benefits into two categories comprising financial and non-financial benefits. We identified 22 items and sent them to nine prominent, business and society scholars. Upon two rounds of revisions, the number of items was reduced to sixteen. Development of bi-polar statements further reduced the number to eight, three in financial benefits and five in non-financial benefits categories. Social and environmental responsibility was defined as, “a set of activities in product/customers, employees, communities, and environmental matters which are not required by law but which a firm may voluntarily engage in”. Respondents were asked to indicate how they viewed whether engagement in social and environmental responsibility helped (or not) an average firm in their industry in reaping various competitive benefits.

Pretesting and pilot testing

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

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

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

**Data analysis**

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

**Results and Discussion**

**Financial performance**

Our study period approximately corresponds to the Downturn period for forest sector firms. From peak levels in 2005, census data shows significant decline in the forest sector’s macro-economic performance. Housing starts fell from all-time highs in 2005 to all-time lows in 2009, with the overall housing market falling by nearly 75% (Ince and Nepal 2012). The total employment in wood and furniture sectors plummeted from approximately 1.3 million in 2008 to approximately 990,000 in 2011. Similarly, total value of shipments dropped from
approximately $346 billion in 2008 to $309 billion in 2011 (US Census 2013). The paper
sector also shed nearly 60,000 jobs between 2008 and 2011 and the fall in its value of
shipments was by $3 billion to $176 billion (US Census 2013). Thus, macroeconomic impacts
of forest sector decline during the study period have been profound with wood products and
furniture sectors experiencing particularly significant decline.

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

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

Another key measure of financial performance, return on investment, significantly decreased
for wood and furniture companies. Since return on investment reflects a firm's financial
attractiveness to potential lenders and has implications for the long-term financial health of a
firm, an overall decrease in return on investment may adversely affect wood and furniture
firms' ability to secure financing.
Table 1 outlines 12 items spanning various social and environmental issues. Concerning customer issues, each of the three industry sub-sectors reported a decrease in selling price of products for the same level of quality, thus suggesting an increase in price affordability. However, a decrease in prices may be reflective of changed consumer spending capacity during the study period and thus unlikely reflects a deliberate industry effort to increase the price affordability of quality products. Relative to customer service quality, paper sector firms claimed significant improvement but other sectors did not report any significant changes. The pattern was similar with respect to promotion of recycling among consumers; the paper sector significantly increased its efforts while the other sectors were largely unchanged. This pattern is not surprising given the inherent recyclability and the relatively shorter life of paper products compared to wood products and furniture. Also, the paper industry has historically been ahead of the curve in promoting recycling among consumers.

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

Overall, firms also did not report any changes in their efforts to improve workforce diversity, which, beyond ethical considerations, is now also well understood as an important antecedent of firm performance (Richard 2000). Diversity promotion in the forest sector is a
complex issue for a variety of reasons. Effective measures to promote diversity across the
various hierarchical levels and across the various skill categories would entail innovative
approaches and careful goal setting.

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

In the environment domain, firms from all three sectors reported improvement in energy
efficiency and waste management systems. Given recent increases in energy prices,
investments to improve efficiency are understandable despite the Downturn. In addition, an
ongoing impetus for reducing energy consumption and minimizing carbon dioxide (CO$_2$)
emissions (IEA, 2011) may have led to improvement in energy efficiency. Notably, concerns
for the environment and energy efficiency are now well recognized for enlisting political and
government support (White et al. 2013), promise new market development (Pinkse and
Dommisse, 2009) and are therefore increasingly ingrained in a variety of business decisions
(Pinkse and Kolk, 2009). Therefore, we expect that there was sufficient external impetus for
improvement in energy efficiency during and around the study period. Also, we speculate that
improvements in waste management may have targeted improved returns through efficiency
gains, development of markets for waste products, and reduction of disposal costs. Furniture
and paper companies also increased the proportion of their products that were eco-labeled.

******Table 2******
Industry dynamism

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

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

*******Table 3******

Social and environmental responsibility as a competitive tool: Originally the concept of social and environmental responsibility emerged within an ethical framework, but is now also touted as a means to superior performance and a source of competitive advantage (Porter and Kramer 2006). A large number of studies assume that firms engage in social and environmental responsibility to the extent doing so offers them various competitive benefits
(Carroll and Shabana 2010, Porter and Kramer 2006, Weber 2008). Following this assumption, views about social and environmental responsibility as a competitive tool may well be an indicator of outlook for social and environmental responsibility in an industry.

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

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

Firstly, it is likely that forest sector firms are pursuing social and environmental responsibility for intrinsic, ethical motivations transcending an instrumental view. This argument is
consistent with Kozak’s (2013) recent observations about the forest sector taking ethical stewardship in sustainability oriented behavior. Secondly, it is also plausible that forest sector firms are failing to recognize that engagement in social and environmental responsibility may yield numerous competitive benefits as has been reported elsewhere (Hart and Ahuja, 1996, Porter and van der Linde 1995). Despite recent findings (e.g., Schreiber 2012) of forest certification commanding price premiums, there is a perception in industry that certification has little benefit (Han 2013) and this may have also colored industry perception of potential benefits of social and environmental responsibility and thus industry might have developed a cautious posture toward proclaimed benefits of social and environmental responsibility. If this is true, industry sensitization to strategic social and environmental responsibility would be an apt choice for enabling firms to tie responsibility/sustainability oriented activities with their overall business strategies rather than pursuing them as an ad-hoc set of activities geared to promote social and environmental well-being. Being good can also translate to doing well. Thirdly, sampling inconsistencies and measurement errors may explain a disconnection between increasing engagement in social and environmental responsibility and a rather grim view of associated potential benefits. It must be noted that previous studies documenting an increase in forest sector firms’ engagement in social and environmental responsibility were conducted in a large firm context, which may be underrepresented in our sample. Large firms may view benefits accruing from social and environmental responsibility much differently than small firms because of both their exposure to risk and capacity to reap benefits. Also, because we used means as an overall estimator of potential benefits, fewer strong negative responses may mitigate moderate positive responses leading to a partially hidden view.

********Table 4********
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.
Engagement in social and environmental activities also showed mixed results. Here, it must be noted that a number of environmental activities have become economic imperatives and thus may render blurred the boundaries between firms’ financially oriented and socio-environmentally oriented actions. Forest sector firms improved their energy efficiency and waste management practices but this may have happened due to efficiency related impetus or policy backed offers. Worker compensation was largely unaffected or even increased but firms continued to fail to address issues of workforce diversity. Our results are also consistent with existing CSR literature suggesting that firms prioritize their responsibility actions differently in different industry contexts. Extending our work, future research may develop qualitative frameworks to understand firms’ patterns and motivations to prioritize their social and environmental responsibility activities.

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

Overall, responding forest sector firms do not view engagement in social and environmental responsibility as offering competitive benefits. Do we conclude that they will be therefore less likely to engage in social and environmental responsibility? Following the popular instrumental view of business engagement in social responsibility, this conclusion would be apt. However, we argue that the instrumental view may not hold well in a natural resource sector where industry legitimacy is intimately related to non-financial performance, especially in the environmental realm. Business and Society scholars would find it useful to examine...
separately the motivations of social and environmental responsibility in natural resource industries relative to other industries. Our contention is that for forest sector firms, social and environmental responsibility is more sacrosanct in nature than the instrumental view captures. This being said, we also believe that forest sector firms must try to leverage their engagement in social and environmental responsibility for reaping various business benefits.

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

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


Li, N., and A. Toppinen. 2011. Corporate responsibility and sustainable competitive advantage in forest-based industry: Complementary or conflicting goals?. For. Pol. and Econ. 13(2): 113-123.


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

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

N in Wood Products=191-192, N in Furniture=76, N in Paper Products=168-169
<sup>1</sup> combination of wood products, furniture, and paper products
<sup>2</sup> significantly different from scale midpoint representing "no change"; *=5%, **=1%
Table 2: Changes in Social and Environmental Performance of Responding Firms during 2008-2011

<table>
<thead>
<tr>
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<th>Wood Products</th>
<th>Furniture</th>
<th>Paper Products</th>
<th>Forest Sector¹</th>
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<td>SD</td>
<td>Diff</td>
<td>Mean</td>
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<td>- **</td>
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<td>NS</td>
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<td>Promotion of recycling</td>
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<td>1.30</td>
<td>- **</td>
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<td>1.43</td>
<td>- **</td>
<td>3.97</td>
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<tr>
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<td>- **</td>
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<td>Non-profit support</td>
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<td>1.50</td>
<td>- **</td>
<td>3.92</td>
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<td>Energy efficiency</td>
<td>4.53</td>
<td>1.10</td>
<td>+ **</td>
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<td>NS</td>
<td>4.36</td>
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<tr>
<td>Waste management</td>
<td>4.41</td>
<td>1.05</td>
<td>+ **</td>
<td>4.57</td>
</tr>
</tbody>
</table>

¹ combination of wood products, furniture, and paper products
² significantly different from scale midpoint representing "no change"; *=5%, **=1%
Table 3: Industry Dynamism Reported by Responding Firms during 2008-2011

<table>
<thead>
<tr>
<th></th>
<th>Wood Products</th>
<th>Furniture</th>
<th>Paper Products</th>
<th>Forest Sector¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Risk</td>
<td>4.97 1.67</td>
<td>4.87 1.56</td>
<td>4.14 1.67</td>
<td>4.63 1.69</td>
</tr>
<tr>
<td>Difficulty of Obtaining Returns</td>
<td>5.22 1.56</td>
<td>4.97 1.49</td>
<td>4.38 1.58</td>
<td>4.85 1.60</td>
</tr>
<tr>
<td>Inability to Control Environment</td>
<td>5.09 1.57</td>
<td>4.92 1.47</td>
<td>4.30 1.61</td>
<td>4.75 1.61</td>
</tr>
<tr>
<td>Overall Dynamism</td>
<td>5.09 1.41</td>
<td>4.93 1.35</td>
<td>4.27 1.42</td>
<td>4.75 1.45</td>
</tr>
</tbody>
</table>

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

¹ combination of wood products, furniture, and paper products

* significantly different from scale midpoint with higher values being relatively higher dynamism; *=5%, **=1%
### Table 4: Potential Financial and Non-financial Benefits of Social and Environmental Responsibility Activities

<table>
<thead>
<tr>
<th></th>
<th>Wood Products</th>
<th>Furniture</th>
<th>Paper Products</th>
<th>Forest Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Diff</td>
<td>Mean</td>
</tr>
<tr>
<td>Potential to reduce cost</td>
<td>3.33</td>
<td>1.30</td>
<td>- **</td>
<td>3.36</td>
</tr>
<tr>
<td>Potential to command premium price</td>
<td>2.85</td>
<td>1.37</td>
<td>- **</td>
<td>2.99</td>
</tr>
<tr>
<td>Potential to improve access to capital</td>
<td>3.71</td>
<td>1.12</td>
<td>- **</td>
<td>3.71</td>
</tr>
<tr>
<td>Total Financial</td>
<td>3.30</td>
<td>1.08</td>
<td>- **</td>
<td>3.36</td>
</tr>
<tr>
<td>Potential to develop new markets</td>
<td>3.29</td>
<td>1.56</td>
<td>- **</td>
<td>3.59</td>
</tr>
<tr>
<td>Potential to enhance market intelligence</td>
<td>3.46</td>
<td>1.54</td>
<td>- **</td>
<td>3.79</td>
</tr>
<tr>
<td>Potential to mitigate reputational risk</td>
<td>3.32</td>
<td>1.49</td>
<td>- **</td>
<td>3.61</td>
</tr>
<tr>
<td>Potential to attract and retain employees</td>
<td>3.37</td>
<td>1.53</td>
<td>- **</td>
<td>3.72</td>
</tr>
<tr>
<td>Potential to contribute to brand building</td>
<td>3.57</td>
<td>1.57</td>
<td>- **</td>
<td>3.76</td>
</tr>
<tr>
<td>Total Non-financial</td>
<td>3.40</td>
<td>1.31</td>
<td>- **</td>
<td>3.69</td>
</tr>
</tbody>
</table>

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

* = 5%, ** = 1%

1 Combination of wood products, furniture, and paper products

2 Significantly different from scale midpoint representing "no change"; *=5%, **=1%
## Appendix A: Specific Wording of Measurement Items

<table>
<thead>
<tr>
<th>Customer Oriented Responsibility Issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>For the same level of quality, selling prices of our products increased</td>
<td>For the same level of quality, selling prices of our products decreased</td>
</tr>
<tr>
<td>We added new staff/software/training programs to improve our customer service quality</td>
<td>We cut back staff/software/training programs related to customer service quality</td>
</tr>
<tr>
<td>We increased our efforts to promote among customers/consumers recycling of our products/packaging</td>
<td>We cut back our efforts to promote among customers/consumers recycling of our products/packaging</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employee Oriented Responsibility Issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Our workers’ compensation levels increased</td>
<td>Our workers’ compensation levels decreased</td>
</tr>
<tr>
<td>Initiatives to improve diversity (gender, ethnic, etc.) among our employees were introduced/increased</td>
<td>Initiatives related to diversity were cut back</td>
</tr>
<tr>
<td>We increased our workers’ non-salary benefits</td>
<td>We cut back our workers’ non-salary benefits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Oriented Responsibility Issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In-kind contribution to community programs/events increased</td>
<td>In-kind contribution to community programs/events decreased</td>
</tr>
<tr>
<td>We increased our cash contribution to community programs/events</td>
<td>We cut back the amount of cash contribution to community programs/events</td>
</tr>
<tr>
<td>We increased our support to non-profits</td>
<td>We cut back our support to non-profits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment Oriented Responsibility Issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, our energy efficiency improved</td>
<td>Overall, our energy efficiency worsened</td>
</tr>
<tr>
<td>We increased the proportion of eco-labeled products in our total production output</td>
<td>We reduced the proportion of eco-labeled products in our total production output</td>
</tr>
<tr>
<td>Our waste management system improved</td>
<td>Our waste management system worsened</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry Dynamism</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Apart from the effect of the economic downturn, our business environment has been safe, with little threat to our survival and well-being</td>
<td>During this period our business environment has been very risky, one false step could mean our undoing</td>
</tr>
<tr>
<td>Our business environment has been generally amicable and has been offering rich returns on investments</td>
<td>Our business environment has been very stressful and hostile. It has been hard to stay afloat</td>
</tr>
<tr>
<td>We could control and manipulate our business environment to our advantage</td>
<td>Our initiatives counted for very little against tremendous political, technological, competitive, or international forces</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Financial Benefits of Social and Environmental Activities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In our industry, because of the costs involved, social responsibility activities increase firms’ financial burden</td>
<td>Social responsibility activities are financially rewarding because they help firms mitigate several types of costs</td>
</tr>
<tr>
<td><strong>In our industry, social responsibility activities increase firms’ financial burden</strong></td>
<td><strong>Social responsibility activities are financially rewarding because they can help firms command a price premium</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>because associated costs can seldom be passed to customers</td>
<td></td>
</tr>
<tr>
<td><strong>In our industry, social responsibility activities limit firms’ access to capital because lenders or investors often see such firms as poor investments</strong></td>
<td><strong>Social responsibility activities increase firms’ access to capital because these activities make firms more attractive to lenders or investors</strong></td>
</tr>
<tr>
<td><strong>Potential Non-financial Benefits of Social and Environmental Activities</strong></td>
<td><strong>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</strong></td>
</tr>
<tr>
<td><strong>In our industry, engagement in socially responsible activities generally doesn’t help firms to find new customers or markets</strong></td>
<td><strong>Engaging in socially responsible activities helps firms better understand their social context which also helps them better understand their markets</strong></td>
</tr>
<tr>
<td><strong>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</strong></td>
<td></td>
</tr>
<tr>
<td><strong>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</strong></td>
<td><strong>By engaging in socially responsible activities firms develop goodwill which protects them from many external risks (possibility of a media attack, NGO protests etc.)</strong></td>
</tr>
<tr>
<td><strong>In our industry, engagement in social responsibility generally doesn’t help firms attract better talent or reduce turnover</strong></td>
<td><strong>By engaging in social responsibility activities firms may attract better talent or reduce turnover</strong></td>
</tr>
<tr>
<td><strong>In our industry, engagement in social responsibility activities is not a very helpful tool for firms for building their brands</strong></td>
<td><strong>Engagement in social responsibility activities is a key component of brand-building for firms</strong></td>
</tr>
</tbody>
</table>