26 Sales force compensation: research insights and Research potential
Anne T. Coughlan and Kissan Joseph

Today's B2B selling environment is characterized by much complexity. Key drivers of this complexity include group sales efforts, multipart sales offerings and multibusiness unit participation on single deals (CFO Research Services 2010). Furthermore, the selling process is evolving from a transactional focus to consultative and enterprise-level selling with a corresponding shift in competencies from price and problem solving to value creation (Rackham and De Vincentis 1999). However, despite this increase in complexity, practitioners still demand compensation plans that are relatively simple, error free and cost effective (CFO Research Services 2010).

Against this backdrop, it is timely to review the role of sales force compensation in B2B organizations. Indeed, sales force compensation is one of the most powerful tools in a B2B firm's arsenal for influencing sales and profitability. The purpose of a sales compensation plan is to *motivate* members of the sales force and/or sales management, so that the firm can *coordinate* the salesperson's (or sales team's or sales hierarchy's) activities with the firm's own profit-maximizing goals. This would not be a difficult management problem were salespeople's goals and objectives aligned with the firm's profit maximization goal. But practitioners and researchers alike have long recognized the fundamental divergence between the objectives of firms and their salespeople; the academic literature's extensive work on *agency theory* seeks to find compensation and motivation solutions to precisely this problem, in sales force and other principal–agent contexts.

Ours is not the first article to survey and summarize the literature on sales force compensation and motivation (see also Albers 2002; Coughlan 1993; Coughlan and Sen 1989; Mantrala et al., 2010). We do not replicate the summaries included in these articles; rather, we focus on issues that merit heightened attention. Given the application focus, our review is organized by substantive problem areas. This allows us both to report on what *is* known in the academic literature and to comment on areas that are *underresearched* and, thus, ripe for future investigation.

The B2B firm has a multidimensional sales compensation problem to solve. Decisions to be made include:

- deciding on the elements of compensation to offer, including not just the standard salary and commission, which have been extensively studied in the literature, but also quota–bonus schemes, the use of monitoring in place of incentives, spiffs (special performance incentives for field force; see Zoltners et al., 2006, p. 378), sales contests, team selling compensation and compensation based on group sales performance even without team selling;
- determining actual reward levels, and setting the appropriate balance between and among them (when multiple compensation tools are used);

- deciding whether to delegate price setting to the sales force, and if so, what degree of price dispersion to allow, and whether to link compensation to the chosen level of prices;
- setting pay differentials for sales professionals at different levels in the sales organization;
- setting the time horizon over which to offer rewards;
- setting jointly optimal sales compensation levels and sales training investments;
- managing total compensation costs in light of sales force turnover; and
- establishing metrics on which incentives are based (e.g. whether a bonus is awarded for group or individual performance, and what the minimum quota amount is above which bonus is earned; linking incentive pay to salespeople's ability to forecast sales).

We first discuss research insights on compensation elements to offer to salespeople, followed by a summary of results on how much to pay and how to balance salary versus incentive pay. We next survey results on the choice to delegate pricing authority to the sales force and its impact on compensation. Finally, we discuss the remaining challenges, in which academic research results are sparser and therefore in which the opportunity for future research is bright.

COMPENSATION ELEMENTS OVERVIEW

The array of possible elements of sales force compensation is limited only by the imagination of managers setting sales compensation plans. However, most compensation plans include salary (a fixed payment) and one or more elements of incentive pay, such as commission or bonus. Salary is a fixed payment to the salesperson, independent of his or her productivity (though *adjustments* in salary from year to year are very likely to be related to the salesperson's previous year's productivity). Commission is typically awarded as a *percentage* of some outcome measure; commonly, as a percentage of sales revenue or of profit or gross margin generated by the salesperson. Bonus pay is typically awarded as a lump sum and is contingent on reaching a goal set by management over some time horizon (e.g. monthly, quarterly, yearly), such as selling more than a prespecified quota amount or reaching sales goals for a particular product.

Beyond these core compensation elements, other elements of sales compensation include spiffs, sales contest awards, team sales compensation and cross-territory compensation. Compensation may be awarded on the basis of performance across varying *time horizons* or varying *metrics*; compensation (both total payouts and degree of reliance on incentive pay) also typically varies across different levels of the sales hierarchy within a firm. Table 26.1 defines each of these compensation components and their incentive effects and horizons.

We next discuss research insights on the first two elements in Exhibit 26.1 (salary and commission on sales) in light of the connected questions of *how much compensation to offer in total* and *what the optimal mix is between salary and incentive pay*. We then turn to discussions of the research insights on quota–bonus plans, sales contests, spiffs and group selling compensation, and whether and when direct sales force monitoring

Table 26.1   Compensation components: definitions, incentives, horizons

Compensation Component	Definition	Incentive Effect?	Horizon?
Salary	Fixed payment independent of current performance	Risk avoidance in short run; future salary adjustments depend on current performance	Adjusted yearly
Commission: Paid on Sales	Payment of X per cent of sales revenue (can be product specific or paid on total sales)	Work to sell highest-commission product and/or sell to easiest-to-close sales	Monthly (typically)
Commission: Paid on Gross Margin	Payment of X per cent of gross margin (can be product specific or paid on total gross margin)	Work to sell highest-margin product; requires divulging gross margins to sales force	Monthly (typically)
Bonus: Paid Individually for Performance over Quota	Lump-sum payment for sales over minimum quota amount	Hit quota volume this period; may cause salesperson to 'sandbag' sales to meet quota next period	Monthly, quarterly, yearly
Bonus: Paid from Fixed Pool	Lump sums awarded from a pool of fixed total size, when a salesperson hits quota target	Achieve quota sales volume; capped incentive due to fixed size of total bonus pool (especially if likelihood of making quota is high for other salespeople)	Monthly, quarterly, yearly
Spiff	Commission on sales paid by manufacturer directly to *salespeople* of the independent distributor or rep firm, *not* to the distributor or rep firm itself	Allocate increased effort to spiffed product	Short-term (1–3 months) (e.g., offered on new products, products to be discontinued)
Sales Contest	Lump-sum monetary or in-kind payments for performance relative to other individuals	Increased short-term effort; competitive in nature	Short-term (1–3 months)
Team Selling Award	Commission or bonus based on sales by a team of multiple salespeople	Increase team effort; may lead to free-riding by some team members	Monthly, quarterly, or on closing the sale, however long it takes
Cross-Territory Commission	Per cent commission paid on the basis of group sales achievement, without team selling, to all salespeople in the group	Increased effort due to diversification of risk	Monthly, quarterly

(facilitated by the ever-increasing sophistication of monitoring and information technologies) is preferable to the use of indirect incentives for sales performance. We close with a discussion of underresearched problems in the sales compensation area, which provide fruitful avenues for future research.

HOW HIGH SHOULD TOTAL COMPENSATION BE, AND WHAT IS THE OPTIMAL SALARY/INCENTIVE SPLIT?
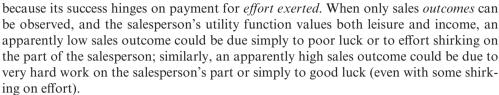
Total compensation offered to a salesperson is the sum of the amounts earned through any and all of the compensation components used by the firm (see Table 26.1). However, among the components, *salary* plays a special role: although it is typically adjusted on an annual basis, in response to some aggregate measures of market pay norms and salesperson achievement, it is the one compensation component that is offered to the salesperson without immediate dependence on any sales or profitability outcome.

It therefore is natural to consider not only how much should be paid in total to the salesperson but also how that amount should be split between salary and incentive pay in general. The literature has shown that these two questions are closely interlinked: the optimal amount of total pay depends on the split between certainty and at-risk compensation, mediated by the salesperson's degree of risk aversion.

Agency theory provides a useful lens through which to analyze this fundamental sales compensation problem.[1] Agency theory posits a *principal* (the firm or the sales manager acting on behalf of the firm) whose objective is to maximize the firm's expected profit (thus, the firm is assumed to be risk neutral). Profit is a positive function of sales and a negative function of compensation to an *agent* (the salesperson). Sales themselves are assumed to be a positive but stochastic function of the amount of sales effort.[2] The salesperson is assumed to maximize expected utility, which is a positive function of his or her compensation and a negative function of the selling effort exerted. The salesperson is also assumed to be risk averse. Risk aversion blunts the motivating impact of incentives; all else being equal, increases in risk aversion decrease the effort put forth by the salesperson.

The difference in risk attitudes of the principal (firm) and agent (salesperson) would not prevent the firm from being able to set compensation to elicit a profit-maximizing effort level, if it were possible to observe sales effort perfectly. Knowing the salesperson's utility function and, thus, his or her trade-off between income and the disutility for work, the firm would be able to calculate the optimal number of hours for the salesperson to work – the number that just balances the value of generating another hour's worth of expected sales and the cost of compensating the salesperson for an incremental hour of work (i.e. lost leisure). In this case, the firm would offer a contract to the salesperson specifying an all-salary compensation plan, with the amount of salary contingent on the salesperson working the profit-maximizing number of hours, in which this salary payment is just large enough to make the salesperson willing to take the job.[3] This outcome is known as the 'first-best' case.

However, consistent with the realities of sales management, agency theory also assumes that the firm cannot observe sales effort, it can only observe actual sales achieved. The handy contractual solution outlined previously is then not possible,

because its success hinges on payment for *effort exerted*. When only sales *outcomes* can be observed, and the salesperson's utility function values both leisure and income, an apparently low sales outcome could be due simply to poor luck or to effort shirking on the part of the salesperson; similarly, an apparently high sales outcome could be due to very hard work on the salesperson's part or simply to good luck (even with some shirking on effort).

Under these circumstances, the agency-theoretic model shows that when salary and/ or commission are the allowable compensation elements, the best possible sales compensation contract offers *expected utility* equal to the salesperson's next best available opportunity; this is logical because, otherwise, the salesperson would leave this firm and take a better job. The optimal compensation plan also includes a *mixture* of salary and commission on sales; the incentive pay induces the salesperson to work harder than would a pure-salary plan, but unfortunately it also inflicts risk on the salesperson. Salary helps mitigate, but does not fully obviate, the risk the salesperson faces. This compensation plan therefore does not induce the effort level of the first-best case, because the salesperson's risk aversion causes him or her to favor leisure (which generates utility *for sure*) over incremental selling effort (which generates income only *in expectation*) on the margin. The higher the optimal amount of *leverage* in the plan (the ratio of incentive pay to total pay), the less risk averse the salesperson is and the higher is his or her hourly sales productivity. Table 26.2 lists other comparative-static effects of parameters on optimal compensation amount and structure, profitability and sales effort.

Table 26.2 shows that sales compensation tilts toward the surety of salary pay when the salesperson is more risk averse or when there is simply more risk in the environment; either way, it is unproductive to thrust more risk on the salesperson's shoulders through a more highly leveraged pay plan, when the risk-neutral firm is better suited to handle it. The results also show, though, that when the pay plan is less leveraged (i.e. when the ratio of salary to expected income rises), sales effort falls and firm profitability concomitantly falls. When the outside market promises better alternative compensation, the agency-theoretic framework predicts both higher total pay and less leverage in the pay plan, resulting in lower firm profitability and sales effort. Higher-cost firms are predicted to offer lower and less leveraged total compensation, again resulting in lower profitability and lower sales effort. More productive salespeople are offered higher total compensation, exert more effort and accrue more profit for the firm. And, finally, salespeople selling products with greater inherent popularity (i.e. greater sales even with minimal or no sales effort exertion) are offered lower salaries, and their firms make more profit, though other predictions vary depending on specific model assumptions.

These agency-theoretic predictions have been empirically tested in multiple research studies. In general, the empirical tests fail to reject the overall theory, though specific studies test only a subset of the available hypotheses (and may include other variables as controls). As Table 26.3 highlights, hypotheses regarding *expected total income* and the *salary/total pay ratio* are tested, rather than those predicting salary, commission rate, profit or sales effort. The effects of sales effort effectiveness, outside earnings opportunities and risk aversion are consistent with the predictions of the theory. The effect of uncertainty in the sales response function on leverage in the pay plan is consistent with the theory, but there is no support for the expected negative relationship between sales response function uncertainty and total pay. Overall, however, the empirical evidence

Table 26.2   Predictions from agency-theoretic sales compensation models[1]

Effect of Increased:	Effect on Optimal:					
	Salary	**Commission Rate**	**Expected Total Income**	**Salary/ Expected Income Ratio**	**Firm Profit**	**Sales Effort**
Uncertainty in Sales Response Function	(+)	(−)	(−)	(+)	(−)	(−)
Salesperson Risk Aversion	(+)	(−)	(−)	(+)	(−)	(−)
Marginal Cost of Production	(+)	(−)	(−)	(+)	(−)	(−)
Salesperson Outside Earning Opportunity	(+)	(−)	(+)	(+)	(−)	(−)
Effectiveness of Sales Effort*	(−)	(+)	(+)	(−)	(+)	(+)
Base Sales Level (with zero sales effort)	(−)	Ambiguous	Ambiguous	Ambiguous	(+)	Ambiguous

Notes:
1. Adapted from Basu et al. (1985) and Lal and Srinivasan (1993). Basu et al. analyze both gamma and binomial error distributions for the sales response function. Lal and Srinivasan assume an exponential salesperson utility function and sales response function with a normal error distribution. In a few cases, the Lal and Srinivasan's predictions differ from those of Basu et al. For example, Lal and Srinivasan predict no effect of Salesperson Outside Earning Opportunity on effort or the commission rate. In addition, higher sales effort effectiveness leads to a lower salary, higher commission rate, higher total income, lower salary–total pay ratio, higher profit, and higher effort. Basu et al. do not publish comparative-static effects of risk aversion on optimal outcomes. The effect of a higher Base Sales Level varies depending on the underlying error distribution in the sales response function; only the unambiguous effects are listed in this table.
(+) means a positive effect on the optimal variable level; (−) means a negative effect on the optimal variable level; 'Ambiguous' means the effect cannot be signed or differs across different sales response functional forms.
*   Effectiveness of 'Sales Effort' predictions are as in Lal and Srinivasan (1993).

is consistent with agency-theoretic rationales for pay. Clearly, future research could do more to investigate the effects of these factors on sales effort and firm profitability as well.

Beyond these basic agency-theoretic predictions, the empirical articles include other factors as controls or predictors of sales force pay amounts and/or leverage. Using data aggregated to the company level from Dartnell Corporation, Coughlan and Narasimhan (1992) find that the presence of a career path for salespeople is associated with less leverage in the pay plan; this is hypothesized to hold because offering the promise of a job promotion (future pay-off for today's effort) is a substitute for incentive pay (current pay-off for today's effort), so when it is available, incentive pay is not as important an effort motivator on the margin in the optimal sales compensation plan. Coughlan and Narasimhan also find that firms set a longer horizon for incentive pay (e.g. commissions paid out every quarter rather than every month) the longer is the sales performance

Table 26.3 Empirical evidence on predictions from agency-theoretic sales compensation models

Predicted Effect on Optimal Expected Total Income of:	Coughlan and Narasimhan (1992)	Joseph and Kalwani (1995)	Misra, Coughlan and Narasimhan (2005)	Rouzies et al. (2009)
Uncertainty in Sales Response Function (–)	Not significant	Not supported	Negative, but not significant	NA
Salesperson Risk Aversion (–)	NA	Negative, but not significant	NA	NA
Salesperson Outside Earning Opportunity (+)	Positive	NA	Positive	Positive
Effectiveness of Selling Effort (+)	Positive	NA	Positive	NA
Predicted Effect on Optimal Ratio of Salary/Expected Total Income of:				
Uncertainty in Sales Response Function (+)	Positive	Positive (but only when risk aversion is high)	Positive	NA
Salesperson Risk Aversion (+)	NA	Positive	NA	NA
Salesperson Outside Earning Opportunity (+)	Positive	NA	Positive	Positive
Effectiveness of Selling Effort (–)	Negative	NA	Negative	NA

Notes:
NA denotes not applicable because this hypothesis was not tested in the research in question.
Rouzies et al. (2009) summarize their hypotheses for the field sales force, though they also present hypotheses and tests thereof for compensation of sales managers.

horizon (as measured by the time a salesperson has to make quota); thus, firms seek to match incentive awards to sales performance timing.

Misra et al., (2005) extend the classic agency-theoretic sales compensation model to include firm size, which they predict is positively associated with the pay plan's leverage (ratio of incentive to total pay) and with total pay itself. Both predictions are supported in the data analysis, which re-estimates Coughlan and Narasimhan's (1992) data (from 1986) and compares them with analogous data from 1996.

Joseph and Kalwani (1995) use survey data and find that the size of the sales force is associated with higher leverage in the pay plan, consistent with Misra et al., (2005); Joseph and Kalwani (1995) also show that pay plan leverage is positively associated with the proportion of salesperson time spent on direct selling activities, consistent with the need to provide strong incentives for well-allocated selling time.

Rouzies et al.,(2009) investigate the influence of the taxation system on the split between salary and incentive pay, using a multicountry European data set measured at

the disaggregated level of the salesperson (not the sales force, as other studies are forced to do). These data use the 'Hay point'[4] as a measure of job challenge, a correlate of the opportunity cost of the salesperson's time. This research hypothesizes that the compensation plan will be more highly leveraged (i.e. rely more heavily on incentive pay) the more burdensome are either: (1) employee taxes; or (2) employer taxes. Indeed, companies motivate their sales forces in response not only to the standard agency-theoretic factors but also to the tax burden. The reasoning behind this result is that when tax burdens are high, achieving the desired differential in *net* (take-home) pay between excellent and average performers requires a disproportionately greater differential in *gross* (pre-tax) pay. Offering compensation that is more heavily incentive weighted allows the firm to economize on total compensation costs (it does not have to pay high *employer* taxes on highly salaried salespeople) and allows salespeople to pay higher taxes only when they achieve excellent sales performance.

Rouzies et al., (2009) also examine the interrelationship between total (take-home) pay and the leverage in the pay plan and find that they are positively related. This is consistent with the agency-theoretic logic that when the compensation plan makes the salesperson bear more risk (because of its heavier reliance on incentive pay), the firm must commensurately offer a risk premium through a *total* pay level that is higher.

These results show solid support for the agency-theoretic approach to predicting sales compensation levels and leverage. However, the focus in this literature on two compensation elements, salary and generic incentive pay, masks the subtleties of using various types of incentives for particular motivational purposes in the sales force. Therefore, we now turn to a survey of the results on the use of quota–bonus plans, sales contests, and spiffs and group commission compensation awards.
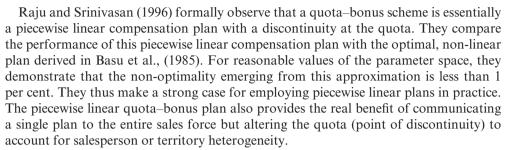
QUOTA–BONUS PLANS

The agency-theoretic approach has been very useful in delineating the essential trade-offs inherent in employing salary versus incentive compensation. In this analysis, the resulting optimal compensation offered to the salesperson is mathematically represented as a non-linear and continuous function of sales. However, empirical surveys reported in the literature suggest that real-world sales organizations frequently differ from this idealized representation on account of discontinuities introduced through a quota–bonus plan (Joseph and Kalwani 1998). That is, firms often employ bonus payments pegged to some predetermined level of performance, which is typically called the quota. Moreover, the slope of the compensation function usually exhibits a sharp upward kink at the point of the quota. Typically, the quota is based on sales volume, but many other dimensions of performance, such as division profitability, new accounts, sales of new products, account retention and customer satisfaction, are also frequently employed (Joseph and Kalwani 1998).

This departure from the agency-theoretic representation of a smooth, nonl-inear compensation function does not diminish the essential logic of the approach. However, it does provide opportunities for bringing the theory closer to the operational realities of designing compensation plans for the sales force. The works reviewed next illustrate this premise.

Raju and Srinivasan (1996) formally observe that a quota–bonus scheme is essentially a piecewise linear compensation plan with a discontinuity at the quota. They compare the performance of this piecewise linear compensation plan with the optimal, non-linear plan derived in Basu et al., (1985). For reasonable values of the parameter space, they demonstrate that the non-optimality emerging from this approximation is less than 1 per cent. They thus make a strong case for employing piecewise linear plans in practice. The piecewise linear quota–bonus plan also provides the real benefit of communicating a single plan to the entire sales force but altering the quota (point of discontinuity) to account for salesperson or territory heterogeneity.

Mantrala et al., (1994) recognize another important aspect of heterogeneity, namely, that salespeople may differ in their preferences with regard to various quota–bonus combinations. They propose a conjoint-based task to elicit this preference structure and use these preferences as constraints in the firm's optimization problem that involves designing a common quota–bonus plan across the entire sales force. In essence, they design compensation plans while explicitly recognizing heterogeneity in salesperson preferences for different quota–bonus pairs.

Ross (1991) and Gaba and Kalra (1999) highlight yet another important behavioral feature that is likely to arise when salespeople face the discontinuity inherent in a quota–bonus plan: specifically, that salespeople may modify their account selection strategies (high pay-off, high risk vs. low pay-off, low risk) as a function of their current standing relative to quota. Ross argues that this behavior calls for additional managerial monitoring of salesperson performance relative to quota with attendant interventions to ensure that salespeople's account selection choices are consistent with company policy. In a similar vein, Gaba and Kalra suggest that the stringency of quotas or contests should take into account the type of clients the firm desires to acquire.

Quota–bonus schemes can also enable firms to learn about market demand. Mantrala et al., (1997) demonstrate how quotas can be employed not only to motivate salespeople but also to generate valuable information back to the firm about unknown territory characteristics. They explicitly derive the period-by-period quota-setting rule by employing Bayesian adaptive control methodology.

More recently, Steenburgh (2008) and Chung et al., (2009) examine the use of both quarterly and annual bonuses and their impact on sales productivity. They find that bonuses help stimulate enhanced productivity. Notably, an annual bonus rewards high performance, while quarterly bonuses serve as pacers to keep the sales force on track to achieve annual sales quotas. These results imply that concern in the prior theoretical literature that salespeople may strategically 'time' their sales to earn bonuses, without increasing the firm's sales, may be overstated. Misra and Nair (2009) observe a similar phenomenon; they model dynamics of quota–bonus plan incentives and find that the distance to the quota horizon (e.g. with a three-month quota horizon, the maximum distance is three months and the minimum is zero) significantly influences sales performance. Early in the quota period, sales per week are low; they rise as the salesperson nears the quota level (implying accelerating effort exertion) but then fall when the salesperson reaches approximately 40 per cent of quota (which typically happens in the first two months of the three-month quota period); this suggests that the salesperson knows he or she will make quota by the end of the period and therefore does not need to overexert on sales effort.

In summary, various researchers have fruitfully examined several operational aspects of quota–bonus schemes. Nevertheless, there remain many avenues for future research. These include:

- How can territory and salesperson characteristics be employed to determine the level of quota?
- Given performance relative to quota for a given period, how are quotas set for the next period?
- How are quota–bonus plans set when there are multiple measures of performance?
- How are multiple performance measures best combined?

SALES CONTESTS

Sales contests reward salespeople for their performance *relative to* another salesperson or other salespeople. Contests are defined along many dimensions, including (Murphy et al., 2004; Zoltners, et al., 2006):

- contest goal (outcome-based, process-based, or a combination of the two);
- competitive format (individual or team, single or multiple prizes);
- award type (cash merchandise, travel);
- contest duration;
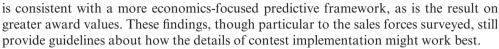- award value; and
- contest theme.

Although contests are often designed so that it is possible for everyone to win, through the establishment of individual performance goals rather than a winner-takes-all format, it is also common to limit the total number of possible contest winners to some intermediate range.[5] Presumably, a contest is more effective the more attractive its attributes are to the salespeople competing in it. With this underlying maintained hypothesis, Murphy et al., (2004) use expectancy theory to investigate salespeople's contest design preferences. Using a conjoint task, they find that, on average, field salespeople prefer the following:

- outcome-based goals to either process-based goals or a combination of outcome-based and process-based goals;
- a mid-range of number of winners to either a winner-takes-all or an all-can-win contest design;
- cash awards, followed by travel awards; merchandise is least preferred;
- sales contests with a moderate duration of about one sales cycle to either longer or shorter contest lengths; and
- contests with greater award values.

Murphy et al., (2004) attribute the first finding to the idea that field salespeople are used to being out on their own rather than being monitored and supervised closely by a manager, so outcome-based rewards are most consistent with their work styles. The finding that cash is most motivational was contrary to the theoretical predictions but

is consistent with a more economics-focused predictive framework, as is the result on greater award values. These findings, though particular to the sales forces surveyed, still provide guidelines about how the details of contest implementation might work best.

In the analytic literature, contests are also known as 'tournaments'.[6] In its simplest form, consider a two-person sales contest. The salesperson with the highest sales achieved over the contest horizon is the *winner*, and the other salesperson is the *loser*. The winner and loser earn contest compensation, with the winner's prize (obviously) higher than the loser's prize. (In the academic literature, often the loser's prize is set equal to zero as an anchoring point, without loss of generality to the predictive results.) One reason sales contests can be extremely effective motivators is that the pay-out scheme naturally nets out systematic risk (i.e. the risk that pervades the sales response functions of all territories).

Some key properties of contests affect how hard salespeople work to win and, thus, how profitable it is to run a contest. One is the *degree of similarity or difference in sales potential across territories*. Consider the classic contest compensation: the top sales producer wins the prize. Then, if territories have sufficiently similar potential, a contest offers a 'good horse race', that is, one in which the outcome is not a foregone conclusion. Without a 'good horse race', neither top nor mediocre salespeople will be motivated to work hard, and the contest will fail. This is obvious in the case of a salesperson who knows he or she has no chance of winning the contest prize (why work hard when there is no compensation for it at the end of the contest period?). Even the obvious winner also has little incentive to work hard, because he or she already knows he or she will win in the end. It is only necessary to exert a minimal amount of effort to prevent the next best (or next most likely to win) salesperson from beating him or her.

When territories have significantly different sales potentials, the firm can still run a highly motivational sales contest, but not with a standard 'top producer wins the prize' compensation rule. Instead, if the firm employs some sort of handicap, or if it segments the territories to create subgroups of territories whose potentials are similar enough within-group, the 'good (adjusted by handicaps) horse race' is restored. For example, the handicap might measure performance above quota (e.g. those discussed in the section above on quota–bonus plans); the salesperson with the highest performance above quota would then be the winner, not the salesperson with the highest performance in absolute terms.

Another important factor in running a successful sales contest is the *variance in the effort-to-sales relationship*. One might casually think that high variance lessens the profitability of running a contest, but this intuition is incorrect. For a given amount of difference in potentials across territories, there must be some uncertainty in the effort-to-sales relationship for a contest to motivate high sales effort. If there were no uncertainty, the outcome would be obvious even before the contest started: the salesperson with the highest territory potential could exert a high enough amount of effort to win *for sure*. Such a contest would fail to motivate the whole sales force to work hard. In contrast, some uncertainty in the sales response function makes it possible for hard work to pay off even when a salesperson's territory has a slightly lower average potential than another territory, thus giving the entire sales force a reason to try to win.

That being said, the optimal amount of variance in the sales response function is not infinite; one important mediating factor is salespeople's *attitude toward risk*. The more

risk averse salespeople are, the larger the expected pay premium must be to induce them to bear the risk of competing in a sales contest. Even supposing equal average territory productivity levels, it is true that for any level of variance in the sales response function, there must be a maximum degree of risk aversion beyond which there is no contest that covers the compensation cost (including risk premiums) of running it; thus, there is a natural limit on the feasibility of contests in general.
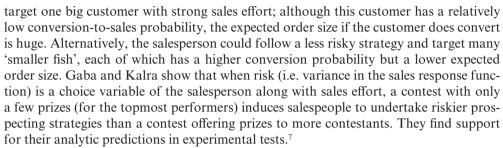
Yet another contributing factor to the success and optimal design of contests is the degree of correlation in outcomes across sales territories. Most of the academic research on contests implicitly or explicitly assumes that there is a *positive* correlation in outcomes, and when this is so, a contest is more likely to be feasible the stronger is the positive correlation between territory outcomes. Even for negatively correlated territory outcomes, it can be feasible to design a sales contest that motivates high effort and covers its compensation costs. The issue in such cases is whether an alternative incentive compensation option would work better. Caldieraro and Coughlan (2009) compare the profitability of offering a sales contest versus a compensation plan with a salary plus commission, in which the commission structure can be on own sales only or on own sales and cross-territory sales (a 'group commission'). When these three compensation options are possible, a contest is more likely to be optimal;

- the lower is risk aversion in the sales force;
- the less disutility there is for sales effort exertion;
- the more similar sales potentials are across territories;
- the more similar salespeople's sales effort productivities are; and
- the more positively correlated outcomes are across territories.

Too strong a departure from these tendencies not only makes a sales contest a less profitable compensation mechanism for the firm but also eventually, makes it infeasible (i.e. it does not lead to high effort exertion in the sales force).

The firm contemplating offering a sales contest usually faces budgetary constraints in allocating the overall marketing budget. Murthy and Mantrala (2005) consider this problem, in which the budget must be allocated between advertising expenditures and contest prizes. Both marketing mix expenditures positively affect sales, with advertising increasing the productivity of sales effort and contest prizes increasing effort incentives as well. Murthy and Mantrala find that the proportion of the promotional budget to allocate to the contest is greater: (1) the less sales uncertainty there is; (2) the lower is the salesperson's disutility for sales effort; (3) the lower is risk aversion in the sales force; and (4) the more effective sales effort is in generating sales. A balanced allocation between advertising and contest funding is optimal, with the proportionate funding of the contest depending interactively on sales force size and the planned number of contest winners. Specifically, the optimal contest funding proportion *drops* as sales force size increases if a low enough percentage of the sales force is planned to win a prize in the contest. This is because fewer absolute salespeople stand to win, and thus the motivational power of the contest decreases.

Gaba and Kalra (1999) extend the basic contest literature by considering the possibility that the salesperson can choose not only overall sales effort but also the *variance* of the sales response function he or she faces. For example, a salesperson could choose to

target one big customer with strong sales effort; although this customer has a relatively low conversion-to-sales probability, the expected order size if the customer does convert is huge. Alternatively, the salesperson could follow a less risky strategy and target many 'smaller fish', each of which has a higher conversion probability but a lower expected order size. Gaba and Kalra show that when risk (i.e. variance in the sales response function) is a choice variable of the salesperson along with sales effort, a contest with only a few prizes (for the topmost performers) induces salespeople to undertake riskier prospecting strategies than a contest offering prizes to more contestants. They find support for their analytic predictions in experimental tests.[7]

The questions of the number of salespeople who should be winners and how to allocate the rewards in a contest are the focus of Kalra and Shi's (2001) study. They find that optimal contest design depends on the number of salespeople vying for rewards, their risk aversion and the degree of uncertainty in the sales response function. Salespeople are predicted to exert less effort the more salespeople they are competing with and the greater the sales response function uncertainty. The optimal number of contest winners is predicted to increase with salesperson risk aversion and the number of salespeople and to fall with increases in sales response function uncertainty; the optimal monetary spread between adjacent awards is predicted to decrease, the more risk averse salespeople are.

Lim, et al., (2009) test some of Kalra and Shi's (2001) predictions. Using experimentation both in the laboratory and in the field, they examine the prediction that the optimal contest involves multiple prizes (rather than one) and that these prizes are both rank ordered to match the ordinal performance of the winners and are also unique in value (no duplicate prizes). Their research question then is whether the greatest effect of a contest occurs when the firm complicates the contest by offering multiple prizes, uniquely rank ordered, or, alternatively, whether a contest with multiple prizes of the same value works just as well. They find that moving from a single winner-takes-all contest prize structure to a multiple-prize structure *does* boost sales performance. But there is no performance enhancement when the multiple prizes are rank ordered and unique, versus the same in value. They conclude that the prize structure need not be as complicated as Kalra and Shi suggest; it can simply determine the number of winners and the equal prize value for all winners, rather than also needing to calculate the optimal spread between awards.

Finally, a set of primarily empirical studies uncovers some insights into the dynamic nature of incentives in tournaments. Sales contest administrators are often concerned about the problem of 'gaming the system', for example, by saving up precontest sales until the start of the contest period and/or pushing postcontest sales into the contest period to artificially inflate contest performance, to the detriment of orders around the contest period and possibly also to the long-term relationship with the customer. Gopalakrishna et al., (2006) show that this concern may be overstated. In an empirical study of an insurance company, they find some evidence of a precontest trough; however, the incremental sales during and even following the contest period led to net new sales. Furthermore, the increased effort spent on selling the contest-award product did not lessen sales of other products in the agents' portfolios. Finally, the contests were profitable to the firm.

Other empirical contest research findings support the theoretical predictions about contest design and outcomes and thus suggest the theory's applicability in both B2B and other general sales contexts:[8]

- When the contest has a longer time horizon, larger contest winning amounts increase performance, but only with a time lag, suggesting that the *dynamics of competition in the contest* affect effort exertion throughout the contest period.
- The higher the *marginal return to effort late in the contest period*, the harder a contestant works to win the tournament in later periods of a dynamic contest horizon.
- If one contestant has a strong lead in the tournament at any given point in time, this lessens the effort level of other contestants.
- Contestants who are behind in the contest in early periods increase their effort, in an attempt to catch up to the leader; they lose motivation only when the gap with the leader is too great. A winner who is very far ahead also loses motivation to exert high effort in later periods of the contest. Thus, a 'poor horse race' really does decrease motivation for both the eventual losers and the eventual winner.
- Effort levels are lower in tournaments with a higher number of contestants, even for a fixed percentage of winners.

In summary, sales contests have proved to be effective short-term effort motivators for salespeople. It is rather obvious that higher prize payments elicit higher effort levels, but many other findings, both theoretical and empirical, are much more subtle in nature. Managers wanting to implement good contests can focus on contests that: (1) provide multiple prizes (not winner-takes-all); (2) provide some incremental incentive to do better but do not necessarily have elaborate multi-tier winning levels; and (3) run for one to two sales cycles. Managers should be aware that effort is likely to intensify later in a long-term contest, even if effort does not seem to be aggressive early on, and that effort is higher when the contest offers a 'good horse race' but that there are conditions when contests are not feasible to implement (e.g. when cross-territory outcomes are insufficiently positively correlated, when salespeople are too risk averse, when variance in sales response functions is too small or extremely high, and when territory potentials are too disparate).
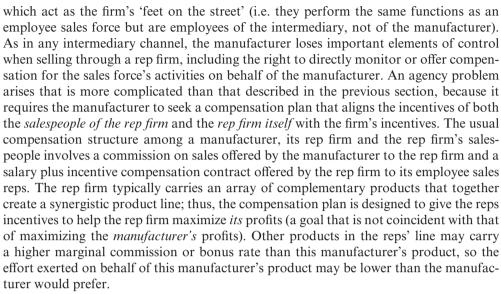
With these caveats, we now turn to some other sales incentives. These include spiffs and compensation awards based on the performance of multiple salespeople.

SPIFFS AND COMPENSATION BASED ON MULTIPLE SALESPEOPLE'S PERFORMANCE

In this section, we examine other sales force incentive pay components not previously reviewed: spiffs and group commission compensation awards. Spiffs are payments salespeople receive for short-term and well-defined sales performance activities. Firms may use spiffs to promote a new-to-the-market product or to intensify sales effort during a slow post-holiday season, for example. Firms can offer spiffs to their own employee sales force; however, in this context they are quite similar to quota–bonus plans. Thus, in the discussion here we focus on a more interesting application of spiffs: their use as direct compensation awards to the salespeople of a *channel intermediary's sales force*.[9]

Consider the situation in which a firm sells through the manufacturer's rep firms,

which act as the firm's 'feet on the street' (i.e. they perform the same functions as an employee sales force but are employees of the intermediary, not of the manufacturer). As in any intermediary channel, the manufacturer loses important elements of control when selling through a rep firm, including the right to directly monitor or offer compensation for the sales force's activities on behalf of the manufacturer. An agency problem arises that is more complicated than that described in the previous section, because it requires the manufacturer to seek a compensation plan that aligns the incentives of both the *salespeople of the rep firm* and the *rep firm itself* with the firm's incentives. The usual compensation structure among a manufacturer, its rep firm and the rep firm's salespeople involves a commission on sales offered by the manufacturer to the rep firm and a salary plus incentive compensation contract offered by the rep firm to its employee sales reps. The rep firm typically carries an array of complementary products that together create a synergistic product line; thus, the compensation plan is designed to give the reps incentives to help the rep firm maximize *its* profits (a goal that is not coincident with that of maximizing the *manufacturer's* profits). Other products in the reps' line may carry a higher marginal commission or bonus rate than this manufacturer's product, so the effort exerted on behalf of this manufacturer's product may be lower than the manufacturer would prefer.

Against this backdrop, Caldieraro and Coughlan (2007) show that spiffs can move the rep firm channel closer to the coordinated outcome in situations in which compensation plans are not quickly adjustable. When multiple products (each with its own, different productivity of sales effort) are sold by a single manufacturer through the rep firm, when common commission rates are offered by the manufacturer to the rep firm for both products, and when common commission rates are offered by the rep firm to its salespeople for both products, the authors show that it is optimal to spiff the *lower-sales-productivity* product to the rep firm's sales force. In this case, the spiff allows the manufacturer to raise the effective incentive on the harder-to-sell product to equal that on the easier-to-sell product, thus restoring the incentives of the rep firm's sales force to work hard on *both* products. Note that this result is reversed in the case of competing manufacturers offering the same two products to the rep firm; then, it is optimal for the manufacturer of the *higher-sales-productivity* product to offer a spiff to the rep firm. This reversal results from the ability of the manufacturer of the higher-sales-productivity product to 'outbid' the other manufacturer for the time and effort of the rep's sales force. If the higher-sales-productivity manufacturer does not engage in optimal spiffing behavior, the manufacturer of the lower-sales-productivity product might be able to offer a spiff high enough to claim the favored position in the rep's product line-up. The higher-sales-productivity manufacturer thus is forced to spiff the rep firm's sales force just enough to make it uneconomical for the other manufacturer to bother to offer spiffs.

In short, spiffs are an optimal way to increase the flexibility of incentive payments to the intermediary's sales force. (If all compensation plans were infinitely flexible, spiffs would not work because they would simply cause the rep firm and the competing manufacturer to instantaneously adjust their own compensation plans to restore the original incentives.) Whether the stronger or weaker product is optimally spiffed depends on whether the external effects of spiffing are internalized by the same manufacturer or are inflicted on a competing manufacturer. When externalities are internalized, the weaker

product should be spiffed; when attempting to deter a weaker competitor from appropriating sales effort 'share', a spiff on the stronger product has the appropriate deterrence effect.

The spiffing results rely on an assumption that the same sales force sells both products, and therefore there is a need to try to rationalize salespeople's time allocation across the products. What if, instead, the firm manages salespeople who each have their own territories and sell the same product, but the territories themselves have some degree of non-zero covariance? Can the firm take advantage of this covariance and improve its profitability by preserving the incentive to exert effort, while lessening total compensation costs? Caldieraro and Coughlan (2009) show that such a benefit is indeed possible when territory outcomes exhibit a negative covariance, through the addition of a *group commission* rate to the standard salary-plus-own-territory-commission compensation structure. The more negatively correlated the outcomes across the territories in question, the more important the group commission payment becomes as a percentage of total pay. The reason for this is that the group commission effectively 'pools the risk' that any one salesperson who operates in one territory faces. When a poor outcome occurs in one territory, the negatively correlated other territory is likely to have a good outcome. The group commission thus provides co-insurance for the two salespeople, lessening the compensation swings that would otherwise occur with the standard salary-plus-commission plan. This smoothing of compensation is valuable to a risk-averse sales force, and therefore the firm incurs a lower total compensation cost when using the group commission plan with negatively correlated sales territories.

These co-insurance benefits can be so powerful that they make it more profitable for the firm to allocate salespeople to territories with negative outcome correlations (a 'diversification' strategy) than to higher-productivity territories with positive correlations. Specifically, suppose the firm has three sales territories it could fill and must decide which territories to assign to two salespeople. Two of the three territories' outcomes are positively correlated (indeed, they may be of the identical type, with perfectly positively correlated outcomes and identical marginal sales productivities), and a third has slightly lower sales productivity but exhibits negative correlation with the first territory type. Then, the diversification strategy becomes relatively more profitable: (1) the stronger is the available negative cross-territory correlation; (2) the less are the differences in cross-territory sales productivity; (3) the lower is the variance of sales in the new territory type; (4) the more risk averse the salespeople are; and (5) the more costly it is to exert high sales effort. Furthermore, offering a group commission plan can dominate offering a sales contest when these conditions are strong enough.

These analyses show the value of thinking beyond the standard compensation components when designing the sales compensation plan. Selling through the efforts of an intermediary may require extra compensation components (e.g. spiffs) to offer effective incentives directly to those generating sales for the firm. Alternatively, the firm can take advantage of assets already available in its own sales force, such as the pre-existing outcome correlations across territories, to design a compensation plan that preserves the incentives to sell hard, while saving compensation dollars overall. The general principle in all these instances is that the firm should implement the least expensive compensation plan structure, which nevertheless does the best job in aligning the sales force's incentives with its own.

MONITORING OR INCENTIVES?

Although incentives are a powerful lever for controlling the sales force and have been the focus of much prior research, casual empiricism suggests that many elements of salesperson behavior are controlled through managerial monitoring. Joseph and Thevaranjan (1998) explicitly analyze the firm's joint decisions both about which costly incentive levels to offer and what investments to make in salesperson monitoring. A balance between the two sales management strategies is derived, recognizing that even though it is costly, monitoring beneficially allows the firm to lower its compensation costs both by reducing the amount of incentive compensation offered and by allowing the hiring of more risk-averse (and, thus, relatively more inexpensive) salespeople.

The choice between managing the sales force through incentives and managing through monitoring has been discussed in depth in the marketing literature examining what are called 'outcome-based control' (incentive plan design) and 'behavior-based control' (facilitated by monitoring).[10] In outcome-based control, little managerial direction is provided (i.e. there is little monitoring); instead, the emphasis is on the achievement of results (i.e. reliance on an incentive-heavy compensation plan). In contrast, behavior-based control is characterized by high levels of managerial intervention and the utilization of subjective measures of inputs (i.e. monitoring); when such intervention is both possible and cost effective, it leaves little reason for incentive pay and suggests a compensation plan more heavily weighted toward salary.

The essential ideas behind behavior-based control and output-based control merit renewed attention because of the continued development and advancement of new information technologies to help monitor and manage the salesperson's activities. These technologies improve sales management's information on field sales activities, suggesting the value of a renewed appraisal of the most appropriate balance between outcome-based (incentive) and behavior-based (monitoring) control elements in the sales compensation process. Sales force automation technologies, for example, provide a window into each salesperson's prospect funnel and account-specific calling patterns. Similarly, the availability of monitoring technologies has altered the use of performance metrics and the nature of risk sharing in the trucking industry (Hubbard 2000). It is possible that a similar evolution will occur in sales force settings as firms obtain greater visibility of and feedback on the salesperson's activities.

Future research avenues in the domain of sales force control include:

- How is technology affecting the performance metrics employed in sales force compensation contracts?
- How is technology affecting the extent of risk sharing in compensation contracts?
- How is technology affecting job design for salespeople?
- What factors inhibit the embrace of sales force automation technologies? For example, these technologies typically reduce the importance of previously unique value-added assets owned by the salesperson; consequently, new agency problems are likely to emerge.

PRICE DELEGATION

By virtue of their proximity to customers and to the market in general, salespeople are often better informed about customers' willingness to pay (WTP) and price sensitivity than their sales managers or higher executives at their firms. This suggests the potential value of delegating the pricing decision to the sales force, because it could result in appropriate pricing that maximizes sales success for a given level of sales force effort.

However, salespeople may not always have the firm's best interests at heart. The literature on sales force price delegation emphasizes that salespeople value both leisure and income and thus may exert less effort than the firm would like. Salespeople are also likely to be more risk averse than their employers, which leads them to seek the 'safe sale' rather than to reach for possibly higher WTP prospects but with a higher probability of failure. Although firms and sales managers may engage in monitoring effort to check on salespeople's work ethics and choices of sales targets, monitoring is costly and imperfect. These countervailing factors have been considered in both analytic and empirical articles on the price delegation question.
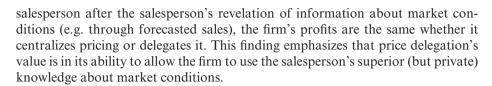
The main analytical findings with regard to the use of price delegation are as follows:

- The way incentive compensation is awarded affects the viability of price delegation. If commission is awarded on the basis of sales volume rather than profit margin, price delegation is not advisable, because the salesperson will maximize his or her income by setting a low price and thus achieving high sales (Bhardwaj 2001).
- Delegating pricing to the sales force can be a strategic competitive tool to soften price competition (Bhardwaj 2001). When commissions are awarded on the basis of profit margin, then the lower the commission rate, the higher the price the salesperson will set. Thus, the stronger the price competition, the greater is the value of delegating pricing to the sales force.
- Limiting price delegation can be profitable, even when salespeople's *ability* to find high-WTP customers exceeds that of the firm, because it can increase the effort salespeople exert to find customers willing to pay at least the minimum permitted price (Joseph 2001). This finding is of interest because it distinguishes between the salesperson's *inherent* superior knowledge of customers' WTP (Lal 1986) and his or her *potential* to discover WTP. If discovering WTP takes effort, delegating pricing decisions creates a pernicious incentive for the salesperson to underinvest in the WTP discovery process.
- This finding is mitigated by the proportion of high-WTP customers naturally occurring in the population of sales prospects. Joseph (2001) finds that only if the cost of WTP discovery is either very low or very high is price delegation optimal. If it is very low, the salesperson's effort to discover high-WTP customers is not very costly to him or her and the agency problem in price delegation is minimal. If it is very high, limiting price delegation by dictating a minimum threshold for pricing is not appropriate because it causes the salesperson to lose too many sales.
- When salespeople actually do possess valuable private information about WTP that is unknown to the firm, sales force compensation based on the *accuracy of a salesperson's forecast* can substitute for the need to delegate pricing authority to the sales force (Mishra and Prasad 2004, 2005). If the firm can contract with its

salesperson after the salesperson's revelation of information about market conditions (e.g. through forecasted sales), the firm's profits are the same whether it centralizes pricing or delegates it. This finding emphasizes that price delegation's value is in its ability to allow the firm to use the salesperson's superior (but private) knowledge about market conditions.

Empirical research generates findings generally consistent with these predictions. In one study of 222 German sales organizations across multiple industries, Hansen et al., (2008) find that price delegation is *less likely* when the firm is concerned about agency problems, specifically the salesperson shirking on effort and thus needing to charge a lower price. They also find a lower likelihood of using price delegation when the compensation plan awards commission on the basis of sales rather than profit margin and that price delegation is more likely the more the firm engages in monitoring (holding constant the efficacy of monitoring). In a subsequent survey of 181 industrial machinery and electrical engineering companies in Germany, Frenzen et al.,(2010) find that price delegation is more likely the greater is the information asymmetry between the firm and the salesperson about market conditions, the more difficult it is to engage in high-quality monitoring, and the less risk averse are salespeople. They find that price delegation is positively linked to higher firm performance, especially with high market uncertainty and well-informed salespeople.

Overall, sales compensation managers can view price delegation as an important and useful tool for maximizing firm profits. This is particularly the case when salespeople's market information is clearly superior to that of the firm and when the agency problems associated with delegating pricing are either *de minimus* or can be controlled through mechanisms such as monitoring or the judicious choice of compensation contracts to offer.

CONCLUSION: UNDERRESEARCHED AREAS IN SALES COMPENSATION

This review presents a summary of research findings in some key areas of sales compensation: how high of total pay should be, the appropriate degree of leverage (ratio of incentive to total pay), quota–bonus plans, sales contests, spiffs, multi-salesperson compensation, the choice of monitoring or incentives, and the decision whether to delegate pricing to the sales force.

Although much has been done in the past two decades, myriad questions remain to be attacked in the sales compensation arena. We close with a brief list of some of these:

● What should relative pay differences be, and what structural differences should there be, for B2B sales professionals at different levels of the sales organization: field salespeople, sales managers and key account managers? The results for field salespeople versus sales managers are presented in an empirical study of five European countries (Rouzies et al., 2009) and show that sales managers receive take-home pay from 25 to 50 per cent higher than field salespeople (depending on industry and country); their pay leverage is not much different (the largest

difference being between field salespeople, 12 per cent, and sales managers, 8 per cent, in Germany); field salespeople's take-home pay increases at a *decreasing* rate with job challenge, while sales managers' take-home pay increases at an *increasing* rate with job challenge (consistent with the multiplier effect of a good sales manager on his or her many subordinates); and more aggressive taxation systems lead to more highly leveraged pay for both field salespeople and sales managers. Despite these insights, more can be done to compare optimal and actual pay structures and levels for different sales professional job levels.

● What are the right metrics on which to base sales compensation awards, and what metrics are commonly used today? For example, current research does not elucidate what a reasonable minimum quota amount is above which bonus should be earned; whether a bonus should be awarded for individual or group performance, and under what conditions; or whether and when to base commission pay on profit, gross margin, market share gains or sales. Answers to such questions will not be the same in all industries, sales force sizes, or countries, but some commonalities may emerge from further research.

● What is the right time horizon for sales force compensation? Misra and Nair (2009) comment that 'there exists no straightforward algorithm that would implement an exhaustive search over the multidimensional compensation space and uncover the optimal second best compensation policy' – including the right horizon over which to pay salespeople. Their study suggested that shortening the quota horizon from three months to one month improved profitability. Coughlan and Narasimhan (1992) find a positive relationship between the sales performance horizon and the incentive pay horizon. These insights form a tantalizing start but invite future inquiry.

● What is the proper interrelationship between compensation structures/amounts and sales force training? How does the combination of training and compensation affect sales force turnover, and what is the optimal tripartite combination of compensation structure, training levels and turnover? This is a key question because, as in Murthy and Mantrala's (2005) research, the firm must make a decision on the relative allocation of marketing and sales funds across training and compensation. Through training, the firm in effect can create a higher-productivity salesperson; while such a person brings in more revenue, they also cost more in terms of compensation. If in addition the firm's training program is so excellent as to spur competitors to 'pick off' already-trained salespeople, the firm's turnover costs may swamp the benefits of better-trained salespeople. Additional theoretical and empirical research on this question thus is warranted.

● What is the overall optimal compensation plan, and why should the firm prefer one type of extra incentive component to another? We indicate in this review a few examples of comparative analyses of one compensation investment versus another, but more such comparisons across multiple alternative incentive plans could uncover general rules for preferring one to another incentive type.

● More generally, how do compensation decisions interact with other important decisions, such as sales force structure, territory design, sales force selection, marketing–sales coordination and so forth? Most likely, dependencies are important in practice. For example, there may be interesting trade-offs between productivity

and compensation costs as B2B firms move from specialized to generalized sales forces. Similarly, territory design can moderate salesperson productivity and, thereby, the incentive effects of compensation. Even more comprehensive research foci could consider joint sales force/organizational decisions, such as how to design compensation schemes to better coordinate the sales function with the marketing or new product development functions in the firm.

These research ideas are only a subset of all the possible ways we expect research insights to continue to be created in the area of sales compensation. We encourage our colleagues to attack these and other directions in the future.

NOTES

1. See, for example, Basu and colleagues (1985) and Lal and Srinivasan (1993). Summary articles that comment on the agency-theoretic approach include Coughlan (1993), Coughlan and Sen (1989), Bergen et al., (1992) and Albers (1996).
2. The classic agency-theoretic problem assumes that prices are set outside the sales management sphere and thus are a parameter of the sales response function. Later work examines the advisability of granting the salesperson the right to set price and to choose the amount of selling effort; see the 'Price delegation' section for details on results in the literature with this extension.
3. Because the firm is lifting all risk bearing from the salesperson's shoulders, any combination of salary and incentive pay that also produces the same total pay for the same number of hours worked is an equivalently profitable compensation solution.
4. The Hay Group is the world's largest compensation consulting firm and the innovator of the Hay point metric for measuring job challenge. The construct has been exhaustively calibrated across many companies, industries and job classifications to create a reliable and comparable measure of the sophistication of the tasks and duties of various job types.
5. Murphy et al., (2004) refer to a 20 to 40 per cent winner rate as common, citing Churchill et al., (2000) and Colletti et al., (1988). Zoltners et al., (2006) note that with a fixed contest budget, the firm faces a trade-off between offering a high winning likelihood with low prize values and offering one or a few large prize values. Both options have some 'traction' value, implying that a balance in the middle is likely to be best in many sales situations.
6. See Lazear and Rose n (1981), Green and Stokey (1983), Nalebuff and Stiglitz (1983), O'Keefe et al., (1984) and Prendergast (1999) for the basics of tournament compensation models in the economics literature.
7. In a different context, an empirical study of NASCAR and International Motor Sports Association auto racing (Becker and Huselid 1992) generates similar findings to those of Gaba and Kalra (1999), but only in terms of the 'spread' between adjacent prize amounts rather than in terms of the number of prizes. This suggests the robustness of these findings and their applicability in many B2B contexts.
8. See Ehrenberg and Bognanno (1990), who study the behavior of men's Professional Golf Association tour, for the results on dynamic effects in contests. See Casas-Arce and Martinez-Jerez (2009) for the results on contestant positions (relative and actual) on motivation to exert effort.
9. This discussion is based on Caldieraro and Coughlan (2007).
10. Key references in this area include (but are not limited to) Anderson and Oliver (1987), Bergen et al., (1992), Eisenhardt (1985, 1989), Cravens et al., (1993), Celly and Frazier (1996), Oliver and Anderson (1994) and Grant and Cravens (1996).

REFERENCES

Albers, Sonke (1996), 'Optimization models for salesforce compensation', *European Journal of Operational Research*, **89** (1), 1–17.
Albers, Sonke (2002), 'Salesforce management: compensation, motivation, selection, and training', in Barton

A. Weitz and Robin Wensley (eds), *Handbook on Marketing*, Thousand Oaks, CA: Sage Publications, pp. 249–66.

Anderson, Erin and Richard L. Oliver (1987), 'Perspectives on behavior-based versus outcome-based control systems', *Journal of Marketing*, **51** (4), 76–88.

Basu, Amiya K., Rajiv Lal, V. Srinivasan and Richard Staelin (1985), 'Salesforce compensation plans: an agency theoretic perspective', *Marketing Science*, **4** (4), 267–91.

Becker, Brian E. and Mark A. Huselid (1992), 'The incentive effects of tournament compensation systems', *Administrative Science Quarterly*, **37** (2), 336–50.

Bergen, Mark, Shantanu Dutta and Orville C. Walker Jr (1992), 'Agency relationships in marketing: a review of the implications and applications of agency and related theories', *Journal of Marketing*, **56** (2), 1–24.

Bhardwaj, Pradeep (2001), 'Delegating pricing decisions', *Marketing Science*, **20** (2), 143–69.

Caldieraro, Fabio and Anne T. Coughlan (2007), 'Spiffed-up channels: the role of spiffs in hierarchical selling organizations', *Marketing Science*, **26** (1), 31–51.

Caldieraro, Fabio and Anne T. Coughlan (2009), 'Optimal sales force diversification and group incentive payments', *Marketing Science*, **28** (6), 1009–26.

Casas-Arce, Pablo and F. Asis Martinez-Jerez (2009), 'Relative performance compensation, contests, and dynamic incentives', *Management Science*, **55** (8), 1306–20.

Celly, Kirti Sawhney and Gary L. Frazier (1996), 'Outcome-based and behavior-based coordination efforts in channel relationships', *Journal of Marketing Research*, **33** (2), 200–210.

CFO Research Services (2010), *Managing Sales Incentive Compensation Amid Uncertainty*, New York: CFO Publishing.

Chung, Doug, Thomas Steenburgh and K. Sudhir (2009), 'Do bonuses enhance sales productivity? a dynamic structural analysis of bonus-based compensation Plans', working paper, Yale School of Management.

Churchill, Gilbert A., Neil M. Ford, Orville C. Walker, Mark W. Jonston and John F. Tanner Jr (2000), *Sales Force Management: Planning, Implementation, and Control*, 6th edn, Homewood, IL: Irwin.

Colletti, Jerome A., David J. Cichelli, S.D. Linser, J.F. Martin, D.S. Schattinger and Gary S. Tubridy (1988), *Current Practices in Sales Incentives*, New York: The Alexander Group.

Coughlan, Anne T. (1993), 'Salesforce compensation: a review of MS/OR advances', in J. Eliashberg and G.L. Lilien (eds), *Handbooks in Operations Research and Management Science*, Vol. 5, Amsterdam: Elsevier Science Publishers BV, pp. 611–51.

Coughlan, Anne T. and Chakravarthi Narasimhan (1992), 'An empirical analysis of sales-force compensation plans', *Journal of Business*, **65** (1), 93–121.

Coughlan, Anne T. and Subrata K. Sen (1989), 'Salesforce compensation: theory and managerial implications', *Marketing Science*, **8** (4), 324–42.

Cravens, David W., Thomas N. Ingram and Raymond W. LaForge (1993), 'Behavior-based and outcome-based salesforce control systems', *Journal of Marketing*, **57** (4), 47–59.

Ehrenberg, Ronald G. and Michael L. Bognanno (1990), 'Do tournaments have incentive effects?', *Journal of Political Economy*, **98** (6), 1307–24.

Eisenhardt, Kathleen M. (1985), 'Control: organizational and economic approaches', *Management Science*, **31** (2), 134–49.

Eisenhardt, Kathleen M. (1989), 'Agency theory: an assessment and review', *Academy of Management Review*, **14** (January), 57–74.

Frenzen, Heiko, Ann-Kristin Hansen, Manfred Krafft, Murali K. Mantrala and Simone Schmidt (2010), 'Delegation of P authority to the sales force: an agency-theoretic perspective of its determinants and impact on performance', *International Journal of Research in Marketing*, **27**, 58–68.

Gaba, Anil and Ajay Kalra (1999), 'Risk behavior in response to quotas and contests', *Marketing Science*, **18** (3), 417–34.

Gopalakrishna, Srinath, Jason Garrett, Murali K. Mantrala and J. David Moore (2006), 'Determining the effectiveness of sales contests', working paper, College of Business, University of Missouri–Columbia.

Grant, Ken and David W. Cravens (1996), 'Examining sales force performance in organizations that use behavior-based sales management processes', *Industrial Marketing Management*, **25** (5), 361–71.

Green, Jerry R. and Nancy L. Stokey (1983), 'A comparison of tournaments and contracts', *Journal of Political Economy*, **91** (3), 349–64.

Hansen, Ann-Kristin, Kissan Joseph and Manfred Krafft (2008), 'Price delegation in sales organizations: an empirical investigation', *Business Research*, **1** (1), 94–104.

Hubbard, Thomas N. (2000), 'The demand for monitoring technologies: the case of trucking', *Quarterly Journal of Economics*, **115** (2), 533–60.

Joseph, Kissan (2001), 'On the optimality of delegating pricing authority to the sales force', *Journal of Marketing*, **65** (1), 62–70.

Joseph, Kissan and Manohar U. Kalwani (1995), 'The impact of environmental uncertainty on the design of salesforce compensation plans', *Marketing Letters*, **6** (3), 183–97.

Joseph, Kissan and Manohar U. Kalwani (1998), 'The role of bonus pay in salesforce compensation plans', *Industrial Marketing Management*, **27**, 147–59.

Joseph, Kissan and Alex Thevaranjan (1998), 'Monitoring and incentives in sales organizations: an agency-theoretic perspective', *Marketing Science*, **17** (2), 107–23.

Kalra, Ajay and Mengze Shi (2001), 'Designing optimal sales contests: a theoretical perspective', *Marketing Science*, **20** (2), 170–93.

Lal, Rajiv (1986), 'Delegating pricing responsibility to the sales force', *Marketing Science*, 5 (2), 159–68.

Lal, Rajiv and V. Srinivasan (1993), 'Compensation plans for single- and multi-product salesforces: an application of the Holmstrom–Milgrom Model', *Management Science*, **39** (7), 777–93.

Lazear, Edward P. and Sherwin Rosen (1981), 'Rank-order tournaments as optimum labor contracts', *Journal of Political Economy*, **89** (5), 841–64.

Lim, Noah, Michael J. Ahearne and Sung H. Ham (2009), 'Designing sales contests: does the prize structure matter?', *Journal of Marketing Research*, **46** (3), 356–71.

Mantrala, Murali K., Kalyan Raman and Ramarao Desiraju (1997), 'Sales quota plans: mechanisms for adaptive learning', *Marketing Letters*, **8** (4), 393–405.

Mantrala, Murali K., Prabhakant Sinha and Andris A. Zoltners (1994), 'Structuring a multiproduct sales quota-bonus plan for a heterogeneous sales force: a practical model-based approach', *Marketing Science*, **13** (2), 121–44.

Mantrala, Murali K., Sonke Albers, Fabio Caldieraro, Ove Jensen, Kissan Joseph, Manfred Krafft, Chakravarthi Narasimhan, Srinath Gopalakrishna, Andris Zoltners, Rajiv Lal and Leonard Lodish (2010), 'Sales force modeling: state of the field and research agenda', *Marketing Letters*, **21** (3), 255–72.

Mishra, Birendra K. and Ashutosh Prasad (2004), 'Centralized pricing versus delegating pricing to the salesforce under information asymmetry', *Marketing Science*, **23** (1), 21–7.

Mishra, Birendra K. and Ashutosh Prasad (2005), 'Delegating pricing decisions in competitive markets with symmetric and asymmetric information', *Marketing Science*, **24** (3), 490–97.

Misra, Sanjog and Harikesh Nair (2009), 'A structural model of sales-force compensation dynamics: estimation and field implementation', working paper, Simon School of Business, University of Rochester.

Misra, Sanjog, Anne T. Coughlan and Chakravarthi Narasimhan (2005), 'Salesforce compensation: an analytical and empirical examination of the agency theoretic approach', *Quantitative Marketing and Economics*, **3**, 5–39.

Murphy, William H., Peter A. Dacin and Neil M. Ford (2004), 'Sales contest effectiveness: an examination of sales contest design preferences of field sales forces', *Journal of the Academy of Marketing Science*, **32** (2), 127–43.

Murthy, Pushkar and Murali K. Mantrala (2005), 'Allocating a promotion budget between advertising and sales contest prizes: an integrated marketing communications perspective', *Marketing Letters*, **16** (1), 19–35.

Nalebuff, Barry J. and Joseph E. Stiglitz (1983), 'Prizes and incentives: toward a general theory of compensation and competition', *Bell Journal of Economics*, **14** (1), 21–43.

O'Keefe, Mary, W. Kip Viscusi and Richard J. Zeckhauser (1984), 'Economic contests: comparative reward schemes', *Journal of Labor Economics*, **2** (1), 27–56.

Oliver, Richard L. and Erin Anderson (1994), 'An empirical test of the consequences of behavior- and outcome-based sales control systems', *Journal of Marketing*, **58** (4), 53–67.

Prendergast, Canice (1999), 'The provision of incentives in firms', *Journal of Economic Literature*, **37** (1), 7–63.

Rackham, Neil and John De Vincentis (1999), *Rethinking the Sale Force*, New York: McGraw-Hill.

Raju, Jagmohan S. and V. Srinivasan (1996), 'Quota-based compensation plans for multiterritory heterogeneous salesforces', *Management Science*, **42** (10), 1454–62.

Ross, William T., Jr. (1991), 'Performance against quota and the call selection decision', *Journal of Marketing Research*, **28** (3), 296–306.

Rouzies, Dominique, Anne T. Coughlan, Erin Anderson and Dawn Iacobucci (2009), 'Determinants of pay levels and structures in sales organizations', *Journal of Marketing*, **73** (6), 92–104.

Steenburgh, Thomas J. (2008), 'Effort or timing: the effect of lump-sum bonuses', *Quantitative Marketing & Economics*, **6**, 235–56.

Zoltners, Andris A., Prabhakant Sinha and Sally E. Lorimer (2006), *The Complete Guide to Sales Force Incentive Compensation*, New York: AMACOM.