MARKETING – SALES INTERFACE FOR NEW PRODUCTS: ANALYTICAL AND EMPIRICAL ESSAYS

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ABSTRACT

Commercializing new products successfully provides the financial return companies need for continuous growth. Though studies have demonstrated that the sales force is a major contributing factor to new product success, few efforts have been devoted to understanding the interplay of diffusion processes and sales force management strategies in new product launches. As first steps toward understanding these processes, I propose an analytical essay and an empirical essay addressing issues concerning the marketing – sales interface for new products. Though designed as independent papers using distinct methods, the two essays reflect an integrative perspective to better understand multiple aspects of an under-researched substantive domain.

The analytical essay investigates sales force compensation issues when a new product is launched. Using an agency theoretic framework, I examine how market conditions influence firms' compensation decisions when customers fall into innovator and imitator segments. A myopic firm ignores the word-of-mouth effect and consequently suffers suboptimal profit outcomes. A foresighted firm sets first-period sales commissions so as to exploit the word-of-mouth effect in the next period and thereby maximizes profit. Intuitively, one might expect that the foresighted firm should set a higher commission rate than the myopic firm. I show that this intuition is incorrect. There exists a "Demotivating Zone" of coefficients of imitation in which the firm is better off to set a lower commission rate in the initial period. In addition, when the magnitude of word-of-mouth is sufficiently large, the firm should "extramotivate" its sales force, even if this means negative profit in Period 1. Expected net profit grows dramatically in Period 2, more than compensating for the loss in Period 1.

In the empirical essay, I propose and test a behavioral framework to determine how marketing managers can best "sell new products to the sales force." The focus of this essay is on the types of persuasive appeals, incentives, and inducements that are most effective in enlisting sales force effort behind new products. I also examine the gate-keeping role of the front-line sales manager. In a survey of salespeople and sales managers of a tool manufacturing firm, I find that (1) salespeople's attitude negatively moderates the positive relationship between their subjective norm and intention to sell a new product, (2) marketing managers' informational influence and sales managers' promotional and normative influence have the strongest impacts on salespeople's selling intention, and (3) sales managers play a critical gatekeeping role in translating salespeople's selling intention into actual sales performance. The study contributes to understanding the internal marketing of new products to the sales force and how to promote better coordination between the marketing and sales functions.

Chapter 1

ANALYTICAL ESSAY: TO MOTIVATE OR NOT TO MOTIVATE YOUR SALES FORCE IN A NEW PRODUCT LAUNCH

Abstract

The essay investigates sales force compensation issues when a new product is launched. Using an agency theoretic framework, I examine how market conditions influence firms' compensation decisions when customers fall into the categories of innovator and imitator. A myopic firm ignores the word-of-mouth effect and consequently suffers suboptimal profit outcomes. A foresighted firm sets first-period sales commissions so as to exploit the word-of-mouth effect in the subsequent period, thereby maximizing its profit.

Intuitively, one might expect a foresighted firm to set a higher commission rate than that of a myopic firm. I show that this intuition is incorrect. There exists a "demotivating zone" of coefficients of imitation, in which zone the firm is better off to set a lower commission rate in the initial period. In addition, when the magnitude of the word-of-mouth effect is sufficiently large, the firm should "extramotivate" its sales force, even if this means negative profit in the first period. The result is that expected net profit grows dramatically in the second period—more than compensating for the loss in the first.

1.1. Introduction

A study of 650 leading manufacturers reveals that executives believe launching new products and services is the most important driver of revenue growth. Further, the study shows that executives expect new product revenue as a share of total sales to hit 35% in 2007, up from just 21% in 1998. Indeed, success of new products can become a matter critical to the survival of many companies. By 2010, products that currently represent more than 70% of today's sales will be obsolete due to changing market conditions and roaring competition (Deloitte Research 2004).

Many product launches depend upon personal selling in order to communicate the benefits of the new products to customers (Zoltners, Sinha and Zoltners 2001). Though agency theory has been used extensively to delineate the conditions under which salary and commission should be used to compensate salespeople, the literature ignores the interplay of sales force compensation and new product life-cycle (Basu et al. 1985; Bergen, Dutta and Walker 1992). In their classic work on sales force compensation plan, Lal and Srinivasan (1993, p.783) acknowledge that "[t]he present approach…does not take into account the dynamics in the market place. Consequently, our approach may not be valid in certain circumstances, especially when one thinks of new products."

The interplay between new products and sales force management deserves closer academic scrutiny than it has received. New products often take years of effort and millions of dollars to reach the critical point of launching to the new market. The success (or failure) of new product launches puts companies' fates and managers' careers on the line. With so much at stake, managers need guidance to make better decisions that will more successfully commercialize their new products.

Several studies have suggested that vigorous sales force support for new products is critical to a launch's proficiency (Booz, Allen, and Hamilton 1982; Cooper 2000). A meta-analysis conducted by Henard and Szymanski (2001, p. 368) establishes "the proficiency with which a firm launches the product/service" to be one of the "dominant drivers" of new product performance. Following this line of reasoning, I investigate sales force motivation as a necessary means to superior new product performance.

Compensation is arguably the most powerful factor in sales force motivation (Walker, Churchill and Ford 1977). Two empirical studies suggest that firms modify sales force compensation when new products are sold (Wotruba and Rochford 1995; Micheal, Rochford and Wotruba 2003). However, it remains unclear what modifications are best. In particular, should a firm increase incentive pay for its sales force when new products are launched?

To fully understand the issue, I conducted in-depth interviews with marketing and sales executives from a variety of industries. According to these interviews, most managers tend to believe that because new products are difficult to sell, higher incentive pay to induce greater sales effort is appealing. This point of view is echoed in the popular press. After summarizing several characteristics of the new product launch, Canning and Berry (1982, p. 45) argue that: "[a]ccordingly, a straight-commission plan is appropriate at the introductory stage."

In academia, Horsky and Simon (1983) modify the Bass diffusion model by incorporating the impact of marketing activities, showing that the marketing effort accelerates the diffusion process of the new product. Although their work does not directly address sales force compensation issues, they make a general recommendation:

"the optimal policy is to direct a lot of the sales force time to a new product when it is being introduced and to reduce this effort gradually afterwards" (Horsky and Simon 1983, p. 15).

However, the issue may not be as straightforward as researchers and executives have suggested. Researchers have not found that firms consistently set higher commission rates during new product launches (Wotruba and Rochford 1995; Micheal, Rochford and Wotruba 2003). Apparently, the ways firms set commissions differ from industry to industry. Even within a single industry, firms may set different commission rates for different new products. In this study, I assess the conditions under which it is optimal for the firm to invest more or less heavily in incentives to elicit sales force effort behind new product launches.

I propose a two-period analytical model to investigate the issue directly. The results indicate that the belief that firms should always set higher commission rates during the introductory period is incorrect. I find, under certain market conditions, that a firm may be better off "demotivating" its sales force (i.e., withholding investment in incentives). In contrast, under other market conditions, an "extramotivation" strategy during the introductory period may be optimal, even though this may mean that the firm has to tolerate a negative profit during this period.

My findings provide significant insights for managers who design sales force compensation plans in new product launches by highlighting the risk of overdriving the sales force. It is *not* always in a firm's best interest to motivate salespeople to work harder. In fact, for the purpose of new product profitability, I find evidence of a "demotivating zone," in which the firm is better off to set lower incentive pay. Further,

under different market conditions, firms should not only pay higher incentives to stimulate greater effort, but they should also set above the product's gross margin.

1.2. Literature Review

1.2.1 Literature on New Product Diffusion

Research on new product diffusion, to various degrees, stems from Rogers' (1962) notion that innovations follow a well-defined pattern of diffusion into a market. The sales pattern over time can be divided conveniently into introduction, growth, maturity, and decline stages, over which the rate of sales growth differs. In Rogers' (1962) framework, customers are categorized into five segments: 1) innovators; 2) early adopters; 3) early majority; 4) late majority; and 5) laggards. The characteristics of innovators that distinguish them from other segments are that they tend to be more venturesome, more technology savvy, and more capable of understanding complex product aspects and coping with uncertainty (Rogers 1962).

Bass (1969) aggregates the non-innovator segments into one group termed imitators. These imitators share similar features: they deliberate before adopting a new product; they seldom hold a position of opinion leadership; and they frequently interact with and feel pressure from peers. According to Bass (1969, p. 216), imitators "are influenced in the timing of adoption of the decisions of other members of the social system," while innovators are not. Bass (1969) also generalizes Rogers's assumption that the top 2.5% of adopters are innovators. In fact, the proportion of innovators may differ across industries and social systems.

Since Bass's study, research on new product diffusion has mushroomed (see the review in Mahajan, Muller and Bass 1990). Many studies within this literature focus on sales forecasting. Other applications relate to descriptive uses (Rao and Yamada 1988) and normative uses (Horsky and Simon 1983; Kalish 1983; Mahajan, Muller and Kerin 1984). The latter studies have evoked more managerial interest since they help managers determine optimal marketing mix strategies by incorporating the impacts of the product life-cycle dynamics. The issues that have been examined include pricing (Kalish 1983), advertising (Horsky and Simon 1983), and timing of product launch (Mahajan, Muller, and Kerin 1984).

However, most researchers generally treat the sales force as part of the marketing promotion mix without acknowledging the distinctions between sales force management and other promotional activities (e.g., advertising). This practice possesses the merit of simplicity but comes at the expense of deviation from reality. Failure to consider sales management strategies specifically results in a dearth of knowledge relevant to theory and practice in this important domain.

1.2.1.2 Literature on Sales Force Compensation Plan

The literature on sales force compensation is rich (see the review in Coughlan and Sen 1989). This partially reflects the fact that compensation is arguably the most powerful factor of sales force motivation (Walker, Churchill and Ford 1977). In this section, I focus exclusively on studies related to agency theory. Readers who have interests in other methods—such as deterministic approach and transaction cost analysis approach—may refer to Farley (1964), John and Weitz (1989), and Coughlan and Sen (1989).

Following early work by Srinivasan (1981), Basu et al. (1985) introduced the agency theory framework developed in economics (Holmstrom 1979; Holmstrom and Milgrom 1987) to marketing. Their study provides a theoretical basis for an analysis of the impact of risk aversion, environmental uncertainty, the effectiveness of sales effort, and other factors on the design of a two-part compensation plan. The essence of their model focuses on the tradeoff between the incentive power of commission and the stability of salary for a risk-averse salesperson.

There have been a number of subsequent agency studies that analyze different variants of sales force compensation plan design. For examples, Lal and Staelin (1986) examine the scenario of asymmetric information structure, and Rao (1990) provides insight into the compensation structure of a heterogeneous salesforce. Lal and Srinivasan (1993) analyze the compensation plan for multi-product sales force compensation. More recently, Joseph and Thevaranjan (1998) shed light on the impact of monitoring on sales force compensation plans, and Bhardwaj (2001) incorporates competition and price delegation.

Nearly all of these studies assume steady market demand in analyzing compensation design issues, and analyze single period model. For mature products, these assumptions retain parsimony without sacrificing much generality. However, with regard to compensation plans for new product launches, they tend to be too restrictive and may obscure important managerial implications. Relaxing them and integrating theory with the new product diffusion framework is likely to result in useful insights.

1.3. Model

New products have a life-cycle. The early stages of the new product life-cycle consist of introduction and growth periods. Customers who purchase during the introductory period are typically innovators who pay close attention to marketing communications regarding new products (Bass 1969). Customers who purchase during the growth period are influenced by both marketing communications and other customers' usage of the product. Bass (1969) refers to these customers as imitators. Imitators may be influenced by word-of-mouth recommendations from innovators as well as appeals from salespeople.

I assume that, for a period of time after a firm first introduces a new product through its sales force, only innovators purchase the product when salespeople make presentations to them. During this phase, the imitators are simply waiting and observing. I denote this introductory period as Period 1. Anecdotes supporting this assumption can be found in the actual business world. For example, in the high-tech industry, a new product usually involves new technology and innovation. Understanding these new features could be a challenging task to laymen, but customers with technology savvy may find them relatively easier to comprehend. Therefore, for a period of time, the knowledgeable customers are willing to adopt the new product when salespeople approach them and make sales presentations, whereas laymen simply wait, taking no decisive action. In this example, the technology savvy customers are treated as the innovators, and the laymen as the imitators.

Period 2 begins when imitators first purchase the new product. For this model (although I have no particular interests in the length of each period), empirical research

indicates that the introductory stage could last from several months to six years (Golder and Tellis 2004). All I require is that there be two periods and that two separate customer segments respond differently to sales force efforts during these two periods.

Notice that innovators may also purchase during the growth stage (i.e., Period 2). (I discuss the scenario when, if innovators have not gotten the chance to purchase in Period 1, they leave the market during Period 2.) Specifically, I make the following assumptions.

1) The firm is a monopoly and faces a target segment with market size equal to 1. The proportion of innovators in the target market is ρ and that of the imitators is $1-\rho$.

2) Sales force is a firm's sole promotional tool to communicate with customers. Though this assumption appears to be unrealistic, I maintain that all other marketing possibilities (i.e., advertising, trade shows, etc.) are held constant.

3) Customers buy one unit of the product and exit the market permanently. Like the Bass diffusion model, my framework can be applied to durable goods as well as to the initial purchase of a broad range of other new products.

4) During Period 1, only innovators buy under the influence of sales effort. During Period 2, both imitators and innovators who have not purchased in Period 1 will buy the new product. But imitators are under the influence of both salespeople's effort and innovators' word-of-mouth, whereas innovators are influenced only by sales effort.

5) Firms choose a compensation plan before Period 1 and have the opportunity to adjust it at the beginning of Period 2.

Consistent with the agency theory literature, the revenue function during the introduction stage is

$$x_1 = \rho(k_1 t_1 + \varepsilon_1), \tag{1}$$

where x_1 is the sales revenue in Period 1. As in Joseph and Tehvaranjan (1998), t_1 is the salesperson's effort and k_1 is a parameter that denotes the effectiveness of the salesperson's effort in Period 1. ε symbolizes a random shock; I assume that ε is normally distributed with a mean of zero and variance of σ^2. Notice that equation (1) differs from the extant agency theory literature only by the inclusion of parameter ρ, where $\rho \in (0,1)$. Stated differently, the potential market is limited to ρ during the introduction stage, where ρ denotes the proportion of innovators in the market.

[For the benefit of the readers, a list of all symbols used in this paper is provided in Table 1.1]

Table 1. 1 List of Symbols

x_i	Sales revenue in period i,
ρ	Proportion of innovators,
q	Word-of-mouth effect,
k_i	Salesperson's effort effectiveness in period i
$p(x_i)$	Firm's payment to salesperson (compensation),
α_i	Fixed salary in period i,
β_i^j	Commission rate of firm j in period i,
ε_i	Environmental uncertainty in period i,
σ_i^2	Variance of environmental uncertainty in period i,
r	Salesperson's risk aversion parameter,
L	Salesperson's learning effect,
ζ	Impact of advertising on effort effectiveness,
A	Firm's advertising expenditure,
Z	Salesperson's expected income,
$E[\pi_i^j]$	Net expected profit of firm j in period i,
$E[\pi_T^j]$	Total net expected profit of firm j.

To promote the new product, the firm designs a linear compensation plan (salary plus commission) to motivate its sales force. I restrict my focus to linear compensation plan since Holmstrom and Milgrom (1987) have proven that linear compensation plan is optimal. The linear compensation plan scheme is also consistent with the agency theory research in the marketing literature (Lal and Srinivasan 1993; Joseph and Thevaranjan 1998). Based on these assumptions, I analyze firms' optimal compensation plans in the next section.

1.4. Analysis

I distinguish two types of firms, i.e., myopic and foresighted. A myopic firm focuses sequentially on each of the two periods and sets its profit-maximizing compensation plans in Period 1 without considering the consequences in Period 2. A foresighted firm recognizes the interconnected dynamics of the two periods and sets its compensation plans to maximize the total profits over the two periods. In this section, I first analyze the compensation plan of a myopic firm and then that of a foresighted firm. The method of analysis of these optimization problems is consistent with those in the principal-agent literature to ensure comparability.

1.4.1. The Compensation Plan of a Myopic Firm

During Period 1, the myopic firm's problem is to maximize its expected profit, subject to two constraints that guide the salesperson and ensure participation. Formally, the firm's objective is to

$$\underset{\alpha 1,\beta 1,t1}{Max}\ E[\pi_1] = \rho k_1 t_1 - E\left[p(x_1)\right], \tag{2}$$

subject to

$$E\left[p(x_1)\right] - \frac{1}{2}t_1^2 - \frac{r}{2}\beta_1^2\rho^2\sigma_1^2 \geq \overline{U}, \text{ and} \tag{3}$$

$$t_1 \in \arg\max_t \left\{\alpha_1 + \rho k_1 t \beta_1 - \frac{1}{2}t^2 - \frac{r}{2}\beta_1^2\rho^2\sigma_1^2\right\}, \tag{4}$$

where payment is $p(x_1) = \alpha_1 + \beta_1 x_1$. The objective in equation (4) is the expected utility of the risk averse salesperson. Equation (3) is the participation constraint and equation (4) is the incentive compatibility constraint. The participation constraint ensures that the salesperson will receive a utility at least equal to her reservation utility, whereas the incentive compatibility constraint allows the salesperson to maximize her utility by choosing the optimal amount of effort. First order condition of equation (4) yields

$$t_1^M = \rho k_1 \beta_1. \tag{5}$$

Superscript M denotes the myopic firm's optimal value. Set equation (3) to equality, solve for expected payment, and substitute into (2) to get the firm's expected profit:

$$E\left[\pi_1\right] = \rho^2 k_1^2 \beta_1 - \frac{1}{2}\rho^2 k_1^2 \beta_1^2 - \frac{r}{2}\beta_1^2\rho^2\sigma_1^2 - \overline{U}. \tag{6}$$

Maximizing (6) with respect to β_1 yields the optimal commission rate,

$$\beta_1^M = \frac{k_1^2}{k_1^2 + r\sigma_1^2}. \tag{7}$$

Thus, the expected net profit of the myopic firm is

$$E[\pi_1^M] = \frac{0.5\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} - \overline{U}. \tag{8}$$

Although an increase in salary does not alter the salesperson's effort, the firm adjusts the salary to ensure the salesperson's minimum expected utility is satisfied. As in the literature (Lal and Srinivasan 1993), the optimal value of salary is given by

$$\alpha_1^M = \overline{U} - \rho^2 k_1^2 \beta_1^2 + \frac{1}{2}\rho^2 k_1^2 \beta_1^2 + \frac{r}{2}\beta_1^2 \rho^2 \sigma_1^2. \quad (9)$$

Substituting (5) and (7) in (9) and simplifying, I obtain the optimal salary as

$$\alpha_1^M = \overline{U} - \frac{1}{2}\rho^2 (k_1^2 - r\sigma_1^2)\left(\frac{k_1^2}{k_1^2 + r\sigma_1^2}\right)^2. \quad (10)$$

By assuming $\overline{U}$ to be sufficiently large, the optimal salary is positive. At the optimum, the expected Period 1 income for the salesperson is given by

$$Z_1^M = \overline{U} + \frac{1}{2}\rho^2 k_1^2 \left(\frac{k_1^2}{k_1^2 + r\sigma_1^2}\right). \quad (11)$$

These results are consistent with those documented in the agency theory literature (Lal and Srinivasan 1993; Joseph and Thevaranjan 1998).

In Period 2, sales revenue is a function of salespersons' effort, the word-of-mouth effect of the innovators who purchased during the first period, and a stochastic component. Mathematically, we have

$$x_2 = q x_1 (1 - \rho) + (1 - x_1)(k_2 t_2 + \varepsilon_2), \quad (12)$$

where $1 - \rho$ is the proportion of imitators within the target market segment and q denotes the magnitude parameter of word-of-mouth effect.

Notice that the first term at the right-hand side of equation (12) captures the word-of-mouth effect, which is equal to the product of the number of innovators who purchased in Period 1, the word-of-mouth parameter and the total number of imitators. As the total market size is 1, salespeople in Period 2 focus on the customers who have yet

to purchase, which is $1 - x_1$. Thus, the second term at the right-hand side is similar to the revenue function in the first period with the adjusted market size. I assume that the firm knows the actual sales that were made in Period 1 at the beginning of Period 2. Therefore, managers will use the actual sales, instead of the expected value of sales in Period 1, to calculate the expected profit in Period 2. During Period 2, the firm's problem is to

$$\underset{\alpha 2,\beta 2,t2}{Max}\ E[\pi_2] = qx_1(1-\rho) + (1-x_1)k_2t_2 - \mathrm{E}[\mathrm{p}(\mathrm{x}_2)], \tag{13}$$

subject to

$$E[p(x_2)] - \frac{1}{2}t_2^2 - \frac{r}{2}\beta_2^2(1-x_1)^2\sigma_2^2 \geq \overline{U}, \text{and} \tag{14}$$

$$t_2 \in \arg\max_t \left\{\alpha_2 + qx_1(1-\rho)\beta_2 + (1-x_1)k_2t\beta_2 - \frac{1}{2}t^2 - \frac{r}{2}\beta_2^2(1-x_1)^2\sigma_2^2\right\}. \tag{15}$$

First order condition of equation (15) yields

$$t_2^M = (1-x_1)k_2\beta_2. \tag{16}$$

Set equation (14) to equality and substitute, the firm's expected profit can be rewritten as

$$qx_1(1-\rho) + (1-x_1)^2k_2^2\beta_2 - \frac{1}{2}(1-x_1)^2k_2^2\beta_2^2 - \frac{r}{2}\beta_2^2(1-x_1)^2\sigma_2^2 - \overline{U}. \tag{17}$$

First order condition with respect to β_2 yields

$$\beta_2^{\mathrm{M}} = \frac{k_2^2}{k_2^2 + r\sigma_2^2}. \tag{18}$$

All second order conditions are also satisfied. Following the same approach as in Period 1, I derive the salesperson's optimal salary and expected income in Period 2 as

$$\alpha_2^M = \overline{U} - qx_1(1-\rho)\beta_2 - \frac{1}{2}(1-x_1)^2\beta_2^2(k_2^2 - r\sigma_2^2), \text{ and} \tag{19}$$

$$Z_2^M = \overline{U} + \frac{1}{2}(1-x_1)^2k_2^2\beta_2. \tag{20}$$

Acknowledging that $x_1 \sim N[\rho k_1 t_1, \rho^2 \sigma_1^2]$, I substitute (16) and (18) in (19) and (20) and simplify to obtain the optimal Period 2 salary and expected income, which are given by

$$\alpha_2^M = \overline{U} - \frac{q(1-\rho)\rho^2 k_1^4 k_2^2}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2)} - \frac{(k_2^2 - r\sigma_2^2)}{2}\left(\frac{k_2^2}{k_2^2 + r\sigma_2^2}\right)^2 \times$$

$$\left(1 - 2\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} + \rho^2\sigma_1^2 + \left(\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2}\right)^2\right), \text{ and} \tag{21}$$

$$Z_2^M = \overline{U} + \frac{k_2^4}{2(k_2^2 + r\sigma_2^2)}\left(1 - 2\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} + \rho^2\sigma_1^2 + \left(\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2}\right)^2\right). \tag{22}$$

The expected profit of the myopic firm in Period 2 given x_1 can be written as

$$E_{x_1}[E[\pi_2^M \mid x_1]] = q(1-\rho)E[x_1] + \frac{1}{2}E[(1-x_1)^2]\frac{k_2^4}{k_2^2 + r\sigma_2^2} - \overline{U}. \tag{23}$$

Using (5) and (7), we have the expected net profit of the myopic firm in the second period

$$E[\pi_2^M] = q(1-\rho)\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} + \frac{1}{2}\left(1 - \frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2}\right)^2\left(\frac{k_2^4}{k_2^2 + r\sigma_2^2}\right) + \frac{1}{2}\left(\frac{k_2^4}{k_2^2 + r\sigma_2^2}\right)\left(\rho^2\sigma_1^2\right) - \overline{U}. \tag{24}$$

The total profit is equal to the sum of the net profits over the two periods (i.e., $E[\pi_T^M] = E[\pi_1^M] + E[\pi_2^M]$). Therefore, we have

$$E[\pi_T^M] = \frac{1 + 2q(1-\rho)}{2} \cdot \frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} + \frac{1}{2}\left(1 - \frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2}\right)^2\left(\frac{k_2^4}{k_2^2 + r\sigma_2^2}\right) +$$

$$\frac{\rho^2\sigma_1^2}{2}\left(\frac{k_2^4}{k_2^2 + r\sigma_2^2}\right) - 2\overline{U}. \tag{25}$$

This is the expected net profit that the myopic firm deprives from its new product. Notice that the firm designs its sales force compensation exactly based on the

recommendation of the agency theory literature. In the next section, I will show that the firm has an opportunity to increase its profit substantially by incorporating the dynamic nature of its new product and the interconnections of the two periods into its compensation plan.

1.4.2. The Compensation Plan of a Foresighted Firm

Firms may realize that they should maximize the total profit over the two periods instead of maximizing the profits of each of the two periods separately. In this section, I examine the case of a foresighted firm. The firm is foresighted in the sense that it observes salesperson's behaviors in the second period, and then sets up the commission rate in the first period accordingly in order to maximize the sum of net expected profits of the two periods.

For simplicity, I assume that the firm and its salespeople are using different discount rates. Without loss of generality, I assume the firm's discount rate is zero and the salesperson's is infinity. Equivalently, I assume the firm treats the profits from the first and second periods as equal, whereas a salesperson's work in the first period completely ignores the second period. Hauser, Simester and Wernerfelt (1994) rationalizes salespeople's short-termism with the following summarizations: the likelihood that salespeople will not be around to collect the rewards since they do not have life time contracts; the concern that the firm may alter the reward system in the latter period; and the possibility that they may not get credit for the long-term sales since the firm may reassign its sales territories.

The foresighted firm's objective is to maximize the total expected profits by choosing the optimal commission rates in both Period 1 and Period 2. Mathematically, we have

$$\underset{\alpha_1,\beta_1,\alpha_2,\beta_2}{\text{Max}} \; E(\pi_T^F) = E[\pi_1^F(\beta_1)] + E[\pi_2^F \mid \beta_1]. \tag{26}$$

This maximization problem is subject to the same constraints, thus we have $t_1^F = \rho k_1 \beta_1$ and $t_2^F = (1-\rho k_1 t_1) k_2 \beta_2$. Therefore, the foresighted firm's profit function can be rewritten as

$$\rho^2 k_1^2 \beta_1 - \frac{1}{2}\rho^2 k_1^2 \beta_1^2 - \frac{r}{2}\beta_1^2 \rho^2 \sigma^2 - \overline{U} + q x_1 (1-\rho) + (1-x_1)^2 k_2^2 \beta_2 -$$

$$\frac{1}{2}(1-x_1)^2 k_2^2 \beta_2^2 - \frac{r}{2}\beta_2^2 (1-x_1)^2 \sigma_2^2 - \overline{U}. \tag{27}$$

First order condition with respect to β_2 yields

$$\beta_2^F = \frac{k_2^2}{k_2^2 + r\sigma_2^2}. \tag{28}$$

Substitute (28) into (27) and recognize that $x_1 \sim N[\rho k_1 t_1, \rho^2 \sigma_1^2]$, we derive the foresighted firm's optimal commission rate in Period 1 as

$$\beta_1^F = \frac{\left((1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right) - k_2^4\right)k_1^2}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4}, \tag{29}$$

Following the same approach as for the myopic firm, I derive the optimal salary, expected income, and firm's expected income of the foresighted firm in Period 1. These results are

$$\alpha_1^F = \overline{U} - \frac{1}{2}\rho^2 (k_1^2 - r\sigma_1^2)\left[\frac{\left(1+q(1-\rho)\right)\left(k_2^2 + r\sigma_2^2\right)k_1^2 - k_1^2 k_2^4}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4}\right]^2, \tag{30}$$

$$Z_1^F = \overline{U} + \frac{1}{2}\rho^2 k_1^2 \frac{\left((1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right) - k_2^4\right)k_1^2}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4}, \text{ and} \tag{31}$$

$$E[\pi_1^F] = \rho^2 k_1^2 \frac{\left((1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right) - k_2^4\right)k_1^2}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4}$$
$$-\frac{1}{2}\rho^2 (k_1^2 + r\sigma_1^2)\left[\frac{(1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right)k_1^2 - k_1^2 k_2^4}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4}\right]^2 - \overline{U}. \tag{32}$$

Similarly, the Period 2 results are

$$\alpha_2^F = \overline{U} - \frac{q(1-\rho)\rho^2 k_1^2 k_2^2}{k_2^2 + r\sigma_2^2} \frac{\left((1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right) - k_2^4\right)k_1^2}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4} - \frac{(k_2^2 - r\sigma_2^2)}{2}\left(\frac{k_2^2}{k_2^2 + r\sigma_2^2}\right)^2 \times$$

$$\left(1 - \frac{2\rho^2 k_1^2[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4} + \rho^2\sigma_1^2 + \left(\frac{\rho^2 k_1^4[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4}\right)^2\right), \tag{33}$$

$$Z_2^F = \overline{U} + \frac{1}{2}\frac{k_2^4}{k_2^2 + r\sigma_2^2} \times$$

$$\left(1 - \frac{2\rho^2 k_1^2[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4} + \rho^2\sigma_1^2 + \left(\frac{\rho^2 k_1^4[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4}\right)^2\right), \tag{34}$$

and

$$E[\pi_2^F] = q(1-\rho)\rho^2 k_1^2 \frac{\left((1+q(1-\rho))\left(k_2^2 + r\sigma_2^2\right) - k_2^4\right)k_1^2}{\left(k_1^2 + r\sigma_1^2\right)\left(k_2^2 + r\sigma_2^2\right) - \rho^2 k_1^4 k_2^4} - \overline{U} + \frac{1}{2}\frac{k_2^4}{k_2^2 + r\sigma_2^2} \times$$
$$\left(1 - \frac{2\rho^2 k_1^2[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4} + \rho^2\sigma_1^2 + \left(\frac{\rho^2 k_1^4[(1+q(1-\rho))(k_2^2 + r\sigma_2^2)k_1^2 - k_2^4 k_1^2]}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4}\right)^2\right). \tag{35}$$

Therefore, the total profit of the foresighted firm is

$$E[\pi_T^F] = \rho^2 k_1^2 \frac{\left((1+q(1-\rho))\left(k_2^2+r\sigma_2^2\right)-k_2^4\right)k_1^2}{\left(k_1^2+r\sigma_1^2\right)\left(k_2^2+r\sigma_2^2\right)-\rho^2 k_1^4 k_2^4}$$
$$-\frac{1}{2}\rho^2(k_1^2+r\sigma_1^2)\left[\frac{\left((1+q(1-\rho))\left(k_2^2+r\sigma_2^2\right)-k_2^4\right)k_1^2}{\left(k_1^2+r\sigma_1^2\right)\left(k_2^2+r\sigma_2^2\right)-\rho^2 k_1^4 k_2^4}\right]^2 - 2\overline{U}$$
$$+q(1-\rho)\rho^2 k_1^2 \frac{\left((1+q(1-\rho))\left(k_2^2+r\sigma_2^2\right)-k_2^4\right)k_1^2}{\left(k_1^2+r\sigma_1^2\right)\left(k_2^2+r\sigma_2^2\right)-\rho^2 k_1^4 k_2^4}+\frac{1}{2}\frac{k_2^4}{k_2^2+r\sigma_2^2}\times$$
$$\left(1-\frac{2\rho^2 k_1^2[(1+q(1-\rho))(k_2^2+r\sigma_2^2)k_1^2-k_2^4 k_1^2]}{(k_1^2+r\sigma_1^2)(k_2^2+r\sigma_2^2)-\rho^2 k_1^4 k_2^4}+\rho^2\sigma_1^2+\left(\frac{\rho^2 k_1^4[(1+q(1-\rho))(k_2^2+r\sigma_2^2)k_1^2-k_2^4 k_1^2]}{(k_1^2+r\sigma_1^2)(k_2^2+r\sigma_2^2)-\rho^2 k_1^4 k_2^4}\right)^2\right). \quad (36)$$

These results reveal that, in Period 1, the foresighted firm sets its commission rate differently than the myopic firm does. In Period 2, however, both firms set the same commission rate. Compared to the myopic firm, the foresighted firm takes positive word-of-mouth into consideration. Since the purchasing behavior of innovators not only boosts revenue in Period 1, but also positively impacts firm revenue in Period 2, people may intuitively expect the foresighted firm to set a higher commission rate in Period 1. I will examine this intuition in next subsection.

1.4.3. Comparison of Myopic and Foresighted Firms

Is the Period 1 commission rate for foresighted firm (β_1^F) higher or lower than that of the myopic firm (β_1^M)? People may expect the foresighted firm to always set its commission rate higher, thereby motivating its sales force to work harder in Period 1 and to take advantage (at no cost) of the positive word-of-mouth effect in the second period. Surprisingly, this is not the case. Specifically,

Proposition 1: The foresighted firm sets its commission rate higher than that of the myopic firm if and only if $q > \bar{q}$,
where $\bar{q} = \dfrac{k_2^4(k_1^2 + r\sigma_1^2 - \rho^2 k_1^4)}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2)(1-\rho)}$.

1.4.3.1. Demotivating Zone

Because both ρ and k_1 are positive numbers less than 1, clearly $\bar{q}$ is positive. This proposition indicates that even with a positive word-of-mouth effect, the foresighted firm may be better off setting a lower commission rate than that of the myopic firm. Since we know that salesperson's effort is a positive function of commission rate, Proposition 1 suggests that the foresighted firm earns higher total profits by "demotivating" its sales force. I use the term "demotivating" to capture the fact that the foresighted firm is willing to set a lower commission rate in Period 1 compared to that of the myopic firm. Because sales force effort is linearly related to the commission rate, the foresighted firm is demanding a less motivated sales force compared to the myopic firm.

Interestingly, the myopic firm is actually ignoring the word-of-mouth effect in the second period. In other words, the myopic firm treats the parameter q of the word-of-mouth as zero. So, when q is positive (i.e., when there is indeed a word-of-mouth effect), people may expect that a higher effort level in Period 1 will always be better off for the firm. But this is absolutely not the case. There exists a "demotivating zone," in which the firm is better off demotivating its sales force.

I illustrate the demotivating zone in Figure 1.1, where we see that the demotivating zone consists of the magnitude of word-of-mouth effect below $\bar{q}$. Because the myopic firm ignores the word-of-mouth effect altogether, its Period 1 commission rate is independent of q. The foresighted firm takes the word-of-mouth effect into account,

so its Period 1 commission rate increases linearly with the word-of-mouth effect (see equation 29). Counterintuitively, the foresighted firm's Period 1 commission rate is above that of the myopic firm only when the word-of-mouth effect is sufficiently large (namely, above $\overline{q}$). When the word-of-mouth effect is small (i.e., $q \in [0, \overline{q})$), the foresighted firm should set a relatively low commission rate. The two firms set an equal Period 1 commission rate only when $q = \overline{q}$.

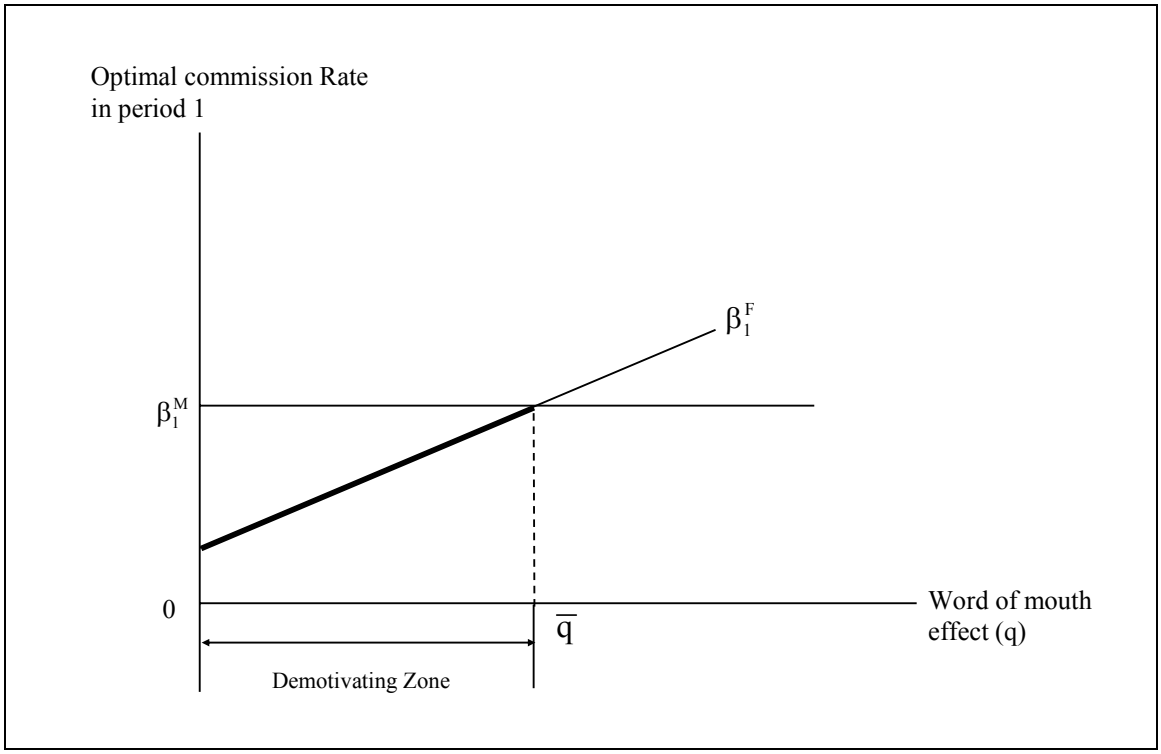

Figure 1.1

The intuition for the above result is that the myopic firm is ignoring two things when sets Period 1 commission rate. First, the myopic firm ignores the fact that it has a second chance to sell to innovators in Period 2. It may be more cost effective to induce

soft-sell twice than hard-sell once.[1] This leads the myopic firm to set a higher Period 1 commission rate than is optimal. Second, the myopic firm ignores the innovator's word-of-mouth effect in generating imitation purchases in Period 2. This leads the myopic firm to set a lower Period 1 commission rate than is optimal. Unlike the myopic firm, the foresighted firm takes these two effects into consideration simultaneously. It is not as desperate as the myopic firm perceives to engage in hard-sell in Period 1 as there is a second chance available in Period 2. When the word-of-mouth effect is low, the foresighted firm recognizes that the latter is dominated. Consequently, the foresighted firm finds itself better off setting a lower commission rate when q is small.

1.4.3.2 Existence of the Demotivating Zone

Formal proof of the existence of the demotivating zone is provided in this subsection. Recall that word-of-mouth effect is positive—as assumed in the Bass diffusion model. Therefore, the existence of the demotivating zone can be ensured by proving that the following two conditions hold: (1) $\beta_1^M\big|_{q=0} > \beta_1^F\big|_{q=0}$, and (2) β_1^F monotonically increases in q. We know that $\beta_1^F = \frac{\left((1+q(1-\rho))\left(k_2^2+r\sigma_2^2\right)-k_2^4\right)k_1^2}{\left(k_1^2+r\sigma_1^2\right)\left(k_2^2+r\sigma_2^2\right)-\rho^2k_1^4k_2^4}$ and $\beta_1^M = \frac{k_1^2}{k_1^2+r\sigma_1^2}$. When q = 0, it is straightforward to see that $\beta_1^F\big|_{q=0} = \frac{\left(\left(k_2^2+r\sigma_2^2\right)-k_2^4\right)k_1^2}{\left(k_1^2+r\sigma_1^2\right)\left(k_2^2+r\sigma_2^2\right)-\rho^2k_1^4k_2^4}$. Since $\beta_1^M\big|_{q=0} = \beta_1^M$ always holds, the question becomes whether $\beta_1^F\big|_{q=0} < \beta_1^M$ holds. With a little algebra, this is equivalent to

$$\rho^2 k_1^4 < k_1^2 + r\sigma_1^2 . \tag{37}$$

[1] Empirical evidence from 11 consumer product categories shows that the ratio of imitator effect over innovator effect is from 9.0 (black/white TV sets) to 82.4 (electric refrigerators) (Bass 1969).

Notice that we can rewrite the inequality as $\rho^2 k_1^2 \frac{k_1^2}{k_1^2 + r\sigma_1^2} < 1$. We know that $\beta_1^M = \frac{k_1^2}{k_1^2 + r\sigma_1^2}$. So, the inequality is $\rho^2 k_1^2 \beta_1^M < 1$. According to prior assumptions, the firm is a monopoly and faces a target segment with market size equal to 1. The first period sales revenue is $x_1 = \rho(k_1 t_1 + \varepsilon)$, and it should not exceed the market size. Since $t_1^* = \rho k_1 \beta_1^M$, this implies $\rho^2 k_1^2 \beta_1^M < 1$ or $\rho k_1 t_1 < 1$ always holds. Therefore, $\beta_1^M \big|_{q=0} > \beta_1^F \big|_{q=0}$ holds.

A careful examination reveals that β_1^F in equation (29) is a linear function of q with a slope $(1-\rho)k_1^2$. As this slope is positive, β_1^F is linearly increasing in q. Since β_1^M is independent of q, there must exist a $\bar{q}$ such that $\beta_1^F(\bar{q}) = \beta_1^M$ .The demotivating zone $[0, \bar{q}]$ must exist.

The finding of a demotivating zone has significant managerial implications. For many firms in the hi-tech industry, when they obtain a radically innovative product, the market may not be ready to appreciate its benefits for a certain period of time (Golder and Tellis 2004). The empirical evidence of an inverted U-shaped correlation between product innovativeness and profitability suggests that, sometimes, it may not be optimal to exert an excessive sales effort during Period 1. It may be better for the firm to focus on other parts of the marketing mix—such as demand creation, PR, trade shows, etc.—and reserve the sales effort until the time is right.

1.4.3.3. "Extramotivating" Zone

In the agency theory literature, there is an implicit assumption that the commission rate should be between zero and 1. In other words, in order to avoid a

negative profit, a firm should never pay more than the revenue generated by salespeople. This assumption is appropriate in a mature market; however, because of the dynamic nature of the new product, it may not always hold true during new product launches. Based on the algebraic rearrangement of equation (29), we can prove the following.

> **Proposition 2:** A foresighted firm should set its first period commission rate above 100% when $q > \tilde{q}$, where $\tilde{q} = \frac{r\sigma_1^2(k_2^2 + r\sigma_2^2) + (1-\rho^2 k_1^2)k_1^2 k_2^4}{(1-\rho)(k_2^2 + r\sigma_2^2)k_1^2}$.

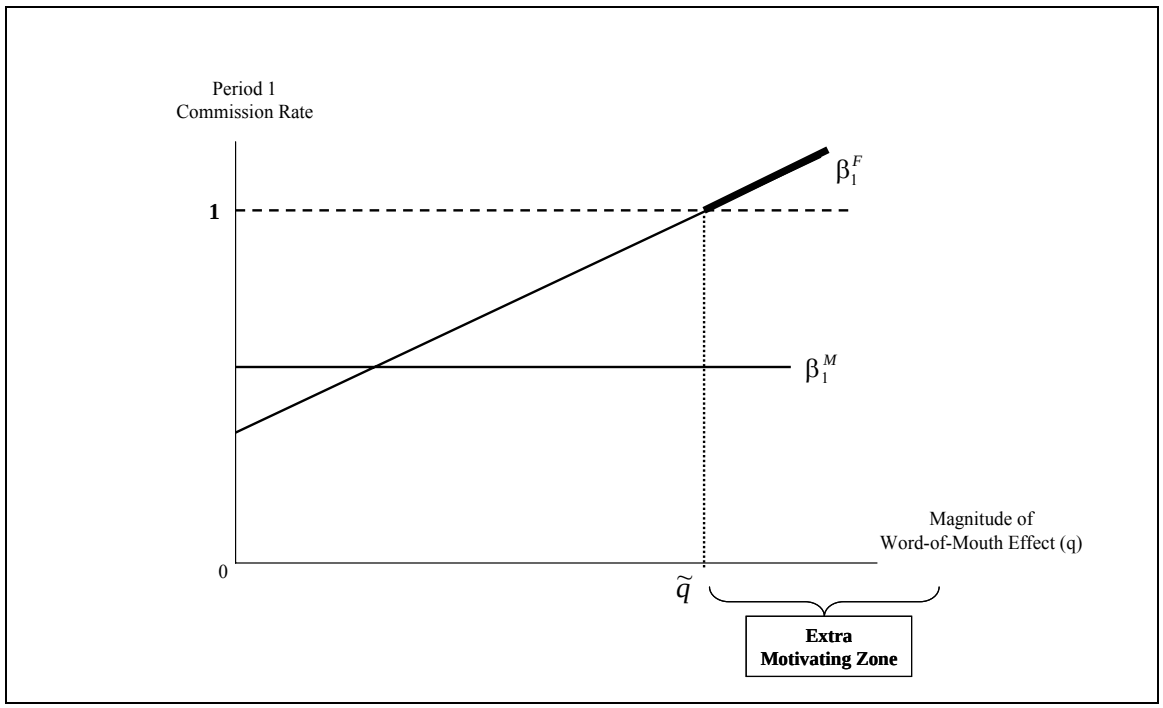

Figure 1.2

This proposition states that a firm, when there is very potent word-of-mouth, should purposefully pursue a *negative* profit in Period 1, in order to earn a positive profit in total. An example of this kind of phenomenon exists in the pharmaceutical industry. The opinion leaders, such as well-respected medical experts are pursued enthusiastically by the pharmaceutical companies during the introductory stage of their potential

blockbusters. These thought leaders themselves only possess very limited demands in terms of prescriptions, but their adoption and endorsement of the new product have a tremendous impact on thousands of other doctors. So, during Period 1, pharmaceutical firms usually spend heavily on promoting to these opinion leaders, hardly considering making profits or even breaking even in this period. The reason is simple and appealing: the effect of the word-of-mouth of these opinion leaders is so large that the negative-profit Period 1 strategy can not only be justified, but can also optimize overall profits.

The extramotivating zone provides guidance on sales force compensation design figuratively rather than literally. This finding provides implications for the general incentive strategies during new product launches. Commission is arguably the most common means of incentive. However, firms are not limited by commission, since they frequently use multiple schemes to enhance sales force motivation and achieve the effort necessary for the purpose of new product success. Various empirical evidence across industries and companies shows that the expenditures on a variety of incentive programs—such as recognition programs, sales contests and other special performance incentives—range from $4 billion to nearly $9 billion dollars per year (Murphy, Dacin, and Ford 2004). The existence of an extramotivation zone prescribes that under favorable market conditions (e.g., strong word-of-mouth effect), firms should spend more on incentive programs in order to achieve the sales force effort needed to maximize the total profit. In fact, when the word-of-mouth effect is strong enough, the total expenditure on incentives should be well above the expected profit sales force generated during the introductory stage of the new product launch.

1.4.4 Profitability Comparison

To visualize the impacts of word-of-mouth on firm's profitability, let us compare the expected profits of both types of firms. Since the foresighted firm's objective is to maximize the total profits over these two periods and the myopic firm's goal to maximize profit independently in each of the two periods, compare myopic and foresighted Period 1 profits (equations 8 and 24) and total profits (equations 25 and 36). From this comparison, we can conclude:

> **Proposition 3:** The myopic firm's profit in the first period is greater than that of the foresighted firm ($E[\pi_1^M] > E[\pi_1^F]$), but the foresighted firm's total profit over the two periods is greater than that of the myopic firm ($E[\pi_T^F] > E[\pi_T^M]$).

The proof of this proposition is provided in the appendix, and the relationships between the magnitude of word-of-mouth effect and expected net profits are demonstrated in Figure 3.

In Figure 1.3, we can see that when q is in the demotivating zone, its lower commission rate in Period 1 leads to a relatively lower profit for the foresighted firm. In fact, only when the word-of-mouth effect is equal to $\overline{q}$, $E[\pi_1^F] = E[\pi_1^M]$. Otherwise, the myopic firm always has a higher profit in Period 1. However, the total profit is significantly higher since the foresighted firm reserves its sales force effort to the second period. In Period 1, foresighted profit falls quadratically with q until q is in the "extramotivating" zone. However, profit in Period 2 is more than enough to compensate all the loss in Period 1, and in fact drives the total profit of the foresighted firm up quadratically. The foresighted firm always has higher total profits regardless of the magnitude of word-of-mouth effect.

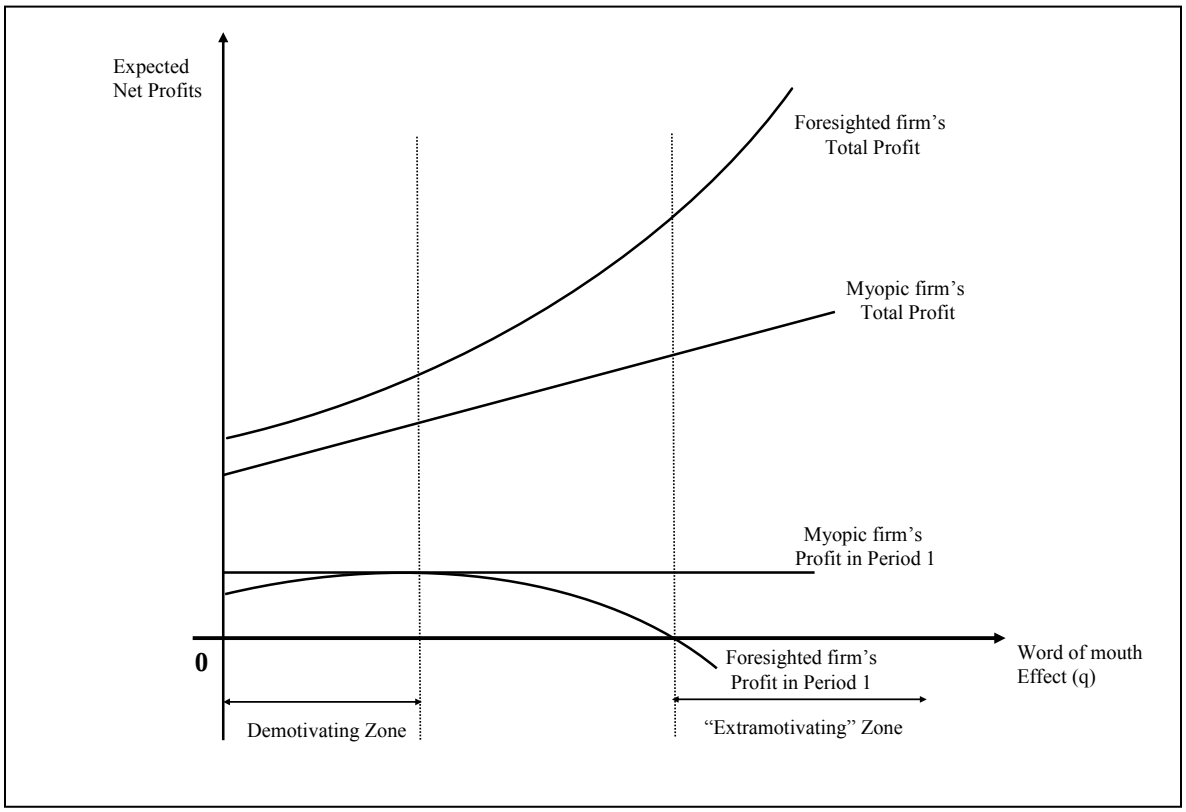

Figure 1.3

1.5. Model Extension

1.5.1 Firm without an Effective CRM System

When analyzing the optimal compensation plans for both myopic and foresighted firms, I made an implicit assumption that managers know Period 1 sales *a priori* at the beginning of the second period. As a result, these managers can modify sales force compensation in order to maximize profit based on this valuable information. However, this assumption may not always hold. What if the managers are not privy to Period 1 sales figures when they have to make critical decision regarding sales force compensation before Period 2?

Several factors may cause this problem. First, the firm may lack an effective CRM system. Simply put, it takes too long to collect complete and accurate sales information. The second reason could be that, in many companies, there exist certain budgeting procedures which managers have to follow. Consequently, firms commonly make compensation decisions for the upcoming period before the end of a current sales cycle. There also could well be other factors. No matter what the reasons, the consequence is that managers may not have the information they require—yet they still need to be decisive immediately. I use an ineffective CRM system to represent all of these scenarios.

Without knowing the actual sales of Period 1, managers have to use the expected value of Period 1 sales as the basis of their decision making. For the myopic firm, the expected profit in Period 2 is then given by

$$q\rho k_1 t_1(1-\rho) + (1-\rho k_1 t_1)^2 k_2^2 \beta_2 - \frac{1}{2}(1-\rho k_1 t_1)^2 k_2^2 \beta_2^2 - \frac{r}{2}\beta_2^2 (1-\rho k_1 t_1)^2 \sigma_2^2 - \overline{U}. \quad (38)$$

The difference between equation (41) and equation (17) is that x_1 (the actual sales in Period 1) is replaced by $\rho k_1 t_1$ (the expected sales in Period 1); x_1 includes the realization of a random shock component, whereas $\rho k_1 t_1$ does not. Solving for the constrained optimization problem, I find the expected profit to be

$$E[\pi_2^M] = q(1-\rho)\frac{\rho^2 k_1^4}{k_1^2 + r\sigma^2} + \frac{1}{2}\left(1 - \frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2}\right)^2 \left(\frac{k_2^4}{k_2^2 + r\sigma_2^2}\right) - \overline{U}. \quad (39)$$

Comparing equations (42) to (24), the expected profit with an effective CRM system is larger by a positive amount $\frac{1}{2}\frac{k_2^4}{k_2^2 + r\sigma_2^2}[\rho^2 \sigma_1^2]$. This is the benefit obtained when the myopic firm knows actual Period 1 sales rather than projected sales before

setting the Period 2 compensation plan. With this knowledge, the firm can redesign salesforce compensation while taking the market's volatility into account. This benefit disappears when the firm does not have an effective CRM system.

Following the same approach, I derive the expected Period 2 profit for the foresighted firm. Surprisingly, the benefit of CRM is the same as that of the myopic firm. In other words, regardless of whether the firm is myopic or foresighted, an effective CRM system enables the firm to improve profits by the same amount. Further examination reveals that firms are able to modify only the salary portion of the sales force compensation and that the commission rates therefore remain the same.

The profit improvement from CRM is larger if the proportion of innovators, ρ, or uncertainty, σ^2, is greater. That is, detailed knowledge of actual sales in a previous period benefits the firm more when there are more innovators and/or the market is more volatile during Period 2. In addition, I find that profit improvement due to CRM is increasing in k_2: the effectiveness of salespersons' efforts in Period 2. This simply means that the firm is in a better position to utilize the knowledge they gain from Period 1 sales when their salespeople are more effective. Profit improvement due to CRM is also decreasing in salespersons' risk aversion and market volatility in Period 2. This means that it is more difficult for the firm to monetize the value of knowledge with more risk-averse salespeople and/or when the market is more volatile in the second period.

1.5.2. Innovators Do Not Purchase in Period 2

Consider the possibility that the innovators will only purchase in the first period. In the second period, they will not purchase (leaving the market permanently). This scenario resembles the characteristics of some high-tech markets. The most technology

savvy customers are always looking at the frontiers. If the firm fails to sell their product to these customers in the first period, these same customers will not buy in Period 2 either, because new generation of products emerge.

For the myopic firm, since it completely ignores what will happen in the future, all findings regarding period 1 (i.e., compensation and expected profit) still hold when innovator do not purchase in period 2. When period 2 comes, the myopic firm finds itself in a market with the following demand,

$$\tilde{x}_2 = qx_1(1-\rho) + (1-\rho)(k_2 t_2 + \varepsilon_2)\,. \tag{40}$$

Notice the first term at the right-hand side of equation (34) is identical to that in equation (10). But the second term differs because the market potential is now $1-\rho$ instead of$1-x_1$. Solving the constrained agency maximization problem, we can see that the optimal commission rate is unchanged. However, the expected profit now is given by

$$E[\tilde{\pi}_2^M] = q(1-\rho)\,\frac{\rho^2 k_1^4}{k_1^2 + r\sigma_1^2} + \frac{1}{2}(1-\rho)^2\,\frac{k_2^4}{k_2^2 + r\sigma_2^2} \quad - \overline{U}\,. \tag{41}$$

Facing the same market condition, the foresighted firm maximizes the total profits over two periods. Calculus of optimization yields the following result.

> If innovators only purchase in Period 1, then the foresighted firm should set the first-period commission rate at $\tilde{\beta}_1^F = \dfrac{k_1^2 + qk_1^2(1-\rho)}{k_1^2 + r\sigma_1^2}$, and the second period's at $\tilde{\beta}_2^F = k_2^2/(k_2^2 + r\sigma_2^2)$.

Furthermore, I find that when innovators only purchase in period 1, a foresighted firm is always better off by setting a *higher* first-period commission rate. Thus, we have

> **Proposition 4:** If innovators purchase in the first period only, the foresighted firm should always set the first-period commission rate higher than or equal to that of the myopic firm (i.e., $\tilde{\beta}_1^F \geq \beta_1^M$ for all $q \geq 0$).

Comparing $\widetilde{\beta}_1^F$ to β_1^F, I find a threshold $\hat{q}$ that determines the larger commission rate.

Proposition 5: $\widetilde{\beta}_1^F \geq \beta_1^F$ if and only if $q \leq \hat{q}$, where $\hat{q} = \dfrac{k_1^2 + r\sigma_1^2 - \rho^2 k_1^4}{(1-\rho)\rho^2 k_1^4}$.

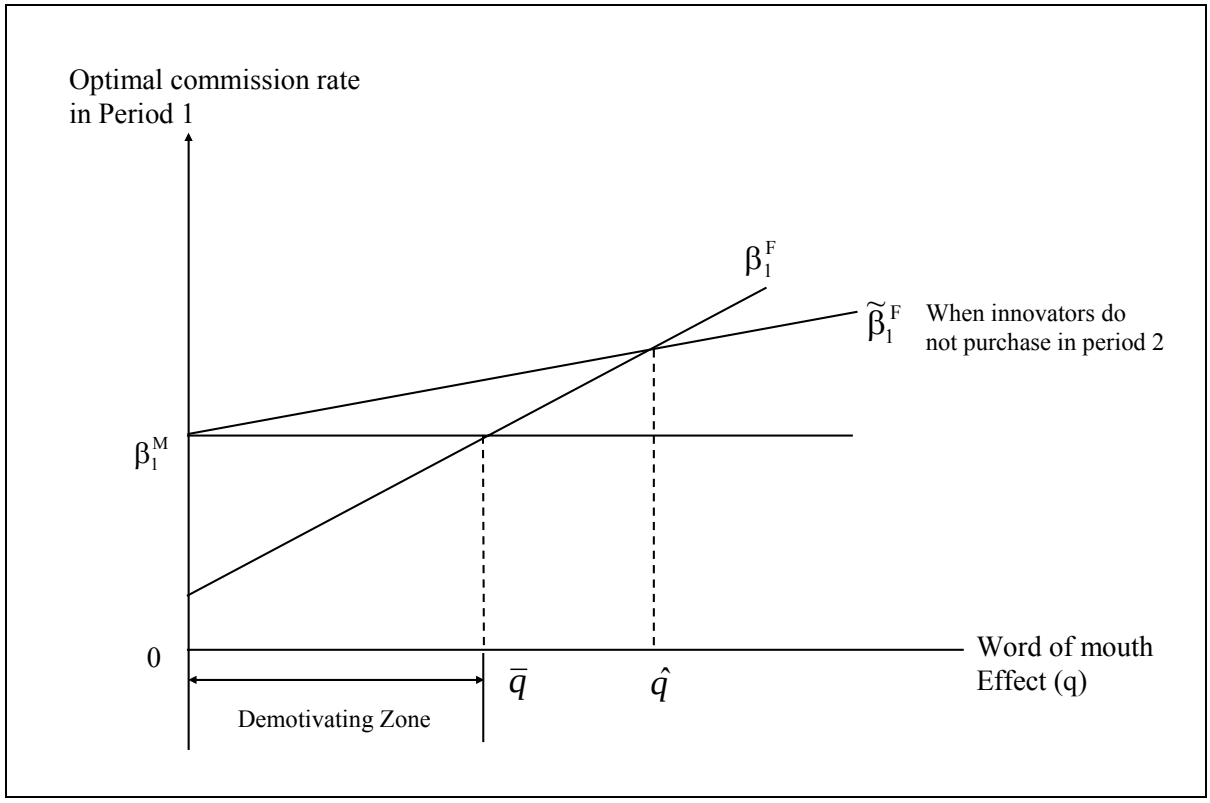

Figure 1.4

In Figure 1.4, optimal commission rates in Period 1 are presented again as a function of the word-of-mouth effect. When the magnitude is low (but still positive), the foresighted firm should set its commission rate lower than that of the myopic firm when innovators also purchase in Period 2. If innovators do not purchase in Period 2, the foresighted firm should *always* set its commission rate above that of the myopic firm.

Comparing $\widetilde{\beta}_1^F$ to β_1^F, the foresighted firm's commission rate is higher when innovators purchase in Period 2 *only* when the magnitude of the word-of-mouth effect is above $\widetilde{q}$.

Figure 1.4 clearly demonstrates that when innovators do not purchase in Period 2, the demotivating zone vanishes. Thus, the demotivating effect may well come from the fact that innovators have the opportunity to purchase in the second period. Even though sales effort always leads to higher sales revenue, the firm has to pay a cost to obtain the effort. This further supports the existence of the demotivating zone.

1.5.3. Sales Force Covers Only Partial Market

For the purpose of simplicity, I assume the revenue function to be $x_1 = \rho(k_1 t_1 + \varepsilon_1)$ in Period 1. One implication of this setup is that salespeople are able to contact all potential customers (innovators) and the firm uses no other communication tools other than its sales force. This assumption captures a certain reality, as the firm's sales force is arguably the most effective way to reach customers during new product launches—especially for a business-to-business context. However, this assumption is not required in order to hold the model. In this section, I test the robustness of the model by relaxing this assumption and examining a more general setup. For succinctness, I focus on the Period 1 model. (The analysis can be readily applied to the Period 2 model.)

Let us assume that the revenue function is instead $x_1 = \lambda\rho(k_1 t_1 + \varepsilon_1) + (1-\lambda)\rho\delta_1$, where $\lambda \in [0,1]$ represents the extent to which the sales force covers the market and δ_1 captures all contributing factors (e.g., advertising, PR and customers' own research). I assume $\delta_1 \sim N(\mu, \sigma_\delta^2)$, where μ is a positive and large enough number so as not to generate any negative sales (Basu et al. 1985). In the extreme case when $\lambda = 0$, the sales force contacts no customers. The model is a simple random sales model. When $\lambda =$

1, the sales force is able to cover 100% of the market and the model returns to the original setup. Simple algebra yields $x_1 = \tilde{\rho}(k_1 t_1 + \tilde{\varepsilon}_1)$, where $\tilde{\rho} = \lambda\rho$ and $\tilde{\varepsilon}_1 = \varepsilon_1 + \delta_1\left(\frac{1}{\lambda} - 1\right)$. Using the same approach as above, I derive the general form of the myopic firm's Period 1 commission rate as

$$\tilde{\beta}_1^M = \frac{k_1^2}{k_1^2 + r\tilde{\sigma}_1^2}. \tag{42}$$

In equation (42), $\tilde{\sigma}_1^2$ is the variance of $\tilde{\varepsilon}_1$ and obviously a function of λ, σ_1^2 and σ_δ^2. It is clear to see that when λ increases, $\tilde{\sigma}_1^2$ decreases and $\tilde{\beta}_1^M$ increases. When σ_1^2 and σ_δ^2 increase, $\tilde{\sigma}_1^2$ increases and $\tilde{\beta}_1^M$ decreases. Implications of these findings include 1) when the sales force is able to cover a greater extent of the market, the firm should pay them a higher commission in order to motivate them; 2) the more factors present that are beyond the sales force's control (yet are within the firm's control—such as advertising), the lower the firm should set the commission rate; and 3) when there are more factors beyond the control of both the sales force and the firm itself, a lower commission rate is more appropriate.

1.5.4. Salespersons' Learning and Firm Advertising Effects

In the preceding discussion, I have treated k_1 and k_2 (the effectiveness of salespersons' efforts in two periods) as exogenous and independent of one another. However, the effort effectiveness in Period 1 is likely to impact that of Period 2. In many workforce environments, individuals become more effective when they perform the same task repeatedly for a period of time. Specifically, while spending time and effort on selling the new product in Period 1, salespeople become more familiar with the features

of the new product and the benefits this new product brings to the target customers. Also, salespeople become more capable and knowledgeable in answering customers' questions, handling customers' rejections, and providing technical support. Consequently, the effectiveness of their effort may increase as a result of this process of learning over time. For the sake of simplicity, I assume that $k_2^2 = k_1^2 + L$, where L is a positive number and represents the learning impact on salespersons' effort effectiveness.

Another assumption set forth to ensure model simplicity is that the firm uses only its sales force to reach target customers. However, this assumption can be relaxed to reflect the scenario in which firms launch advertising campaigns concurrently with new product launches. Advertising campaigns increase both leads and the customers' willingness to accept a salesperson's call. Therefore, we can expect that $\widetilde{k}_1^2 = k_1^2 + \zeta A$, where A represents the firm's advertising expenditure, and ζ represents the impact of advertising on salespersons' effort effectiveness.

Salespersons' effort effectiveness in Period 2 is impacted both by learning effects and the firm's advertising. In particular, by combining the effects of learning and advertising, we have $\widetilde{k}_2^2 = k_1^2 + L + \zeta A$. Notice that I have made several conscious assumptions in order to make the analyses traceable without a loss of generality. For example, I assume that the advertising expenditure and the impact of advertising on salespersons' effort effectiveness are the same across periods. In addition, there is no advertising carryover effect. The analysis of learning and advertising will be covered by the comparative static analysis of parameters, as seen next.

1.6. Comparative Static Analysis of Parameters

Comparative static analysis helps to answer questions such as: "How should managers modify the compensation plan when there are more innovators in the market and/or when firms spend heavily on advertising concurrent with new product launches?" In this section, I address how the exogenous parameters—word-of-mouth effect (q), proportion of innovators (ρ), and firm's advertising expenditure (A), etc.—impact the endogenous variables.

1.6.1 The Myopic Firm

The comparative statics results of the myopic firm (from both Periods 1 and 2) are displayed in Table 1.2. Notice that I do not include environmental uncertainty (σ_i^2), salespersons' risk aversion (r) and minimum expected utility ($\overline{U}$), because these are consistent with the literature.[2]

To understand the intuition, it helps to start from the perspective taken by Lal and Srinivasan (1993). With the assumption of constant risk aversion, a firm uses the commission rate to induce a given level of effort at the same time as adjusting salaries to satisfy the minimum expected utility desired by the salespeople. The optimal commission rate is achieved by setting the marginal revenue equal to the marginal cost, at which level the expected profit is maximized. In Period 1, the expected sales revenue of the myopic firm is $\rho k_1 t_1$, so that the marginal revenue is ρk_1. The cost of inducing a given effort-rate is $\frac{1}{2}t_1^2(1+\frac{r\sigma_1^2}{k_1^2})$, a convex and increasing function of effort. When any of the parameters change, the firm needs to examine whether the change has impacted marginal revenue,

[2] Readers who are interested in the impact of these parameters may refer to Basu et al. (1985) and Lal and Srinivasan (1993) for a more detailed discussion.

marginal cost, or both. If the change in a parameter increases the marginal revenue, then the induced sales effort should be increased. If the change in a parameter leads to reduced marginal revenue, then the induced sales effort should be decreased "in order to bring marginal cost in line with marginal revenue" (Lal and Srinivasan 1993, p.784). If marginal revenue and marginal cost both increase, then the firm should consider the relative magnitudes of these changes in order to determine the ultimate direction.

Table 1.2 Comparative Statics Results of the Myopic Firm

	Period 1						
Effect of Increased	Effort	Comm. Rate	Commission	Salary	Exp. Income	Sales	Exp. Profit
Proportion of innovators (ρ)	+	0	+	+/-	+	+	+
Word-of-mouth effect (q)	0	0	0	0	0	0	0
Period 1 effort effectiveness (k_1)	+	+	+	-	+	+	+
Period 2 effort effectiveness (k_2)	0	0	0	0	0	0	0
Learning effect (L)	0	0	0	0	0	0	0
Impact of advertising on effort (ζ)	+	+	+	-	+	+	+
Advertising expenditure (A)	+	+	+	-	+	+	+
	Period 2						
Effect of Increased	Effort	Comm. Rate	Commission	Salary	Exp. Income	Sales	Exp. Profit
Proportion of innovators (ρ)	-	0	-	+	0	-	-
Word-of-mouth effect (q)	0	0	+	-	0	+	+
Period 1 effort effectiveness (k_1)	+	+	+	-	+	+	+
Period 2 effort effectiveness (k_2)	+	+	+	-	+	+	+
Learning effect (L)	+	+	+	-	+	+	+
Impact of advertising on effort (ζ)	+	+	+	-	+	+	+
Advertising expenditure (A)	+	+	+	-	+	+	+

Note:
"+" represents that when a paramter is increased, the correponding variable increases; "-" represents that when a parameter is increased, the correponding variable decreases; "0" represents that whether a parameter is increased has no impact on the correpoding variable; and "+/-" represents undeterminable.

For example, when the effort effectiveness in Period 1 (k_1) increases, marginal revenue increases and marginal cost decreases. Consequently, the firm finds it profitable to induce a higher level of sales effort by increasing commission rate while correspondingly decreasing salary. Ultimately, because of the increased sales effort, the firm's sales revenue and salespersons' expected incomes are increased. Similarly, when

the firm spends more on advertising and/or advertising has a stronger impact on the effectiveness of the firm's sales effort, it is equivalent to the situation in which k_1 increases—and all subsequent effects are the same. However, changes in word-of-mouth effect (q) leave marginal revenue and marginal cost unchanged, thereby leaving the induced sales effort the same. Consequently, the commission rate, salary, and expected profit do not change in Period 1. Similarly, since the myopic firm focuses only on Period 1, the changes of k_2 and learning effects (L) have no impact on their decision in that period, either.[3]

The impact of the increase in proportion of innovators (ρ) is interesting. More innovators in Period 1 means that the market is larger. Salespersons' efforts generate more revenue—even with the same level of effectiveness. As a result, all else being equal, a salesperson has the motivation to work harder. Because sales revenue and uncertainty are each affected by market size in the same manner, a firm does not need to change its commission rate when the market size increases. This is due to the fact that the positive impact of a bigger market size and the negative impact of growing uncertainty on salespersons' efforts (through risk aversion) cancel each other out. But higher effort leads to higher revenue for the firm, and, consequently, higher commission for the salesperson (since commission equals the commission rate times revenue).

Whether the firm should increase or decrease its salaries depends upon the relationship of k_1^2 and $r\sigma_1^2$. Assuming $k_1^2 < r\sigma_1^2$, the firm should increase its salaries to compensate salespersons' increased effort-costs caused by the uncertainty (through an increased market size). However, when $k_1^2 > r\sigma_1^2$, the firm should decrease its salaries

[3] Notice that this holds true only for the myopic firm. I will discuss the implications of changes in q and other parameters for the foresighted firm in next section.

because the increased commission (through increased revenue) is more than enough to compensate for the increased effort-cost associated with the uncertainty. This is a finding not previously examined in the agency theory literature.

In Period 2, increased word-of-mouth effect (q) has a positive impact on sales revenue through unpaid salespeople: i.e., innovators who purchased in Period 1. Since this impact has nothing to do with salespersons' efforts in Period 2, the firm maintains its same level of commission rate, but salespersons' commissions increase as a result of the increased revenue. Because the firm does not need to pay more than salespersons' reserved incomes, the salaries should be reduced.

These changes of effort effectiveness have similar impacts on the endogenous variables, as in Period 1. Since I assume there is a learning effect, both increased k_1 and increased learning effect (L) lead to higher k_2. Similarly, increased firm advertising expenditure (A) and increased impact of advertising (ζ) on effort effectiveness lead to higher k_2. As k_2 (the effort effectiveness in Period 2) increases, marginal revenue increases and marginal cost decreases. Because of this result, the firm should set a higher commission rate to induce higher effort. Consequently, both salespersons' expected incomes and the firm's expected profit increase.

Given a fixed market size, the proportion of imitators $1-\rho$ decreases as ρ increases. As a result, salespeople find that there are fewer target customers in Period 2, and effort effectiveness thereby decreases with ρ. This result leads to a lower level of effort and lower revenue. Although the firm does not need to change its commission rate (again, because commission rate is independent of market size), salespersons' commissions decrease as revenue decreases. The firm needs to compensate the loss due to shrinking

marketing size in order to ensure salespeople the same level of expected income by increasing their salaries.

1.6.2 The Foresighted Firm

The comparative analysis results of the foresighted firm are displayed in Table 1.3. Compared to that of the myopic firm, the Period 2 endogenous variables of the foresighted firm respond to parameter changes in exactly the same way as that of the myopic firm. However, in Period 1, several remarkable differences exist. First, by taking Period 2's word-of-mouth effect into account, the foresighted firm realizes that the sales effort in Period 1 serves two purposes: an immediate impact on revenue in Period 1; and an indirect positive impact in Period 2. Therefore, the marginal revenue is higher than that estimated by the myopic firm. As a result, the foresighted firm finds it optimal to induce a higher level of effort when q is greater. Although this certainly increases sales revenue, the expected profit in Period 1 could be higher or lower depending upon the value of q. Specifically, the expected profit increase in q if and only if $q < \overline{q}$,

where $\overline{q} = \dfrac{k_2^4(k_1^2 + r\sigma^2 - \rho^2 k_1^4)}{(k_1^2 + r\sigma^2)(k_2^2 + r\sigma^2)(1-\rho)}$.

Recall that when $q < \overline{q}$, $\beta_1^F < \beta_1^M$. Since β_1^M is the Period 1 profit maximizing commission rate (whereas β_1^F is the total profit maximizing commission rate), when $q < \overline{q}$, increasing q leads to a higher Period 1 profit as β_1^F is approaching β_1^M, at which the Period 1 profit is maximized. Contrariwise, when $q > \overline{q}$, increasing q leads to a lower Period 1 profit as β_1^F moves away from β_1^M.

Table 1.3 Comparative Statics Results of the Foresighted Firm

	Period 1						
Effect of Increased	Effort	Comm. Rate	Commission	Salary	Exp. Income	Sales	Exp. Profit
Proportion of innovators (ρ)	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Word-of-mouth effect (q)	+	+	+	+/-	+	+	+/-
Period 1 effort effectiveness (k_1)	+	+	+	+/-	+	+	+/-
Period 2 effort effectiveness (k_2)	-	-	-	+/-	-	-	+/-
Learning effect (L)	-	-	-	+/-	-	-	+/-
Impact of advertising on effort (ζ)	+	+	+	+/-	+	+	+/-
Advertising expenditure (A)	+	+	+	+/-	+	+	+/-
	Period 2						
Effect of Increased	Effort	Comm. Rate	Commission	Salary	Exp. Income	Sales	Exp. Profit
Proportion of innovators (ρ)	-	0	-	+	0	-	-
Word-of-mouth effect (q)	0	0	+	-	0	+	+
Period 1 effort effectiveness (k_1)	+	+	+	-	+	+	+
Period 2 effort effectiveness (k_2)	+	+	+	-	+	+	+
Learning effect (L)	+	+	+	-	+	+	+
Impact of advertising on effort (ζ)	+	+	+	-	+	+	+
Advertising expenditure (A)	+	+	+	-	+	+	+

Note:
"+" represents that when a paramter is increased, the correponding variable increases; "-" represents that when a parameter is increased, the correponding variable decreases; "0" represents that whether a parameter is increased has no impact on the correpoding variable; and "+/-" represents undeterminable.

The second difference is that the foresighted firm also takes the Period 2 effort effectiveness (k_2) into consideration in Period 1 decisions. A strategic choice that the foresighted has to make is the best time to sell (in order to maximize total profit). By so doing, the firm has to consider the marginal revenues in both periods. When k_2 increases, the marginal revenue in Period 2 is expected to increase. Therefore, the option of selling more in Period 2 becomes more attractive. As a result, firm needs to cut back some effort in Period 1 in order to boost the overall profitability. This leads to a lower commission rate, inducing less effort in Period 1. Consequently, both sales revenue and salespersons' incomes decrease, but whether the expected profit increases in k_2 once again depends upon the value of q (in particular, the expected profit increases in k_2 if and only if $q < \overline{q}$).

The changes of the proportion of innovators in the market (ρ) have complex and interesting effects. In the preceding sections, I have proved that β_1^F is increasing in q, but is β_1^F increasing or decreasing in ρ? When ρ increases (i.e., where there are relatively more innovators), two effects occur simultaneously. On one hand, more innovators mean a bigger immediate market potential. This drives up the marginal revenue and makes setting a higher commission rate more appealing. On the other hand, a bigger ρ means fewer imitators (i.e., fewer target customers in the future). This devalues the word-of-mouth effect on Period 2 revenue. Therefore, the marginal revenue in Period 2 decreases and forces the Period 1 commission rate down. Recognizing these two conflicting forces, the foresighted firm responds to an increased ρ in the following way. β_1^F is decreasing in ρ if and only if $q > 2\rho k_1^2 k_2^2 \beta_1^F \left(\frac{k_2^2}{k_2^2 + r\sigma_2^2} \right)$.

When $q > 2\rho k_1^2 k_2^2 \beta_1^F \left(\frac{k_2^2}{k_2^2 + r\sigma_2^2} \right)$, the value of the word-of-mouth effect on Period 2 revenue decreases dramatically for every bit of increase in ρ, whereas the value created from an increased market potential in Period 1 is less manifest. Therefore, the force driving down the commission rate is dominant and the firm should set a lower commission rate. Alternatively, when $q < 2\rho k_1^2 k_2^2 \beta_1^F \left(\frac{k_2^2}{k_2^2 + r\sigma_2^2} \right)$, the marginal revenue gain from a booming market potential dominates. The foresighted firm finds itself better off by inducing a higher level of effort to further exploit the innovators in Period 1.

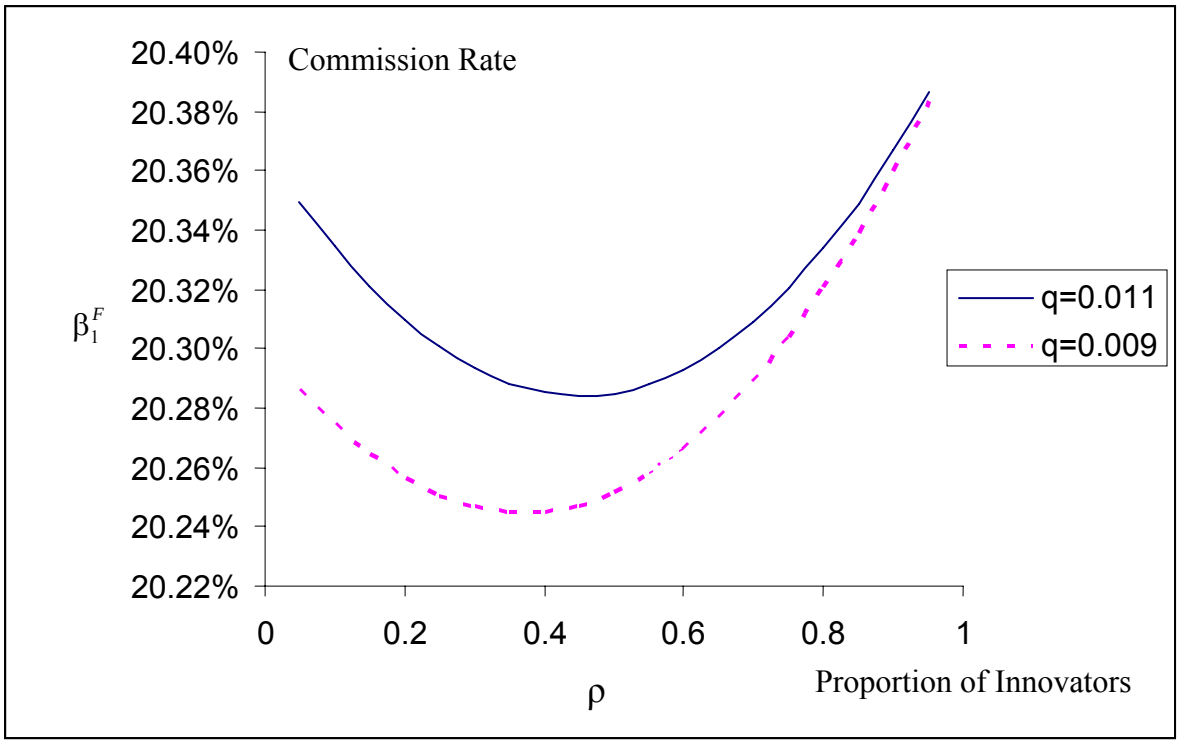

Figure 1.5

Further analyses reveal that β_1^F has a U-shaped relationship with ρ. This stems from the fact that the driving-up effect is a linear function of ρ and the driving-down effect is quadratic. A numerical example generates Figure 1.5. In this example, I set $k_1^2 = 0.5$, $r\sigma_1^2 = 1.0$ and $\beta_2^F = 20\%$. As shown in Figure 5, when q = 0.009, the relationship between ρ and β_1^F is a U-shaped curve with its lowest point at ρ = 0.37. When ρ is smaller than 0.37, the Period 2 marginal revenue loss dominates. Therefore, the foresighted firm should lower its Period 1 commission rate. On the other hand, when ρ is greater than 0.37, the increased marginal revenue, due to an increased target market, is significant and the foresighted firm should induce a higher level of effort by adjusting the commission rate upwards. When q = 0.011, a similar U-shaped curve emerges as ρ grows. Here the lowest point is at ρ = 0.45.

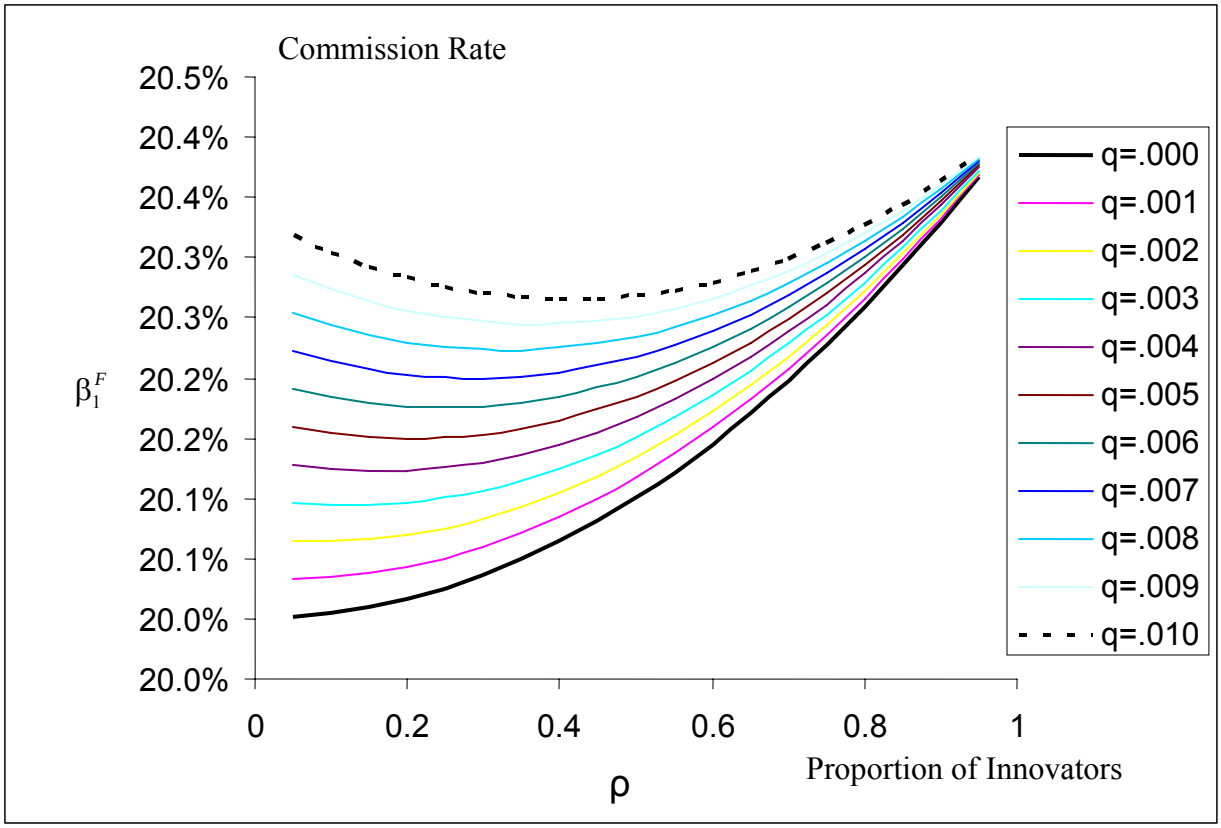

Figure 1.6

When q is extremely small, the booming-market effect takes control, as seen in Figure 1.6. The closer the value of q is to zero, the more the lowest point of the U-shaped curve shifts to the left. In fact, when q = 0, β_1^F becomes an increasing function in ρ as the inequality of $q > 2\rho k_1^2 k_2^2 \beta_1^F \left(\frac{k_2^2}{k_2^2 + r\sigma_2^2} \right)$ always holds.

These two figures can be combined into a three-dimensional graph Figure 7, which clearly demonstrates that when q is high, there is a U-shaped relationship between β_1^F and ρ, and that when q is low, the function becomes increasingly monotonic. In addition, we observe that β_1^F is an increasing linear function of q across all values of ρ.

As discussed in the preceding sections, this reflects the fact that as the word-of-mouth effect increases, the marginal value in Period 2 increases. Noticeably, the slopes are higher when ρ is small. This highlights the value of a larger target market of imitators in Period 2.

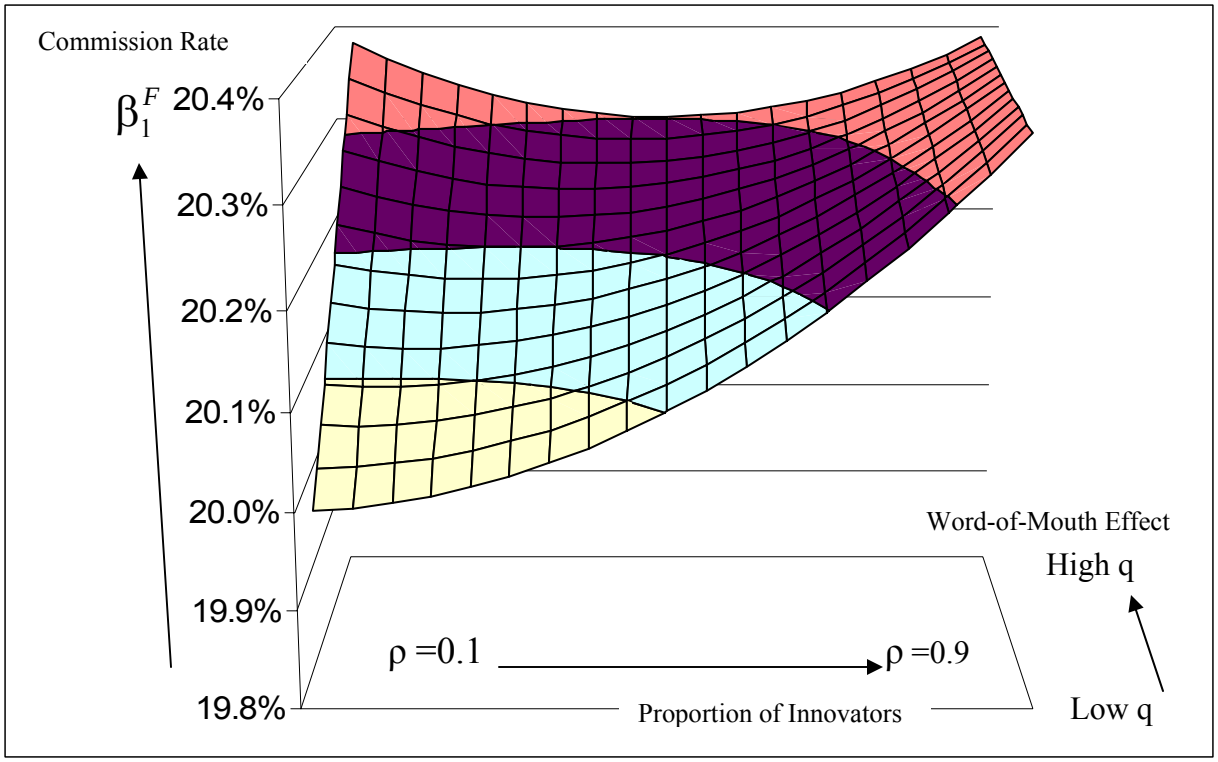

Figure 1.7

When q is big, however, the relationship between β_1^F and ρ becomes decreasingly monotonic. This represents the dominant effect of decreased Period 2 marginal revenue. The majority target market of Period 2 is imitators. When the proportion of innovators increases, the proportion of imitators decreases. This is amplified by the magnitude of

word-of-mouth effect because the marginal revenue is greater when word-of-mouth effect is stronger. These effects are displayed in Figure 1.8.

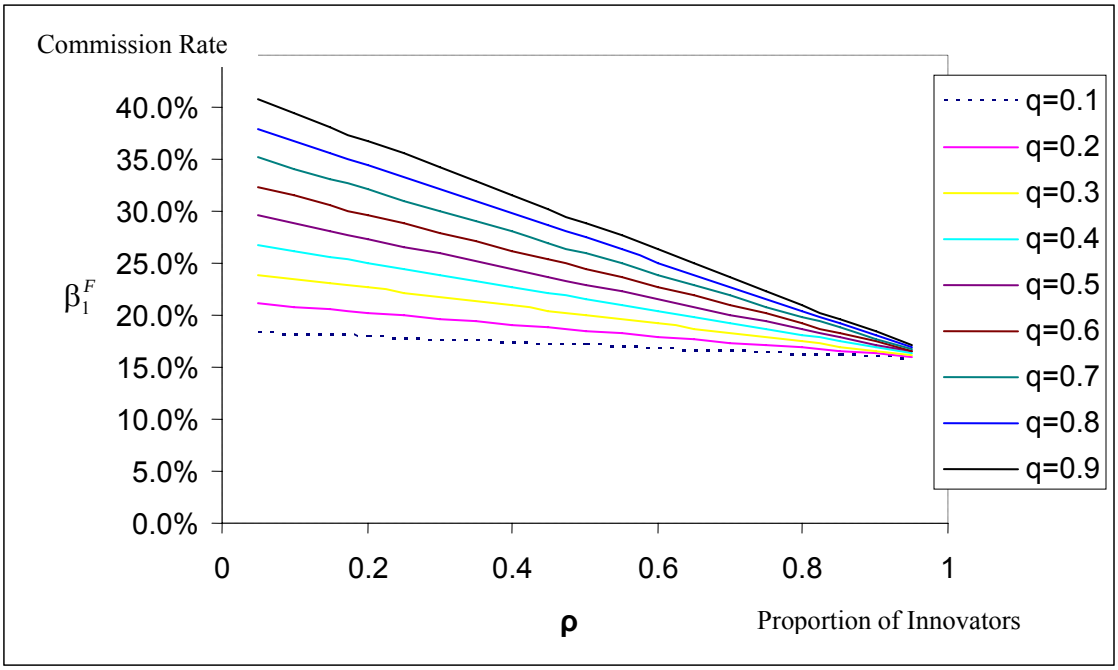

Figure 1.8

Empirically, people may find that there are typically more imitators than innovators in many industries (Bass 1969). This simply means that ρ is relatively small for most markets. If this is so, managers may need to focus solely on the left part of the graphs I presented. But all of the preceding analyses still hold. Presenting the dynamic relationships amongst word-of-mouth effect, proportion of innovators and firm commission rates across all values of ρ enables managers to better understand the whole picture and therefore make better compensation decisions.

1.7. Conclusion

In this study, I investigate the real risk that firms may suffer suboptimal profits from their new product launches even when they follow the standard agency theory suggestions. Sometimes firms overdrive their sales force and consequently suffer lower profitability, whereas during other times, firms may fail to motivate their sales force enough to capture the benefits of favorable market conditions. Under certain circumstances, it pays to be patient and reserve the sales effort until the time is right. Under different market conditions, any hesitation and delay means a loss of opportunities. The optimal strategy is to implement the right mix of sales effort in the right place at the right time.

Incorporating the dynamic and social nature of new product demand and the characteristics of the market, my model provides an alternative solution for firms to set optimal compensation plans and maximize overall profits. I highlight the impact of the word-of-mouth and the existence of a demotivating zone and an "extramotivating" zone. Firms should set Period 1 commission rates according to the magnitude of word-of-mouth. In addition, the purchase behavior of innovators in Period 2 may be a significant factor for a firm's compensation plan design. When innovators purchase only in Period 1, the demotivating zone vanishes; thus, firms should *always* set higher commission rates in order to take advantage of a positive word-of-mouth effect.

My model provides managerial implications. For example, the demotivating zone should be seriously considered by managers in the high-tech industry. Firms in this industry need to pay attention to the possibility of prematurely overdriving their sales force. Reserving the sales force until the time is right may significantly increase overall

profitability significantly. Contrariwise, when the magnitude of word-of-mouth is large, and when firms have the monopoly of power for a significant period of time, it could be optimal to pursue a negative profit in Period 1 and then reap a much higher profit in Period 2. The patent protection and strong impact of opinion leaders makes the pharmaceutical industry an ideal example.

Additionally, I conducted comparative analyses of parameter changes in order to examine the impact of extraneous factors such as word-of-mouth effect and the proportion of innovators in the market on the firm's endogenous variables (e.g., commission rate, salary, sales revenue and profit). A detailed discussion of the relationships amongst commission rate, word-of-mouth effect and proportion of innovators highlights the dynamic nature of the compensation plan design in a new product launch setting. This study contributes to the marketing literature in general and sales force compensation research in particular. The findings provide meaningful managerial implications. Future research may be applied to analyzing situations that are not included in this paper, such as multiple product lines and competition.

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Appendix

Proof of Proposition 1

Set $\beta_1^F = \beta_1^M$ and solve for q, we have $\overline{q} = \frac{k_2^4(k_1^2 + r\sigma_1^2 - \rho^2 k_1^4)}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2)(1-\rho)}$. Since β_1^F increases linearly with q and β_1^M is independent of q, we find that when $q < \frac{k_2^4(k_1^2 + r\sigma_1^2 - \rho^2 k_1^4)}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2)(1-\rho)}$, $\beta_1^F < \beta_1^M$; and when $q \geq \frac{k_2^4(k_1^2 + r\sigma_1^2 - \rho^2 k_1^4)}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2)(1-\rho)}$, $\beta_1^F \geq \beta_1^M$.

Proof of Proposition 2:

Notice that $\beta_1^F = 1 - 1 + \frac{\{[1 + q(1-\rho)](k_2^2 + r\sigma^2) - k_2^4\}k_1^2}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4}$, simple algebraic rearrangements yield

$$\beta_1^F = 1 + \frac{[q(1-\rho)k_1^2 - r\sigma_1^2](k_2^2 + r\sigma_2^2) - k_2^4 k_1^2(1-\rho^2 k_1^2)}{(k_1^2 + r\sigma_1^2)(k_2^2 + r\sigma_2^2) - \rho^2 k_1^4 k_2^4}. \quad \text{(A1)}$$

Since the denominator of the second term of equation (A1) is positive, it is clear that $\beta_1^F > 1$ only when $[q(1-\rho) - r\sigma_1^2](k_2^2 + r\sigma_2^2) - k_2^4 k_1^2(1-\rho^2 k_1^2) > 0$.

Solve for q, we have the threshold $\tilde{q} = \frac{r\sigma_1^2(k_2^2 + r\sigma_2^2) + (1-\rho^2 k_1^2)k_1^2 k_2^4}{(1-\rho)(k_2^2 + r\sigma_2^2)k_1^2}$.

Proof of Proposition 3

To prove $E[\pi_1^M] > E[\pi_1^F]$, recall β_1^M maximizes profit in period 1, it thus must be true that $E[\pi_1^F(\beta_1^F)] > E[\pi_1^M(\beta_1^M)]$.

To prove $E[\pi_T^F] > E[\pi_T^M]$, recall β_1^F maximizes the total profits over two periods, it thus must be true that $E[\pi_T^F(\beta_1^F)] > E[\pi_T^M(\beta_1^M)]$.

Proof of Proposition 4

Notice that $\widetilde{\beta}_1^F = \frac{k_1^2 + qk_1^2(1-\rho)}{k_1^2 + r\sigma_1^2} = \frac{k_1^2}{k_1^2 + r\sigma_1^2} + \frac{qk_1^2(1-\rho)}{k_1^2 + r\sigma_1^2}$. Since $\beta_1^M = \frac{k_1^2}{k_1^2 + r\sigma_1^2}$ and $qk_1^2(1-\rho) > 0$ for all q>0, we prove that $\widetilde{\beta}_1^F \geq \beta_1^M, \forall q \in [0,+\infty)$.

Proof of Proposition 5

Compare $\widetilde{\beta}_1^F$ to β_1^F, we find that when $\widetilde{q} \geq \frac{k_1^2 + r\sigma_1^2 - \rho^2 k_1^4}{(1-\rho)\rho^2 k_1^4}$, $\widetilde{\beta}_1^F \leq \beta_1^F$, and when $\widetilde{q} < \frac{k_1^2 + r\sigma_1^2 - \rho^2 k_1^4}{(1-\rho)\rho^2 k_1^4}$, $\widetilde{\beta}_1^F > \beta_1^F$.

Chapter 2

EMPIRICAL ESSAY: SELLING NEW PRODUCTS TO THE SALES FORCE: WHICH APPEALS WORK BEST

Abstract

Launching new products successfully is a critical aspect of marketing effectiveness, but failure rates run very high. Since vigorous sales support of new products is critical in successful launches, managers on both sides of the marketing/sales interface stand to benefit from understanding the key drivers of sales force buy in to new product launches. I propose and test an empirical framework to identify these key drivers and develop best practice recommendations regarding how best to "sell new products to the sales force."

In a survey of salespeople and sales managers of a tool manufacturing firm, I find that (1) salespeople's attitude negatively moderates the positive relationship between their subjective norm and intention to sell a new product, (2) marketing managers' informational influence and sales managers' promotional and normative influence have the strongest impacts on salespeople's selling intention, and (3) sales managers play a critical gatekeeping role in translating salespeople's selling intention into actual sales performance. The study provides empirical validation for practitioner suggestions that more effective internal marketing and better coordination between marketing and sales functions are imperative to ensure sufficient sales force support behind new product launches.

2.1. Introduction

Launching new products successfully is a critical aspect of marketing effectiveness, but failure rates run very high (Rangan, Menezes and Maier, 1992; Montoya-Weiss and Calantone 1994; Boulding, Morgan and Staelin, 1997). Failures carry serious financial and operational consequences, as millions of dollars and thousands of hours of managers' and salespeople's time may be wasted. With the product life cycle shortening and competition increasing, executives must contend with time and resource constraints while striving to increase the probability of successful new product launches.

Several studies have suggested that vigorous sales force support for new products is critical to the launch effectiveness (Booz, Allen, and Hamilton 1982; Cooper 2000). A meta –analysis conducted by Henard and Szymanski (2001, p. 368) establishes that "the proficiency with which a firm launches the product/service" as one of the "dominant drivers" of new product performance.

Firms cannot take sales force commitment to new products for granted. Relative to more familiar existing products, selling new products tends to be more difficult and risky (Anderson and Robertson, 1995; Wotruba and Rochford 1995). Salespeople must invest time educating skeptical customers, and returns on their effort are uncertain. Salespeople commonly resist taking on new selling tasks in favor of concentrating on existing products and conventional selling processes. If management cannot secure sales force buy in to selling new products, new products may fail, at least partially because of insufficient selling effort (Atuanhene-Gima 1997).

Dewsnap and Jobber (2000) propose that the integration of marketing and sales contributes importantly to the achievement of sales and marketing objectives. To fully

understand the dynamics of the marketing - sales interface, I believe it is important to investigate how product and marketing management can more effectively sell new products to the sales force.

2.1.1. New Products and the Sales Force

Several characteristics of new products make them more difficult and costly to sell than established ones. These distinctions may partially explain why salespeople often find selling new products burdensome. First, innovative new products typically face a high degree of market uncertainty. For salespeople, in turn, this uncertainty engenders perceptions of risk concerning compensation and rewards, potentially reducing the motivation to sell (Basu et al. 1985). Thus, traditional performance-based incentives, such as commission and bonus, may be less effective when they apply to new products (Lal and Srinivasan 1993).

Second, new products are usually more costly to sell, particularly when they are targeted toward new customer segments. The need to learn new product features and technical jargon and call on unfamiliar prospects may push salespeople to the edge of their "comfort zone" and beyond. Furthermore, new product campaigns pull salespeople away from ongoing day-to-day assignments, and, as a result, sales of existing products may slip. Thus, salespeople may balk at the opportunity cost of devoting time to selling new products. Consequently, salespeople are often reluctant to invest effort in supporting new product launches (Anderson and Robertson, 1995; Wotruba and Rochford 1995).

Finally, it may take years before the market responds favorably to radically innovative new products, if it responds at all (Golder and Tellis, 2004). At the same time, salespeople's temporal horizon in a particular territory or with a company may be

relatively short (Anderson 1985). Hauser, Simester, and Wernerfelt (1994) indicate a variety of reasons why salespeople's short-term perspective leads them to sell what they can now, rather than investing effort building toward uncertain future returns.

In view of these challenges, marketing and sales managers need to understand how best to sell new products to the sales force. These issues lie at the heart of the marketing - sales interface and have a major impact on the success of new product launches.

2.1.2. The Role of Marketing Management

In the sparse existing literature, several antecedents of salesperson adoption of new products have been noted. These include salesperson learning styles, sales manager support, and organizational factors (Atuahene-Gima 1997). However, from an organizational structure perspective, marketing and product managers carry the primary responsibility for promoting new products internally to the sales force and typically are accountable for the success and failure of products in their portfolio (Cunningham and Clarke 1975). The role of product management during the process of selling new product to the sales force has not been investigated systematically in the literature.

The product management concept was first introduced in the 1950s "in response to the increasing complexity of markets and the need for some degree of specialized management to ensure that individual products were receiving adequate attention" (Cunningham and Clarke 1975, p. 129). Gorchels (2003) points out that a product manager becomes a champion for selected products, brands, or services in a multi-product firm. Product managers have been described as boundary-spanners occupying the interface between departments within a firm (Lysonski 1985; Lysonski, Singer and

Wilemon 1989; Wood and Tandon 1994). According to Reid (1988, p.32), the role of a product manager is frequently treated as equivalent to "that of an advisor and facilitator." They are managers without coercive authority, and their responsibility is to influence line managers and win share of mind for their products and brands.

To compensate for the lack of direct authority, successful product managers leverage the power of information and implied (referent) authority based on their relationship with top management to fulfill their responsibilities (French and Raven 1959; Cunningham and Clarke 1975). The fact that product managers possess product and market insights that may facilitate achievement of salespeople's goals confers information power on them. Implied authority may be derived from product managers' ability to refer to a senior executive to reinforce their position and facilitate obtaining cooperation and commitment from supporting line managers.

In multi-product firms, competition among product managers for resources can be fierce (Cunningham and Clarke 1975). Effective and persuasive communication can be a crucial factor in getting line managers' commitment. It can also be used to recruit commitment and effort from sales force. In this study, I seek to identify the types of persuasive appeals, incentives, and inducements that are most effective in enlisting sales force effort behind new products.

Many companies use generic titles to denote the role of product manager, such as brand manager, marketing manager, and product marketing manager. It is not uncommon that some firms use these titles interchangeably. For the purpose of presentation, I will use the term "marketing manager" to refer to the executives responsible for the success and failure of new products.

2.1.3. The Role of Sales Management

Unlike marketing managers, sales managers possess the formal authority of line management. They also typically have the advantage of relatively frequent interaction with the salespeople who report to them. In most organizations, the sales manager's role entails selecting, team building, leading, managing, and rewarding (Zoltners, Sinha and Zoltners 2001).

Although sales managers usually possess sufficient power and authority to influence salesperson behavior, the conditions under which they are willing to use it to endorse and support new products are unclear. Because of their different perspective on external markets and internal considerations, such as evaluation and compensation systems, sales managers are commonly not as enthusiastic as product managers over new products launches.

The performance criteria by which marketing managers and sales managers are evaluated are also typically disparate. Marketing managers are typically evaluated on the basis of total sales or profits of products they manage across all sales districts, whereas sales managers are evaluated on the sales of all products within their own sales district. As a result, priorities may differ and conflicts emerge (Rouzies et al. 2005).

Informal conversations with sales executives reveal that many sales managers screen information emanating from marketing managers. As sales force time and effort become increasingly expensive, sales managers tend to prioritize products in terms of what sells best in their particular environments. However, the extent to which salespeople's adoption of new products depends upon their sales managers' commitment to the product remains uninvestigated.

To gain insights into marketing - sales interface dynamics, I have conducted a number of depth interviews with executives from a variety of industries who are involved in new product and sales force management. Based on these interviews and an extensive literature review, I present a conceptual model (Figure 2.1) describing types and sources of information that influence salesperson adoption of new product innovations.

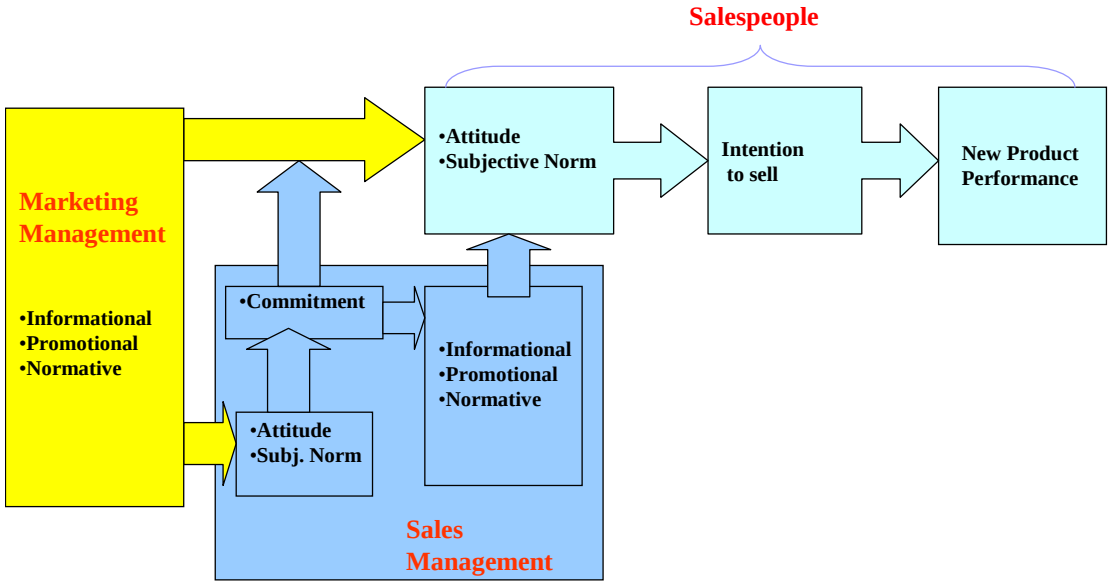

Figure 2.1

Salesperson adoption of new product innovations is modeled as a function of attitude toward selling them (using a multi-attribute formulation) and social normative influence (Fishbein and Ajzen 1975; 1980). Both attitude and subjective norm, in turn, are modeled as functions of three different types of influence strategies (informational, promotional, and normative) received from two different sources (marketing management, sales management).

I also consider the role of the sales manager as a gatekeeper between marketing management and the salesforce. In other words, I investigate the degree to which the

sales manager conveys or restricts influence received from marketing management to field sales representatives and the degree to which the sales manager's commitment to the new product moderates the influence of the marketing manager on salespeople's attitude toward and intention to sell the new product.

2.2. Conceptual Development

2.2.1 Adoption of New Products by the Sales Force

The literature on adoption of new products has focused almost exclusively on diffusion of innovations to customers and paid limited attention on the role of the sales force (Gatignon and Robertson 1985; Gatignon and Robertson 1989; Norton and Bass 1987; Weiss and Hede 1993). A few exceptions include Atuahene-Gima (1997), in which he proposes a conceptual framework for exploring the characteristics that affect new product adoption by salespeople. His model suggests that a salesperson's learning style, performance orientation, and problem-solving style influence the salesperson's commitment to a new product. He also identifies salespeople's perceptions of multiple organizational factors in determining whether the salesperson will take an active, positive approach to selling new products.

Hultink and Atuahene-Gima (2000) tested this framework with data collected from 97 high technology firms from the Netherlands. Their results show that sales force adoption is positively related to new product performance. A positive interaction effect between sales force commitment and effort has also been identified, in the sense that "salespeople who simultaneously exhibit commitment and effort achieve higher levels of new product selling performance" (Hultink and Atuahene-Gima 2000, p.435).

In this study, I adopt a different focus by investigating directly how marketing managers can best sell new products to the sales force. It is imperative that they do this effectively, inasmuch as marketing managers carry primary responsibility of new product success. In this respect, academic research has not spoken to important industry needs. The study's findings should usefully inform both academicians and practitioners.

2.3. Theory and Hypotheses

2.3.1. Theoretical framework

It is no secret to sales managers that sales effort drives sales performance (Brown and Peterson 1994; Brown and Leigh 1996; Zoltners, Sinha and Zoltners 2001). Sales effort is especially crucial in new product launches. It is unrealistic, however, for firms to take sales force commitment to new products as a given. Salespeople commonly resist taking on new selling tasks in favor of concentrating on existing products and conventional selling processes. For many salespeople who sell multiple products, any individual new product accounts for only a small proportion of total sales. Thus, unless management can motivate salespeople specifically to sell a new product vigorously, it may fail for lack of selling effort (Atuanhene-Gima 1997). The focus of this study is on how best to motivate sufficient sales force effort during new product launches.

In many organizations, marketing or product managers carry the primary responsibility for new product success or failure but lack direct authority over the sales force. The fact that most marketing managers work in headquarters impedes building close working relationships with field salespeople. On the other hand, marketing managers possess both informational and material resources for supporting new products,

and often access to top management as well. How they should use this information power and implied authority to maximize sales effort behind their new product remains to be explored.

In contrast to marketing managers, sales managers possess both direct authority over and close working relationships with field salespeople. Such resources can greatly facilitate marketing managers' objectives, but it may be naïve to expect that they will do so because sales managers are generally evaluated and compensated based on the total sales of all products from their districts. Sales managers will reinforce marketing managers' influence only if they are persuaded that it will help them and the organization achieve their goals. Sales managers can also hinder marketing managers' effort to influence salespeople if they do not "buy in" to the new product launch themselves.

These perspectives raise several questions. For example, how can marketing managers best encourage sales representatives to exert effort in support of a new product launch? To what extent will salespeople support a new product launch if the sales manager does not? To what extent does the sales manager's attitude toward and commitment to a new product mediate the influence marketing managers are able to exert on salespeople? And, to what extent does the sales manager's commitment moderate salespeople's response to influence attempts by marketing managers? In order to address these issues, I present six different model formulations, including the following: (1) how marketing managers influence salespeople; (2) how marketing managers influence sales managers; (3) how sales managers process influence from product management and convey it forward to salespeople (4) how sales managers influence salespeople; (5) how sales management mediates the influence from product management to salespeople; and

(6) how sales managers' commitment to a new product moderates influences from product management to sales representatives. [A list of definitions of all constructs is provided in Table 2.1].

Table 2.1

Definitions of the Constructs in the Model

Construct	Definition
Informational Influence	A type of managerial influence technique that puts the basic facts and projects of new product and its target market in their best light for salespeople.
Promotional Influence	A type of managerial influence technique that provides tangible and psychological incentives for success in selling the new product.
Normative Influence	A type of managerial influence technique that imposes organizational and managerial pressure on salespeople to sell the new product.
Salespeople's attitude toward selling a new product	The degree to which salespeople have a favorable or unfavorable evaluation or appraisal of selling a focal new product (Ajzen 1991)
Salespeople's subjective norm to sell a new product	The salespeople's perceived organizational, managerial, and social pressure to sell the new product (Ajzen 1991).
Salespeople's intention to sell a new product	The salespeople's estimation of the extent to which they will exert effort in selling the new product (Fishbein and Ajzen 1975).
Sales managers' commitment to the success of new product	The sales managers' acceptance of the new product, and their identification with and involvement in making it a success because such success helps to achieve their self-interest objectives (cf. Atuahene-Gima 2000).
New product Performance	The extent to which salespeople have accomplished the short- and long-term sales objectives of a new product.

Model 1: Influences from Marketing Management to Sales Representatives

In the conceptual model, I propose that marketing management may impact sales force effort through two paths. The first works through building positive attitudes toward selling a new product. When this proves difficult, marketing managers can apply normative pressure to sell the new product by imposing sanctions for not selling it.

To delineate the model, some key constructs must be defined. First, salespeople's *intention to sell* a new product is defined as their estimation of the extent to which they will exert effort in selling the new product (Fishbein and Ajzen 1975). In this longitudinal

study, consistent with the theory of reasoned action (Fishbein and Ajzen 1975) and theory of planned behavior (Ajzen 1991), I treat salespeople's *new product performance* as the consequence of their behavioral intentions. During the new product launch period (i.e., at time 1), management's influence may affect salespeople's intention to sell through attitude, subjective norm, or both.

Attitude toward selling a new product

Consistent with the voluminous research on attitudes (cf. Eagly and Chaiken, 1993), I define salespeople's attitude toward selling a new product as the degree to which they have a favorable or unfavorable predisposition toward selling the focal new product (Ajzen 1991). Based on my interviews with both sales and marketing managers from various industries, I propose a six-attribute model to measure salespeople's attitude towards selling new products, in which attitude is modeled as the summation of the products of salesperson beliefs regarding the extent to which the product possesses an attribute and the importance weight they ascribe to an attribute over the six salient attributes, i.e.,

$$A = \sum_{i=1}^{6} b_i e_i ,$$

where A = overall attitude toward selling new product,

b_i = the strength of the belief concerning whether the new product has attribute i,

e_i = the evaluation of the goodness and badness of attribute i[4].

[4] In particular, the six attributes are: has market potential, is easy to sell, is compatible with my (salesperson's) selling skills, is compatible with my (salesperson's) product knowledge, is compatible with needs of customers and prospects, and is fun to sell.

An attitude represents a "learned predisposition to respond to an object in a consistently favorable or unfavorable manner" (Fishbein and Ajzen 1975, p. 336). This belief implies a strong linkage between attitude and behavior. There is widespread acceptance and support for a positive relationship between attitude and corresponding behavior (e.g., Eagly and Chaiken 1993). When favorable evaluation of product attributes leads salespeople to have a positive attitude, they will have a favorable predisposition toward selling it. It thus becomes easier for them to develop a commitment to sell the new product. When salespeople perceive the success of a new product as linked to their own personal success, they become more willing to put effort into selling it.

The positive relationship between attitude and behavioral intention has been suggested by the theory of reasoned action and has considerable empirical support in a variety of contexts (Ajzen and Fisbein, 1975, 1980). To the extent that salespeople have favorable cognitive evaluations and positive attitudes toward selling a new product, they are likely also to develop favorable intentions toward selling it. Based on these predictions, I therefore propose:

> **Hypothesis 1: Salespeople's attitude towards selling a new product is positively related to their intention to sell this new product.**

Subjective Norm toward Selling the New Product

Subjective norm to sell the new product is defined as the perceived organizational, managerial, and social pressure to sell the new product (Ajzen 1991). For salespeople, I propose that normative pressure may come from marketing management, sales management, top management, and fellow salespeople. Sales managers may receive normative pressure from marketing management, top management, salespeople and

fellow sales managers. In this context, consistent with the theory, subjective norm is a multiplicative function of perceived expectations from management and peers and one's willingness to comply with those expectations. Thus, subjective norm is expected as

$$SN = \sum_{j=1}^{5} NB_j MC_j ,$$

where SN = subjective norm to sell the new product,

NB_j = the normative belief that a reference group j thinks that the salesperson (sales manager) should sell the new product,

MC_j = the motivation to comply with the influence of referent j.

Managers may signal their expectations by setting deadlines to call on prospects, making specific plans with salespeople, and emphasizing their personal endorsement and high expectations. Simultaneously, management may increase salespeople's motivation to comply by highlighting the negative consequences of not complying. The consequences could be as serious as a formal warning, an unfavorable performance evaluation, or as minor as an awkward moment at a sales meeting.

Salespeople's internal opportunities for promotion and career advancement are contingent upon management evaluations. Although marketing managers, in general, lack direct authority over the salesforce, they may have implied (referent) power through top management and sales management, who share authority to define salespeople's roles and evaluation criteria. Gaining acceptance and avoiding punishment from management can be sufficient incentive for salespeople to comply with its expectations. The more salespeople believe that there will be serious consequences of not selling a new product, the greater their intention to sell it will be. Expectations from fellow salespeople may also

play a role. The expectations of other salespeople are becoming increasingly relevant in team selling environments, as salespeople may be highly motivated to comply with pressure from peers, as well as from management (Pfeffer 1998). Consistent with this reasoning, I propose that:

Hypothesis 2: Salespeople's subjective norm for selling a new product is positively related to their intention to sell it.

Although attitude and subjective norm are both expected to lead to higher intentions to sell, the processes by which they influence intentions may differ. Kelman (1958, 1961) distinguishes three different processes of attitude change and persuasion: compliance, identification, and internalization. If a salesperson invests effort in selling a new product primarily because s/he hopes to receive positive feedback or avoid a negative reaction from managers, *compliance* can be said to occur. Compliance represents a relatively low level and short-lasting form of persuasion, and the desired behavior is unlikely to persist after the threat of sanction is removed. *Identification* occurs when the salesperson sells a new product because s/he identifies with and seeks to emulate the influencer (e.g., a marketing or sales manager). Identification reflects an intermediate level of persuasion. Under identification, the desired behavior persists only as long as the salesperson's relationship with management remains salient.

Internalization occurs when a salesperson accepts influence because s/he finds that selling the new product is intrinsically rewarding and congruent with his/her value system. It represents a high level and persistent form of persuasion, and the desired behavior persists regardless of whether manager monitor the behavior. From the preceding analyses, it is reasonable to argue that the attitudinal path primarily reflects internalization, whereas the normative path reflects compliance. Identification may play a

secondary role in both. In this study, I focus mainly on internalization and compliance processes and relate these to the attitudinal and subjective norm paths to effort, respectively.

An important implication of these different processes is that the subsequent behaviors adopted from them differ in terms of their magnitude, endurance, and the conditions under which they are likely to occur (Kelman 1958, 1961). Specifically, if sales force effort toward selling a new product results from internalization processes, then it is likely that salespeople will find selling it intrinsically rewarding and put their best and most creative efforts into it. Less managerial oversight is needed to ensure adequate effort. In contrast, when sales force effort toward selling a new product results from compliance, effort will be sustained only as long as management monitors salespeople's behavior (Kelman 1961).

Because of uncertainty regarding the link between individual effort and performance with new products, assessment of salespeople's effort and performance during product launches can be difficult. Under these circumstances, effective salesperson self-regulation of effort is important. Because salespeople are more likely to self-regulate effectively and be persistent in their selling effort when they develop a positive attitude, the attitudinal path is preferable to the normative path.

I suggest that the normative path has value primarily as a "back up" or reinforcement that drives effort when salespeople do not have a positive attitude toward selling the new product. When salespeople have a positive attitude toward selling the new product, they are likely to perceive normative influence as supportive of a course of action they choose to pursue on their own, and therefore as uncontrolling. In this case

(i.e., when attitude is strongly positive), normative influence is unlikely to influence intentions and effort. In contrast, when attitude is not strong enough to drive intention and effort, normative influence represents a form of compulsion and exerts the primary influence on intention and effort. Therefore, I propose that:

> **Hypothesis 3: Salespeople's attitude toward selling the new product and subjective norm will interact, such that the positive relationship between salespeople's subjective norm and their intention to sell this new product is stronger when their attitude toward selling this new product is low.**

This hypothesis has meaningful implications for managers. A positive attitude not only stimulates effort, but also fosters persistence. Considering the frequent rejection salespeople may encounter from customers during new product launches, this is very important. Thus, management should consider the attitudinal path as the primary objective in selling new products to the sales force. But when management finds inducing positive attitudes difficult, they can use the subjective norm path as a backup means of inducing sales force effort.

Forms of Managerial Influence

In many organizations, marketing managers have limited opportunities to interact directly with the sales force. During new product launches, their interactions may become more frequent in the interest of facilitating communication of information and objectives regarding the new product. Management has essentially three ways of influencing salespeople to exert effort in support of a new product launch. They can provide factual information regarding the product and its intended market; they can offer financial and psychological rewards for success, or they can provide sanctions or punishment for failing to support it. In line with this perspective, I specify informational, promotional, and normative influence strategies as tactics available for management to use in the task

of selling new products to the sales force. My three-dimensional conceptualization of managerial influence is also consistent with the political economy paradigm advocated by Arndt (1983). The three types of influence tactics are likely to affect salesperson effort behind the new product through different behavioral paths. Further, their influences are not likely to be independent of one another, and I expect them to interact, as I develop in the following paragraphs.

Informational Influence

In this study, informational influence may take various forms, such as new product presentations and demonstrations at sales meetings, internal communications through e-mail, intranet, and recorded forms of information, such as documents, recordings, etc. Informational influence puts basic facts and projections about a new product and its target market in their best light for salespeople. The purpose of providing such information is to create positive feelings about the utility and value customers will perceive in the product and the ease and feasibility of selling it to them. So if marketing managers present informational influence effectively, then salespeople's beliefs about the product and attitude toward selling it are likely to be positively affected. This is consistent with the theory of reasoned action in that information influences salespeople's attitude by either strengthening the belief that the new product possesses certain attributes, or making those attributes more salient (Fishbein and Ajzen 1975). Thus, I propose that:

> **Hypothesis 4: Marketing managers' informational influence is positively related to salespeople's attitude toward selling the new product.**

The time and energy marketing managers spend informing salespeople about a new product also signal the importance and urgency of the launch. Informational influence from marketing managers may affect salespeople's subjective norm toward

selling the new product in two ways. First, when marketing managers use informational influence extensively, salespeople may perceive those efforts as signals of managers' expectations that they should sell the new product. For example, during a regional meeting I attended, a global marketing manager traveled from Europe to make a two hour presentation and product demonstration to local salespeople. In so doing, his high expectations of the salespeople were readily apparent.

Second, the time and energy marketing managers spend providing information may enhance salespeople's willingness to comply with their desires and expectations. Usually, salespeople treat marketing managers as members of an outgroup (Tajfel 1978). For example, one salesperson I interviewed referred to marketing managers simply as "those people at headquarters." This may result from the fact that marketing managers and salespeople typically have different goals and interact infrequently. However, when marketing managers spend time communicating useful information to salespeople, the salespeople are likely to want to reciprocate by performing in a manner consistent with their expectations. According to social exchange theory (Blau 1964), individuals engage in reciprocal behaviors and support those who provide benefits to them. I posit that salespeople become more willing to comply with marketing managers' expectations when informational influence is high. These perspectives lead to the predication that:

Hypothesis 5: Marketing managers' informational influence is positively related to salespeople's subjective norm toward selling the new product.

Promotional Influence

Promotional influence provides tangible and psychological incentives for success in selling the new product. It may take the form of financial compensation, such as a commission schedule, bonus plan, or spiff, or merely informal recognition and

acknowledgment by managers. Sales contests, a frequently used motivational tool in many organizations, may also be treated as a type of promotional influence (Murphy and Dacin 1998). Most salespeople find sales contests interesting and fun. Such promotional influences tend to enhance salespeople's attitude toward selling a new product (Murphy and Dacin 1998). Having the opportunity to win rewards and recognition is likely to prompt deeper cognitive processing of product attributes, making them more salient to salespeople. At the same time, salespeople are likely to view the new product as an instrumental means of attaining desirable outcomes and thereby develop a positive attitude toward selling it. Thus, I propose that:

Hypothesis 6: Marketing managers' promotional influence is positively related to salespeople's attitude toward selling the new product.

Managers' promotional efforts also convey a clear signal of high managerial expectations. Promotions highlight the importance to the organization of selling the new product. They also clearly indicate that performance outcomes for selling it will be monitored closely and publicized. This provides signals of normative expectations that they should sell the new product.

Managers' promotional influence may also impact salespeople's willingness to comply. Churchill et al. (1985) demonstrate that salespeople respond positively to financial incentives. Similar motivational effects have been documented in the sales contest literature (Murphy and Dacin 1998). It is reasonable to argue that managers' promotional influence has a positive relationship with salespeople's willingness to comply.

Hypothesis 7: Marketing managers' promotional influence is positively related to salespeople's subjective norm toward selling the new product.

Normative Influence

Launching a new product entails uncertainty. While pre-launch market research is helpful in selecting products with the highest probability of success, it is impossible to eliminate risk altogether (Cooper 2000). National markets may differ from test markets, customer preferences may change, and competitors may respond by intensifying their marketing efforts (Urban and Hauser 1980). Even after a product proves successful at the national level, its performance in a given sales territory may remain in doubt. When such doubts negatively affect salespeople's attitude toward selling a new product, managers may push salespeople by exerting normative influence.

Normative influence imposes pressure on salespeople. Through normative influence, managers emphasize the negative consequences of not complying and performing up to expectations. Salespeople may perceive such information as controlling and threatening. If marketing managers rely exclusively on normative pressure, salespeople may doubt whether the new product has sufficient market potential to succeed. Such beliefs are likely to negatively affect salespeople's attitude toward selling the new product. In addition, normative pressure detracts from the fun of selling a new product and is likely to result in a less favorable attitude toward selling it. Normative influence may also take the form of setting up deadlines and committing to plans. This deprives salespeople of the flexibility to work according to their own schedule. Salespeople may perceive this as manipulative. As a result, I posit that normative pressure will influence salespeople's attitude negatively.

Hypothesis 8: Marketing managers' normative influence is negatively related to salespeople's attitude toward selling the new product.

Normative influence is based on a credible threat of sanction or punishment for failing to do what the organization requires. When marketing managers use normative influence to induce sales force effort, it is likely that sales managers and others in the organization who may be important to salespeople will, at least to some extent, support the use of such influence. If so, then salespeople should perceive some normative pressure to sell a new product when marketing managers exert normative influence. Moreover, because salespeople are likely to perceive (or infer) that sales managers support the marketing managers' normative influence, they are likely to have some motivation to comply with this influence.

Hypothesis 9: Marketing managers' normative influence is positively related to salespeople's subjective norm toward selling the new product.

Interaction of Marketing Managers' Influences

Marketing managers are likely to use different influence tactics simultaneously, and these appeals, incentives, and pressures may interact. The relationship between managerial influence and salespeople responses may vary in strength depending on types of influences.

Hypothesis 5 predicts that marketing managers' informational influence has a positive relationship with salespeople's subjective norm. The predicted positive relationship reflects the fact that salespeople perceive managers' informational influence as a signal of their expectation that salespeople should invest effort behind the new product. At the same time, if managers also use normative influence, the signal becomes clear and strong. In this case, no doubt exists that management holds high expectations for salespeople to sell the new product. Further, this leads salespeople to interpret

informational influence as having a greater normative component than when it is not accompanied by heavy use of normative influence tactics.

> **Hypothesis 10: Informational and normative influence tactics interact such that the positive relationship between marketing managers' informational influence and salespeople's subjective norm is stronger when marketing managers' normative influence is high than when it is low.**

Following similar reasoning, I expect that promotional and normative influence tactics also interact. When marketing managers use both promotional and normative influences, the positive relationship predicted by hypothesis 7 becomes stronger, an effect could be due to a clearer and stronger signal and a higher willingness to comply. Therefore,

> **Hypothesis 11: The positive relationship between marketing manager's promotional influence and salesperson's subjective norm is stronger when marketing manager's normative influence is high than when it is low.**

The following figure (Figure 2.2) summarizes hypotheses 1 to 11.

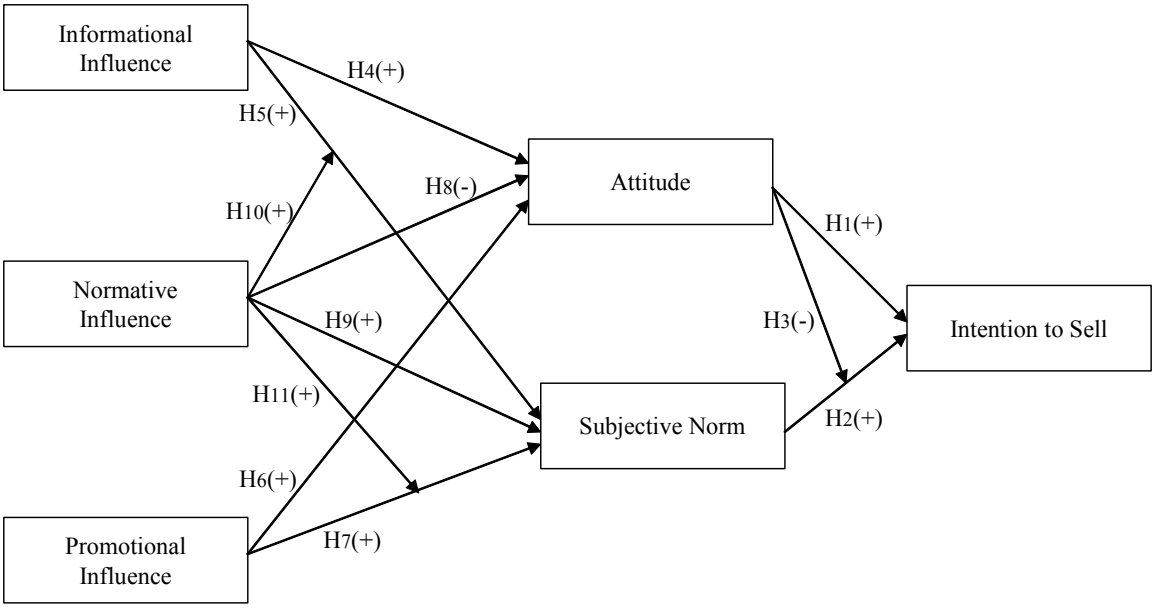

Figure 2.2

Model 2: Influence from Marketing Management to Sales Management

In marketing managers' efforts to sell new products to the sales force, obtaining the buy in of sales managers is extremely important. As previously noted, sales managers may facilitate or inhibit the new product launch through the influence and authority they exert on the salespeople who report to them.

My second model assesses how marketing managers use the same three influence tactics to persuade sales managers to become more committed to the success of a new product launch. As in Model 1, I suggest that sales managers can be induced to become committed through internalization processes that are reflected in their attitude toward selling the new product and compulsion processes that are manifested in their subjective norm.

Although there are relatively modest differences in perspective between sales managers and the salespeople who report to them (i.e., relative to differences in perspective between marketing and sales), I do not expect that such differences will alter the forms or dynamics of the persuasive effects I have hypothesized in the context of model 1. Therefore, I posit that marketing managers use of informational, promotional, and normative influence will affect sales managers' attitude and subjective norm toward selling a new product in the same manner and for the same reasons as predicted in hypotheses 4 to 11. Because these hypotheses are identical (i.e., for sales managers and salespeople as recipients of influence from marketing managers), I will refer to these tests in the context of model 2 as hypotheses 4_{sm} to 11_{sm}, where the subscript refers to sales managers. Specifically, consistent with the hypotheses previously developed for

salespeople as recipients of influence tactics from marketing management, I state the following corresponding hypotheses for sales managers.

Hypothesis 4_{sm}: Marketing managers' informational influence is positively related to sales managers' attitude toward selling the new product.

Hypothesis 5_{sm}: Marketing managers' informational influence is positively related to sales managers' subjective norm toward selling the new product.

Hypothesis 6_{sm}: Marketing managers' promotional influence is positively related to sales managers' attitude toward selling the new product.

Hypothesis 7_{sm}: Marketing managers' promotional influence is positively related to sales managers' subjective norm toward selling the new product.

Hypothesis 8_{sm}: Marketing manager's normative influence is negatively related to sales managers' attitude toward selling the new product.

Hypothesis 9_{sm}: Marketing managers' normative influence is positively related to sales managers' subjective norm toward selling the new product.

Hypothesis 10_{sm}: Informational and normative influence tactics interact such that the positive relationship between marketing managers' informational influence and sales managers' subjective norm is stronger when marketing managers' normative influence is high than when it is low.

Hypothesis 11_{sm}: The positive relationship between Marketing manager's promotional influence and sales managers' subjective norm is stronger when Marketing manager's normative influence is high than when it is low.

Model 3: Sales Managers' Attitude, Subjective Norm, and Commitment

In a manner consistent with the theory of reasoned action (Fishbein and Ajzen 1975; 1980), I expect that sales managers' commitment to a new product will be a function of their attitude and subjective norm with respect to selling it. To the extent that sales managers develop positive beliefs about and a favorable predisposition toward selling a new product, as reflected in a positive attitude, they are likely to develop also a

deep-seated conviction that selling the new product is desirable and important (Kelman 1961). Therefore, I posit that:

Hypothesis 12: Sales managers' attitude toward selling the new product is positively related to their commitment to its success.

Although the dynamics of compulsion that drive the effects of normative influence are unlikely to instill commitment to the same extent that internalization processes working through attitude do, I still expect a positive relationship between sales managers' subjective norm and commitment to the success of a new product. This prediction is closely analogous to the positive effect of subjective norm on behavioral intentions as theorized and documented empirically in the theory of reasoned action (Fishbein and Ajzen 1975, 1980). As long as sales managers perceive some normative influence being exerted by important others in the organization, they are likely to maintain at least a modest level of behavioral commitment toward its success, as predicted in the following hypothesis.

Hypothesis 13: Sales managers' subjective norm toward selling the new product is positively related to their commitment to its success.

Model 4: Sales Managers' Influence on Salespeople

The interface between sales managers and the salespeople who report to them is an intriguing question to many researchers. For example, Jones, Busch and Dacin (2003) examine the influence of three types of sales manager perceptions on salespeople's corresponding perceptions (i.e., the sales managers' perception of the firm's market orientation, the sales managers' assessment of their own customer orientation, and the sales managers' organizational commitment). But the relationships between the sales managers' attitude toward and commitment to a new product launch and salespeople's

attitude toward selling the new product have not been previously examined. I investigate these relationships in this section.

Although important questions relate to the extent to which sales managers' attitudes toward and commitment to a new product launch mediate and moderate the influence that marketing managers exert on salespeople remain, for simplicity and consistency of presentation I first note that, fundamentally, sales managers again use the same three forms of influence I have previously developed to motivate salesperson buy in to a new product launch. I believe these influence tactics are likely to influence salespeople's attitude and subjective norm in the same manner as I have developed previously. Therefore, I replicate the tests of hypotheses 4-11 in the context of sales managers influencing salespeople and refer to these predictions as hypotheses $4_{sm\text{-}sp}$ to $11_{sm\text{-}sp}$, where the subscripts refer to sales managers influencing salespeople.

Hypothesis $4_{sm\text{-}sp}$: Sales managers' informational influence is positively related to salespeople's attitude toward selling the new product.

Hypothesis $5_{sm\text{-}sp}$: Sales managers' informational influence is positively related to salespeople's subjective norm toward selling the new product.

Hypothesis $6_{sm\text{-}sp}$: Sales managers' promotional influence is positively related to salespeople's attitude toward selling the new product.

Hypothesis $7_{sm\text{-}sp}$: Sales managers' promotional influence is positively related to salespeople's subjective norm toward selling the new product.

Hypothesis $8_{sm\text{-}sp}$: Sales manager's normative influence is related negatively to salespeople's attitude toward selling the new product.

Hypothesis $9_{sm\text{-}sp}$: Sales managers' normative influence is positively related to salespeople's subjective norm toward selling the new product.

Hypothesis $10_{sm\text{-}sp}$: Informational and normative influence tactics interact such that the positive relationship between sales managers' informational influence and salespeople's subjective norm is stronger when sales managers' normative influence is high than when it is low.

Hypothesis $11_{sm\text{-}sp}$: The positive relationship between sales manager's promotional influence and salespeople's subjective norm is stronger when sales manager's normative influence is high than when it is low.

Sales Managers as Gatekeepers of Influence from Marketing Management

Considering the hierarchical structure of sales organizations and the frequent interaction between sales managers and their salespeople, it is likely that sales managers play a critical gate-keeping role in the process of selling new products to the sales force. Typically, sales managers are responsible for all of the business within their districts. As such, it is in their interest to screen information from marketing management and to prioritize products they perceive as having more potential for high performance in their own districts. At the same time, because of the direct authority they exert over salespeople, sales managers' influence may override that of marketing management. I expect that their gate-keeping effect may take two forms: moderation and mediation of the influence exerted by marketing management on salespeople.

Model 5: The Partial Mediation Effect of Sales Managers' Influences

It should be marketing managers' explicit purpose to influence salespeople to exert effort behind a new product through the mediation of their sales managers. Marketing managers may effectively influence salespeople by leveraging the direct authority that sales managers have over them. In this manner, sales managers are likely to convey the effects of influence from marketing managers to the salespeople who report to them. This suggests that sales managers will mediate, at least partially, the influence exerted by marketing management on salespeople.

Inasmuch as marketing management simultaneously attempts to influence both salespeople (i.e., directly) and sales managers, I expect that these mediation effects will be partial rather than complete. That is, I expect that marketing management will influence salespeople both directly and through the mediation of sales managers' influence.

Operationally, this hypothesis amounts to a prediction that partialling out the influence of the sales managers' influence on salespeople's attitude and subjective norm will cause the effects of marketing managements' influence (as predicted in hypotheses $4_{sm\text{-}sp}$ to $11_{sm\text{-}sp}$) to become smaller in magnitude, while still remaining statistically significant.

Hypothesis 14: Sales managers' influence will partially mediate the effects of marketing managements' influence on salespeople.

Model 6: The Moderation Effect of Sales Managers' Commitment

In addition to partially mediating the effects of marketing managers' influence on salespeople, I also expect that sales managers' commitment to a new product's success will moderate the effectiveness of marketing management's influence attempts. Specifically, I expect that marketing management's influence on salespeople's attitude and subjective norm toward selling a new product will be stronger when sales managers are committed to its success than when they are not. Sales managers' commitment to a new product underscores and reinforces the positive messages about it that marketing management sends to salespeople. This supports the credibility of these messages and increases their impact. According to this logic, I predict that the impact of marketing managers' influence on salespeople as predicted in hypotheses 4 to 11 will be moderated

by sales managers' commitment to the new product's success, such that the effects are stronger when sales managers' commitment to the success of the new product is high than when it is low. I therefore propose that:

> **Hypothesis 15: Marketing managers' informational influence (15a), promotional influence (15b), and normative influence (15c) have stronger impact on salespeople's attitude toward selling the new product when sales manager's commitment to this new product is high than when it is low.**
>
> **Hypothesis 16: Marketing managers' informational influence (16a), promotional influence (16b), and normative influence (16c) have stronger impact on salespeople's subjective norm toward selling the new product when sales manager's commitment to this new product is high than when it is low.**

2.4. Research Method

2.4.1 Instrument Development

A survey was used to test the hypotheses because survey research is best adapted to obtaining personal and social facts, beliefs, and attitudes (Kerlinger 1973), particularly in field settings such as the interface between marketing and sales functions in complex organizations. With the assistance of one of my advisors, I conducted five pre-study depth interviews with marketing and sales executives. The executives are from diverse industries, ranging from consumer package goods to oil field services.

I collected survey data from a multinational company that manufactures and markets drilling tools and fastening systems to professional customers in the construction and building maintenance industries worldwide. The use of data from a single company may impose potential limitations on external validity. However, focusing on the marketing managers, sales managers, and salespeople during a new product launch from a single company enables me to obtain a richer, deeper understanding of the impact of

management's influence tactics on salespeople's attitude and subjective norm toward selling the new product and the role of the sales managers during the process of selling a new product to the sales force.

The questionnaire was pre-tested in two ways. First, I spent a day riding along with two of this company's salespeople to gain first hand experience. I then conducted depth interviews with both salespeople. I first asked them questions concerning the role of the sales force during a new product launch. Their experience related well to the theoretical model. As part of the interview, I presented them the questionnaire and asked them to indicate any ambiguity or lack of clarity they perceived in the items. Second, together with two of my advisors, I traveled to the headquarters of this company and conducted additional depth interviews with four sales and marketing executives, including the vice president of sales, the director of the marketing department, and two product managers. They first briefed us on their process for launching new products. I then presented them with the theoretical model and the questionnaires designed for salespeople and sales managers. They were asked to indicate ambiguities, as well as to offer any suggestions they deemed appropriate. This feedback indicated that the measurement items were clear and meaningful.

In addition, I attended one of the firm's regional meetings, during which the company introduced new products to the sales force. Direct observation and informal conversations with the regional sales manager, global product manager, field engineer, and training manager further confirmed the appropriateness of the model and measures. Based on the critiques and suggestions received from both marketing and sales functions, I discussed with one of my advisors with substantial experience in survey research

revising the items. The revised questionnaires were then sent to the sales and marketing managers for final comments.

I used multiple items to measure the focal constructs. Some measures were adapted from the literature, such as salespeople's intention to sell, and sales managers' commitment to a new product. It was also necessary to develop some new measures for constructs, such as managerial influence. The items for informational, promotional, and normative influences are presented in the Appendix. Some constructs are well accepted and have been extensively tested in other contexts. These include attitude, subjective norm, and self-efficacy. I adapted items for these constructs to the study context in a manner consistent with recommendations from the literature.

2.4.2 Sample

The sampling frame consisted of approximately 800 salespeople in both the United States and Canada. These salespeople report to 70 regional sales managers all across North America. On average each sales region fields 10 to 12 salespeople. Though organized around different customer segments, they are responsible for all new products the company launches.

A sample drawn from this frame has numerous benefits for testing the hypotheses. For example, the company launched 50 new products in its North American market in 2004 and added another 12 new products to its portfolio in 2005. I tracked one of these launches longitudinally. Second, the company employs a direct-to-customer model and relies almost exclusively on its sales force to communicate with customers. The company sells to the end user through its sales force without the benefit of channel intermediaries. This facilitates assessment of the effects of sales effort on new product performance. In

addition, the company utilizes pre-launch procedures to educate and motivate its sales force before new product launches. This further facilitates my evaluation of the effects of different communication strategies, (i.e., appeals, incentives, and normative pressures). I will briefly introduce those different communication strategies.

Two months before a formal new product launch, the company sends announcements through e-mail to remind all the salespeople that a new product launch is pending. These e-mail messages lead salespeople to an employee training web site supported by an external consulting firm. Each salesperson obtains a user name and password to log on. The web site contains new product features, benefits, and comparison with major competing products. Once they log on, salespeople are required to go through all of their contents and complete multiple-choice quizzes. Once they answer most questions correctly (above 85%), they receive a printable online certificate signed by the CEO of the company.

The company begins its new product launch process by introducing the new product officially through presentation and product demonstration at the regional sales meetings. This practice is captured by my assessment of the informational dimension of my managerial influence construct. During these meetings, executives may also discuss incentive compensation, such as bonus, sales contests, or spiffs as promotional influence tactics. It is also common for managers to emphasize the importance of the new product and set up detailed plans and deadlines to cover target customers, a practice measured by my normative influence dimension.

I surveyed both sales managers and salespeople with respect to their experience with a new product launched in the summer of 2005. With enthusiastic support from the

company, I used the company's intranet to collect data. I collected the longitudinal data during new product launch (time 1) and three months later (time 2). I asked salespeople to evaluate influences from marketing managers and sales managers at time 1. I then asked them to report their attitude and subjective norm toward selling this new product, and their intention to sell it. At time 2, I collected their performance in selling the new product from company records. Sales managers were surveyed at time 1 and in a similar manner regarding marketing managers' influence and their own influences on the salespeople they supervise.

Ultimately, 439 salespeople and 64 sales managers successfully completed questionnaires. These two sets of surveys were matched for the multilevel analysis, resulting in complete responses from 311 salespeople and 52 sales managers. This corresponds to a response rate of 38.9 percent for the salespeople and 72.9 percent for the sales managers. Most of the salespeople participating in the study were male (93.3%), the mean age was 40.5 years, and over 75 percent of them are college educated. On average, these salespeople had nearly 15 years experience in sales, and had been in the present position nearly 10 years. Over 93 percent of the sales managers are male with an average age at 40.6 years; approximately 85 percent are college educated. The sales managers had around 14 years experience in sales, and had been with the company for over 11 years.

2.4.3. Measures

Marketing Manager's Influence Tactics: To measure marketing managers' influence tactics, I asked study participants to rate the extent to which they perceive that marketing management used the three influence tactics during the new product pre-

launch. Specifically, informational influence tactics were measured with 4 items, and promotional and normative influence tactics were measured with 3 items each. The items were consisted of 7-point Likert-type scales. The response formats for the items ranged from "strongly disagree" to "strongly agree."

I conducted an exploratory factor analysis with oblique rotation of the 10 items of marketing manager's influence tactics to identify the psychological dimensions. This analysis produced three factors with eigen values greater that 1.0; the scree test also supported a three-factor solution. The three factors accounted for 84.2 percent of total variance and corresponded to the three types of influence tactics I proposed, i.e., informational (α = .904), promotional (α = .937), and normative influence tactics (α = .925). All three marketing manager's influence tactics were highly internally consistent.

Sales Manager's Influence Tactics: I used a similar approach to measure sales manager's influence tactics. An exploratory factor analysis of the 10 items measuring the sales manager's influence tactics also produced three factors with eigen values greater than 1.0. The three factors accounted for 89.7 percent of total variance. The internal consistencies of the three sales managers' influence tactics were again high (informational, α = .953, promotional, α = .959, and normative, α = .934).

Intention to Sell

I measured salespeople's intention to sell the new product with three items. I asked the study participants how much effort (time, intensity, overall effort) they anticipated putting into selling the new product compared to other salespeople. The internal consistency of the intention to sell (α = .945) was satisfactory.

Performance

Performance is measured with the actual number of units sold during 90 days after the new product launch, according to the company's sales record. The average number of units sold was 5.04 (s.d. = 6.7).

Self Efficacy

Self-efficacy refers to individuals' perception of their own ability to master a task or achieve mastery over a specific situation or set of circumstances (Bandura 1977). Specifically, I asked salespeople to indicate their confidence in their ability to perform as well as or better than other salespeople in the company in terms of sales of the new product. Following the recommendation of Bandura (1997), I used magnitude and confidence scores to measure self-efficacy. The magnitude measure asked salespeople to indicate the proportion of other salespeople in the company whose sales performance on the new product they believed they could exceed (i.e., they could outperform 10%, 20%, …99%) of the company's sales force. The confidence scores consisted of ratings of how confident they were in each magnitude judgment (0-100% confidence that they could outperform x percent of the total sales force). These measures are consistent with Bandura's (1997) recommendation and general practice in research in social cognitive theory. The confidence scores were summed for each salesperson and constituted the self-efficacy measure.

2.4.4. Measurement Analysis

I then conducted confirmatory factor analyses to test the adequacy of the measurement models. As in Brown, Westbrook, and Challagalla (2005), I grouped together constructs that were most similar. The CFAs indicated good fits to the data, as

reported in Table 2.2. I conducted chi square difference tests on the correlations between constructs. The results revealed that all correlations differed significantly from 1.0, indicating discriminant validity. The fact that all loadings are significant and loaded substantially (λs >.5) on their intended constructs indicates acceptable convergent validity for the measures (Brown, Westbrook, and Challagalla 2005). In addition, the average variance extracted for each construct were greater than the recommended cutoff value of .5, suggesting that the variance captured by the construct is larger than the variance due to measurement error (Fornell and Larcker 1981). On the basis of these analyses, I concluded that the measures exhibited sufficient evidence of both convergent and discriminant validity.

Table 2.2
Fit Indices for measurement model CFAs

Model	χ^2	d.f.	RMSEA	NNFI	GFI	CFI
Marketing Manager's Influence Tactics	71.4	32	0.053	0.98	0.97	0.99
Sales Manager's Influence Tactics	74.61	32	0.055	0.99	0.97	0.99
Salesperson's Intention to Sell	106.27	59	0.043	0.99	0.96	0.99

2.5. Results

Descriptive statistics and correlations are reported in Table 2.3. I tested the hypotheses with moderated regression analysis. Each of the constructs was represented by a single composite score. I mean centered salespeople's attitude and subjective norm toward selling the new product, marketing managers' influence tactics (i.e., informational, promotional, and normative), and sales managers' influence tactics before creating the interaction terms (Aiken and West 1991) to reduce the potential problem of

Table 2.3
Descriptive Statistics and Intercorrelations of salespeople constructs

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Marketing Informational	4.75	1.30	1.00									
2 Sales Informational	4.70	1.44	.602**	1.00								
3 Marketing Promotional	3.74	1.46	.352**	.347**	1.00							
4 Sales Promotional	3.73	1.58	.243**	.447**	.762**	1.00						
5 Marketing Normative	3.87	1.43	.282**	.375**	.510**	.502**	1.00					
6 Sales Normative	4.08	1.48	.264**	.467**	.383**	.546**	.718**	1.00				
7 Intention to Sell	4.88	0.99	.228**	.199**	.213**	.291**	.249**	.324**	1.00			
8 Attitude	172.22	51.36	.373**	.251**	.224**	.204**	.168**	.218**	.463**	1.00		
9 Subjective Norm	170.84	51.06	.381**	.404**	.319**	.394**	.350**	.396**	.469**	.381**	1.00	
10 Self Efficacy	89.26	21.27	.102*	.068	.038	.089	.153**	.157**	.414**	.225**	.175**	1.00
11 Performance	5.04	6.69	-.057	-.031	-.012	.030	.000	.029	.276**	.217**	.033	.241**

* denotes correlations significant at P<0.05.
** denotes correlations significant at P<0.01.

multicollinearity. I also calculated the variance inflation factors (VIFs) to examine the extent to which nonorthogonality among the independent and moderator variables inflates standard errors. The largest VIF was 3.31, suggesting that multicollinearity is less likely to be a threat to the substantive conclusions drawn from the results.

Model 1: Influences from Marketing Management to Sales Representatives

The first model assesses how marketing managers use the three influence tactics impacts salespeople's attitude and subjective norm toward selling the new product, and through these, their selling intention. The model consists of the following three equations.

$$Intention_i = a_1 + b_1 Attitude_i + b_2 SubjNorm_i + b_3 SelfEff_i + b_4 Attitude_i \times SubjNorm_i + e_1 \quad (1)$$

$$Attitude_i = a_2 + b_5 MarkInfo_i + b_6 MarkPro_i + b_7 MarkNor_i + e_2 \quad (2)$$

$$SubjNorm_i = a_3 + b_8 MarkInfo_i + b_9 MarkPro_i + b_{10} MarkNor_i + b_{11} MarkInfo_i \times MarkNor_i + b_{12} MarkPro_i \times MarkNor_i + e_3 \quad (3)$$

Where:

Intention = Salespeople's intention to sell the new product,
Attitude = Salespeople's attitude toward selling the new product,
SubjNorm = Salespeople's subjective norm toward selling the new product,
SelfEff = Salespeople's self efficacy,
MarkInfo = Salespeople perceived marketing manager's informational influence,
MarkPro = Salespeople perceived marketing manager's promotional influence,
MarkNor = Salespeople perceived marketing manager's normative influence.

The results are presented in Tables 2.4 and 2.5.

Table 2.4
Regression Analysis of Salespeople's Intention to Sell the New Product

Variables	Intention to Sell	Intention to Sell	Intention to Sell
Self-Efficacy	0.414***	.312***	.297***
Attitude		.297***	.287***
Subjective Norm		.312***	.300***
Attitude X Subjective Norm			-.115***
R^2	0.171	0.398	0.411

Table 2.5
Regression Analysis of Salespeople's Attitude and Subjective Norm toward Selling the New Product

Variables	Attitude	Subjective Norm	Subjective Norm
Independent Variables			
Marketing Informational	0.332***	.281***	.274***
Marketing Promotional	0.094**	.111**	.111**
Marketing Normative	0.026	.215***	.217***
Relevant Interaction Effects			
Marketing Informational X Marketing Normative			-.103**
Marketing Promotional X Marketing Normative			0.043
R^2	0.149	0.218	0.226

Salespeople's intention to sell (Hypotheses 1 to 3)

Estimation of equation 1 indicated that salespeople's intention to sell was related positively to both salespeople's attitude ($\beta = .278$, $p < .01$) and subjective norm toward selling the new product ($\beta = .312$, $p < .01$). I also found a significant attitude by subjective norm interaction ($\beta = -.115$, $p < .01$). I then conducted post hoc analyses of the simple slopes, following the approach suggested by Aiken and West (1991).

The plot in Figure 2.3 shows that when attitude is strong, the positive relationship between salespeople's subjective norm and their intention to sell the new product is weaker (simple slope: $\beta = .228$, $p < .01$) than when attitude is weak (simple slope: $\beta = .434$, $p < .01$). These results support hypotheses 1 to 3.

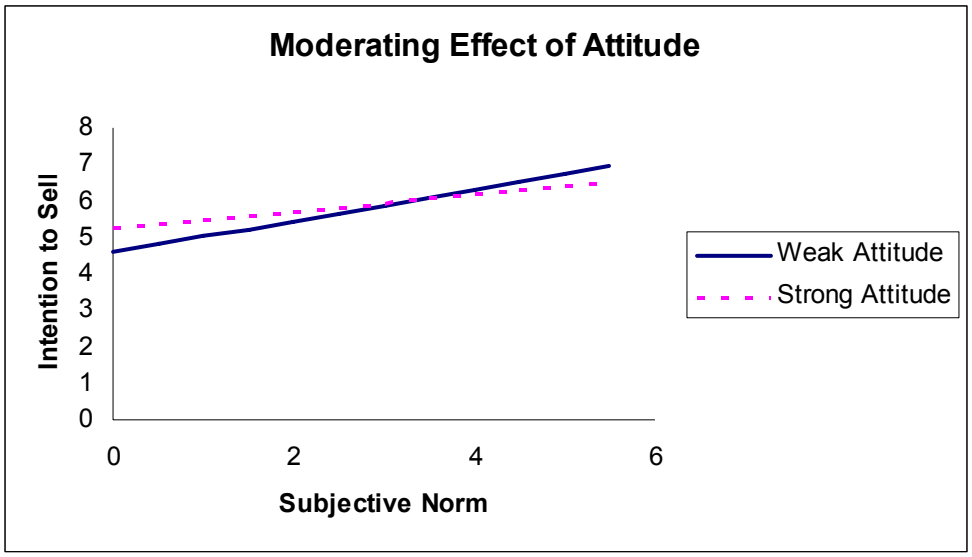

Figure 2.3

Salespeople's attitude toward selling the new product (Hypotheses 4, 6, and 8)

Equation 2 assesses marketing management's influence on salespeople's attitude. Estimation of this equation indicated that marketing managers' informational influence ($\beta = .332$, $p < .01$) and promotional influence ($\beta = .094$, $p < .05$) were significantly related salespeople's attitude toward selling the new product. Surprisingly, marketing managers' normative influence ($\beta = .026$, n.s.) was not related to salespeople's attitude. These results support hypotheses 4 and 6, but not hypothesis 8.

Salespeople's subjective norm (Hypotheses 5, 7, and 9-11)

Marketing management's influence on salespeople's subjective norm was assessed with equation 3. Estimation of equation 3 indicated that marketing managers' informational influence ($\beta = .274$, $p < .01$), promotional influence ($\beta = .111$, $p < .05$), and normative influence ($\beta = .217$, $p < .01$) were significantly related to salespeople's subjective norm. These results support hypotheses 5, 7, and 9.

Hypothesis 10 states that the positive relationship between marketing managers' informational influence and salespeople's subjective norm is stronger when marketing managers' normative influence is high than when it is low. The product term of marketing managers' informational influence and normative influence is significantly related to salespeople's subjective norm; however, the coefficient is negative ($\beta = -.103$, $p < .05$), opposite in direction to my expectation.

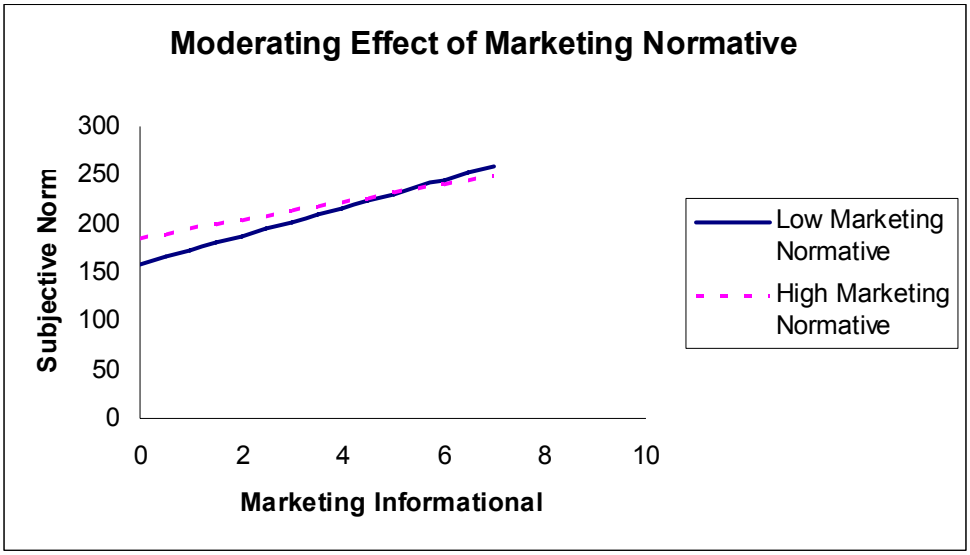

Figure 2.4

Post hoc analysis (see Figure 2.4) indicates that marketing managers' informational influence has a stronger effect on subjective norm when their use of normative influence is low. When normative influence is high, it attenuates the effect of informational influence on salespeople's subjective norm. This pattern suggests that marketing managers may not need to risk appearing coercive through the use of normative influence tactics, when informational influence also has a substantive effect on creating pressure to sell through subjective norm.

The relationship between marketing managers' promotional influence and salespeople's subjective norm is not moderated by marketing managers normative influence (β = .043, [n.s.]). Thus, hypotheses 10 and 11 are not supported.

Model 2: Influence from Marketing Management to Sales Management

Model 2 concerns how marketing managers use the three influence tactics to impact sales managers' attitude and subjective norm toward selling the new product. For the most part, estimation of model 2 constitutes a conceptual replication of the hypotheses tests discussed above, with the difference being that marketing managers' influence on sales managers (rather than salespeople) is assessed.

All data were collected from sales managers and the constructs are measured in the same way as in model 1. Because the sample size is too small (n = 64) for meaningful factor analyses, I used the same measures as reported in model 1. The internal consistencies of the measures were satisfactory, i.e., marketing informational (α = .847), marketing promotional (α = .889), marketing normative (α = .890), and commitment (α = .891). Descriptive statistics and correlations are presented in Table 2.6.

Table 2.6
Descriptive Statistics and Intercorrelations of Sales Manager Constructs

		Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Marketing Informational	4.77	1.20	1.00							
2	Sales Informational	4.92	1.03	.755**	1.00						
3	Marketing Promotional	3.50	1.38	.366**	.298**	1.00					
4	Sales Promotional	3.51	1.34	.388**	.315**	.736**	1.00				
5	Marketing Normative	3.67	1.37	.351**	.313**	.692**	.604**	1.00			
6	Sales Normative	4.31	1.19	.406**	.465**	.414**	.693**	.578**	1.00		
7	Commitment	4.47	1.19	.493**	.526**	.521**	.580**	.596**	.700**	1.00	
8	Attitude	171.30	48.76	.406**	.467**	.353**	.394**	.266**	.318*	.357**	1.00
9	Subjective Norm	155.16	40.20	.527**	.403**	.411**	.349**	.431**	.369**	.571**	.323*

* denotes correlations significant at P<0.05.
** denotes correlations significant at P<0.01.

Sales Managers' Attitude

Table 2.7 shows that marketing managers' informational influence (β = .322, p < .01) and promotional influence (β = .236, p < .10) were positively related to sales managers' attitude toward selling the new product. However, the relationship between marketing managers' normative influence and sales managers' attitude is non-significant (β =- .006,[n.s]). Thus, I found support for hypotheses 4_{sm} and 6_{sm}, but not hypothesis 8_{sm}. These results replicated the findings in model 1.

Sales Manager's Subjective Norm

The results in table 2.7 indicated that marketing managers' informational influence was significantly related to sales managers' subjective norm (β = .481, p < .01). Therefore, as in model 1, hypothesis 5_{sm} was supported. In contrast to model 1, however, I did to find support for hypotheses 7_{sm} and 9_{sm} as marketing manager's promotional influence (β = .104, [n.s.]), and normative influence (β = .106, [n.s.]) have no significant impact on sales managers' subjective norm.

Table 2.7
Regression Analysis of Sales Manager's Attitude and Subjective Norm toward Selling the New Product

Variables	Attitude	Subjective Norm	Subjective Norm
Independent Variables			
Marketing Informational	.322***	.413***	.481***
Marketing Promotional	.236*	0.102	0.104
Marketing Normative	-0.006	.187*	0.106
Relevant Interaction Effects			
Marketing Informational X Marketing Normative			0.171
Marketing Promotional X Marketing Normative			-0.151
R^2	0.212	0.327	0.348

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01

Hypothesis 10_{sm} states that the positive relationship between marketing managers' informational influence and sales managers' subjective norm is stronger when marketing managers' normative influence is high than when it is low. The product term of marketing managers' informational influence and normative influence is not significant (β = .171, [n.s.]). Therefore, hypothesis 10_{sm} is not supported. Similarly, the relationship between marketing managers' promotional influence and sales managers' subjective norm is not moderated by marketing managers' normative influence (β = -.151, [n.s.]). Thus, hypothesis 11 is also not supported. These two results failed to replicate the hypotheses tests in model 1 as both hypotheses 10 and 11 were supported in model 1. This may be due to the small sample size of model 2 (n = 64).

Model 3: Sales Managers' Attitude, Subjective Norm, and Commitment

Model 3 assesses how sales managers' attitude and subjective norm influence their commitment to the new product success. Regression analysis shows that sales managers' attitude (β = .221, p<.05) and subjective norm toward selling the new product (β = .489, p<.01) were positively related to sales managers' commitment. Therefore, as shown in Table 2.8, I found support for hypotheses 12 and 13.

Table 2.8
Regression Analysis of Sales Manager's Commitment

Variables	Commitment	Commitment
Attitude	.202**	.221**
Subjective Norm	.492***	.489***
Attitude X Subjective Norm		-.049
R^2	0.346	0.348

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01

The two independent variables together explained 34.8% of the variance in sales manager's commitment. Further analysis failed to find a significant interaction between sales managers' attitude and subjective norm on their commitment. This again may be due to the small sample size (n = 64).

Model 4: Sales Managers' Influence on Salespeople

Model 4 tests how sales managers use the three influence tactics to impact salespeople's selling intention through their attitude and subjective norm toward selling the new product. Again, estimation of this model constitutes a conceptual replication of hypotheses 4 – 11 in the context of the influence sales managers exert on salespeople. The following two equations were analyzed:

$$Attitude_i = a_4 + b_{13}SalesInfo_i + b_{14}SalesPro_i + b_{15}SalesNor_i + e_4 \quad (4)$$

$$SubjNorm_i = a_5 + b_{16}SalesInfo_i + b_{17}SalesPro_i + b_{18}SalesNor_i + b_{19}SalesInfo_i \times SalesNor_i + b_{20}SalesPro_i \times SalesNor_i + e_5 \quad (5)$$

Where:

SalesInfo = Salespeople perceived sales manager's informational influence,
SalesPro = Salespeople perceived sales manager's promotional influence,
SalesNor = Salespeople perceived sales manager's normative influence.

Salespeople's attitude toward selling the new product (Hypotheses 4_{sm}, 6_{sm}, and 8_{sm})

Estimation of equation 4 indicated that sales managers' informational influence ($\beta = .172$, $\underline{p} < .01$) and promotional influence ($\beta = .073$, $\underline{p} < .10$) were significantly related to salespeople's attitude toward selling the new product. These results replicated the findings in model 1. In contrast to the model 1 test of hypothesis 8, I found a significant relationship between sales manager's normative influence ($\beta = .098$, $\underline{p} < .05$) and salespeople's attitude. However, this relationship is positive in sign and opposite to what I proposed in hypothesis 8_{sm}. This result suggests that salespeople do not perceive use of

normative influence from sales management to be particularly coercive and respond positively to it. These results provide support for hypotheses 4_{sm} and 6_{sm}, but not 8_{sm}.

Table 2.9
Regression Analysis of Salespeople's Attitude and Subjective Norm toward Selling the New Product

Variables	Attitude	Subjective Norm	Subjective Norm
Independent Variables			
Sales Informational	.172***	.234***	0.223***
Sales Promotional	.073*	.189***	0.195***
Sales Normative	.098**	.183***	0.176***
Relevant Interaction Effects			
Sales Informational X Sales Normative			-0.077*
Sales Promotional X Sales Normative			-0.019
R^2	0.080	0.242	0.250

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01

Salespeople's subjective norm (Hypotheses 5_{sm}, 7_{sm}, and 9_{sm}-11_{sm})

Equation 5 assesses sales managers' influence on salespeople's subjective norm. Estimation of this equation indicated that to sales manager's informational influence ($\beta = .223$, $p < .01$), promotional influence ($\beta = .195$, $p < .01$), and normative influence ($\beta = .176$, $p < .01$) were significantly related to salespeople's subjective norm toward selling the new product. These results support hypotheses 5_{sm}, 7_{sm}, and 9_{sm} and are consistent with the model 1 findings.

In hypothesis 10_{sm}, I predicted that the positive relationship between sales managers' informational influence and salespeople's subjective norm is stronger when sales managers' normative influence is high than when it is low. Similar to the result of testing hypothesis 10, I find that the product term of sales managers' informational influence and normative influence is negatively related to salespeople's subjective norm

(β = -.077, $p < .10$). As in the case of marketing management's influence, this indicates that sales managers' use of informational influence has a stronger effect on salespeople's subjective norm when use of normative influence is low (compared to when it is high).

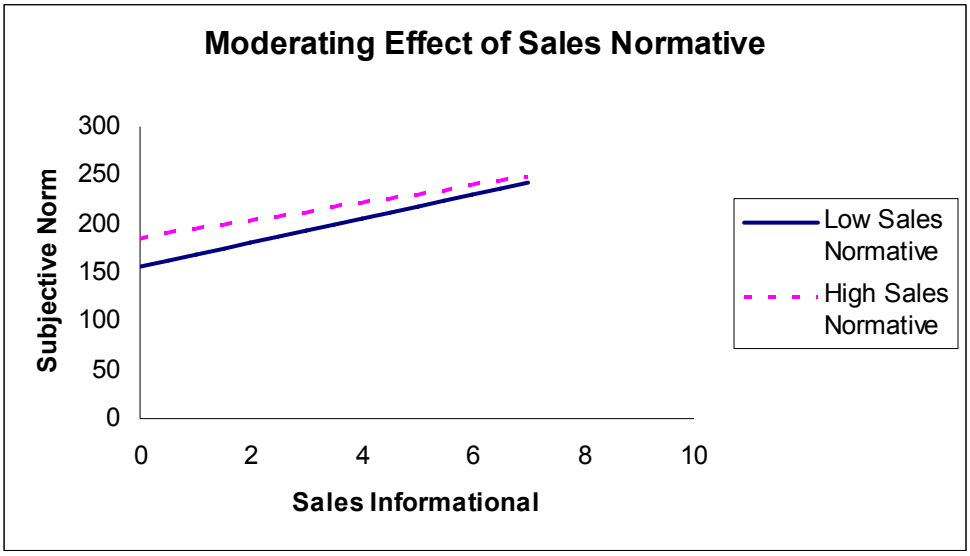

Figure 2.5

The relationship between sales manager's promotional influence and salesperson's subjective norm is not moderated by sales managers' normative influence (β = -.019, [n.s.]). Therefore, hypothesis 11_{sm} is not supported. This finding replicated the test of hypothesis 11 in model l.

In summary, 8 out of 11 hypotheses in model 1 were supported. As shown in Table 2.10, the three exceptions include hypothesis 8 (i.e., marketing managers' normative influence on salespeople's subjective norm), hypothesis 10 (i.e., the interaction between marketing managers' informational influence and normative influence), and hypothesis 11 (i.e., the interaction between marketing managers' promotional influence and normative influence).

Table 2.10
Summary of Conceptually Replicated Hypotheses Across Models

Hypotheses	Expected Sign	Model 1	Model 2[a]	Model 3[b]	Model 4[c]
1	+	+		+	
2	+	+		+	
3	-	-		n.s.*	
4	+	+	+		+
5	+	+	+		+
6	+	+	+		+
7	+	+	n.s.		+
8	-	n.s.	n.s.		+
9	+	+	n.s.		+
10	+	-	n.s.		-
11	+	n.s.	n.s.		n.s.

Note:
a. Hypotheses 4_{sm} - 11_{sm} in model 2 correspond to hypotheses 4 - 11 in model 1.
b. Hypotheses 12 - 13 in model 3 correspond to hypotheses 1 - 2.
c. Hypotheses $4_{sm\text{-}sp}$ - $11_{sm\text{-}sp}$ in model 4 correspond to hypotheses 4 - 11 in model 1.
* To replicate hypothesis 3 in model 1, I test the interaction effect between sales managers' attitude and subjective norm in model 3.

Table 2.10 also shows that most of the findings in model 1 were replicated in models 2, 3, and 4. In model 2, five out of the eight hypotheses replicated. Even with a small sample size, tests of hypotheses $4_{sm} – 6_{sm}$ generate the same results as those of hypotheses 4 – 6. This provides additional theoretical support for the positive impact of marketing managers' informational influence on salespeople's attitude and subjective norm and the positive impact of marketing managers' promotional influence on salespeople's attitude.

Model 3 concerns the relationships between sales managers' attitude and subjective norm and their commitment to new product success. Hypotheses 12 – 13 essentially replicated hypotheses 1 and 2 in model 1. Although additional analysis failed to replicate hypothesis 3, I found further theoretical support for the positive relationships between attitude, subjective norm and behavioral intention (commitment).

Model 4 assessed sales managers' (rather than marketing managers') influence on salespeople. Estimation of model 4 replicated the results of model 1, with the exception of hypothesis $8_{sm\text{-}sp}$ .Whereas marketing managers' normative influence on salespeople's subjective norm (i.e., hypothesis 8) is not significant, the relationship between sales managers' normative influence on salespeople's subjective norm (i.e., hypothesis 8sm-sp) is positive and significant.

Model 5: The Partial Mediation Effect of Sales Managers' Influences

I followed the approach suggested by Baron and Kenny (1986) to test the partial mediation effect of marketing managers' influence tactics. As shown in model 1, marketing managers' informational influence and promotional influence are positively related to salespeople's attitude toward selling the new product, whereas marketing manager's informational influence, promotional influence, and normative influence are positively related to salesperson's subjective norm. As shown in model 4, I found that sales managers' informational, promotional, and normative influence tactics are positively related to salesperson's attitude and subjective norm. I then tested the following two equations:

$$Attitude_i = a_6 + b_{21}MarkInfo_i + b_{22}MarkPro_i + b_{23}MarkNor_i + b_{24}SalesInfo_i + b_{25}SalesPro_i + b_{26}SalesNor_i + e_{6,} \quad (6)$$

$$SubjNorm_i = a_7 + b_{27}MarkInfo_i + b_{28}MarkPro_i + b_{29}MarkNor_i + b_{30}SalesInfo_i + b_{31}SalesPro_i + b_{32}SalesNor_i + e_7. \quad (7)$$

Table 2.11 shows that adding the three sales managers' constructs to the attitude equation increased R^2 by 1.4% ($\Delta F = 2.28$, [n.s.]). Estimation of equation 6 indicated mixed results. Specifically, the relationship between marketing managers' promotional influence and salespeople's attitude toward selling the new product became non-

significant (β = .064, [n.s.]), indicating a complete mediation effect by sales managers' promotional influence. This provides some support for hypothesis 14.

Interestingly, the positive relationship between marketing managers' informational influence and salesperson's attitude remains significant, but the relationship between sales managers' informational influence and salespeople's attitude became non-significant (β = -.043, [n.s.]). This suggests that marketing managers' informational influence overrides the same form of influence from sales managers, a surprising result that is opposite to the prediction of hypothesis 14. In addition, neither marketing managers' nor sales managers' normative influence remains significant. I will discuss the implications of these findings later.

Adding the three sales managers' influence constructs to equation 7 increased R^2 by 3.5% ($\Delta F = 11.81$, $p<.01$). Estimation of equation 7 produced similar results to those of equation 6. The relationship between marketing managers' promotional influence and salespeople's subjective norm became non-significant (β = -.056, [n.s.]). The relationship between marketing managers' normative influence and salespeople's subjective norm toward selling the new product also became non-significant (β = .059, [n.s.]). These results indicate complete mediation effects by sales manager's promotional and normative influence tactics, supporting hypothesis 14. In contrast, the positive relationship between marketing management's informational influence and salespeople's attitude remains significant (β = .236, $p < .01$), whereas the effect of sales managers' informational influence became smaller, while remaining marginally significant (β = .089, $p<.10$). This indicates that marketing managers' informational influence partially overrides sales managers' informational influence.

Table 2.11
Mediation Analysis: managerial influence on salespeople's attitude

Variables	Attitude	Attitude	Attitude
Independent Variables			
Marketing Informational	0.332***		.347***
Marketing Promotional	0.094**		0.064
Marketing Normative	0.026		-0.082
Sales Informational		.172***	-0.043
Sales Promotional		.073*	0.046
Sales Normative		.098**	.156**
R^2	0.149	0.080	0.163

Table 2.12
Mediation Analysis: managerial influence on salespeople's subjective norm

Variables	Subjective Norm	Subjective Norm	Subjective Norm	Subjective Norm	Subjective Norm	Subjective Norm
Independent Variables						
Marketing Informational	.281***	.274***			.236***	.228***
Marketing Promotional	.111**	.111**			-0.056	-.061
Marketing Normative	.215***	.217***			0.059	0.054
Sales Informational			.234***	0.223***	.089*	.087*
Sales Promotional			.189***	0.195***	.230***	.241***
Sales Normative			.183***	0.176***	.146**	.148**
Relevant Interaction Effects						
Marketing Informational X Marketing Normative		-.103**				-.114**
Marketing Promotional X Marketing Normative		0.043				0.055
Sales Informational X Sales Normative				-0.077*		-.046
Sales Promotional X Sales Normative				-0.019		-0.031
R^2	0.218	0.226	0.242	0.250	0.277	0.295

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01

Model 6: The Moderation Effect of Sales Managers' Commitment

Model 6 states that the relationships between marketing managements' informational, promotional, and normative influence and salesperson's attitude and subjective norm are moderated by sales managers' commitment to the new product. Due

to the hierarchical nature of the data, I use hierarchical linear modeling to test the hypotheses. Consistent with Bryk and Raudenbush (1992), I treat individual salesperson data as level 1 observations and data from sales managers as level 2.

In this context, level 1 variables include the three marketing managers' influence tactics (informational, promotional, and normative) and salespeople's attitude and subjective norm toward selling the new product. The level 2 variable is the sales managers' commitment to the success of the new product. The first level investigates the relationship of the three within-salesperson independent variables, (i.e., salesperson perception of marketing managers' influence tactics, salesperson attitude, and subjective norm). In the second level, the intercept and slope parameters from level 1 are used as the outcome variables and regressed on sales managers' commitment.

I first tested a variance decomposition model, a preliminary step investigating outcome variability at each of the levels of the hierarchy. Based on the results of the variance decomposition model, I calculated ICC values for salesperson's attitude and subjective norm according to the following equation:

$$ICC = \text{level 2 variance} / \text{total variance}$$

For attitude, the ICC indicated that level 2 variance accounts for 5.0% of the total variance. This value was determined to be non-significant based on a chi-square test ($p>.05$). In contrast, for the subjective norm, the ICC indicated that level 2 variance accounts for 12.9% of the total variance. This value was highly significant ($p <.001$). Therefore, in the following analyses, I focus only on subjective norm because sales managers' commitment does not explain variance in salesperson attitude. The following level 1 and level 2 models are used to test hypothesis 16.

Level 1:

$$SubjNorm_{ij} = \beta_{0j} + \beta_{1j} MarkInfo_{ij} + \beta_{2j} MarkPro_{ij} + \beta_{3j} MarkNor_{ij} + r_{ij} \quad (8)$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} Comit_j + u_{0j} \quad (9)$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11} Comit_j + u_{1j} \quad (10)$$
$$\beta_{2j} = \gamma_{20} + \gamma_{21} Comit_j + u_{2j} \quad (11)$$
$$\beta_{3j} = \gamma_{30} + \gamma_{31} Comit_j + u_{3j} \quad (12)$$

Where:
$SubjNorm_{ij}$ = attitude toward selling the new product of salesperson i within district j,
$MarkInfo_{ij}$ = marketing manager's informational influence perceived by salesperson i within district j,
$MarkPro_{ij}$ = marketing manager's promotional influence perceived by salesperson i within district j,
$MarkNor_{ij}$ = marketing manager's normative influence perceived by salesperson i within district j,
$Commit_j$ = district sales manager j's commitment to the success of new product.

In these models, β_{0j} is the level 1 intercepts and β_{1j}- β_{3j} are the level 1 slope parameters. $\gamma_{00} - \gamma_{30}$ are level 2 intercept parameters, and $\gamma_{01} - \gamma_{31}$ are the level 2 slope parameters. r_{ij} denotes the level 1 random effect, and u_{0j}-u_{3j} denote level 2 random effects, respectively. The j subscript denotes the level 2 variables, whereas i subscript denotes the level 1 variables. I estimated the above models using the restricted maximum likelihood function of HLM 6.0.

The level 1, level 2, and cross-level parameter estimates are reported in Table 2.13. Hypothesis 15 predicts that the effects of marketing managers' informational, promotional, and normative influence tactics on salesperson's attitude toward selling the new product is moderated by sales managers' commitment to the success of the new product. The value of ICC does not support this hypothesis, as I found that no significant between-district variance exists.

Hypothesis 16 predicts that the effects of marketing managers' informational, promotional, and normative influence tactics on salesperson's subjective norm toward

selling the new product are moderated by sales managers' commitment to the success of the new product. Although I found a significant main effect of sales managers' commitment on salespeople's subjective norm (γ_{30} = 7.1, p<.001), this hypothesis is not supported, as none of the cross level moderation coefficients are significant (γ_{11} = 1.93, [n.s.], γ_{21} = -2.51, [n.s.], and γ_{31} = -1.08, [n.s.]).

In sum, my results provide no support for H15 and H16, the interaction between sales manager's commitment and marketing manager's influence. This result suggests that sales managers' commitment does not have a significant effect on the relationship between marketing manager's influence tactics and salesperson's attitude and subjective norm toward selling the new product.

Table 2.13
HLM Analysis of Model 6 (DV: Subjective Norm)

Independent Variables (IVs)	Coefficients (γ)
Main Effects	
Intercept (γ_{00})	173.59***
Marketing Informational (γ_{10})	11.47***
Marketing Promotional (γ_{20})	5.27***
Marketing Normative (γ_{30})	7.02***
Sales Manager's Commitment (γ_{01})	4.40**
Cross Level Interaction Effects	
Marketing Informational X Sales Manager's Commitment (γ_{11})	1.93
Marketing Promotional X Sales Manager's Commitment (γ_{21})	-2.51
Marketing Normative X Sales Manager's Commitment (γ_{31})	-1.08

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01
N_1=311
N_2=52

Sales Managers' Commitment as a Moderator of the Intention – Performance Relationship

I conducted further analyses to examine the impact of sales managers' commitment on the process of selling new products to sales force. To assess whether sales managers' commitment to the new product moderates the relationship between salespeople's intention and actual sales performance, I first tested a variance decomposition model of salespeople's performance (measured in units) and calculated the ICC value. The ICC indicated that level 2 variance accounts for 17.8% of the total performance variance. This value was highly significant based on a chi-square test ($p < .001$). I used the following level 1 and level 2 models to test the impact of sales managers' commitment on the relationship between salespeople's intention to sell and actual performance.

Level 1:

$$\text{Performance}_{ij} = \beta_{0j} + \beta_{1j}\ \text{Intention}_{ij} + r_{ij} \quad (13)$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\ \text{Comit}_{j} + u_{0j} \quad (14)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}\ \text{Comit}_{j} + u_{1j} \quad (15)$$

Where:
Performance_{ij} = sales in units of salesperson i within district j,
Intention_{ij} = the intention to sell of salesperson i within district j.

The results show that the positive relationship between salespeople's intention to sell and actual performance of the new product is moderated by their sales manager's commitment to the success of the new product ($\gamma_{11}=0.45$, $p<.05$). In particular, the relationship is stronger when sales manager's commitment is strong than when it is weak. This result reinforces the importance of the sales manager's gatekeeping role.

Table 2.14
HLM Analysis of Model 6 (DV: Performance)

Independent Variables (IVs)	Coefficients (γ)
Main Effects	
Intercept (γ_{00})	5.11***
Salespeople's intention (γ_{10})	1.82***
Sales Manager's Commitment (γ_{01})	0.24
Cross Level Interaction Effects	
Salespeople's Intention X Sales Manager's Commitment (γ_{11})	0.45**

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01
N_1=311
N_2=52

Indirect Effects of Managers' influence on salespeople's intention to sell

To understand the total effects (both direct and indirect) of managers' influence tactics on salesperson's intention to sell the product, I follow the approach suggested by Duncan (1975) to estimate the following equation:

$$Intention_i = a_8 + b_{33}MarkInfo_i + b_{34}MarkPro_i + b_{35}MarkNor_i + b_{36}SalesInfo_i + b_{37}SalesPro_i + b_{38}SalesNor_i + b_{39}Attitude_i + b_{40}SubjNorm_i + e_8. \quad (16)$$

Then, putting the results of equation (16) together with those of equations (6) and (7), I calculated the direct, indirect, and total effects of the informational, promotional, and normative influences marketing and sales management on salespeople's intention to sell.

The results reveal that marketing management impacts salespeople's intention primarily through the indirect paths (i.e., through attitude and subjective norm), whereas sales managers' impacts on salespeople's intention are primarily direct. For marketing managers, informational influence has the strongest indirect effect on salespeople's intention. In contrast, marketing managers' normative influence has very little impact,

indirectly or directly. Remarkably, after controlling for mediating variables (i.e., sales managers' influence), marketing managers' promotional influence has a marginal negative direct effect on salespeople's intention ($\beta = -.114$, $p < .10$). In contrast, sales managers' promotional ($\beta = .148$, $p < .05$) and normative influences ($\beta = .134$, $p < .05$) have strong direct effects on salespeople's intention to sell, whereas their informational influence has very little impact after the effect (of marketing managers' informational influence) is controlled for.

Table 2.15
Direct, Indirect, and Total Effects of Marketing and Sales Influence on Salespeople's Intention to Sell

Predictor Variable	Dependent Variable: Intention to Sell		
	Direct Effect	**Indirect Effect[5]**	**Total Effect**
Marketing Informational	0.005	0.206***	0.211
Marketing Promotional	-0.114*	-0.012	-0.126
Marketing Normative	0.020	0.018	0.038
Sales Informational	-0.080	-0.002	-0.082
Sales Promotional	0.148**	0.092	0.240
Sales Normative	0.134**	0.096*	0.230
Attitude	0.370***	-	0.370
Subjective Norm	0.258***	-	0.258

* denotes P < 0.10
** denotes P <0.05
*** denotes P <0.01

The overall impacts of these managerial influence tactics on salespeople's intention can be estimated by comparing the total effects. As suggested in the literature, estimating the total effects serves the purpose of determining "the expected change in an endogenous variable that is associated with a unit change in one of its causes" (Pedhazur 1982, p. 603). Table 2.15 shows that, for marketing managers, informational influence has the strongest total effect on salespeople's intention to sell. For sales managers, the impacts of promotional and normative influences are stronger than that of their

[5] I conducted the significant tests on indirect effects by following the process suggested by Sobel (1982).

informational influence. Comparison of the magnitudes of these total effects suggests that marketing managers' informational and sales managers' promotional and normative influence tactics have approximately the same impacts on salespeople's intention to sell a new product.

Sales Managers' Commitment as an Antecedent of Their Usage of Managerial Influence

I conducted additional analyses to examine whether sales managers' commitment to the success of a new product influences the extent to which they use the three types of managerial influence. The results show that sales managers' commitment has significant and positive impacts on their usage of informational influence ($\beta = .56$, $\underline{p} < .01$), promotional influence ($\beta = .58$, $\underline{p} < .01$), and normative influence ($\beta = .70$, $\underline{p} < .01$). In other words, sales mangers are more likely to use the three types of managerial influence tactics when they are committed to the success of a new product. These results further support sales managers' gatekeeping role.

2.6. Discussion and Implications

Although both marketing scholars and executives recognize the critical role sales forces play during new product launches, there has been relatively little research on how to sell new products to the sales force, an essential activity for enhancing new product success. This study represents an initial effort to shed light on the optimal influence strategies marketing and sales managers can use to motivate sales force support for a new product launch. The results provide insights into several issues, including (1) the relative strength and interrelationship of salespeople's attitude and subjective norm toward selling

the new product, (2) the types of influence that marketing and sales managers can use most effectively, and (3) the gatekeeping role of the sales manager.

Relative Strength and Interrelationship of Attitude and Subjective Norm

First, the results show that both salespeople's attitude and subjective norm toward selling a new product increase intention to sell the new product. These findings are consistent with the theory of reasoned action and theory of planned behavior (Fishbein and Ajzen 1975; Ajzen 1991). Moreover, the finding that salespeople's attitude moderates the relationship between their subjective norm and intention to sell the new product usefully extends the theory in organizational contexts in which managers have line authority over front-line personnel. In particular, the relationship is stronger when salespeople's attitude is weak than when it is strong. This indicates that subjective norm has less influence on behavioral intention when attitude is strong. In other words, when salespeople hold a strong attitude toward selling a new product, the effect of subjective norm is attenuated. On the other hand, when salespeople have an unfavorable attitude toward selling the new product, perceived pressure to sell it has a significant effect on salespeople's intention to sell.

These contingent effects have not previously been described in the very extensive research on these constructs. Although researchers (e.g., Fishbein and Ajzen 1975; Bagozzi and Warshaw 1990; Ajzen 1991) have recognized that the relative importance of the two components varies across behaviors, individuals, and contexts, no effort has been made to examine whether the two constructs interact. The negative interaction effect I found in this study provides useful insight into persuasion and motivation processes in the context of selling new products to the sales force.

This finding supports the argument that the underlying motivations triggered by attitude and subjective norm differ. The attitudinal path represents intrinsic motivation, whereas the normative path reflects extrinsic motivation. Based on internalization of positive message elements about the new product, positive salesperson attitude represents a high level of persuasion. Once salespeople have been convinced that selling the new product is in their best interest (i.e., have developed a positive attitude), they are more likely to perceive managers' expectations for them to sell the product as congruent with their own internal values. Under these conditions, the normative path is less salient because even pressure from management is perceived as supportive. In contrast, when managers fail to convince salespeople through positive persuasion, the normative path becomes salient and leads to higher behavioral intention. In other words, pressure may work when persuasion fails.

Several meaningful implications for managers can be drawn from this finding. First, managers can choose from two paths in influencing salespeople's intention to sell a new product. They can either foster a positive attitude among salespeople toward selling the new product or impose pressure on them. Of the two paths, the attitudinal path is preferable and should be managers' first priority. Managers can use the normative path as a last resort when a positive attitude has proven difficult to achieve.

Additional support for these ideas comes from analysis of salespeople's actual performance in selling the new product. The results indicate that, although both attitude and subjective norm are positively related to intention to sell, subjective norm has no

impact on actual performance[6], whereas attitude has a strong positive impact on selling the new product. In other words, the benefit of subjective norm is only indirect (through intention to sell), whereas attitude positively influences performance both directly and indirectly. Therefore, management should strive to foster positive attitudes first. Subjective norm has value only as a backup when management finds inducing positive attitudes difficult.

Effectiveness of the Three Types of Managerial Influence

Effects on Attitude

Of the three influence tactics at management's disposal (i.e., informational, promotional, and normative), informational influence has the strongest impact on salespeople's attitude. This is true for both marketing and sales managers. I examined whether the standardized coefficients of informational influence and promotional influence differ by estimating an unrestricted and a restricted regression equation and comparing the residual variances of the two. The F-test shows that the impact of marketing management's informational influence is significantly stronger than that of their promotional influence on salespeople's attitude is ($F = 12.47$, $\underline{p} < .001$). A similar result was obtained for sales management. In fact, of the three influence tactics used by sales managers, only their informational influence has a statistically significant influence on salespeople's attitude. (Sales managers have greater ability to influence salespeople's subjective norm.)

By focusing on the merits of a new product, informational influence alters salespeople's perceptions regarding the inherent desirability of selling the new product

[6] Further analysis reveals that subjective norm serves as a suppressor variable (Cohen and Cohen 1975; Cohen et al. 2003). Despite its zero correlation with performance, subjective norm increases the variance accounted for in performance by suppressing some irrelevant variance in attitude and intention.

(Frazier and Summers 1984), whereas promotional and normative influence tactics focus on the consequences of selling or not selling the product. This suggests that salespeople cognitively put more weight on information regarding the desirability of selling the product than on rewards and recognition associated with selling it in fostering their attitude toward selling the new product.

The effect of normative influence from sales managers on attitude is positive, rather than negative as I had predicted. It could be that salespeople perceive normative pressure from sales managers as a signal of endorsement. In many companies, when sales managers exert pressure, they also invest their own time and resources to help salespeople meet their requirements. This facilitation may be the reason why sales managers' normative influence positively affects salesperson's attitude. Since attitude is a cognitive evaluation of the ease and appropriateness of selling the new product, salespeople's perceptions of sales managers' endorsement helps instill positive attitudes.

Effects on Subjective Norm

At the same time, salespeople perceive higher managerial expectations and/or are more willing to comply with these expectations when managers use informational influence than when they use promotional and normative influence. The results of marketing managers' influence on salespeople's subjective norm indicate that informational influence is again the strongest. Although all three influence tactics have significant relationships with salespeople's subjective norm, the effect of informational influence is stronger than that of promotional influence ($F = 6.43$, $p<.05$). Even though normative influence imposes direct threats and sanctions that can only be perceived as

pressure to sell, informational influence generates as strong an impact on salespeople's attitude as it does on their subjective norm ($F = 1.04$, [n.s.]).

An interesting result relates to the contingent effects of normative influence. Although its main impact on salespeople's subjective norm is positive, normative influence also negatively moderates the relationship between informational influence and salespeople's subjective norm. In particular, managers' informational influence has a stronger effect on subjective norm when normative influence is low. This pattern holds for both marketing management and sales management. Thus, normative influence serves as a double-edged sword, as it increases subjective norm directly but also stifles the positive impact of informational influence.

One possible reason why managers' informational influence drives salespeople's subjective norm may be that managers' confidence in the success of a new product, signaled through the informational influence, increases salespeople's willingness to comply. With all of the uncertainties associated with new product launches, the extent to which salespeople have faith in managers' confidence may determine their willingness to follow. Under these conditions, salespeople may identify with the sales manager and emulate their enthusiasm for selling the new product.

In contrast to informational influence, normative influence conveys direct threats. The focus of normative influence is on the adverse consequences of not complying with the wishes of managers. Thus, its positive effect on intentions occurs only through compliance. Managers' usage of normative influence may send conflicting signals regarding their confidence in the success of a new product. Doubts caused by these negative signals could be so serious that salespeople's willingness to comply may be

shaken. Consequently, the positive impact of informational influence on subjective norm is impeded when managers use both informational influence and normative influence simultaneously.

Effects on Intention to Sell

The literature on influence strategies has recognized "a dichotomy for influence approaches based on whether or not the source attempts to achieve its ultimate objective indirectly through altering the target's perceptions regarding the inherent desirability of the intended behavior (Frazier and Summers 1984, p. 44)." In the context of selling new products to the sales force, managers may influence salespeople's intention either indirectly through altering their perceptions regarding the desirability and ease of selling the new product (i.e., attitude) or rather directly without attempting a perceptual change. According to the path analysis results, it appears that marketing managers influence salespeople's intention primarily through the indirect approach (by enhancing their attitude and subjective norm), whereas sales managers influence salespeople's intention primarily through the direct approach (by enhancing their intention to sell the product directly). In proceeding discussion, I use the terms of indirect path and direct path to represent these two distinct influence approaches.

Research on social power has emphasized the importance of the possession and use of power and source characteristics in predicting influencers' ability to facilitate changes in other people's behavior (French and Raven 1959). In many organizations, marketing managers possess informational power but lack direct authority and coercive power. Typically, during the process of new product development, marketing managers spend years of effort exploring the unmet needs and preferences of potential customers

and how a new product may benefit them. It is also common for marketing managers to pretest the new product before presenting it to the sales force during its launch. As a result, salespeople perceive marketing managers as credible sources of new product information on features, technology, and potential benefits to target customers. High source credibility leads to marketing managers' ability to influence salespeople through altering their perceptions regarding selling the new product.

Furthermore, influence attained in this manner does not require managerial surveillance and can be expected to endure, as the behavioral modification occurs through increasing internal motivation (Kelman 1961; Frazier and Summers 1984). This makes the indirect approach (i.e., influencing salespeople through altering their perceptions regarding selling the new product) even more appropriate for marketing managers as marketing managers lack direct authority and coercive power at the first place. The relatively infrequent interaction between marketing managers and salespeople adds to the appeal of the indirect approach. Formed indirectly and voluntarily, salespeople's intentions become relatively independent of marketing managers' influence and endure once they are formed. This is important because salespeople, as boundary spanners, must self-regulate effectively to perform well.

The total effect of marketing managers' promotional influence on salespeople's intention to sell is negative after controlling for mediating effects. This negative effect suggests a dark side of marketing promotional influence. During new product launches, marketing managers should consciously avoid using promotional influence. Lacking authority to fulfill promises (of rewards and compensation) not only makes marketing

managers' promotional influence less productive, but harms salespeople's willingness to follow. In contrast, promotional influence from sales managers has positive effects.

Sending promotional messages that are inconsistent with marketing managers' power may create doubts among salespeople about the potential of a new product. Salespeople may perceive these messages as signals that marketing managers themselves have less confidence in the new product (as they have to rely on promises they cannot fulfill). In addition, these "empty words" may further diminish marketing managers' credibility. Marketing managers' influence is likely to be ineffective when their credibility is diminished.

Additionally, marketing managers' normative influence has almost no direct impact on salespeople's intention to sell. After controlling for the mediating variables, the total effect of marketing managers' normative influence is trivial. Appearing coercive through the use of marketing normative influence tactics does not impact (either positively or negatively) salespeople's intention to sell. Lacking authority to impose sanctions could well be the reason. As a result, I suggest marketing managers avoid using normative influence as well.

In contrast to marketing managers, sales managers possess coercive power and direct authority to make good on promises and threats. According to the social power and influence strategy literatures, their promotional and normative influences should work effectively in facilitating salespeople's behavioral change. Accordingly, my path analyses show that both promotional and normative influence tactics used by the sales managers have strong and direct impacts on salespeople's intention to sell. Because financial factors such as compensation and rewards are arguably the most powerful motivational

tools in the sales manager's toolkit (Basu et. al. 1985; Walker, Churchill and Ford 1985), sales managers are capable of inducing sufficient salespeople's effort without attempting to alter salespeople's perceptions (i.e., attitude).

In addition, sales managers are capable of making threats based on their coercive power. Salespeople find it imperative to exert effort when they face the possibility of negative sanctions from a credible source. They will sell the product simply to avoid punishment, even though they may not buy in to the idea of selling. This explains the direct impact of sales managers' normative influence on salespeople's intention to sell. Although threats are "high cost" (i.e., in social terms) influence approach (Frazier and Summers 1984), sales managers have the authority to implement it when needed as a last resort.

However, informational influence from sales managers has only marginal impact on salespeople's intention, implying that most salespeople do not perceive their sales manager as a highly credible source of new product information. This idea is reinforced by the finding that marketing managers' informational influence overrides sales managers' informational influence.

The Role of Marketing Management

In view of the information power marketing managers possess and the critical effect this power has in reducing the uncertainty inherent in new product launches, I contend that marketing managers should initiate the process of selling new products to the sales force. The results suggest that, during new product launches, salespeople respond more positively to marketing managers' informational influence than to their promotional and normative influence. Marketing managers' informational influence

significantly influences not only salespeople's attitude and subjective norm, but also those of sales managers. In addition, marketing managers' informational influence overrides the effects of sales managers' informational influence on salespeople's attitude and subjective norm toward selling the new product. A possible explanation is that, marketing managers' source credibility and information power give salespeople more confidence in the information provided by marketing management than they have in that provided by sales management.

The path analysis reveals that marketing managers' promotional influence has a negative total effect on salespeople's intention (after controlling for mediating effects). This finding indicates the risk of overplaying the promotional card during new product launches. Recognizing that salespeople often perceive selling new products as a risky investment of their effort, marketing managers should emphasize the logic of launching a new product, the ease of selling it, and all the resources supporting this new product launch. Therefore, for marketing managers, informational influence is the most powerful tool they can utilize to influence salespeople's attitude, subjective norm, and intention to sell.

These results have important managerial implications. During the process of selling new products to the sales force, marketing management is the most credible source of information. Therefore, marketing managers should initiate internal selling of the new product and focus on providing informational influence to salespeople and sales managers. Preceding analyses suggest that marketing managers should consciously choose the indirect path of influence by altering salespeople's perceptions regarding selling the new product. Marketing managers should restrain the temptation to influence

salespeople's intention directly. They should especially avoid the usage of promotional influence. The negative total effects of marketing promotional influence on salespeople's intention suggests that the mixed signals sent through promotional influence may harm marketing managers' credibility and, eventually, salespeople's intention. In addition, marketing managers' normative influence has little impact. This suggests that inconsistency between power possession and influence strategy may lead to a barren result.

Marketing management's informational influence not only has a strong impact on salespeople's selling intention, but also on sales managers' commitment to new product success. A further analysis reveals that sales managers' commitment to a new product leads to their usage of influence tactics, which are, in turn, important antecedents of salespeople's selling intention. In addition, sales managers' commitment contributes critically in defining the role of sales management as the gatekeeper during the process of selling new products to the sales force.

The Gatekeeping Role of Sales Management

The multilevel analyses indicate that sales managers' commitment to the success of a new product does not moderate the effects of marketing managers' influence on salespeople's attitude or subjective norm. Further analysis reveals that it does not influence salespeople's formation of behavioral intentions from their attitude and subjective norm, either. However, sales managers' commitment *does* moderate the relationship between selling intention and actual performance. Attitude, subjective norm, and behavioral intention are individual constructs. Nevertheless, without sufficient sales management commitment, transformation of behavioral intention into actual performance

may be impeded. The fact that salespeople's behavioral intention has a stronger positive impact on new product performance when their sales managers are strongly committed to the new product success indicates the importance of the sales managers' gatekeeping role.

Sales managers' influence depends mainly on whether they commit to the success of a particular new product and whether they allocate sufficient support to it. Success in selling a new product requires sustained effort, not just selling intention. It also requires consistent managerial support. Because a sales manager who is committed to the success of a new product is more likely to allocate the resources needed, salespeople's intention is more easily translated into actual sales performance.

The argument for sales managers' gatekeeping role is strengthened by the findings that sales managers' promotional and normative influences mediate the corresponding tactics of marketing managers. It appears that marketing management's coercive threats, legalistic pleas, and reward promises work only by being passed through sales management, which possesses the coercive power and authority to reinforce these tactics. Without the necessary endorsement from sales management, marketing management's promotional and normative influence lack credibility and hence will not be effective. Furthermore, as French and Raven (1959) point out, an influence attempt that relies on nonexistent base of power could jeopardize marketing management's persuasiveness.

Furthermore, the path analysis indicates that sales managers' promotional and normative influence tactics have direct impacts on salespeople's intention to sell a new product. Since sales managers are more likely to use influences when they are more

committed to the success of a new product, it is in marketing managers' best interests to get sales managers on board. The magnitudes of sales managers' promotional and normative influences on salespeople's intention are equivalent to that of marketing managers' informational influence. This once again signals the importance of sales managers' gatekeeping role during the process of selling new products to the sales force.

The findings regarding sales managers' gatekeeping role have important implications for marketing management and top management alike. During new product launches, sales management can and should be an important ally to marketing management. The likelihood of new product success grows significantly when sales managers are convinced that selling the new product is in their best interest. Because of conflicts of interest imbedded in company evaluation and compensation systems, an effective working partnership between marketing and sales is not always easy to achieve. It takes the participation of both marketing management and top management to win the hearts and minds of sales managers. Marketing management must persuade sales managers that a new product offers substantial opportunity for them. In doing so, marketing management needs to recognize that informational influence is their primary tool. Support from top management is also critical. This can be fostered through marketing management's advocacy of interdepartmental collaboration, product-specific rewards designed for sales managers, and more time and resources to sell the new product to sales managers.

2.7. Limitations and Further Research

Although my research extends and enriches the marketing literature, several limitations must be acknowledged. These limitations signal opportunities for further

research. First, the study employed data from multiple sources (i.e., salespeople, sales managers, and company records) as informants from a single company in a longitudinal design. Thus, the extent to which the findings might generalize to other industries is unclear. It would be interesting to study the impact of industry- and product-specific factors on the use and effectiveness of the various managerial influence strategies.

A second theme worthy of further study pertains to the use of an industrial business-to-business selling context. Probably due to self-selection, a majority of salespeople and sales managers are male in their late 30s and early 40s. Considering the sample homogeneity, my study does not address the possibility that different genders and age groups may respond to managers' influence strategies differently. Validating findings across gender and age group appear to warrant additional research.

In addition, the study is conducted in North America. However, national culture may influence the effectiveness of managerial influence strategies on salespeople's behavior. In particular, two cultural dimensions appear to be relevant, i.e., individualism/collectivism and uncertainty avoidance. The individualism vs. collectivism dimension refers to "the degree to which people look after their own interest as opposed to the interest of in-groups" (Atuahene-Gima and Li 2002, p.64). Because attitude is more related to people's own interest, whereas subjective norm concerns more the interest of in-groups (Tajfel 1978), it is likely that salespeople in a collectivist society may put more weight on the normative path than in individualist societies. Similarly, the degree to which people tolerate ambiguity and uncertainty also differs from one society to another. Salespeople in a high-uncertainty avoidance society are likely to respond more positively to informational influence as it reduces uncertainty associated with new product launches.

Future studies addressing these issues will contribute to marketing literature in general and international marketing in particular.

2.8. Conclusion

This study opens up new lines of research on the process of selling new products to the sales force. My findings indicate that (1) attitude negatively moderates the positive relationship between subjective norm and salespeople's intention to sell, (2) marketing managers' informational influence and sales manager's promotional and normative influences serve as the most powerful managerial tools to induce salespeople's selling intention, and (3) sales manager plays a critical gatekeeping role in translating salespeople's selling intention into actual sales performance. The dynamics of this process entail more effective internal marketing and better coordination between marketing and sales functions to ensure sufficient sales force support behind new product launches. I contend that selling new products to sales force stands as an important antecedent of new product success and constitutes a promising area for further research.

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Appendix

Measures of Managerial Influence

In all tables, respondents indicate their degree of agreement with statements with 1-7 scale with endpoints labeled "strongly agree" and "strongly disagree."

Marketing manager's informational influence

The marketing manager who is responsible for this new product

- explained the rationale for the introduction of the new product.
- provided us background into the product's development.
- made sure every salesperson understood how to get product assistance.
- explained the marketing strategy for the promotion of the new product.

Marketing manager's promotional influence

- made it clear the top performer in selling the new product would be treated like a "hero".
- offered substantial rewards for selling the new product.
- made it clear the top performer would be evaluated favorably.

Marketing manager's normative influence

- made it clear that low performance on selling the new product is unacceptable.
- required us to set up a plan to promote the new product.
- put pressure on us to sell the new product.