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COMPARING ASPIRATION MODELS: THE ROLE OF SELECTIVE ATTENTION

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ABSTRACT

Scholars have used various models of organizational aspirations where aspirations depend on prior performance and the performance of comparable firms. We extend the models to incorporate selective attention. Using direct aspiration measures on sales performance in an automotive manufacturer, we find selective attention influences aspiration levels.

INTRODUCTION

Aspirations refer to levels of outcomes that will satisfy the individual or organization. Research on aspirations continues to rely on Cyert and March's (1963) *Behavioral Theory of the Firm* (BTOF) that makes aspirations a function of past performance and social comparison.

The many studies including measures of organizational aspirations differ substantially in their measures. Some measure aspirations as an average of social comparison and firm past performance (Greve 1998, Denrell and March 2001, Audia and Greve 2006), others use switching models of comparison and past performance (Bromiley 1991, Deephouse and Wiseman 2000), and others use separate social comparison and past performance aspiration variables (Greve, 2003, Iyer and Miller, 2008).

Different specifications of aspiration models require different theoretical assumptions regarding information processing in organizations. Models creating a single aspiration level as an additive function of prior performance and social comparison assume firms do not switch attention between self and social comparison, and that firms combine these into a single aspiration. Models allowing both social and prior performance aspirations as separate variables assume firms have such separate reference points. Bromiley (2004) observes that the BTOF proposes firms have aspirations along several dimensions with attention focusing on the dimensions where performance falls below aspirations, yet few if any studies allow for such multiple dimensions. March and Shapira (1987) argue for attention switching within a single dimension of aspirations (performance). The representation of aspiration levels reflects theoretically important differences in models of how organizations handle performance feedback. In addition to theoretical issues, the different representations of aspirations can create confusion when trying to compare across studies that use different measures (and implicitly theories) of aspirations in models explaining firm behavior.

We propose that some of the assumptions in these models merit re-consideration. The BTOF emphasizes selective attention where the firm attends to goals sequentially (see also Ocasio, 1997). However, the BTOF did not include a selective attention mechanism in the determination of aspirations themselves. We extend the concept of selective attention to argue

managers of firms switch their focus in determining aspirations. Rather than an overall weighted sum, the factors that influence firm aspirations vary (i.e., the attention varies) systematically.

We categorize work using BTOF aspirations in strategy and organizational theory into two sets. First, a very small number of papers use direct indicators of organizational aspirations and attempt to explain these aspirations -- essentially Lant (1992) and Mezas, Chen & Murphy (2002). Second, the immense majority of papers posits a measure of aspirations or the difference between aspirations and performance, and uses these measures to explain organizational outcomes (e.g., Singh, 1986, Bromiley, 1991, Wiseman and Catanach, 1997, Greve, 1998).

Given the importance of aspirations in firm processes, a surprising variation exists among studies measuring it. Several studies impose attention switching (Bromiley 1991, Palmer and Wiseman 1999, Deephouse and Wiseman 2000), implying that the way firms form aspirations varies with performance. Other studies suggest that all firms form aspirations in additive fashion, differing only in search behaviors (Greve 1998, Audia and Greve 2006). Researchers cannot build a cumulative line of scholarship developing and testing a theory of aspirations if their constructs of aspiration differ.

Cyert and March (1963) offer the most influential organizational aspiration model. In their model, an aspiration level (termed an organizational goal) depends on prior aspirations, the firm's prior performance, and the experience of comparable others:

$$A_{i,t} = \alpha_1 P_{i,t-1} + \alpha_2 A_{i,t-1} + \alpha_3 C_{t-1} \quad \text{Where: } \alpha_i > 0 \text{ for } i=1, 2, 3, \text{ and } \alpha_1 + \alpha_2 + \alpha_3 = 1 \quad (1)$$

$A_{i,t}$, $P_{i,t}$, C_{t-1} are aspirations, performance, and social comparison for entity i in year t , respectively. Repeated substitution of past aspirations ($A_{i,t-1}$) for current aspirations ($A_{i,t}$) results in current aspirations being an exponentially weighted sum of prior performance and social comparisons.

Most subsequent authors built on Cyert and March's aspiration model. In its original form, the three factors merge as a weighted average to determine subsequent aspirations. The parameters (α_i 's) may differ across firms, but do not depend on the values of the right hand side variables. Several implications of this representation concern us.

The model makes odd predictions for firms whose performance differs substantially from the average. For a firm with performance well above the comparison, equation (1) implies that aspirations will drop below both prior aspirations and prior performance. For example, because equation (1) includes industry, a firm with historical performance far above the competition, such as Microsoft, would aspire to lower performance than it has recently experienced. We doubt that high performing firms aspire to less than their recent performance because everyone else does poorly.

The qualitative theory underlying the aspiration model differs from the model. The qualitative theory argues that when performance does not vary over time, aspirations should rise to slightly above current performance (March and Simon, 1958, Cyert and March 1963, Simon, 1991, 1997). Firms routinely set objectives slightly above their current performance. Equation (1) does not reflect this.

Lant (1992) addresses this issue by including an intercept term in her models, allowing aspirations above current performance even if firm and industry performance are stable. Using survey measures of aspirations from participants in Markstrat simulations, Lant finds that the intercept term is significant and positive suggesting optimism among her participants.

Mezias et al (2002) built on Lant's work by including both an intercept term and attainment discrepancy along with social comparison. In their model, performance does not enter as a separate variable but rather appears in a difference between itself and aspirations. Mezias et al. (2002) tested the model on data from branch banks, finding a positive influence of attainment discrepancy and negative influence of social comparison.

While the BTOF has aspirations as a simple weighted sum of prior values, other scholars argue that reference points for aspirations may vary. March and Shapira (1987) argue that firms with very low performance may primarily aspire to survive, ignoring social comparison and past firm performance, while firms with higher performance may follow the social and past performance model. Chen and Miller (2007) define three specific aspiration levels: survival, aspirations, and slack, loosely translating to bankruptcy, industry average performance, and exploration opportunities from abundant resources. Iyer and Miller (2008) find some empirical support a "distance from bankruptcy" effect on the likelihood of acquisitions. The idea of "distance from" aspiration levels can be thought of as a likelihood of missing an aspiration. This is consistent with Gooding, Goel, & Wiseman's (1996) study of aspirations and risk taking decisions, which argues attention directed to risky actions increases as performance drops below aspirations.

In the following section, we develop hypothesis to test for the presence of attention switching behavior and model specifications that allow for, but do not impose, such behavior.

HYPOTHESES

The aspirations models above include prior aspirations, performance, and social comparison. We will consider each in turn. Our first hypothesis follows the literature in assuming prior aspirations positively influence future aspirations. This agrees with the BTOF, as well as the findings of Lant (1992) and Mezias et al (2002).

Hypothesis 1: Past Aspirations positively influence Aspirations.

We expect a switching of attention; organizations well above peer performance pay more attention to their own performance, whereas those well below peer performance pay attention to peer performance. March and Shapira (1987) describe such switching of reference criteria for aspirations for firms with extremely low performance. Managers they interviewed saw firm survival and performance relative to competitors as distinct from each other.

Aspiration model parameters should vary with levels of self and peer performance. When a firm performs below its peers, it should pay attention to the peer's performance. Few firms would consider sustained low performance relative to the competition acceptable. In contrast, when a firm performs above competitors, it may pay them little attention. Thus:

Hypothesis 2: Firm performance has a larger influence on future aspirations when firm performance exceeds the social aspiration level than when it is below.

Hypothesis 3: Social-relative aspirations have a smaller influence on future aspirations when firm performance exceeds the social aspiration level than when it is below.

METHODS

A large international auto manufacturer and retailer provided data on annual sales targets and actual performance for each of its 414 retail outlets in the US for the years 2002 to 2007. We dropped retailers with less than two years of data. We eliminate annual observations on retailers that did not operate for a complete year. Our final sample includes 364 retailer outlets.

Since the model includes a lagged dependent variable, we use a dynamic panel estimator developed by Arellano and Bond (1991). This estimation process differences variables to account for firm effects and then employs a Generalized Method of Moments (GMM) estimation process. We estimate the model including fixed effects for each retail outlet to account for omitted variables. To ensure conservatism, we report robust standard errors.

To compare across models using AIC and BIC criterion, we utilize cross sectional time series regression with fixed effects to capture retailer specific variations. This form of modeling allows us to modify the functional form of the independent variables, as is required in the joint consideration estimation. The dynamic modeling procedure described above does not.

Aspiration (A_{it}). Sales target in number of cars for a given retailer in a given year.

Performance (P_{it}). Actual number of cars sold by a given retailer in a given year.

Social Comparison (C_{t-1}). The ratio of industry sales times the firm performance.

Social Comparison Performance Dummy ($D_{i,t-1}$). $D_{i,t-1}$ equals one when the ratio of a retailer's performance to its Aspiration exceeds the ratio of the comparison group's performance to aspiration ratio, and zero otherwise. Conceptually, this ratio incorporates the attainment discrepancy concept into the model.

In addition to testing the hypotheses directly, we empirically compare four aspiration models based on their Akaike information criterion (AIC) and Bayesian information criterion (BIC) values. We examine the original weighted average model (March & Simon, 1963), the joint consideration weighted average model (Greve, 2003), the imposed attention switching model (Bromiley, 1991), and our proposed switching model. AIC and BIC trade off goodness of fit and parsimony (Kuha, 2004:189). We report estimates using the set of observations estimable under all four models. Lower values of AIC or BIC indicate better model fit (Long & Freese, 2000). Reflecting different underlying theoretical assumptions, AIC and BIC have different penalties for model complexity. Agreement on the best model constitutes a particularly robust indication of model superiority (Kuha, 2004).

In addition, we test the hypotheses by modifying the initial model offered by Cyert and March to include the potential for switching of attention, without imposing it artificially. We begin with Cyert and March's model in equation (1) adding the intercept used by Lant (1992) and Mezas et al (2002). We allow for differential influences of the explanatory variables by allowing different parameters when firm performance exceeds the industry performance than when it is below:

$$A_{i,t} = \alpha_0 + \alpha_1 P_{i,t-1} + \alpha_{1H} P_{i,t-1} * D_{i,t-1} + \alpha_2 A_{i,t-1} + \alpha_{2H} A_{i,t-1} * D_{i,t-1} + \alpha_3 C_{t-1} + \alpha_{3H} C_{t-1} * D_{i,t-1} \quad (2)$$

Where $D_{i,t-1} = 1$ if $P_{i,t-1} > C_{t-1}$, 0 otherwise.

The main effects associated with parameters α_1 , α_2 , and α_3 reflect the BTOF model. With α_{1H} , α_{2H} , and α_{3H} equal to zero, this becomes the original model. The dummy when firm performance exceeds social comparison means that α_{1H} , α_{2H} , and α_{3H} reflect any change in the

effects for firms above versus below the industry. Hypothesis 1 would be supported if α_2 and the joint effect of $\alpha_2 + \alpha_{2H}$ is positive. Hypothesis 2 implies that α_{1H} is positive and Hypothesis 3 implies α_{3H} less than zero.

RESULTS

Table 1 presents the AIC and BIC statistics for the alternative models. The results indicate the proposed switching attention model with different influences for positive and negative attainment discrepancy has the best fit (AIC of 5.546 and BIC of 5.596). That AIC and BIC give similar results robust support for the switching attention model.

Tables 1 and 2 about here

Table 2 presents the results of the estimates with regard to our hypotheses. Consistent with Hypothesis 1, prior aspirations have a positive influence on future aspirations ($b=0.675$, $p<0.01$). Consistent with Hypothesis 2, a retailer's prior (self) performance has a larger influence on future aspirations when retailer's performance exceeds the performance of the comparison group than when it does not. For retailers with performance below social average performance, retailer performance *negatively* influences aspirations ($b=-0.410$, $p<0.01$). The interaction for retailer performance above social comparison has a positive and statistically significant coefficient ($b=1.044$, $p<0.01$). Thus, past (self) performance negatively influences aspirations for retailers below the social comparison group, and positively influences aspirations for retailers above the social comparison group. Consistent with Hypothesis 3, the negative coefficient on the interaction of social average and the dummy variable ($b=-0.468$, $p<0.05$) indicates peer performance has a smaller influence on future aspirations for firms with performance above the comparison group than for firms with performance below the comparison group. These results demonstrate the need to include attention switching in aspiration models.

CONCLUSIONS

We began by questioning the plausibility of predictions from the original BTOF model of aspirations. In place of aspirations as a weighted average, we hypothesized that the importance of past factors varies with the performance of the firm relative to its social comparison.

The data strongly support the proposition that attention switches between competing factors influences aspirations. While past performance negatively influences future aspirations for retailers with performance below comparative social performance, it positively influences aspirations for retailers with performance above the social comparison. With performance below the social average performance, social comparison strongly influences aspirations, but it has no statistically significant effect when performance exceeds social comparison levels.

Our proposed model potentially doubles the model complexity from the original specification, while still improving complexity-adjusted measures of fit. It does this with a model that closely reflects the underlying theory.

These results reject the many aspirations models that do not allow for different aspirations adjustments depending on relative firm and industry performance. Indeed, the great majority of papers using aspirations representations do not allow for differences in parameters

depending on relative performance versus industry (see, for instance Fiegenbaum and Thomas, 1986, 1988; Fiegenbaum, 1990; Greve,1998; Miller and Chen, 2004; Miller and Leiblein, 1996).

Overall, this paper advances our understanding of the creation of aspiration levels and demonstrates a more complex but reasonable model of aspirations than those tested in prior work. In doing so, it raises questions about many of the specifications used in current research, and continues research on specification of aspirations models. Increasing our understanding of aspirations in organizational decision processes will ultimately enhance our ability to predict and evaluate effective decision processes.

REFERENCES AVAILABLE FROM THR AUTHORS

TABLE 1
AIC & BIC Statistics Comparing Models Estimating Aspirations

Model and Source	AIC	BIC
Initial Model: Cyert & March (1963)	5.6548	5.675
Weighted Average Model: Greve (2003)	5.6335	5.6436
Imposed Switching Model: Bromiley (1991)	6.4819	6.492
Proposed Switching Model.	5.5458	5.5962

N = 1210

TABLE 2
Arellano-Bond GMM estimation. Dependent Variable: Aspirations of Retail Outlets

Independent Variables	Coefficient	S.E.
Prior Aspiration	0.675 ***	0.13
Prior Aspiration * Dummy	-0.333	0.22
Past Performance	-0.41 **	0.16
Past Performance * Dummy	1.044 ***	0.22
Social Comparison	0.329 *	0.16
Social Comparison * Dummy	-0.468 *	0.23
Intercept	84.79 **	29.6

Obs. = 1267 N = 364 DF = 232.2 Instruments = 22 *** p<0.001, ** p<0.01, * p<0.05

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