

TO WHAT DO FIRMS ATTRIBUTE SUCCESS? AN APPLICATION OF ATTRIBUTION THEORY TO THE SECONDARY WOODWORKING INDUSTRY¹

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(Received June 2014)

Abstract. Small firms are a critical component of the secondary woodworking industry and are important to hardwood lumber demand in the US. Understanding managers' perceptions of competitiveness in these firms is important to those working with the industry to help maintain a viable wood manufacturing base. One area of interest relative to the overall business environment involves attribution: to what do managers attribute their firms' success? In this study, attribution theory was applied to a sample of secondary woodworking manufacturers to test for a "self-serving" attribution effect (ie success is caused by internal factors, whereas a lack of success is caused by external factors), which has been shown in some other industries. Also of interest was determining if the effect was amplified for small firms. The presence of an overall attribution effect among secondary woodworking manufacturers was generally supported, but little evidence was found of an effect related specifically to small firms. The presence of an overall attribution effect is discussed in terms of the implications for research and outreach directed toward the secondary woodworking industry.

Keywords: Attribution, business success, firm performance, small firms, outreach to industry.

INTRODUCTION

Recent research has highlighted the challenges and opportunities associated with small woodworking firms (Buehlmann et al 2013), which are becoming an increasingly important component of US hardwood lumber demand (Espinoza et al 2011). A better understanding of the perceptions of managers and owners of small firms can help researchers and outreach professionals to better communicate with small business man-

agers. One area of interest regarding small firm managers' perceptions relative to the overall business environment involves attribution theory: to what do these managers attribute their relative success or lack thereof? Previous studies have shown that the success of a given firm generally is a combination of factors both internal and external to the firm (Everett and Watson 1998). At the same time, research also has indicated that managers generally perceive that factors external to their firm (eg regulations, labor markets, availability of financing, economic conditions) are more likely to impede their success, whereas internal factors (eg individual characteristics of owners, management skills, marketing)

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are more likely to contribute to their success, although industry experts tend to view internal factors as more important to both business success and failure (Rogoff et al 2004).

As part of a broader study seeking to characterize the practices and perceptions of small firms in the US secondary woodworking industry (Buehlmann et al 2013), an opportunity was afforded to test for an attribution effect. A performance measure for the firms in the sample was available (an increase or decrease in year-over-year sales volume) as was firm size information (small or large). Four propositions were developed around these categories, which are subsequently described in greater detail. The results will help inform outreach efforts directed toward the woodworking industry by developing a better understanding among researchers and educators of how firms perceive their own performance relative to the overall business environment.

There is evidence that individuals generally attribute the success seen in others to internal factors, even in situations in which the attributor does not know the other party (Kelley and Michela 1980). However, attribution commonly contains a “self-serving” effect, whereby success (in a business environment) is attributed to internal characteristics of the firm, whereas poor performance is attributed to factors external to the firm and thus beyond its control (Rogoff et al 2004). There are reasons why this attribution effect might be especially relevant in smaller firms. For one, they generally garner limited resources and managers are less able to look inward to compete on many important factors; for example, it is difficult in small firms to realize economies of scale and scope (Penrose 1995). Given limited internal resources, small firms must therefore be more outward-looking for competitive advantages, such as generating new sales and searching for new customers to generate cash flow (Latham 2009). As a consequence, managers might be more likely to feel vulnerable when sales are declining (ie it’s the fault of external forces such as the economy). Shama (1993) discussed reasons why small

firms can be especially vulnerable to changing economic conditions. Furthermore, small firms might be empowered when sales are increasing. Previous research has shown that customized production and closeness to customers can help small woodworking firms increase sales volume, even during economic downturns (Bumgardner et al 2011). These counterbalancing influences might be expected to amplify the attribution effect in smaller firms.

Large firms also have shown a propensity to attribute poor performance to external factors. Discussions in annual reports often serve as an example of this tendency, even in situations in which media coverage has focused more on internal factors when observing the performance of large companies (Rogoff et al 2004). In addition, large firms tend to be more inward-looking (eg cost reduction strategies) during difficult economic conditions (Latham 2009), which could contribute to a positive attribution effect if such measures are deemed successful. Conversely, profit variation and profit uncertainty generally are lower for large firms (Ballantine et al 1993), which might serve to mute any pronounced attribution effects in large firms. The anticipation is that an attribution effect will exist universally across all firms in the secondary woodworking industry but that it will be amplified for small firms. Based on the preceding discussion, four propositions were evaluated:

Proposition 1: Firms with high performance will rate internal factors as more important to business success.

Proposition 2: Firms with low performance will rate external factors as more important to business success.

Proposition 3: Small firms with high performance will rate internal factors as more important to business success than will large firms with high performance.

Proposition 4: Small firms with low performance will rate external factors as more important to business success than will large firms with low performance.

METHODS

Data were gathered via a mail survey conducted in the spring of 2011. A questionnaire was developed and sent to 4980 secondary wood-working firms in six states (North Carolina, Ohio, Tennessee, Virginia, Wisconsin, and West Virginia) derived from several sources. A total of 395 usable responses were received after two questionnaire mailings and two postcard reminder mailings for an adjusted response rate of 9%. To develop firm size categories, small firms were defined as those having 19 or fewer employees, whereas large firms were defined as having 20 or more employees. Among the respondents, there were 240 small firms and 142 large firms (13 firms did not provide size information). Respondents were primarily company owners (53%) or persons in corporate or operating management (32%). For convenience, all respondents are referred to hereafter as managers. Product types represented in the sample included

cabinets, millwork, furniture, flooring, components, and other miscellaneous secondary products. Tests comparing early and late respondents on several firm characteristic and performance variables suggested no differences. Thus, nonresponse bias was not deemed to be a major factor. Buehlmann et al (2013) provide more details regarding the methods and sample description.

Respondents were presented with a question on the survey instrument asking the following: "Please check the four factors listed below that you perceive to be among the most important to the success of your business." Fourteen response categories were listed, largely adapted from Rogoff et al (2004). To capture only the most important perceived factors, respondents were asked to check the four most important attributes from the list. For analysis, the 14 factors were classified as either external or internal by the authors (Table 1), but this distinction was not indicated on the survey instrument.

Table 1. Percentages of high- and low-performing firms indicating that external and internal factors are important to their business success.^a

Factors most important to the success of your business	Factor type	Low-performing firms' score (%) (n = 177)	High-performing firms' score (%) (n = 189)	Difference (% points)	<i>p</i> ^b
General economic conditions	External	63.3	49.2	14.1	0.003
Costs of raw material and energy inputs	External	44.6	38.1	6.5	0.102
Industry-wide technology advancements that improve efficiency-product capabilities	External	9.0	3.7	5.3	0.018
Overall consumer expenditures in our company's product class	External	27.7	23.3	4.4	0.167
Regulatory conditions	External	10.7	6.9	3.8	0.096
Competition-driven innovation	External	6.2	7.4	-1.2	0.674
Financing opportunities (eg loan availability)	External	11.9	13.8	-1.9	0.706
Human resources management (eg organizational efficiency, ability to hire good people, employee morale)	Internal	23.7	39.2	-15.5	0.001
Manufacturing capabilities (eg ability to make profitable products, quality control, efficiency)	Internal	57.6	70.9	-13.3	0.004
Product characteristics relative to competition	Internal	20.3	26.5	-6.2	0.084
Upper management decision-making (eg investments, expansions)	Internal	5.1	9.0	-3.9	0.073
Marketing activities (eg reaching new customers, good customer service, effective product promotion)	Internal	36.2	37.0	-0.8	0.431
Individual characteristics of owners-managers (eg hard work, ethics, knowledge, dedication)	Internal	29.4	30.2	-0.8	0.435
Organizational efficiency (eg ability to make quick decisions, ease of implementation)	Internal	22.0	22.8	-0.8	0.435

^a Respondents were asked to choose four factors from the list based on the following statement: "Please check the four factors listed below that you perceive to be among the most important to the success of your business." The factor types (external or internal) were assigned by the researchers and not indicated on the survey instrument.

^b Based on a one-tailed *z* test of proportions ($\alpha = 0.10$).

Performance was measured with a question appearing later in the survey instrument asking for the firm's change in year-over-year sales volume from 2010 to 2011. Seven categorical responses were presented, including much worse (off by 20% or more), somewhat worse (off by 10%), slightly worse (off by 5%), much better (up by 20% or more), somewhat better (up by 10%), slightly better (up by 5%), and unchanged. For this study, high-performing firms were defined as those indicating one of the three sales volume increase categories, whereas low-performing firms were defined as those indicating one of the three sales volume decrease categories or the unchanged category. Based on these criteria, there were 185 low-performing firms and 193 high-performing firms (17 firms did not provide performance information).

RESULTS

As shown in Table 1, there was general support for Proposition 1. Low performers scored higher in most of the external factors, and four of the factors were statistically significant. Significant results were obtained for general economic conditions ($p = 0.003$), costs of raw material and energy inputs ($p = 0.102$), industry-

wide technology advancements that improve efficiency-product capabilities ($p = 0.018$), and regulatory conditions ($p = 0.096$).

There also was support for Proposition 2. High performers scored higher in all of the internal factors, and four were statistically significant (Table 1). Significant results were obtained for human resources management ($p = 0.001$), manufacturing capabilities ($p = 0.004$), product characteristics relative to competition ($p = 0.084$), and upper management decision-making ($p = 0.073$).

As shown in Table 2, there was little evidence to support Proposition 3. Among high-performing firms, there were two significant differences between small firms and large firms in the hypothesized direction (small firm percentage > large firm percentage), including marketing activities ($p = 0.069$) and individual characteristics of owners-managers ($p = 0.084$). However, the pattern across the remaining factors (five out of seven) was for large firms to score higher than small firms, counter to the hypothesized direction.

Proposition 4 was not supported (Table 3). Among low-performing firms, there were no statistically significant differences between small firms and large firms in the hypothesized direction (small

Table 2. Percentages of high-performing small and large firms indicating that internal factors are important to their business success.^a

Factors most important to the success of your business	Factor type	Small firms' score (%) (n = 111)	Large firms' score (%) (n = 73)	Difference (% points)	p^b
Marketing activities (eg reaching new customers, good customer service, effective product promotion)	Internal	42.3	31.5	10.8	0.069
Individual characteristics of owners-managers (eg hard work, ethics, knowledge, dedication)	Internal	34.2	24.7	9.5	0.084
Human resources management (eg organizational efficiency, ability to hire good people, employee morale)	Internal	38.7	39.7	-1.0	0.553
Upper management decision-making (eg investments, expansions)	Internal	8.1	11.0	-2.9	0.743
Manufacturing capabilities (eg ability to make profitable products, quality control, efficiency)	Internal	69.4	75.3	-5.9	0.811
Organizational efficiency (eg ability to make quick decisions, ease of implementation)	Internal	20.7	27.4	-6.7	0.852
Product characteristics relative to competition	Internal	23.4	32.9	-9.5	0.921

^a Respondents were asked to choose four factors from the list based on the following statement: "Please check the four factors listed below that you perceive to be among the most important to the success of your business." The factor types (internal in this case) were assigned by the researchers and not indicated on the survey instrument.

^b Based on a one-tailed z test of proportions ($\alpha = 0.10$).

Table 3. Percentages of low-performing small and large firms indicating that external factors are important to their business success.^a

Factors most important to the success of your business	Factor type	Small firms' score (%) (n = 111)	Large firms' score (%) (n = 60)	Difference (% points)	<i>p</i> ^b
Financing opportunities (eg loan availability)	External	12.6	10.0	2.6	0.306
General economic conditions	External	63.1	63.3	-0.2	0.514
Costs of raw material and energy inputs	External	42.3	45.0	-2.7	0.631
Competition-driven innovation	External	5.4	8.3	-2.9	0.772
Regulatory conditions	External	9.0	13.3	-4.3	0.810
Overall consumer expenditures in our company's product class	External	26.1	31.7	-5.6	0.779
Industry-wide technology advancements that improve efficiency-product capabilities	External	7.2	13.3	-6.1	0.905

^a Respondents were asked to choose four factors from the list based on the following statement: "Please check the four factors listed below that you perceive to be among the most important to the success of your business." The factor types (external in this case) were assigned by the researchers and not indicated on the survey instrument.

^b Based on a one-tailed *z* test of proportions ($\alpha = 0.10$).

firm percentage > large firm percentage). In fact, the pattern was for large firms to score higher than small firms (on six of the seven factors), which was contrary to the hypothesized direction.

DISCUSSION AND CONCLUSION

As predicted, there was evidence to support the presence of an attribution effect among secondary woodworking manufacturers (Propositions 1 and 2). Specifically, there was a tendency for managers in high-performing firms to rate internal factors as more important to success, whereas external factors tended to be rated as more important by managers in low-performing firms. Within these general patterns, a few factors emerged as especially important in relative terms. For low-performing firms, the general economic condition (by a 14.1% point difference) was viewed as the external factor most important to their (lack of) success. For high-performing firms, human resources management (15.5% point difference) and manufacturing capabilities (by a 13.3% point difference) were viewed as the internal factors most important to their success.

Little evidence was found to support the notion of an amplified attribution effect for small firms, although it had been hypothesized (Propositions 3 and 4). Overall, it appears that the attribution effect was more generalized across all firms. Especially among low-performing firms, man-

agers in small firms and large firms were generally similar in their perceptions of the contributing external factors with general economic conditions being most frequently cited. However, as exceptions, there were two internal factors that were rated as more important in high-performing small firms than their high-performing large firm counterparts: marketing activities (10.8% point difference) and individual characteristics of owners-managers (9.5% point difference). These are areas that managers in successful small firms appeared to place special emphasis in executing or possessing, although they (like managers in high-performing large firms) attributed overall success mostly to their manufacturing capabilities.

There are some potential implications from these findings for outreach and research efforts aimed at the secondary woodworking industry. When times are good (ie most firms are performing well), management probably will place greater emphasis on attributes internal to the firm, which conceivably could lead them to seek 1) more training to improve internal capabilities; or 2) less training because less need is perceived. When times are more difficult and external factors are perceived to carry more weight, firm managers might seek more information related to economic trends or market conditions. In the long term, the competitiveness of most individual firms is a function of both internal and external forces (Everett and Watson 1998), and it is important that research and

outreach efforts are directed across both areas. The principles of attribution theory can help providers tailor programs to align with managers' perceptions of their situations within a given business environment.

ACKNOWLEDGMENTS

The work on which this publication is based was funded in part through a grant awarded by the Wood Education and Resource Center, North-eastern Area State and Private Forestry, USDA Forest Service. We thank M. Sperber as well as S. Bowe, S. Grushecky, D. Saloni, and A. Taylor for their assistance with the project.

REFERENCES

- Ballantine JW, Cleveland FW, Koeller CT (1993) Profitability, uncertainty, and firm size. *Small Bus Econ* 5: 87-100.
- Buehlmann U, Bumgardner M, Sperber M (2013) How small firms contrast with large firms regarding perceptions, practices, and needs in the U.S. secondary wood-working industry. *Bioresources* 8(2):2669-2680.
- Bumgardner M, Buehlmann U, Schuler A, Crissey J (2011) Competitive actions of small firms in a declining market. *J Small Bus Manag* 49(4):578-598.
- Espinoza O, Buehlmann U, Bumgardner M, Smith B (2011) Manufacturers and distributors in the U.S. hardwood lumber supply chain: Perceptions of industry trends. Pages 125-134 *in* Proc 3rd International Scientific Conference on Hardwood Processing (ISCHP³ 2011) I. 16-18 October 2011, Blacksburg, VA.
- Everett J, Watson J (1998) Small business failure and external risk factors. *Small Bus Econ* 11:371-390.
- Kelley HH, Michela JL (1980) Attribution theory and research. *Annu Rev Psychol* 31:457-501.
- Latham S (2009) Contrasting strategic response to economic recession in start-up versus established software firms. *J Small Bus Manag* 47(2):180-201.
- Penrose E (1995) *The theory of the growth of the firm*. 3rd ed. Oxford University Press, Oxford, New York. 272 pp.
- Rogoff EG, Lee M-S, Suh D-C (2004) 'Who done it?' Attributions by entrepreneurs and experts of the factors that cause and impede small business success. *J Small Bus Manag* 42(4):364-376.
- Shama A (1993) Marketing strategies during recession: A comparison of small and large firms. *J Small Bus Manag* 31(3):62-72.