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On Sales Follow-Up of Marketing Leads**

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ABSTRACT

The sales lead “black hole”—the term used to describe the 70% of the leads generated by marketing departments that sales representatives do not pursue—may result from competing demands on the sales reps’ time, including the needs to nurture existing accounts, follow-up on self-generated leads, and deal with administrative tasks. We analyze data from 461 sales reps in four firms using a nested logit model of the sales representative time allocation decision process. We find that sales reps spend more time pursuing marketing leads if they perceive their firm has an effective sales lead prequalification process. We also find that as sales reps become more experienced, they are less likely to (1) pursue marketing-generated leads, (2) respond positively to managerial tracking of marketing lead follow-up, or (3) respond positively to greater marketing-generated lead volume. Our results also show that the better the sales reps’ past performance, the more likely they are to respond positively to an increase in volume of marketing-generated leads and respond negatively to managerial tracking of marketing lead follow-up. We discuss the implications of these results for both the theory and the practice of motivating and compensating sales representatives.

Sales rep: You call that a lead? That's just a business card with some writing on the back of it.

Marketing person: Why do we bother? You sales people never act on any of the leads we give you anyway. You just stash them in the trunk of your car.

—Oliva (2006, p. 397)

The exchange above illustrates the opposing views on the touchy subject of sales lead generation and their follow-up by salespeople. Sales representatives (reps) complain about the quality of the leads that marketing generates; marketing complains about sales reps' poor follow-through on those leads (Oliva 2006). On average, business-to-business (BtoB) firms spend 65% of their marketing budgets on activities such as trade shows, product seminars, cold calling, database purchase, and telemarketing, all of which are designed to yield information about prospective new customers (SiriusDecisions Inc. 2006). However, various studies show that sales reps never contact about 70% of the leads generated by their marketing departments (Marcus 2002; Michiels 2009); instead, the leads seem to disappear into the proverbial "sales-lead black hole" (e.g., Hasselwander 2006). According to James Obermayer, the Executive Director of the Sales Lead Management Association, poor follow-up on leads "is not a small problem, it is a big problem, a 10 percent to 30 percent problem."¹ Despite acknowledging this phenomenon (e.g., Smith, Gopalakrishna, and Chatterjee 2006; Watkins 2003), researchers have devoted little attention to either its causes or possible cures (Chatterjee 1994).

Sales reps generally argue that most marketing leads lack the potential to result in actual sales; they focus only on good leads that they consider serious (Oliva 2006). However, Hasselwander (2006) asserts that firms often lose "ready to buy" customers that sales reps never contact, and Moreau (2006) reports that disagreements about classifying leads can result in the sales reps "callously discarding" even those customers who are highly likely to buy in the future. Thus, both

¹ From the full text of the discussion about sales lead leakage at the Northern California Business Marketing Association on March 25, 2009, see <http://blog.salesleadmgmtassn.com>.

sides have some support for their claims: Sales reps do not follow-up many good leads, but marketing has not made a compelling case to convince sales reps that the leads it generates are worth pursuing, even if those leads objectively are worthwhile. The result is a significant opportunity cost associated with poor lead follow-up, as well as a need for a viable solution to the lead black hole problem.

We investigate follow-up of marketing leads by considering how sales reps allocate their time to lead follow-up, to existing customers (retention/relationship management, upselling, cross-selling), and to administration or nonselling tasks. Sales reps also have alternative lead sources, including current customers and channel partners or direct contacts initiated by potential customers; we refer to lead from such sources as “self-generated leads.” We use the motivation, opportunity, ability (MOA) framework (e.g., MacInnis, Moorman, and Jaworski 1991) to identify organizational and individual factors that may affect the allocation of time to customer acquisition versus other activities, as well as the more specific allocation of acquisition time between marketing-generated and self-generated leads.

Firms can *motivate* sales reps to follow-up on marketing leads by requiring marketing departments to prequalify leads and to assign managers to track the sales reps’ pursuit of those leads. Firms control the *opportunity* that sales reps have by generating a larger or smaller number of leads (lead volume). Sales representatives vary in their *ability* to close on new leads. (We include two indicators of sales reps’ ability in our model: experience and past performance.)

We model the sales reps’ decision as a two stage process: an overall time allocation stage among customer acquisition, customer retention, and nonsales activities and then a conditional time allocation stage of customer acquisition time between marketing- and self-generated leads. We use a nested logit model to account for the conditional nature of this decision-making process, incorporating the impact of MOA variables. We calibrate the model with data from 461 sales reps

from four firms and use a hierarchical Bayesian formulation of the nested logit model to account for firm-specific effects.

We find that as sales reps' experience increases, response to managerial tracking of lead follow-up activities and to marketing lead volume decreases, while response to the quality of the lead prequalification process increases. We also find that as sales rep performance improves response to marketing lead volume increases but response to managerial tracking of their efforts decreases.

We proceed as follows: We first discuss the different demands on sales reps' time. Next, we use the MOA framework to develop hypotheses regarding the factors that influence the sales rep time allocation process. Then we describe the nested logit model for the sales reps' decision-making process and provide details about the data and estimation procedure. We then present our results and conclude with a discussion of the implications of our findings for both theory and practice.

CONCEPTUAL BACKGROUND

Time: Sales Reps' Most Precious Resource

Sales reps' jobs entail three main responsibilities, as Figure 1 illustrates (e.g., Churchill, Ford, and Walker 2002; Weitz, Castlebury, and Tanner 2007): they undertake customer retention by managing their ongoing relationships to grow revenues by upselling or cross-selling, they acquire new customers by pursuing marketing- and self-generated leads, and they perform nonsales activities such as training, reviews, and paperwork. Thus, sales reps must choose among several uses for their time.

[Insert Figure 1 about here]

Through measurement and compensation mechanisms, firms exert both direct (managerial tracking) and indirect (compensation schemes, lead prequalification) influences on sales reps' time allocation decisions, resulting in a rather complex decision process. Researchers examining sales force effectiveness report that effective time allocation has a significant impact on sales reps'

performance (e.g., Deeter-Schmelz, Goebel, and Kennedy 2008; Leach, Liu, and Johnston 2005; Zoltners and Sinha 1980).

To understand the factors that influence sales reps lead follow-up decisions, we must account for their time allocation across all their responsibilities. We therefore structure the sales reps' time allocation decision process as comprising two stages: (1) Allocate time to three broad categories of activities: customer acquisition, customer retention, and non-sales activities, and (2) within each category, allocate time among subactivities, as Figure 1 indicates. In the second stage, sales reps allocate customer acquisition time between marketing and self-generated lead follow-up.

Consider two sales reps, Jason and Sally. Both spend 5% of their time pursuing marketing-generated leads, which might imply that their lead follow-up levels are the same. However, Jason spends 10% of his time on self-generated leads (i.e., a total 15% of his time on customer acquisition), whereas Sally spends 25% of her time on self-generated leads (i.e., a total 30% of her time on customer acquisition). Thus, Sally devotes twice as much of her time to customer acquisition as Jason and a smaller proportion of that time on marketing generated leads. We present this sequential decision process in Figure 2.

[Insert Figure 2 about here]

MOA Framework and Sales Rep Time Allocation

A firm sees no economic return on leads that it pays to generate and pass on to sales reps that sales reps do not pursue. Ideally, marketing generates high quality leads, and sales reps follow-up most of them. Churchill, Ford, and Walker (2003) and Mittal, Ross, and Tsiros (2002) suggest, though, that even when the firm's goal is to increase marketing lead follow-up to maximize the return on investment in marketing lead generation, sales reps rarely share this goal: sales reps rewards come from achieving sales quotas, irrespective of the source of the sales. To reduce the

incongruity between the firms' and the sales reps' goals concerning marketing lead follow-up, firms must understand how sales reps allocate their time.

Monitoring from managers might motivate sales reps to pursue marketing leads, and a greater volume of marketing-generated leads should provide greater opportunity to achieve that goal. However, the degree of pursuit of that goal should depend on the sales reps' individual circumstances (How did Sally get those self-generated leads that Jason did not have?). The MOA framework has proven useful in determining how such differences in circumstances affect actions in other marketing contexts, such as customer information processing about advertisements (MacInnis, Moorman, and Jaworski 1991), knowledge sharing among employees (Siemsen, Roth, and Balasubramanian 2007), managerial assessments of marketing performance (Clark, Abela, and Ambler 2005), and new product introductions (Wu, Balasubramanian, and Mahajan 2004). Figure 3 identifies the context specific constructs we use to operationalize the MOA framework.

[Insert Figure 3 about here]

Motivation

Deci (1971) defines the motivation to work toward a specific external goal as extrinsic when the goal can be enhanced by feedback, rewards, and cues from the external environment. In our context, sales reps must be motivated to follow-up marketing- and self-generated leads. The motivation for sales reps to follow-up leads can be intrinsic (relating to reps' individual performance and learning orientation, perceived effectiveness of individual efforts, etc.) as well as extrinsic (relating to the incentives and processes put in place by the firms). Although we recognize the influence of intrinsic motivation factors that are specific to individual sales reps, the firm's direct influence on motivating sales reps towards lead follow-up will be through extrinsic factors that are features of the firm's environment. We focus on two features of the firm environment that can motivate sales reps towards lead follow-up: prequalification and managerial tracking.

Prequalification is a process in which the marketing department screens the leads it has generated, and discards leads that it considers unlikely to result in sales. Although marketing's effectiveness in identifying unlikely prospects will determine the objective quality of the prequalification process in terms of contributing to actual sales, we are interested in the role that prequalification plays in motivating sales reps to follow-up leads. Sales reps cannot observe the objective quality of leads; they are motivated by their perception of lead quality or, more operationally of marketing's lead qualification process. Perception of prequalification or, more simply, *prequalification*, should have a positive effect on marketing lead follow-up by sales reps.

Although sales reps' compensation is tied primarily to the outcome of their job, i.e. quota achievement, managerial monitoring also influences sales reps' behavior (e.g., Oliver and Anderson 1994). In the context of lead follow-up, managerial monitoring (or tracking) of whether sales reps pursue their marketing leads is likely to act as an extrinsic motivator for sales reps. We define *managerial tracking* as the degree to which managers review sales reps' follow-up of marketing leads, which should have a positive effect on marketing lead follow-up.

Opportunity

If firms want sales reps to follow-up on marketing leads, they must ensure that the reps have sufficient opportunity to do so (e.g., MacInnis, Moorman, and Jaworski 1991). The opportunity to pursue marketing leads should increase with the number of marketing leads received; therefore, we use *marketing lead volume* to measure opportunity, which we expect will positively influence marketing lead follow-up.

Ability

In line with prior MOA research (e.g., Wu, Balasubramanian, and Mahajan 2004), we define ability as the set of skills and proficiencies needed to achieve a goal. If firms want sales reps to follow-up on marketing leads effectively, they must account for the relevant abilities, such as

managing customer relationships and the range of selling skills. We focus on two objective measures (experience and past performance) that extant research has shown to be significantly indicative of sales reps' abilities (e.g., Coughlan and Narasimhan 1992; Leong, Busch, and John 1989).

As Szymanski and Churchill (1990) show, when sales reps gain experience, the number and strength of their relationships with customers increase, as does their knowledge about the marketplace, which enhances their abilities to develop and sustain customer relationships.² Although experience is not the strongest indicator of sales reps' ability, there is evidence of that it significantly affects underlying abilities such as knowledge of the marketplace and managing customer relationships, which are likely to influence lead follow-up (e.g., Coughlan and Narasimhan 1992; Szymanski and Churchill 1990) Thus, in the context of lead follow-up, we consider experience as a relevant indicator of sales reps' ability. The marketing literature also reports that sales reps who consistently exceed their quotas do so because of their relationships with customers and knowledge of the marketplace; these sales reps possess an inherent ability to sell (e.g., Leong, Busch, and John 1989; Sujan, Sujan, and Bettman 1988). Past performance, i.e., past quota achievement, is also a significant indicator of sales reps' ability to manage customer relationships and perform the selling function, and should influence lead follow-up. Thus, sales reps' ability should correlate positively with the sales rep's experience (i.e., number of years spent in a sales job) and the sales rep's past performance (i.e., quota achievement in the previous year).³ And both these indicators of ability should influence marketing lead follow-up by sales reps.

² Although we expect sales rep experience to correlate with the sales rep's ability to build relationships with customers, it is possible that there are diminishing returns to increase in ability. Thus, we estimated a model with a squared term for experience as an additional explanatory variable. The coefficient for this squared term was not statistically significant.

³ Empirical research indicates that "sales reps are quota achievers rather than dollar maximizers" (Churchill, Ford, and Walker 2003, p. 232), and their prior quota achievements influence their lead follow-up behaviors (e.g., Gaba and Kalra 1999; Ross 1991). Sales reps with better sales performance in previous years are more likely to follow-up leads with a lower likelihood of closure but higher revenue potential rather than leads with a higher likelihood of closure but lower revenue potential (e.g., Mittal, Ross, and Tsiros 2002).

HYPOTHESES

We include the main effects of the MOA variables in our model, as discussed above; our hypothesis development focuses on the moderating effects of the ability variables. We summarize our conceptual model in Figure 4.

[Insert Figure 4 about here]

Moderating Role of Ability Variables

The ability variables indicate the quality of relationships with and knowledge of customers (e.g., Leong, Busch, and John 1989; Szymanski and Churchill 1990). To acquire new customers, sales reps must forge relationships and understand how to make sales. At different levels of ability, sales reps' preferences for pursuing marketing-generated leads should differ (Mittal, Ross, and Tsiros 2002); thus ability should not only directly influence time allocation decisions but also moderate the effects of motivation and opportunity on these decisions. For example, a more seasoned sales rep likely responds differently to increases in lead follow-up opportunities than does a novice.

The two ability variables should not have identical moderating effects however, because experience and past performance involve different aspects of ability. Experienced sales reps should have relationships with customers forged over the long term, which makes them dependent on existing relationships to achieve their sales targets. Sales reps with better past performance (but not necessarily greater experience), in contrast, might excel in the selling process and thus not necessarily need long-lasting relationships with customers to generate sales volume effectively.

Motivation-Related Moderation Hypotheses

Sales reps' perception of the quality of their firm's prequalification process, a motivation variable, should have a positive relationship with the time they allocate to marketing leads, because reps wish to avoid leads from "casual enquirers" (Szymanski 1988). If sales reps have a favorable opinion of their firm's prequalification process, they should assume that the leads they receive will

exclude casual enquirers. As sales reps gain experience, they also gain knowledge of the marketplace and customer relationship management practices (e.g., Misra, Coughlan, and Narasimhan 2005) so they should be better able to acquire new customers successfully from prequalified marketing leads.

Therefore,

H1: As sales reps' experience increases, the positive effect of the perceived quality of the prequalification on the time spent following up marketing-generated leads increases.

Leong, Busch, and John (1989) find that sales reps' past performance, in terms of achieving sales quotas, relates positively to their ability to identify customer needs and effectively communicate the value of their sales offerings. As sales reps' past performance increases, their improved selling skills should increase the likelihood that they can acquire new customers from prequalified marketing leads. Mittal, Ross, and Tsiros (2002) also find that as past quota achievement increases, sales reps feel increasingly confident about the risk of acquiring newer customers, rather than focusing only on safer bets, such as known customers. Furthermore, past performance should relate positively to sales reps' responses to motivational cues toward a goal (quota in this case) (Dubinsky and Hartley 1986), because responsiveness to such cues enables them to meet or exceed their quotas. Thus, we suggest that past performance should positively moderate the positive effect of prequalification quality on the follow-up of marketing leads.

H2: As sales reps' past performance increases, the positive effect of the perceived quality of prequalification on the proportion of time spent following up on marketing-generated leads increases.

We expect managerial tracking to display a positive relationship with the time that sales reps allocate to marketing leads, though this relationship may shift as sales reps gain experience. Most sales compensation plans evaluate sales reps on outcomes (i.e., quota achievement) rather than behaviors. Although Jackson, Keith, and Schlacter (1993) have shown that managers' expectations influence sales reps' behaviors, this effect may weaken as sales reps gain experience. Coughlan and Narasimhan (1992) show that as experience increases, sales reps are more likely to focus on

outcomes rather than behavior, so managerial influence on sales reps' behavior should decrease as experience increases. With experience, sales reps become less responsive to managerial tracking of their follow-up on marketing leads, as they focus more on their self-generated leads, which they perceive as offering a better potential for closure. Thus,

H3: As sales reps' experience increases, the positive effect of managerial tracking on time spent following up on marketing-generated leads weakens.

The better the sales reps perform in terms of their quota achievement, the more likely they are to win bonuses as rewards; thereby, the salience of rewards might increase with their performance. This increased salience of rewards based on quota achievement, not on behavior, could increase their focus on outcomes. As Coughlan and Narasimhan (1992) show, past performance relates positively to the influence of outcome-based rather than behavior-based incentives. So as sales reps' past performance increases, their responsiveness to managerial tracking, a behavioral cue, should decrease. Thus,

H4: As sales reps' past performance increases, the positive effect of managerial tracking on the time spent following up on marketing leads weakens.

Opportunity-Related Moderation Hypotheses

An increase in lead volume increases the opportunity for sales reps to pursue the goal of following up on marketing leads. That is, an increase in marketing lead volume should increase focus on marketing leads relative to self-generated leads. However, this effect may vary with the experience and past performance of the sales reps.

When marketing sends leads to sales reps, the reps must evaluate the expected revenue potential of those leads. Greater marketing lead volume therefore increases the cognitive effort that sales reps must expend. Furthermore, as sales reps gain experience, their networks of lead-generating contacts (e.g., vendor reps, existing customers) get richer, so their self-generated leads also increase in quality and quantity. With limited time for customer acquisition activities, sales reps compare

marketing leads against self-generated leads to determine the allocation of their time; as they gain experience and thus have more self-generated leads, they may consider the effort required to assess marketing leads less inefficient than following up self-generated leads.

H5: As sales reps' experience increases, the positive effect of marketing lead volume on the time spent following up on marketing-generated leads weakens.

Similar arguments apply to the moderating effect of past performance on marketing lead volume. On the one hand, similar to an increase in experience, an increase in past performance may grant sales reps more and higher quality self-generated leads. This increase in self-generated leads takes time away from the sales rep's follow-up of marketing leads.

On the other hand, it is not clear if the quality and quantity of self-generated leads increases as much due to past performance as it does due to greater experience. Experienced sales reps have networks of contacts built up over years, whose lead-generating capacity likely cannot be matched by sources of leads built only on the basis of recent past performance. Therefore, an increase in past performance might not correspond to an increase in the quality and quantity of self-generated leads. Furthermore, the increase in marketing lead volume should increase the opportunity to close sales and exceed quotas, results that sales reps with strong past performance clearly are capable of achieving. As sales reps' past performance increases, greater marketing lead volume might increase their follow-up on marketing leads. We thus offer two competing hypotheses:

H6a: As sales reps' past performance increases, the positive effect of marketing lead volume on the time spent following up on marketing-generated leads weakens.

H6b: As sales reps' past performance increases, the positive effect of marketing lead volume on the time spent following up on marketing-generated leads grows stronger.

MODEL AND METHOD

Nested Logit Model for Sales Reps' Time Allocation

In line with the two-stage time allocation process in Figure 2, we argue that the proportion of customer acquisition time allocated to marketing leads depends conditionally on the proportion

of total time allocated to customer acquisition activities. Because this sequential, two-stage process is similar in structure to the brand choice–purchase incidence decision-making process, we adopt a nested logit formulation (e.g., Bucklin and Gupta 1992; Kannan and Wright 1991) to model sales reps' time allocation. Using the proportions of time allocated to various responsibilities, we define for a sales rep i ($i = 1, \dots, N$) the following (note that $p_{iaq} + p_{inaq} = 1$, and $q_{iml} + q_{isl} = 1$):

p_{iaq} = proportion of total time spent on customer acquisition.

p_{inaq} = proportion of total time spent on non-acquisition activities.

q_{iml} = proportion of customer acquisition time spent on marketing leads.

q_{isl} = proportion of customer acquisition time spent on self-generated leads.

Existing methods for nested logit analysis require a categorical variable that indicates the choice on each occasion, but our data, collected from a survey of sales reps, do not enable us to observe each choice. We thus use the proportion of time a sales rep allocates below, as follows.

Stage 1. In the first stage, the sales rep allocates time between customer acquisition activities and nonacquisition activities. The proportion of time allocated to the latter lies between 0 and 1, and we assume that it can be modeled with a beta distribution:

$$(1) \quad p_{inaq} \sim \text{Beta}(a_{inaq}, b_{inaq}).$$

We assume the term related to the variance⁴ of p_{inaq} (i.e., $a_{inaq} + b_{inaq}$) is an unknown parameter γ . We then specify the mean of the beta distribution as $a_{inaq}/(a_{inaq} + b_{inaq}) = a_{inaq}/\gamma = \mu_{inaq}$, which we can determine on the basis of explanatory variables. With regard to the vectors of explanatory variables X_{in} (nonacquisition) and X_{ia} (acquisition) specific to sales rep i , we can specify the mean of the beta distribution of the proportion of time spent on nonacquisition activities as:

$$(2) \quad \mu_{inaq} = \exp(\beta_n X_{in}) / [\exp(\beta_n X_{in}) + \exp(\beta_a X_{ia})],$$

⁴ For identification purposes, we assume all proportions are homoskedastic. This assumption does not affect the results, because we are primarily interested in modeling the proportion levels, that is, the means of the distribution.

where β are the parameter vectors. Next, let $F(\cdot)$ be the logit link function used on the RHS (Right-Hand Side). The likelihood function can then be written as:

$$(3) \quad L(\beta, \gamma) = \prod_{i=1}^n \frac{\Gamma(\gamma)}{\Gamma(F(X_i^T \beta)\gamma)\Gamma(\gamma(1-F(X_i^T \beta)))} p_{inaq}^{F(X_i^T \beta)\gamma-1} (1-p_{inaq})^{\lambda(1-F(X_i^T \beta))-1},$$

and the posterior distribution is

$$p(\beta, \gamma | p_{naq}) = \frac{L(\beta, \gamma) p(\beta, \gamma)}{\int L(\beta, \gamma) p(\beta, \gamma) d\beta d\gamma}.$$

This stage thus gives us the parameter estimates for the explanatory variables that affect the allocation of time to acquisition versus nonacquisition activities.

Stage 2. In the second stage, we estimate the parameters for sales reps' allocation of time to marketing leads, given the time allocation in the first stage. The dependent variable is q_{iml} , which is the proportion of the customer acquisition time allocated to marketing leads. We also specify this proportion with a beta distribution:

$$(4) \quad q_{iml} \sim \text{Beta}(a_{iml}, b_{iml}).$$

We specify the variance term,⁵ $a_{iml} + b_{iml}$, to be an unknown constant λ . We then specify the mean of the beta distribution as $a_{iml}/(a_{iml} + b_{iml}) = a_{iml}/\lambda = \mu_{iml}$, to be determined on the basis of explanatory variables. The vectors of the explanatory variables are X_{im} (marketing leads) and X_{is} (self-generated leads), specific to sales rep i . However, the mean of proportion of acquisition time allocated to marketing leads is conditional on the proportion of total time allocated to customer acquisition in the first stage, $1 - \mu_{inaq}$, which is a multiplicative term in the specification for μ_{iml} to account for its conditionality. Thus, we specify the mean of the beta distribution of the proportion of time spent on marketing leads as:

$$(5) \quad \mu_{iml} = (1 - \mu_{inaq}) \exp(\alpha_m X_{im}) / [\exp(\alpha_m X_{im}) + \exp(\alpha_s X_{is})],$$

⁵ Similar to Stage 1, we consider the proportions to be homoskedastic.

where, α are the parameter vectors. The likelihood function is:

$$(6) \quad L(\alpha, \lambda) = \prod_{i=1}^n \frac{\Gamma(\lambda)}{\Gamma(F(X_i^T \alpha)\lambda)\Gamma(\lambda(1-F(X_i^T \alpha)))} q_{iml}^{F(X_i^T \alpha)\lambda-1} (1-q_{iml})^{\lambda(1-F(X_i^T \alpha))-1} (1-\mu_{inaq})$$

and the posterior distribution is:

$$(7) \quad p(\alpha, \lambda | p_{ml}) = \frac{L(\alpha, \lambda)p(\alpha, \lambda)}{\int L(\alpha, \lambda)p(\alpha, \lambda)d\beta d\gamma}$$

Thus, the α parameter represents the relationship between the explanatory variables and the marketing lead follow-up time allocation, conditional on the proportion of customer acquisition time. To account for heterogeneity in the hypothesized effects across firms, we specify α and β parameters to be firm-specific.

Data Collection Procedure

We mailed 2666 surveys to sales reps from four BtoB firms, three of whom were members of Penn State's Institute for the Study of Business Markets (ISBM). Each firm represented a different industry (scientific instruments, chemicals, copiers, and computers). Respondents reported (1) their past performance in terms of percentage quota achieved in the previous year, (2) their experience in years spent working as a sales rep,⁶ as well as the time they spent in hours each month (3) following up on marketing leads, (4) following up on self-generated leads and (5) pursuing nonsales activities. We assume that their remaining time involves customer retention activities.

The survey also included measures of sales reps' perceptions (agree - disagree on a 1-7 scale) of the quality of their firm's prequalification process (five items) and the extent of managerial tracking of marketing lead follow-up efforts (five items). The survey items are presented in Appendix A. We received 562 surveys, for a response rate of 21.08%. After screening for missing data on key constructs and an outlier analysis, we were left with 500 usable responses.

⁶ They also reported their experience in their current job, a variable highly correlated with overall experience.

Given that the four firms are BtoB, the customer accounts that their sales reps handled were businesses of sizes ranging from small businesses to Fortune 100 corporations. The size of the sales force varied from 55 (for Firm 2 - chemicals) to 2500 (Firm 4 – computers). The sales reps that make up our sample were customer-facing account reps that within a firm, handled mutually exclusive sets of customer accounts. The compensation schemes in all four firms were based primarily on quota achievement, commissions, and bonuses on top-line sales. Although the compensation schemes in all four firms included bonuses tied to acquiring new customers, no component was explicitly tied to following up marketing leads. Thus, if sales reps could acquire new customers through self-generated leads, there was no specific financial incentive for them to pursue marketing leads.

Our preliminary examination of the data showed that 39 respondents reported spending no time pursuing marketing leads. The t-tests for the differences between the explanatory variables for the zero and non-zero marketing lead follow-up time groups offer some support for our hypothesis. For example, those reps who spent no time pursuing marketing leads perceive the quality of lead prequalification (1.76) as significantly lower than those do those who pursue at least some marketing leads (2.21). In addition, 37 of the 39 respondents with no marketing-generated lead follow-up time came from one firm (computer industry), which suggests potential for systematic bias. Therefore, we removed the discard the responses with zero marketing lead follow-up time allocations from further analysis, leaving 461 surveys that reported on all relevant measures, a sufficient size sample for our analysis.⁷

In Table 1, Panel a, we present the descriptive statistics of the independent variables across the four firms; in Panel b, we present the descriptive statistics and the correlation matrix for the entire sample.

⁷ To check for robustness, we included 112 surveys that left two or fewer explanatory variables blank and treated them as missing values. The results are similar to the analysis with surveys offering full responses.

[Insert Table 1 about here]

Measure Validation and Common Method Bias

The dependent variable in the first stage of the nested logit model is the proportion of total time spent on nonacquisition activities; the dependent variable in the second stage is the proportion of customer acquisition time devoted to marketing leads. We collected the five-item *motivation* variable measures, managerial tracking and perceived quality of prequalification, on a 1 to 7 (agree to disagree) scale. We take the number of leads that sales reps received from their marketing departments during the year as the *opportunity* measure of marketing lead volume. For the *ability* variables, we measured sales rep experience as the self-reported number of years in a sales job⁸ and sales rep's past performance as the percentage quota achieved the previous year.

Our measures for managerial tracking and quality of prequalification are perceptual, so we conducted a confirmatory factor analysis (CFA) to determine the reliability and validity of the multi-item scales. The CFA model for the two continuous multi-item constructs exhibits good psychometric properties ($\chi^2_{19} = 31.93$, comparative fit index = .99, Tucker-Lewis index = .99, root mean square error of approximation = .038, standardized root mean-square residual = .037).⁹ To ensure that the scales measure the underlying constructs in each firm, we also conducted a multi-group CFA, which yields fit indices that differed by less than 1% from the aggregate CFA.

We then assessed the scale reliabilities, which are greater than .80 (.89 for prequalification, .92 for managerial tracking); the average variance extracted for both constructs also exceeds .50 (.61 for prequalification, .58 for managerial tracking), demonstrating discriminant validity (Fornell and Larcker 1981) and as protection against the adverse effects of multicollinearity (Grewal, Cote, and Baumgartner 2004). Furthermore, multicollinearity diagnostics for the explanatory variables show

⁸ We also measured experience in the current job; our analysis showed that the effect of current job experience was in the same direction and of the same statistical significance as that of total sales experience.

⁹ On the basis of the modification indices, we dropped one item for each construct.

that the condition indices are well below 30 (highest = 13.25), the variance inflation factors are lower than 10 (highest = 1.19), and the variance proportions for all the variables on the dimensions with the highest condition indices are lower than .50, which indicate multicollinearity might not be a concern.

To protect against common method bias concerns, we used different formats to collect the variables of interest and ensured temporal separation with a time lag between the relevant questions in the survey instrument (Podsakoff et al. 2003). Specifically, we measured the motivation variables using multi-item Likert scales; we measured opportunity and ability variables directly, using objective self-reported responses from sales reps. We achieved temporal separation by separating the criterion and predictor variables used by at least 40 items in the survey instrument. To examine the possibility of common method bias, we used Harman's single factor test. Using exploratory factor analysis, we estimated a model that consisted of all the predictor variables and both the criterion variables. Five eigenvalues exceeded 1 (>1.14), and a sixth equaled .97. Factor loadings on a single dimension showed that neither the criterion variables nor the objective measures loaded significantly on it. In the five-factor solution, the measures load separately along each of the five dimensions, closely aligned to the definition of the measures. Our findings are consistent with prior meta-analytic research (Doty and Glick 1998) and indicate that common method bias is not a serious issue for our analysis.

Model Estimation

We used a hierarchical Bayesian approach to estimate the model, adapting a nested logit algorithm with proportion as the dependent variable. To avoid confounding due to the effect of the amount of time spent by sales reps on activities such as customer management and nonsales activities on the allocation of time spent on following marketing leads., we included nonacquisition

time (hours per month) as a control variable in the second stage of the nested logit model. (Nonacquisition time should have a negative effect on the follow-up of marketing leads).

We specified firm-level coefficients to allow for heterogeneity in the parameter values and signs. We estimated the model using standard Markov chain Monte Carlo procedures, with three concurrent chains (Bolstad 2007). The first 5,000 iterations are burn-in; the next 50,000 iterations provide the sample for parameter estimation. To assess model convergence, we used Gelman-Rubin statistics. To test the significance of the parameter values, we checked whether the confidence intervals contained 0 (as recommended for Bayesian estimation; e.g., Rossi, Allenby, and McCulloch 2005) and used the parameter values and standard errors to calculate the t-statistics. The conclusions about significance based on the confidence interval method are consistent with those based on the t-statistics. For ease of interpretation, we report just the t-statistics and *p*-values as evidence of statistical significance.

RESULTS

Our estimation allows for firm-level coefficients. However, all the significant firm-level coefficients are consistent with the aggregate-level coefficients, so we report only the aggregate-level coefficients. We present the results for the nested logit estimation in Table 2.

[Insert Table 2 about here]

The significant main effects and the results for the control variable largely follow our expectations, except for managerial tracking, where we expected the effect to be positive but is negative (-.97 at the .01 level). Managerial tracking is a behavior-based control applied by firms to ensure that sales reps follow the goals that the firm sets. However, our results show that it has a negative effect, implying that the higher the level of managerial tracking, the less sales reps follow-up on marketing leads. This result is consistent with some sales force literature (e.g., Oliver and

Anderson 1994) that indicates that sales reps respond more to outcome-based controls than to behavior-based controls.

Ability as a Moderator of the Effect of Motivation

In H1, we predict that as experience increases, the positive effect of the prequalification of marketing leads on follow-up grows stronger. The parameter for the interaction of experience and prequalification as an influence on the proportion of marketing lead follow-up time allocation (.83) is positive and statistically significant at the .01 level, in support of H1. However, the parameter for the interaction of past performance and prequalification as an influence on the proportion of marketing lead follow-up time allocation is not statistically significant, so we do not find support for H2.

With regard to the hypothesized negative interaction effect between experience and managerial tracking, we find that the parameter for the interaction on the proportion of marketing lead follow-up time allocation is negative (-.73) and statistically significant at the .01 level, in support of H3. We also find support for H4, because the parameter for the interaction of past performance and managerial tracking as an influence on the proportion of marketing lead follow-up time is negative (-.38) and statistically significant at the .05 level.

Ability as a Moderator of the Effect of Opportunity

We have hypothesized that as experience increases, the positive effect of marketing lead volume on the time spent following up on marketing leads becomes weaker (H5). We find support for this negative interaction effect in the parameter for the interaction, which is negative (-.15) and statistically significant at the .05 level. The parameter for the interaction of past performance and marketing lead volume as an influence on the proportion of marketing lead follow-up time is positive (.22) and statistically significant at the .10 level, so we find support for H6b rather than H6a.

Robustness Checks

To test the robustness of our results, we estimated the nested logit model after specifying firm-level coefficients for all the effects. Effects that are statistically significant in the aggregate specification are also statistically significant in the firm-level specification, and they operate in the same direction in both. Therefore, the effects are consistent across the four firms from which we collected data. These four firms represent four different industries, so this consistency in the results suggests that our findings are fairly robust, at least in the BtoB context.

We also estimated the second stage of the sequential decision-making process, in which sales reps allocate customer acquisition time to marketing- versus self-generated leads, where marketing- and self-generated lead follow-up time proportions are dependent on each other, according to a bivariate normal distribution. The results for the interaction hypotheses under this alternative model specification are consistent with the results from the second stage of the nested logit model.

Marginal Interaction Effects

The parameters for all interactions (except H2) in our nested logit model are statistically significant, and their signs are consistent with our hypotheses. However, as Ai and Norton (2003) argue, it is not sufficient to use just parameter values to interpret interaction effects in nonlinear models. Rather, we must examine the marginal effects of the interaction variables, including how simultaneous changes might effect a change in the dependent variable. In nonlinear models, the parameter value for an interaction does not equal the marginal interaction effect. The nonlinear nature of the logit function in our model results in the marginal interaction effect that changes as the value of the (1) interacting variables changes and (2) other (noninteracting) independent variables changes.

We therefore derive the marginal effect for an interaction by taking a cross-partial derivative of the logit function with respect to the two interacting variables (the technical details and detailed

results are available in a technical Web appendix). We plot the marginal interaction effects for all statistically significant interactions against the predicted value of the dependent variable, that is, the proportion of customer acquisition time spent on marketing leads. For every interaction, our plots display the pattern that Ai and Norton (2003) predict would be manifest in most interaction effects in nonlinear models; the marginal effect is positive for some observations and negative for others, regardless of the sign of the interaction parameters.

For parsimony, we present the marginal interaction effects for two interactions, experience and perceived quality of prequalification (H1) and past performance and marketing lead volume (H6b). In Figure 5, we provide the marginal interaction effect plots and the statistically significant differences in means for respondents with negative and positive marginal effects for the two interactions.

[Insert Figure 5 about here]

Consistent with H1, the interaction between experience and perceived prequalification quality is positive. However, the left-hand panel of Figure 5 displays an S-shaped curve for the marginal effects of this interaction, which might be positive or negative. It appears negative for those sales reps who spend less than 60% of their acquisition time on marketing leads but positive for those who spend more than 60%. Sales reps who display a positive marginal interaction effect tend to be more experienced and work for firms with better prequalification efforts and a lesser emphasis on managerial tracking than do those who display a negative marginal interaction effect (see left-hand side of Figure 5). We also display the location of sales reps with mean values for the four firms. The firm means cluster at the center, but the mean marginal interaction effect is 0 for Firms 1 and 3, negative for Firm 4, and positive for Firm 2.

Similarly, consistent with H6b, the interaction between past performance and marketing lead volume is positive, but the right-hand panel of Figure 5 indicates that the marginal interaction effect

is negative for sales reps who spend more than 60% of their acquisition time on marketing leads and positive for those who spend less time. Sales reps who display a positive marginal interaction effect tend to have higher past performance, higher marketing lead volume, and less experience than sales reps with a negative marginal interaction effect (right-hand side of Figure 5). Furthermore, sales reps with a negative marginal interaction effect work for firms with better lead prequalification and managerial tracking processes. Again, the firm means cluster at the center, but the mean marginal interaction effect is 0 for Firms 1 and 2, negative for Firm 3, and positive for Firm 4.

DISCUSSION

We have estimated a nested logit model using survey data from 461 sales reps from four firms to test our hypotheses regarding sales reps' allocation of their time to pursue marketing leads; these data support five of our six hypotheses. We find that with greater experience sales reps increase their pursuit of marketing-generated leads with the perceived quality of the prequalification but decrease it as managerial tracking increases. Managerial tracking also has a more detrimental effect on follow-up of marketing leads for sales reps as past performance increases. Greater experience reduces sales reps' responsiveness to increases in the marketing lead volume, whereas an increase in past performance increases reps' responsiveness to marketing lead volume. We discuss the theoretical and managerial implications of these findings.

Theoretical Implications

Academic marketing scholars have paid little attention to the sales lead black hole, and to the best of our knowledge, this study is the first empirical examination of this issue. We have developed and tested a conceptual framework of factors that may influence sales reps' decision to follow-up on marketing-generated leads. Our results help clarify how individual sales reps' abilities (experience and past performance) interact with sales processes (prequalification, managerial tracking, and lead volume) to influence reps' actions.

Contrary to our expectations, though consistent with some prior research, the main effect of managerial tracking on marketing lead follow-up time is negative. Anderson and Oliver (1987) theorize that firms should benefit from behavior-based controls but find in practice (Oliver and Anderson 1994) that outcome-based controls are more effective. Heide (1994) also considers outcome-based controls more effective for managing distribution channels than behavior based controls. Due to the result-driven nature of their job and achievement-based compensation schemes, sales reps may be even more likely to focus on outcomes than most other employees. As we see here, managerial tracking might not only be not particularly effective but also could lead to negative consequences.

Greater experience or past performance compounds the negative effect of managerial tracking. In Figure 6, Panel a, we plot marketing lead follow-up effort as a function of managerial tracking, sales rep experience, and past performance. The downward trend in marketing lead follow-up activities with greater managerial tracking is pervasive, but the slope differences indicate that the decline is more pronounced with greater experience and past performance.

[Insert Figure 6 about here]

These interaction results underline the importance of considering heterogeneity in sales reps' abilities when studying the usefulness of behavior-based controls for various sales tasks. Behavior-based controls may motivate underperforming or inexperienced sales reps to engage in behaviors that the firm desires, but as sales reps' experience and past performance increases, the behavior-based controls become counterproductive.

The effect of lead prequalification also shifts with experience. The effect size comparisons in Figure 6, Panel b, indicate that as sales reps gain experience (and knowledge of the market and customers), they are increasingly responsive to the quality of the prequalification. This finding extends work by Hunter and Perreault (2007), who find that sales reps consider information systems

and processes useful only if they help those reps build and strengthen their relationships with customers and make sales. This interaction effect suggests that experience is one of the factors that determine how sales processes aid sales reps in doing their jobs.

The measure of the quality of prequalification is not an objective firm-level measure but rather is based on individual sales reps' perceptions. The considerable variance in these perceptions, coupled with the significant interaction effect with experience, suggests that research in sales force management should focus on not only the objective quality of sales-enabling processes but also sales reps' perceptions of those processes. The H1 results also underline the value of better coordination between marketing and sales.

Although experience and past performance are both strong indicators of sales rep ability and are correlated, their effects should be examined separately, because their effects vary (Figure 6, Panel c). Experienced and high-performing sales reps respond differently to greater marketing lead volume; these findings support efforts by previous researchers who, in their studies of sales force effectiveness, have tried to differentiate among the different abilities of sales reps (e.g., Leong, Busch and John 1989, Sujan, Sujan and Bettman 1988, Szymanski 1988).

Our examination of the marginal interaction effects of the nested logit model, where the marginal interaction effects are contingent on the levels of all independent variables, stresses the need to look beyond parameter values when interpreting interaction effects from nonlinear models (Ai and Norton 2003). Although the marginal interaction effects are largely consistent with the implications of the parameter values, for some ranges of independent variable values the effects are in the opposite direction of our hypotheses. The marginal interaction approach is also useful for explaining the overall differential effects across the four firms in our sample although the parameters for all four firms are similar.

Our findings also suggest that not all abilities should be treated alike; regardless of their correlation with performance, different abilities, such as sales rep experience and past performance, can interact differently with the several elements of sales processes.

Managerial Implications

Our study is useful for managers seeking strategies to improve follow-up on marketing generated leads. The best strategies depend on the range of abilities of the sales reps in the firms. To illustrate the managerial value of results and how they vary by firm, we calculate the elasticity of the lead follow-up with respect to the perceived quality of prequalification, level of managerial tracking, and marketing lead volume (Table 3)

[Insert Table 3 about here]

The elasticity of marketing lead follow-up time for the perceived quality of the prequalification is 1.04 for the sample as a whole: thus a 1% increase in perceived prequalification quality produces a 1.04% increase in marketing lead follow-up time allocation. The elasticity is positive across all four firms but varies considerably (from a low of 0.62 to a high of 1.92). Thus even within our sample, there is a 3:1 ration of the elasticity of perceived prequalification quality between the least and most responsive firm. The low mean and high standard deviation (mean = 2.87 on a 1-7 scale with s.d. = 1.25 from Table 1) that we find in the perceptions of prequalification quality suggests that there is considerable room for overall improvement in this key driver of marketing lead follow-up for most firms. Facilitating better interaction between marketing and sales concerning what makes for a good quality lead could pay significant dividends.

Because managerial tracking is primarily behavioral in nature, with little bearing on sales reps' quota-based compensation and bonuses, the elasticity of marketing lead follow-up time allocations for managerial tracking is -0.18 for the aggregate sample. That is, managerial tracking is counterproductive for follow-up on marketing-generated leads. However, this elasticity also varies

across the four firms: negative for Firms 1 and 2 but positive for Firms 3 and 4. The elasticity is highest in Firm 3 (.43), for which increasing managerial tracking might lead to an increase in marketing lead follow-up efforts. As we show in Table 1, Panel b, the average experience (8.83 years) in Firm 3 is the lowest among all firms (11.92 years aggregate); its less experienced sales reps may be more likely to respond to managerial tracking than their experienced counterparts in other firms.

Finally, the elasticity of lead follow-up time to volume of leads is very small on average (-.04) and for all firms as well. Thus, our result on the volume of sales leads, while statistically significant is not really of managerial concern; better prequalification and tuning managerial tracking are the areas managers should focus on in addressing their lead black hole concerns.

Limitations and Further Research

Our study uses data from firms who are major players in their industries and have been so for several decades; they likely have sales processes and systems in place that have incorporated their organizational learning about sales force management and lead generation. Consequently, the conclusions of our study might not be applicable to smaller or younger firms whose sales processes are still evolving. The relationships we have hypothesized also might vary in industries other than the four included in our study.

This study does not take into account heterogeneity in sales reps' stated customer acquisition responsibilities. Some reps focus on maintaining relationships with existing key accounts, whereas others focus on acquiring new customers. The sales reps' job descriptions and stated responsibilities thus could provide alternative explanations for the allocation of their time between marketing- and self-generated leads.

The dependent variables in our study indicate the proportions of time that sales reps allocate to two avenues for customer acquisition. Similar analyses with more fine-grained measures of lead

follow-up efforts could result in deeper insights. For example, it might be useful to gather data that enable an analysis at the level of individual leads to identify lead-specific as well as sales rep-specific factors that influence follow-up on a lead. Lead-level data from firms' customer relationship management systems might make such an analysis possible.

Despite these limitations, our research demonstrates the importance of addressing heterogeneity in sales reps' abilities, as well as the way these abilities moderate the effects of sales process factors on the important problem of poor follow-up on marketing leads. Firm-level analyses of elasticity and marginal interaction effects reveal that the best way to increase lead follow-up efforts depends on the abilities of the firm's sales reps and firm-specific sales processes. Although the main and interaction effects are robust across the firms and different contexts, differences in the sizes of those effects across different firm circumstances permits firm-specific prescriptions from our findings.

For too long, sales and marketing have blamed each other for the sales lead black hole. And there is more than enough blame to go around. We hope that our results and subsequent research will help demonstrate that the solution lies not just in more general cooperative efforts but in forms of cooperation tuned to individual sales reps' abilities and to the firm's specific sales processes.

Appendix A
Survey Items for Measuring Perceived Quality of Prequalification and Managerial Tracking
(Measured on a 1-7 Agree – Disagree Scale)

Perceived Quality of Prequalification ($\alpha = .80$)

1. My company screens leads effectively.
2. My company does a terrible job of filtering out cold leads. (reverse coded)
3. My company is competent at throwing out low return generating leads.
4. My company is very good at giving only hot leads to salespeople.
5. My company does a wonderful job of screening leads.

Managerial Tracking of Lead Follow-up ($\alpha = .82$)

1. Call reports are used extensively by management to track the follow-up of company leads by salespeople.
2. My organization uses a lead tracking software system to monitor follow up of company leads by salespeople.
3. Tracking the follow-up of company leads by salespeople is not done formally in our organization.
(reverse coded)
4. My supervisor is very involved in monitoring the follow-up of company leads by salespeople.
5. Management emphasizes sales managers tracking the follow up of company leads by their salespeople.

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Figure 1
Demands on Sales Reps' Time

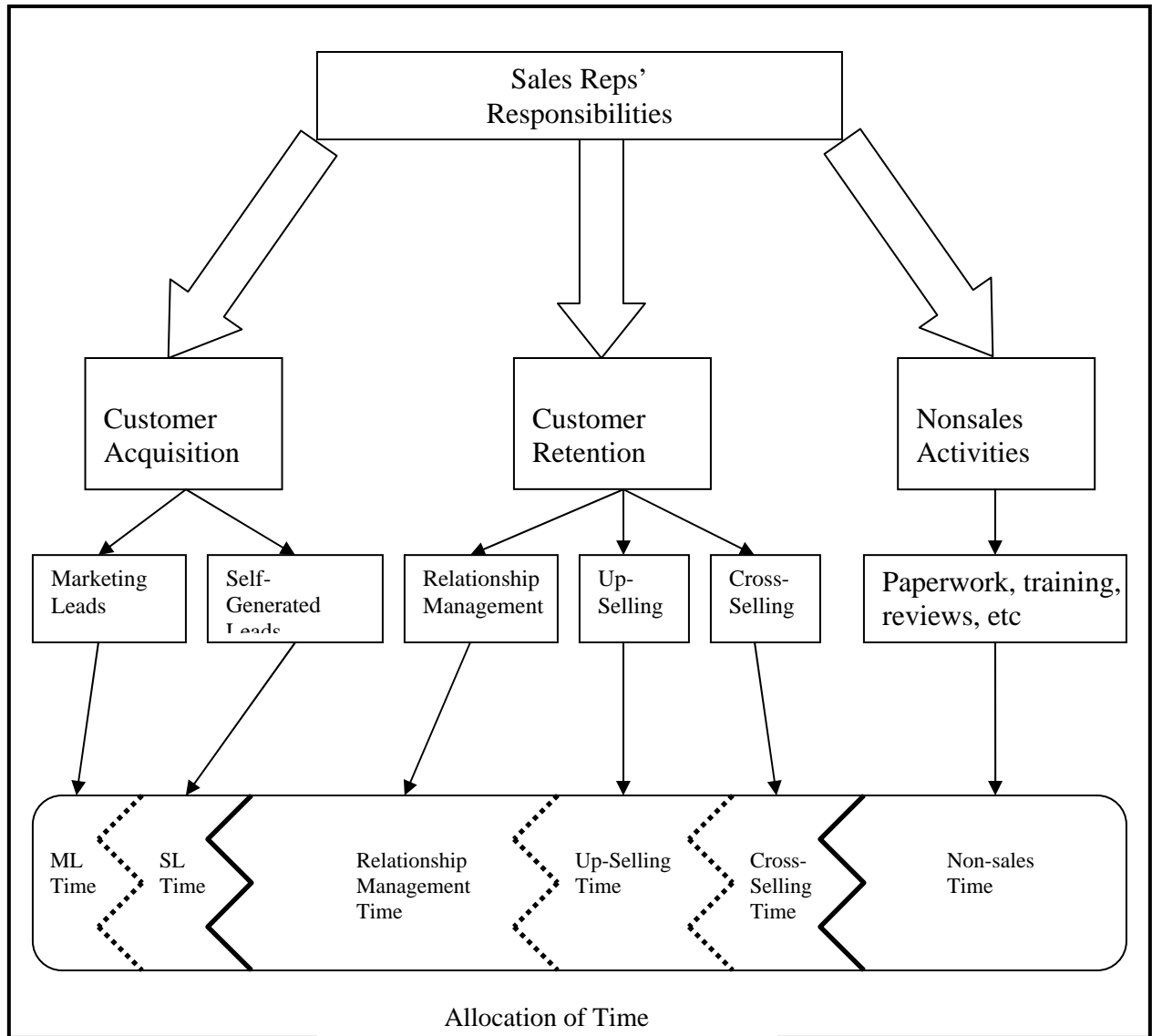


Figure 2
Sales Reps' Sequential Decision-Making Process for Marketing Lead follow-up time

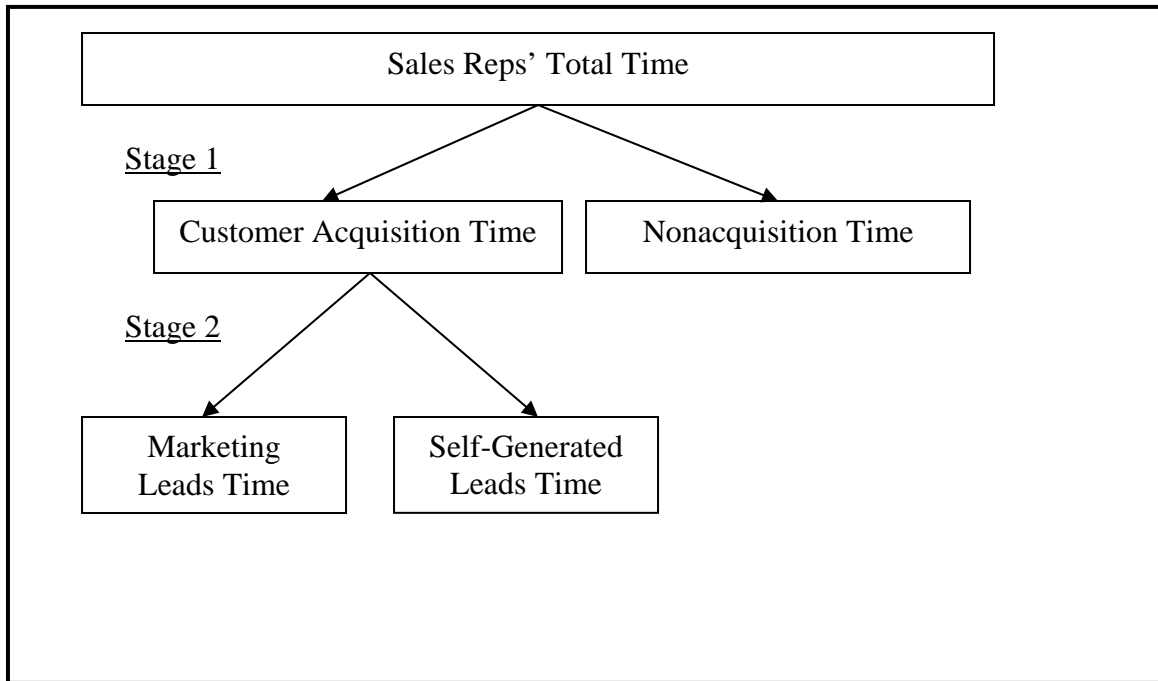


Figure 3
Motivation–Opportunity–Ability (MOA) Framework for Customer Acquisition Time
Allocation by Sales Reps

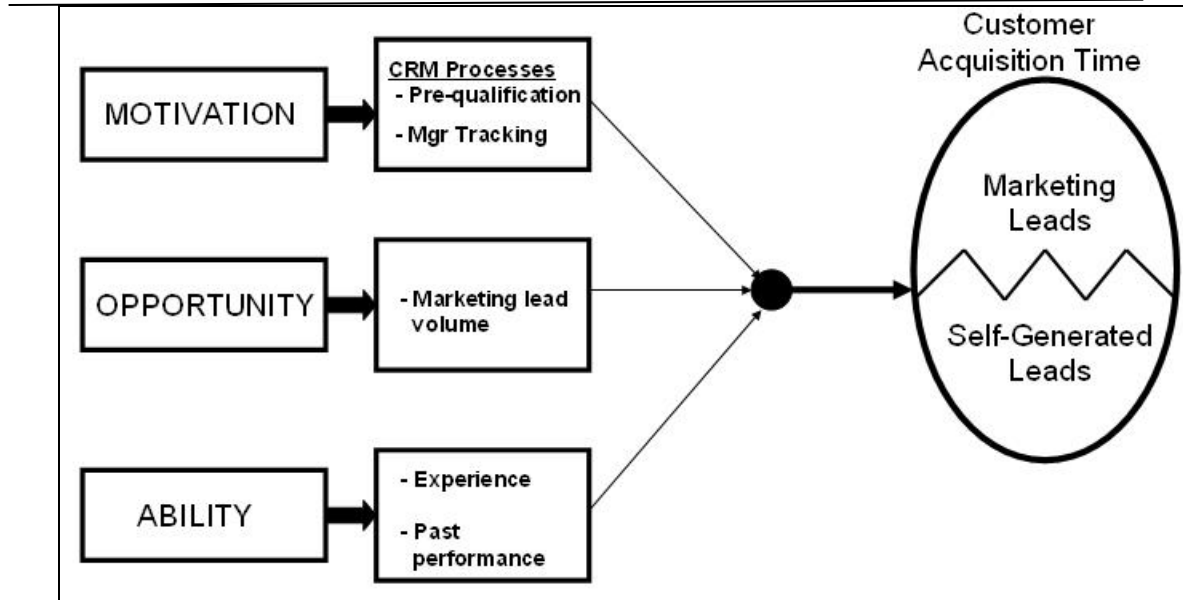


Figure 4
Hypotheses Leading to the Nested-Logit Model

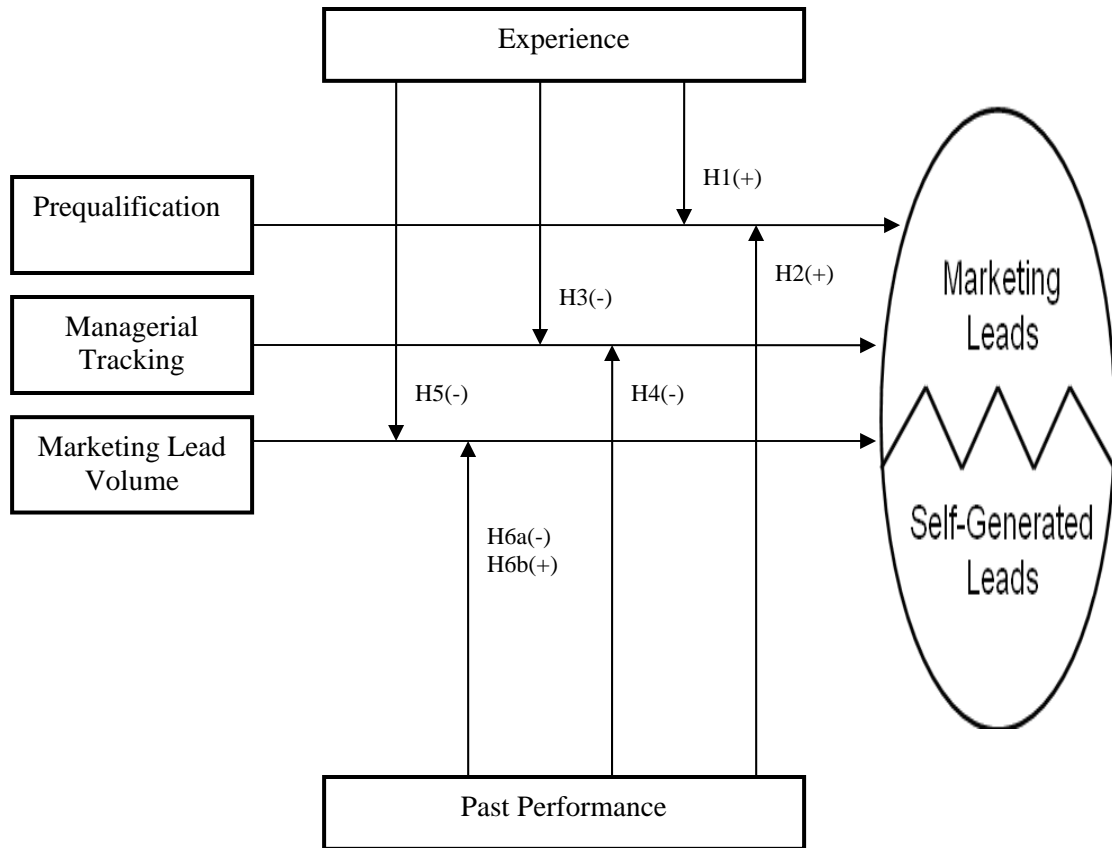
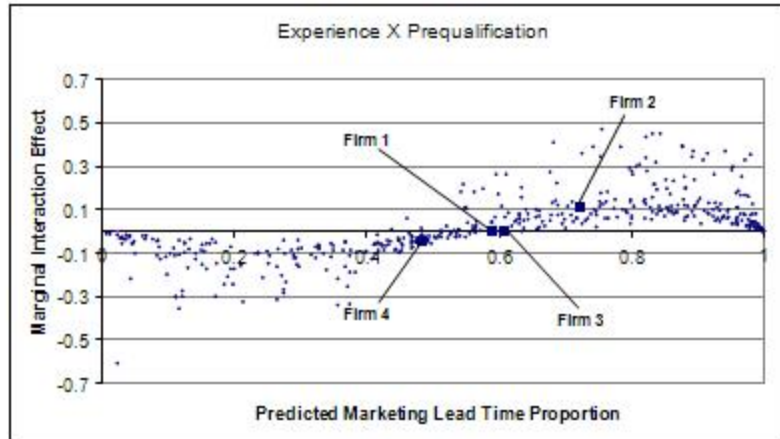


Figure 5
Marginal Interaction Effects for H1 and H6b

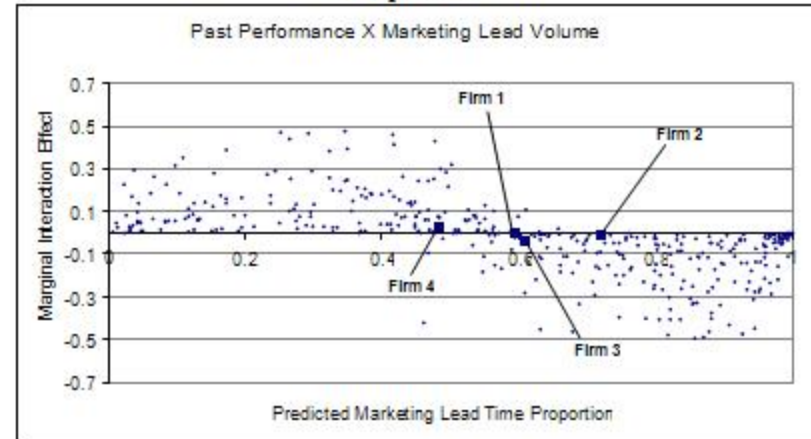
Marginal Interaction Effect for Experience and Prequalification Plotted against the Predicted Marketing Lead Time Proportion



Statistically Significant Differences in Means for Respondents with Negative and Positive Marginal Interaction Effects of Experience and Prequalification

	Marginal Interaction Effect Negative	Marginal Interaction Effect Positive
Experience	10.23	14.45
Prequalification	2.54	3.21
Managerial Tracking	3.46	2.34

Marginal Interaction Effect for Past Performance and Marketing Lead Volume Plotted against the Predicted Marketing Lead Time Proportion



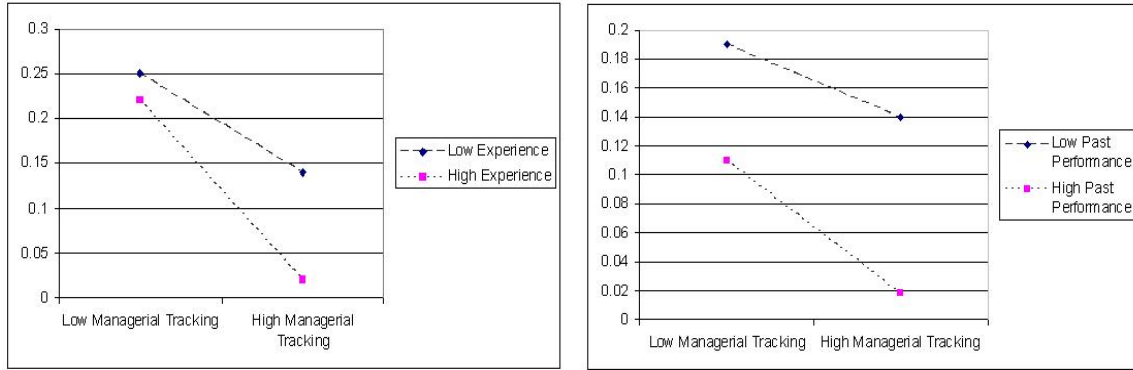
Statistically Significant Differences in Means for Respondents with Negative and Positive Marginal Interaction Effects of Past Performance and Marketing Lead Volume

	Marginal Interaction Effect Negative	Marginal Interaction Effect Positive
Past Performance	103.5	124.7
Marketing Lead Volume	44.9	56.7
Experience	13.56	10.08
Prequalification	3.25	2.39
Managerial Tracking	3.47	2.3

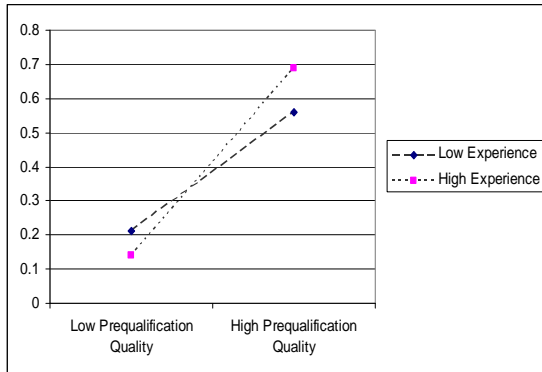
Notes: All differences in mean statistically significant at the 0.05 level.

Figure 6
Marketing Lead follow-up time Proportions at Different Levels of Interacting Variables

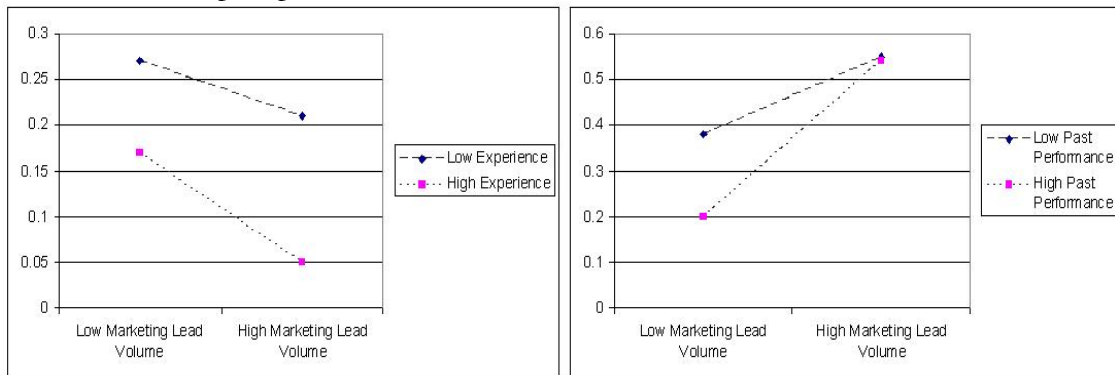
(a) Marketing Lead Follow-Up Effort as a Function of Managerial Tracking, Sales Rep Experience, and Past Performance



(b) Proportions of Marketing Lead Follow-Up Time for High and Low Prequalification Quality and Sales Rep Experience



(c) Proportions of Marketing Lead Follow-Up Time for High and Low Marketing Lead Volume, Sales Rep Experience, and Past Performance



Notes: The proportions of marketing lead follow-up time come from parameter estimates from the nested logit model. The “low” values of the variables are (Mean – SD), and the high values are (Mean + SD).

Table 1
Descriptive Statistics
(a) Firm-Specific Descriptive Statistics

Variable	N	Total	Firm 1	Firm 2	Firm 3	Firm 4
Managerial tracking	Mean	2.81	3.62	2.39	3.20	2.55
	SD	1.33	1.16	1.16	1.33	1.28
Quality of prequalification	Mean	2.87	4.60	3.23	3.14	2.43
	SD	1.25	1.10	1.25	.98	1.04
Marketing lead volume	Mean	48.61	109.30	199.48	18.42	32.14
	SD	141.52	111.1	428.5	21.68	88.57
Past performance	Mean	111.64	97.37	99.53	104.31	118.17
	SD	50.37	22.32	15.53	52.73	54.47
Experience	Mean	11.92	18.45	10.77	8.83	11.96
	SD	7.53	9.69	7.56	7.22	6.40

(b) Bivariate Correlation Coefficients

Variable	Mean	Std. Dev.	MLT	SLT	MT	QP	MLV	NAQT	PP
Marketing lead follow-up time proportion (MLT)	.267	.451							
Self-generated lead follow-up time proportion (SLT)	.733	.819	.20**						
Managerial tracking (MT)	2.81	1.33	.22**	-.03					
Quality of prequalification (QP)	2.87	1.25	.23**	-.07*	.38**				
Marketing lead volume (MLV)	48.61	141.52	.28**	-.01	.05	.06			
Nonacquisition time proportion (NAQT)	.788	.196	-.52**	-.72**	-.07	-.05	-.07*		
Past performance (PP)	111.64	50.37	-.10	-.03	-.06	-.13**	-.05	.05	
Experience (EXP)	11.92	7.53	-.06*	-.08	.07	.13**	.08**	.05**	-.06

* Correlation significant at the .10 level,

** Correlation significant at the .05 level.

Notes: Managerial tracking (MT) and quality of prequalification (QP) reflect the mean scores of four items (1–7 scale). Past performance (PP) is the percentage quota achieved in the previous year. Experience (EXP) is the number of years that the respondent has worked as a sales rep. The sample size is 461. The means and standard deviations for the independent variables apply across all four firms.

Table 2
Results for the Nested Logit Model

<i>Variable</i>	Stage 1 Nonacquisition Time Proportion			Stage2 Marketing Lead follow-up time Proportion		
	<i>Parameter</i>	<i>Std. Error</i>	<i>t-stat</i>	<i>Parameter</i>	<i>Std. Error</i>	<i>t-stat</i>
Prequalification	.12	.19	NS	.82	.43	1.91*
Managerial tracking	-1.38	.81	-1.70*	-.97	.33	-2.94***
Marketing lead						
Volume	.32	.15	2.13**	.09	.23	NS
Past performance	-.82	.99	NS	-.23	.07	-3.29***
Experience	.48	.22	2.18**	.36	.48	NS
Nonacquisition						
Time				-1.11	.53	-2.09**
Experience × prequalification (H1)	-.26	.12	-2.17**	.83	.22	3.77***
Past performance × prequalification (H2)	.04	.16	NS	.09	.42	NS
Experience × managerial tracking (H3)	.64	.54	NS	-.73	.22	-3.32***
Past performance × managerial tracking (H4)	-.14	.21	NS	-.38	.16	-2.38**
Experience × marketing lead volume (H5)	-.31	.77	NS	-.15	.07	-2.14**
Past performance × marketing lead volume (H6)	-.09	.05	-1.80*	.22	.12	1.83*

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Table 3
Elasticity of Marketing Lead follow-up time

Controllable Factor	Aggregate	Firm 1	Firm 2	Firm 3	Firm 4
Quality of prequalification	1.04	1.22	.62	1.93	1.43
Managerial tracking	-.18	-.05	-.24	.43	.02
Marketing lead volume	-.04	.03	-.11	-.12	.18

Notes: Elasticities for the effect of controllable factors on marketing lead follow-up time, at aggregate level and for the four firms.