INFORMATION AND INCENTIVES IN RETAIL SALES

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ABSTRACT

I examine how managers mitigate the side effects of the overly complicated performance evaluation system in the context of a high-end retail industry. The standard performance evaluation system in the industry has evolved to include multiple performance measures. The detailed measures can incentivize employees to perform multiple performance-relevant activities, but they inevitably increase the complexity of the performance evaluation system. The complexity increases the risk of information overload of the employees, decreasing judgment quality and potentially decreasing their performance. Drawing on psychology literature, I postulate two factors moderating the relationship between information overload and performance: 1) disaggregated feedback provides detailed information on each category of performance measures and compensate for each performance measure rather than for overall performance level; 2) feedforward informs employees about how their actions affect their compensation. Both factors mitigate the negative performance effect of information overload by clarifying causality embedded in the complex performance evaluation system to employees. I conduct two field experiments that implement the disaggregated feedback and the feedforward policies for sales outlets of a high-end retail firm, respectively, and examine whether the policies mitigate information overload problem and improve performance. I find that the treatment group exhibits improvement in performance, suggesting that disaggregated feedback and the feedforward reduce information overload.

to Eugenie and my family

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CHAPTER 1

INTRODUCTION

The performance evaluation system of a firm has evolved to be more complex over time. The more complex the performance evaluation system is, the more likely it is for employees to suffer from information overload and imperfectly understand the complex performance system. The imperfect understanding leads to inefficient allocation of their effort (Schick et al. 1990; McAdams and Hawk 1994), decreasing firm performance. High-end retail industries where sales employees work for two types of strategic goals, product sales and financing option sales, are significantly more susceptible than the low-end retail industries to the side effects of an overly complex performance evaluation system. Sales managers in a high-end retail industry express concerns that employees' limited understanding of the performance evaluation system has been detrimental to firm performance. Responding to the concerns of sales managers, I conduct two field experiments to examine how managers may mitigate the side effects such as information overload of employees due to overly complicate performance evaluation system in a high-end retail industry. I find that disaggregated feedback and feedforward increase sales employees' and firm performance, suggesting the two remedies may mitigate the information overload of employees in the high-end retail industries.

Performance evaluation research documents the growing complexity of the performance evaluation system. Performance evaluation system has evolved to include more relevant measures such as various financial measures (Bacidore et al. 1997; Banker et al. 1996; Biddle et al. 1997; Wallace 1997; Banker et al. 2000), non-financial measures (Ittner and Larcker 1998a; Banker, Porter, and Srinivasan 2000; Banker and Mashruwala 2007). Balanced Scorecard emphasizes the casual relationships among multiple measures

(Kaplan and Norton 1992), adding complex causalities in the performance evaluation system with multiple measures.

The complex performance evaluation system has a risk of decreasing firm performance. Since employees as individuals have limited information processing capacity (Schroder et al. 1967), they suffer from information overload when facing complicated performance evaluation system. The various relevant measures provide employees information to optimally allocate their efforts, yet the excessive amount of information that exceeds individual employees' information processing capacity prevents optimal effort allocation. The problem of information overload (Casey 1980; Shields 1983) is common in the complicated performance evaluation system (Eppler and Mengis 2004; Neumann et al. 2012). As employees suffer from information overload, their effort allocation is far from being optimal, decreasing firm performance.

The information overload problem is especially severe in high-end retail industries. Sales employees in the high-end retail industries as opposed to the low-end retail industries directly contact customers and build the customer base of their own, provide highly customized service while performing more ambiguous and less programmable tasks. As a result, supervisors cannot readily observe their behavior, resulting in more reliance on outcome-based control. As the high-end retail industry employees sell both products and financing options to customers, they deal with more than one department (e.g. sales or financial services department) who evaluates them through the complex performance evaluation system. Employees even deal with multiple dealerships and financial institutions that may use multiple outcome-based performance measures of their own. The resulting complexity far exceeds that of the low-end retail industries or possibly other industries where employers rely less on complex outcome-based control, leaving the high-end retail industry firms' performance relatively at high risk.

The pervasive information overload in the high-end retail industries is a common concern of sales managers. A Chief Financial Officer of a high-end retail firm express concerns that complexity in the incentive system leads to inefficiencies of sales employees: "As you know, performance reviews and systems are too complicated. There are so many measures, and there are measures for individual, team, store, and dealership level". The CFO also recognizes that the productivity gaps across employees are in part due to their differential understanding of performance evaluation system: "New employees aren't all different in their abilities, but the existing employees know a lot more about the evaluation system. That's where the productivity gap comes from".[1] The CFO is also ambivalent between the advantages of having comprehensive incentive systems and its side effects arising from complexity: "It's good to have incentives in many ways, so we can do our job. But it's too complicated for most employees to understand. How can we reduce the complexity while keeping the incentive scheme we have now?"

To address the concerns of the complex performance evaluation system of the high-end retail industries, I conduct two field experiments and document the results. First, I examine whether the disaggregation of performance measures and compensation in the performance evaluation process mitigates the negative impact of information overload on firm performance. Literature finds that disaggregation makes specific causal linkages in a multi-dimensional information system more recognizable. The conspicuous causal linkage can increase employees' attention to desirable activities. At the same time, additional feedback on multiple dimensions may also increase information overload because it provides more information for employees to process. Disaggregated feedback

[1] Furcher et al. (2018) document that frequent changes in incentive plans for car dealership in the US market may deteriorate productivity, "One dealer noted 57 different programs and complained that it's managers spent more time understanding these programs than they did focusing on customer sales and service".

which provides disaggregated compensation in addition to the detailed information on performance measures, however, is less likely to exacerbate information overload because it clarifies the links between employees' actions and compensation, relieving employees of the burden of constructing the links themselves. I design and conduct 2-by-2 factorial field experiments to examine the effectiveness of disaggregated feedback on mitigating information overload. I find that detailed information on multiple dimensions alone on average decreases performance, suggesting that detailed feedback may increase information overload. The combination of detailed feedback and disaggregated compensation on average increases performance of employees, supporting that the disaggregated feedback provides information and incentives to mitigate information overload arising from the multi-dimensionality of the performance evaluation system.

Second, I examine whether feedforward—informing employees how their actions affect their compensation—may mitigate the information overload. Prior literature supports that providing feedback guides employees' resource allocation and mitigates the information overload problem. In addition to regular feedback in the process of performance evaluation, simulation as a form of feedback help employees to clarify complex causality in the performance evaluation system, reducing information overload. I conduct a field experiment that implements the feedforward policy for sales outlets of a high-end retail firm and examine whether the new policies mitigate information overload problem of the performance evaluation system and improve performance. Knowing how much of additional performance they will generate, sales employees can allocate their time and efforts efficiently to generate more revenue for the firm. Consistent with the hypothesis, I find that outlets that received feedforward in addition to regular feedback increase both individual and overall outlet performance. I also find the total compensation paid to employees to increase, suggesting that feedforward incrementally motivates employees.

My dissertation reveals how firms in the retail industry may reduce concerns about the complex performance evaluation system. The evidence I provide from the two field experiments on a retail firm suggests that the two tools, disaggregated feedback and feedforward, may allow practitioners to cope with information overload due to the complexity of performance evaluation system. My dissertation also suggests a new direction for performance evaluation research that has expanded relevant measures and dimensionality of performance evaluation. Future studies may examine the effects of disaggregated feedback and feedforward in alternative settings (e.g., other industries, executive compensation).

I organize the rest of the chapters as follows. In the next chapter, I review the performance evaluation literature on the retail industry, psychology literature on disaggregation and feedforward, and role of information and information processing capacity in performance evaluation. In Chapter 3, I examine how disaggregated feedback may reduce information overload and increase performance. In Chapter 4, I examine the effectiveness of feedforward in mitigating negative performance effects of information overload due to complexity in the performance evaluation system. In Chapter 5, I conclude and suggests directions for future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Performance Evaluation Literature on Retail Industry

Performance evaluation literature has investigated organizational incentive systems at various organization levels across many industries. For example, executive compensation studies, which focus top level of organization, extensively examine various aspects of organizational incentive systems (For a comprehensive review, see Merchant et al. 2003). Publicly available data of individual executives and firm data that are easily matched to allow researchers to gain access and relatively put more attention to executive compensation (Murphy 1999). While studies on incentive contracts of top executives with agency theoretic perspective form a stream of literature, a growing body of literature examines proprietary data on performance measures and incentive contracts on organizational levels far below the top executives (Indjejikian 1999). The latter studies take behavioral perspectives based on sociology and psychology theories and mostly use the experimental methodology to examine middle management or lower levels (Merchant et al. 2003). In this section, I review several field experiments on performance evaluation in retail industries[2].

A stream of literature following Banker, Lee, and Potter (1996) examines the impact of a pay-for-performance plan implemented for front-line sales employees. The study conducts a field experiment of penal data for 15 retail outlets over 66 months in a major department store. Management considers using a performance-based incentive plan to motivate sales employees for improved customer satisfaction and repeat purchases in the subsequent period. Total 15 out of 34 outlets sequentially implemented a pay-for-

[2] For general review for performance evaluation, see Ittner and Larcker (1998b) and Indjejikian (1999)

performance plan, and 19 controls did not. Outlets implementing a pay-for-performance plan exhibits a higher sales performance. Also, they find that the pay-for-performance plan attracts more productive employees and discourages less productive employees.

Following Banker, Lee, and Potter (1996) who find the effectiveness of outcome-based incentive plan in the retail industry, Banker, Lee, Potter, and Srinivasan (1996) test how contingency factors influence the effectiveness of outcome-based incentive plan. Contingency theory (Pfeffer 1982; 1997) suggests that the impact of the compensation system on organizational performance depends on the fit between organizations' strategy, environment, structure, or any organizational context and compensation system. For example, sales employees who are strongly motivated under outcome-based compensation tend to have more customer-focused, less programmable, and more ambiguous tasks (Eisenhardt 1985, 1988; Ouchi 1979). Consequently, they need less managerial supervision and more straightforward objective performance measures. Using data from 34 outlets (15 treatments and 19 controls) over 77 months, Banker, Lee, Potter, and Srinivasan (1996) find that more competition, upscale customer, and lower level of supervisory monitoring increase the effectiveness of the outcome-based incentive plan.

Extending Banker, Lee, and Potter (1996) who find continuing performance improvement after implementing outcome-based compensation, Banker, Lee, Potter, and Srinivasan (2000) examine the cause of the continuing performance improvement. Using 3776 sales employees' individual data of a retailer examined in Banker, Lee, and Potter (1996), Banker, Lee, Potter, and Srinivasan (2000) find Pay-for-performance incentive plan helps the firm retain more productive employees, and successfully motivate the employees to improve their productivity further. They also find that the incentive plan urges less productive employee to leave the firm as the performance evaluation system reward them less. The paper confirms conventional wisdom in retail business that retaining more productive sales employees and screening less productive sales employees are the most critical strategic goal for retailers.

Another stream of literature examines the extended dimensions of the performance evaluation system. Prior studies that have examined the relation between nonfinancial measures and financial performance have mixed results. For example, using time-series data of hospitality firms, Banker, Potter, and Srinivasan (2000) support that nonfinancial measures are significantly associated with future financial performance. Their results are consistent with Banker, Lee, and Potter (1996)'s underlying assumption that improved customer satisfaction is a leading indicator of financial performance. By contrast, Ittner and Larcker (1998a) find the relationship between customer satisfaction and financial performance is tenuous when customer satisfaction level is relatively high.

In the context of the retail industry, Banker and Mashruwala (2007) examine whether the relation between nonfinancial measures and financial performance is moderated by competition. Using data of a large department store chain, First, authors test whether nonfinancial measures, such as customer satisfaction and employee satisfaction, are lead indicators of financial performance. Second, they test the moderating effect of the level of competition on the relationship between nonfinancial measures and financial performance. They find that employee satisfaction is associated with future financial performance for the overall sample. Increased employee satisfaction leads less turnover, less transition and adjustment costs, and better financial performance. However, both employee and customer satisfaction are associated with future financial performance only in highly competitive urban stores but not in rural stores.

Banker, Chang, and Pizzini (2004) conduct a lab experiment with the case study of clothing retailers to test whether strategically linked measure influence performance evaluation more than non-linked measures. The study investigates how the participants' knowledge about a firm's strategy influences their decisions to prioritize performance measures. First, this study replicates and confirms the common measure bias documented by Lipe and Salterio (2000) (e.g., individuals rely significantly more on common measures that are used to evaluate all business units). However, when the information

about the business unit strategy becomes available to the participants, the participants begin to recognize the strategic linkages between a measure and a strategic goal. The experimental results may be generalizable to managers. Managers who have detailed information about the strategic linkages may rely more on the strategically linked performance measures than non-linked measures, increasing the effectiveness of the performance evaluation system. This study shows that the information improves the effectiveness of performance measures by informing individual of explicit and detailed information about performance evaluation system.

Overall, performance evaluation research in retail industries examines incentive contracts of lower-level employees in pace with executive compensation literature. The literature expands what performance system should entail: pay-for-performance plan, non-financial measures, and strategic links among measures and strategic goals, documenting positive performance effects of the complex performance evaluation system. However, psychology literature, the grounding theory of the performance evaluation research on retail industries, suggests the detrimental effects of complex causality (e.g., complex performance evaluation system) on human decision-making (e.g., employees' performance). In the next section, I review how psychology research recognizes the challenges of the complexity of the performance evaluation system and suggests remedies of complexity.

2.2. Psychology Research on Feedback, Disaggregation, and Simulation

Managerial accounting information in organizational incentive system motivates employees (contracting role) and facilitates learning for better decision-making (belief-revision role). Agency theoretical studies focus on how incentive contract motivates individuals or affects firm performance (Indjejikian 1999). By contrast, behavioral research tends to focus on the belief-revision role, examining how managerial accounting

information provides feedback (Atkinson et al. 1997). Based on the psychological theory of feedback, literature argues that information reduces errors in effort allocation (Sprinkle 2000). In this section, I will review psychology studies which provide a theoretical foundation of behavioral choices of managers such as feedback, disaggregation, and simulation.

A firm uses feedback to increase the usefulness of performance measures (Cook 1967; Jenson 1967; Sorensen and Franks 1972). Managers regularly give feedback in the form of managerial accounting information such as up-to-date performance outcome of employees. More specifically, managers utilize feedback to solve the conflict of interest between the owner and employees to ensure that employees exhibit desirable behavior for maximizing firm value (Ashton 1990; Jaworski and Kohli 1991; Sprinkle 2003). Over the multiple periods, employees make better-informed decision thorough goal setting and effort allocation based on information on past behavior and performance, resulting in higher task performance (Earley et al. 1990). Overall, feedback motivates employees and increases productivity.

However, some studies are concerned that frequent feedback may not increase firm performance. Feedback may contain an excessive amount of information cues and links between cues under complex performance evaluation system as the system include more performance relevant measures (Wood 1986). Due to a cognitive limitation of decision makers, the increased amount of information in feedback may reduce decision-making efficiency (Streufert 1970; Iselin 1988; Chewning and Harrell 1990; Stocks and Harrell 1995), and decrease performance (Jensen 1967). Studies find evidence that an excessive amount of managerial accounting information available through feedback reduces the effectiveness of incentive contracts (Eppler and Mengis 2004; Neumann et al. 2012).

Recognizing the drawback, firms search for alternatives to feedback. One is a disaggregation of feedback for each key performance measure. Another is the simulation approach.

Disaggregated feedback may relieve employees of complex information by clarifying uncertain causal relation between information cues (Taylor and Iwanek 1980; Benbasat and Taylor 1982; Swink et al. 1999). For instance, disaggregating information helps employees effectively organize complex information, increases information processing capacity, and hence improves information-processing efficiency (Benbasat and Taylor 1982). Moreover, decision makers require more disaggregated information when they are less analytic or when a market condition is highly uncertain (Benbasat and Dexter 1979; 1982).

However, information overload studies predict the opposite that disaggregated information increase information load since disaggregation increases information cues which need to be processed by the decision maker (Benbasat and Taylor 1982; Cook 1993; Swink et al. 1999). The results of Swink et al. (1999) show that there is no significant effect for disaggregation on decision-making quality, but decision makers require more time to process additional information resulting from disaggregation. The results suggest that the side effects of disaggregation due to information overload may counteract any benefit of disaggregation.

Alternatively, psychology literature suggests that simulation that may facilitate learning and helps employees understand the causal relation between current behavior and performance outcomes, resulting in informed decision-making (Kahneman and Tversky 1981; Wells and Gavanski 1989). Simulation is imagined or imitated representation of the process or results of hypothetical events (Taylor and Schneider 1989). The effect of feedback is limited since feedback represents only the evaluation of employees' past performance and does not imply what they should do in the future (Locke 1968). Simulation can increase the validity of learning from complex information

and organize anticipated experiences to cope with a complex structure (Taylor and Schneider 1989). As a result, simulation facilitates learning the link between task inputs and outputs, resulting in better resource allocation on desired activities (Hall and Foster 1977; Schweiger et al. 1985).

The literature suggests that providing simulated results with feedback can improve performance. In the setting of a performance evaluation system, employees look for causes of performance resulting from their previous decision-making. As simulation provides expected outcomes of actions available, employees may require less time and efforts to figure out which action is more desirable for better performance (Schweiger et al. 1985). By clarifying causality in an information system, simulation reduces the complexity of excessive managerial accounting information, reducing information overload (Wood 1986; Schick et al. 1990). Lab experiments also support that simulation improves employees' understanding of causality in task and performance (Kahneman and Tversky 1981; Wells and Gavanski 1989), enhances the ability to develop plans in anticipation of situations (Taylor and Schneider 1989), and enhances motivations in goal-directed behavior (Pham and Taylor 1999).

Accounting Information system research also supports that managers can supplement feedback with simulated information. Feedback and simulation enhance double-loop learning from both past and future, resolving uncertainties and enabling better decision-making (Robey et al. 2000; Grafton et al. 2010). When information is complex under uncertain environment, it is hard to build systematically coded information and promote routinized learning (Ouksel et al. 1997). With environmental contingencies, the effect of feedback (managerial accounting information) is limited due to impeded learning. Managerial accounting information facilitates organizational learning by storing information, organizing data and finding patterns, and sharing patterns (Atkinson et al. 1997; Shields 1997). Throughout the learning process with accounting information, individuals improve actions with better knowledge and

understanding and increase their information processing capacity to take effective actions (Sprinkle 2000). Simulated information can be jointly used with feedback to correct action before adverse results happen (Otley 1999).

2.3. Role of Information in Performance Evaluation

Managerial accounting information has an essential role in motivating employees and influencing their decision-making. Feedback based on managerial accounting information has a contracting role in performance evaluation which motivates individuals to exert more effort (Indjejikian 1999). Moreover, the information provides opportunities to learn and revise belief, improving the quality of decision-making and performance (Atkinson et al. 1997; Sprinkle 2003). Repeated decisions individuals make in a dynamic and multi-period context cumulate information that facilitates learning, and learning from information results in a better-informed decision (Sprinkle 2000). Managerial accounting research further investigates moderators and mediators of the positive relation between feedback information and decision-making effectiveness: frequency and type of feedback (Luckett and Eggleton 1991; Frederickson et al. 1999; Hall 2008). Also, the researchers investigate how to design and manage managerial accounting information to maximize decision-making effectiveness (Thomas 2016).

However, limitation in cognitive ability or information processing capacity of individuals restrains the efficient use of managerial accounting information. Schroder et al. (1967) develop a Human Information Processing (HIP) model which describes the relationship between the amount of information and the quality of information processing by a decision maker. The model describes an inverted-U curve: the decision-making quality increases as more information becomes available at a certain point and decreases after the critical point. Alternatively, the number of distinct information cues (Wood

1986) defined as complexity and decision-making quality also exhibit an inverted-U curve.

The human information processing model of Schroder et al. (1967) has served conceptual bases for accounting researchers who examine judgment/decision-making quality under accounting information system (see Driver and Mock 1975; Libby and Lewis 1982 for a comprehensive review). Accounting information systems (AIS) literature investigates how information characteristics (e.g., disaggregated or not) can influence user decisions, and how the characteristics interact with other judgment and decision-making variables (for a review, see O'Donnell and David 2000), providing insight about how to develop an information systems suited for maximizing decision-making effectiveness (Libby and Lewis 1982; Stocks and Harrell 1995).

Experimental and empirical studies in accounting examine the relationship between the complexity of information and judgment quality. Since Schroder et al. (1967) propose a conceptual model of human information processing, accounting literature suggests the availability of a large amount of information may lead to sub-optimal financial performance (Revsine 1970). In an experimental study, Casey (1980) finds the additional notes to the financial statements represent an information overload. In the study, a group of loan officers with additional information does not perform better in predicting bankruptcy compared to a control group with financial ratios and financial statement. Shields (1983) supports the model of Scheroder et al. (1967) by measuring the judgment accuracy of MBA students in evaluating performance report at a different level of information complexity. Providing a comprehensive review of information overload, Schick et al. (1990) argue that the information processing capacity depends on time as a limited resource of individual rather than cognitive ability. Chewning and Harrell (1990) experiment to examine the effect of information overload on judgment quality. They measure the amount of information cue used by individuals and find the relationship between the amount of information cue used and judgment quality exhibits an inverted

U-shaped curve. Iselin (1988) compares the impact of diversified information (multi-dimensional information cues) and repeated information (single-dimensional information cue provided over multiple stages of decision-making), and find diversified information increases decision-making accuracy more than repeated information.

Overall, these studies support the human information processing model of Schroder et al. (1967), suggesting that individuals who experience information overload in managerial accounting system can exhibit a lower decision-making quality and not likely respond efficiently when an organization use feedback information to motivate them.

CHAPTER 3

DISAGGREGATION IN THE PERFORMANCE EVALUATION SYSTEM

3.1. Introduction

In this chapter, I examine how managers can mitigate the side effects of an overly complicated performance evaluation system in the context of the high-end retail industry. Managing a performance evaluation system is critical in the retail sector as the incentive pay is an overwhelmingly significant proportion of total compensation. The standard performance evaluation system in the industry has evolved to include multiple performance measures, thereby increasing complexity. The complexity can cause information overload to the sales employees and decrease their performance. Prior literature suggests disaggregation of performance measures and compensation corresponding to multiple performance measures may mitigate the information overload albeit with a mixed result. I conduct a field experiment that implements the disaggregation policy for sales outlets of a high-end retail firm and examine whether the new policy mitigates information overload problem and improves performance.

Managing performance evaluation system is central to retail firms. Managing the sales force is a critical core activity of the business. The sales employees in the retail industries create their customer base, which may improve the performance of a retail firm (Casas-Arce and Martínez-Jerez 2009). The success of high-end retail firms depends on the ability of the sales force to build and maintain customer networks (Banker et al. 2010). On average, manufacturers of high-end retail products spend ten to twenty percent of their revenues on incentives (Furcher et al. 2018), recognizing the importance of managing sales employees through incentives.

While relying on the complex performance evaluation system, managers are concerned about the excessive complexity of the system in the high-end sales industry.

Consistent with vast studies on performance evaluation, the performance evaluation system in practice has evolved to include more relevant measures such as various financial measures (Bacidore et al. 1997; Banker et al. 1996; Biddle et al. 1997; Wallace 1997; Banker et al. 2000), non-financial measures (Ittner and Larcker 1998a; Banker, Porter, and Srinivasan 2000; Banker and Mashruwala 2007), and Balanced Scorecard that emphasizing the casual relationships among multiple measures (Kaplan and Norton 1992). Although a large body of literature supports the use of multiple measures (Bushman et al. 1996; Ittner et al. 1997; Ittner and Larcker 1998b; Banker et al. 2004), literature also expresses concerns about difficulties understanding the complex system (Ittner et al. 2003; Neumann et al. 2012), biases from using multiple measures (Lipe and Salterio 2000; 2002; Libby et al. 2004). Executives echo these concerns and often mention that the performance evaluation system is difficult to understand and adding more measures to Balance Scorecard exacerbates the problem of complexity.

Literature warns of information overload problem arising from complicated performance evaluation system (Eppler and Mengis 2004; Neumann et al. 2012). Prior research finds that employees with limited information processing capacity exhibit an inverted U-shaped decision-making accuracy in the amount of information (Casey 1980; Shields 1983). Employees need to understand the potential consequences of action they take on their expected compensation. Complex performance evaluation system overloads employees with too much information and requires a considerable amount of time and effort to understand the system. Eventually, the complexity prevents efficient use and allocation of employees' resources (Tushman and Nadler 1978; Tuttle and Burton 1999) and decrease firm performance.

The information overload problem can be even more severe in the high-end retail industry. Sales employees in the high-end retail industry not only sell the products but also offer financing options to the customers. They can sell products from multiple manufacturers or dealerships and offer financing options from various financial

institutions. Both product sellers and financial institutions can use multi-dimensional performance evaluation for a sales employee. Effectively, the performance evaluation system they work under is more complicated than that of a low-end retail industry. The risk of information overload, as a result, can be unusually high for sales employees in the high-end retail industries.

Literature suggests feedback as a mechanism to mitigate the information overload problem. The complex causality among multi-dimensional performance measures leads to information overload (Schroder et al. 1967; Streufert 1970). For example, a mix of personal goals and group attainment introduces far more potential causal linkages that employees need to understand and increase complexity, possibly reducing attention and motivation (Bandura 1991). Traditionally, the literature suggests providing feedbacks to mitigate the problem. Feedback on past behavior or outcome can guide employees' resource allocations (Ashton 1990; Jaworski and Kohli 1991; Earley et al. 1990). More recent literature suggests clarifying causal linkage to reduces the bias arising from complex multi-measure performance evaluation system (Banker et al. 2004; Humphreys and Trotman 2011; Humphreys et al. 2015). Managers in practice utilize feedback to increase the usefulness of performance measures.

Another method to mitigate the information overload is the disaggregation of performance measures and compensation (disaggregated feedback) for each relevant performance measure. Rather than providing overall feedback on employees' performance by a lump sum compensation, disaggregated feedback provides detailed information and disaggregated incentives on each dimension of performance, relieving employees of burdens of linking their actions to many dimensions of performance. Likewise, disaggregated compensation also allows employees to recognize the connections between specific performance measures and their compensation. Literature finds ample evidence for such benefits of disaggregation in performance evaluation (Benbasat and Taylor 1982; Benbasat and Dexter 1982; Lederer and Smith Jr 1988;

Yigitbasioglu and Velcu 2012). Disaggregation makes specific causal linkages in multi-dimensional performance evaluation system more recognizable, increasing employees' attention and performance (Taylor and Iwanek 1980; Swink et al. 1999; Banker et a. 2004; Humphreys and Trotman 2011; Humphreys et al. 2015).

Based on prior literature, I design and conduct a field experiment to examine the effectiveness of disaggregation in feedback to mitigate information overload. For disaggregation, I select a target performance on the frequency of bundling financing options with product sales and disaggregate the bonus for selling financing options from that for product sales for sales outlets. The disaggregation experiments employ staggered treatments where the effective months of disaggregation policy are different across sales outlets. I run two field experiments for the dissertation for the non-overlapping 36-months period. The second experiment is included in a separate chapter.

The chapter contributes to the performance evaluation literature and practice. Recent accounting literature has gained insight into performance evaluation system from field experiments conducted on a single firm. Casas-Arce et al. (2017) test the effects of frequency and detailedness of feedback on performance in a home repair service firm. Lourenço et al. (2018) find that the presence of negative incentives (e.g., risk of termination depending on the performance) have a detrimental effect on performance for low-performers in a hospital. The evidence from the field experiment documented in this chapter may provide evidence for causality on the adverse effects of information overload on firm performance. Also, my experiment addresses common concerns of managers using complex performance evaluation system. Although my research setting is confined to a high-end retail firm, managers in other industries can also adopt the disaggregation and feedforward to mitigate the information overload.

I organize the rest of the chapter as follows. Next, I describe the research site including high-end retail industry and sample firm. In section 3.3, I review the literature and discuss the theory to develop my hypotheses. In section 3.4, I describe the details of

my empirical models and their estimation. Section 3.5 presents the empirical results, and Section 3.6 concludes the chapter.

3.2. Background

3.2.1. Performance Evaluation at a High-End Retailer

The performance evaluation system of a high-end retail business exhibits distinct characteristics. The performance evaluation has evolved to include multi-performance measures to motivate sales employees who perform core business activities. The sales often bundle products with insurance and financing options, increasing the complexity of relevant sales activities and performance measures. In this section, I describe the characteristics of a high-end sales industry to show why this industry is ideal for conducting experiments on disaggregating performance measures and compensation.

First, the industry uses outcome-based control. High-end sales activities are not programmable and difficult to monitor, making behavior-based control often infeasible (Churchill et al. 1976; Eisenhardt 1988, Banker et al. 1996). Salespeople not only generate sales in the showroom, but they also directly contact customers outside the showroom. Monitoring salespeople outside the showroom is often inefficient, if not impossible. Salespeople should be able to customize the product and service for each customer. Thus, salespeople's tasks are not necessarily uniform across customers or repetitive. What firms can reliably measure is how much revenue they generate, which becomes a key measure of outcome-based control (Anderson and Oliver 1987).

Second, effective performance evaluation can be a core competency. Retailers sell identical products. The required skill and knowledge for salespeople are also similar, leaving a less margin for the firms to differentiate themselves. The standardization of business also increases the mobility of salespeople. Any deviation from the industry norm

of performance evaluation unfavorable to salespeople is likely to trigger high turnover of salespeople (Jones and Skarlicki 2003). As a result, the performance evaluation systems are highly standardized concerning the measures they consider (Meyer and Rowan 1977; DiMaggio and Powell 1983; Eisenhardt 1988). Still, it is how to manage salespeople through performance evaluation that determines how successful a business can be. Managing performance evaluation system, while all other resources for competitiveness seem level, is a significant source of competitiveness in this industry.

Third, the performance evaluation system tends to be complex due to multiple products and goals. Sales organization tends to evaluate employees at an individual, team, sales unit levels (Child 1972; Eisenhardt 1988; Moon and Armstrong 1994; Cummings 2007). Adding to this complexity, consumers of high-end products often use financing instruments such as loan or lease contracts. Thus, not only the retail sales department but financial services department also evaluates salespeople for sales of financing instruments. Naturally, the performance evaluation system tends to be complicated. The performance evaluation system at least has two key performance measures for product and financing options, respectively, and two goals that are sales targets of both product and financing options.

3.2.2. Challenges in Complex Performance Evaluation

Retailers face fierce competition with limited options to differentiate themselves. The retailers compete with other retailers that sell identical products to customers. Distinguishing one retailer from others is difficult. Salespeople can provide promotions or other services to add values, yet the degree of differentiation is minimal. The salespeople's capabilities are not unique to each retailer. Thus, salespeople exhibit high mobility. Training salespeople internally does not give a competitive advantage due to high mobility, further increasing competition by retailers with similar capabilities. Still,

retailers rely on salespeople to generate revenue, making performance evaluation an important strategic resource.

Several factors increase the complexity of the performance evaluation system, posing challenges to the managers. First, sales employees in a high-end retail firm have at least two goals that need to be achieved such as product sales target and financing target. Retailers use sales volume as a key measure along with other measures such as cost-effectiveness of sales activities. Because they sell a high-end product with financing instruments such as lease contract or insurance, financial services department also evaluate them and award bonus by the number of financial instruments sold to customers, for example. Sales employees can rely on multiple financial institutions to find financial products best suited for each customer, potentially increasing the number of performance evaluation schemes even more. Second, sales employees are not only evaluated at the individual level but also a team or outlet level. Appendix A and Appendix B illustrate the complex multi-dimensionality of a typical compensation contract in this industry. At an individual level, sales employees are subject to a relative as well as absolute performance evaluation. The compensation contracts also stipulate not only individual level but also team and outlet level goals.

Appendix A shows the extent of complexity involving performance evaluation of sales employees for their product sales. The contract stipulates incentives for sales volume and profit margins. As in standard contracts for sales employees the bonus schedule is non-linear. Each period, the firm assigns target sales volume for each employee, and provide a schedule for a non-linear bonus for additional sales over the target sales. The bonus payment is also based on relative performance evaluation. In this example, the firm pays a steep bonus for the top sales employees in each outlet. Not only for the individual, but the firm also provides bonus contract for team level.

Appendix B shows how another strategic goal may add complexity to the performance evaluation system. A financial department awards bonus for the amount of

financing instrument. Similar to the bonus for product sales, the bonus schedule exhibits non-linearity. For one additional dimension of performance evaluation does not seem to be overwhelmingly complex but consider a sales employee may deal with more than 10 products with 3 financial institutions that provide insurance or financing instrument for the products. An employee may face more than thirty similar but not identical bonus contracts. It is almost impossible for employees to timely and precisely evaluates the pay-performance sensitivity of additional sales. Moreover, employees do not know how other employees in the same sales outlet or other competitors perform to benchmark their performance. Without a central intervention, bonus contracts with multiple goals and principals hardly work effectively to motivate sales employees.

The complexity poses a challenge for retailers. The system involves multi measures for two activities: retail and financing. It also involves multi units such as individual, team, and sales outlet. An individual who wants to assess his or her expected compensation should consider the performance of other employees in the team and outlets, need to coordinate with financial services department who provides incentives to use their financial instruments. It takes much time and efforts of employees to understand the performance evaluation systems. The amount of required information is excessive. Such information overload is a rampant problem in the performance evaluation of high-end retailers.

Additionally, retailers want to discourage the use of financing products from outside financial institutions. Retailers also can provide financial products to customers through their financial services department[3]. They can generate revenue from selling both products and financial instruments. Salespeople, however, may use financial products from outside financial institutions if the outsiders provide favorable incentives. In

[3] High-end manufacturers operate captive finance company which be a lender of last resort to finance loans and leases (Henry 2012).

addition to the potential revenue lost from selling financing instruments, employees using external financing instruments poses another concern. Retailers do not control other financial institutions' bonus contracts. It makes alignment between bonus contracts from selling products and other financial products more difficult. It may also exacerbate information overload because employees need to consider multiple available contracts from many financial institutions.

Overall, the firms in the industry face challenges in managing complicated performance evaluation system with multiple measures, especially in managing information overload and incentivizing salespeople to use financial products that retailers prefer them to use.

In the next section, I discuss how information overload may adversely affect salespeople and firm performance and theoretical motivations for two field experiments included in this chapter and next chapter. Primary hypotheses follow after the theoretical foundations.

3.3. Hypothesis Development

3.3.1. Information Overload in Complex Performance Evaluation System

Many organizations now have complex performance evaluation systems due to many relevant performance measures. Accounting research has also suggested non-financial measures in addition to financial measures as relevant performance measures (See Ittner and Larcker 1998b for a review). Further, the Balanced Scorecard also recognizes the importance of identifying the causal links between various performance measures to strategic goals (Kaplan and Norton 1992). Behavioral studies indicate that managers perceive the benefit of using multiple performance measures for firms diversified in many business units (Banker, Chang, and Pizzini 2004). While some

studies argue employees do not fully understand complex performance evaluation system with multiple measures (Ittner et al. 2003; Neumann et al. 2012), a fair amount of studies support the use of multiple measures in performance evaluation system.

Complex performance evaluation system causes information overload, potentially decreasing the quality of decision-making. Since the conceptual model of human information processing proposed by Schroder et al. (1967), many studies of information overload have argued that individuals have limited capacity to process accounting related information (Casey 1980; Chewning and Harrell 1990). If the amount of information exceeds the information processing capacity of individuals, the information confuses the individuals. Such information overload affects their ability to set priorities in the decision-making process and makes them harder to recall prior information (Ashton 1974; Schick et al. 1990; Stocks and Harrell 1995; Tuttle and Burton 1999). Increasing information load also increases the complexity of the system due to multiple functions between information cues (Wood 1986; Tuttle and Stocks 1998). The complex causality reduces judgment quality (Chewning and Harrell 1990; Stocks and Harrell 1995).

Researchers and practitioners have long been concerned about the negative effects of information overload on firm performance (Schick et al. 1990; McAdams and Hawk 1994). Prior literature documents that the inclusion of an increasing number of performance measures may lead to inefficiency in performance evaluation system for this reason (Ashton 1974; McAdams and Hawk 1994). While adding more measures increases the relevance of the system, both managers and employees need to process considerable amounts of information to figure out the links between measures, and consequences of their behavior on compensation (Eppler and Mengis 2004). Such information overload arising from complex compensation contracts hinders efficient decision-making by employees, thereby potentially diminishing firm performance (See Schick et al. 1990 for a review). Although each measure can be relevant to various aspects of firm performance, emphasizing too many measures at the same time prevents

employees from efficiently allocating their effort (Tushman and Nadler 1978; Tuttle and Burton 1999).

Managers need to cope with information overload in performance evaluation system. As researchers look for more relevant measures to evaluate employees properly, business managers tend to include relevant measures which are supported by performance evaluation studies, while they don't drop relevant measures they already included. Consistent with concerns of information overload studies, retail managers also recognize that overly complex performance evaluation system hinders efficient decision-making of employees. Since sales employees have relatively low information processing capacity due to short tenure and less experienced, complexity in performance evaluation system may cause severe information overload and decrease the firm's performance.

In the next section, I discuss one alternative to cope with the information overload problem. Another alternative, simulation in feedback, is discussed in next chapter. Multiple goals and measures increase the number of information cues relevant for compensation, and the interactions among the measures (Wood 1986). The two alternatives, disaggregated feedback and feedforward (e.g., feedback with simulation) clarifies the causal linkages among measures and reduce information overload.

3.3.2. Disaggregation of Performance Measures and Compensation

Information overload originates from complex causality that reduces employees' decision-making efficiency. A performance evaluation system may include both absolute and relative performance measures for individual and unit levels. Also, Balanced Scorecard may emphasize relationships among the measures, increasing the number of causalities considered exponentially. Salespeople may not be able to completely understand the system due to the cognitive limitation (Scheroder et al. 1967). For example, salespeople may not be able to identify how customer satisfaction at the sales

outlet level affect their performance, and thus compensation when performance evaluation considers individual-level customer satisfaction, and sales of products and financing instruments at both individual and outlet levels. The usual performance evaluation system does not stipulate how much of the total bonus is due to employees' efforts to enhance customer satisfaction, providing insufficient information on how much efforts to allocate activities that may increase customer satisfaction. The ambiguity is more likely to lead to misallocation of effort and lower performance.

Disaggregating feedback for each key performance measure and compensation may relieve employees of information overload and improve performance. Prior literature finds that disaggregation of information makes causality more recognizable and increase judgment quality (Taylor and Iwanek 1980; Benbasat and Taylor 1982; Swink et al. 1999). Providing a target performance and corresponding bonus allows employees to learn the relationship between them, and eventually clarifies causality. Employees no longer need to spend time and effort to figure out the causality from insufficient information. Instead, employees now can divert their resources to desired activities that help increase performance and their compensation. If the compensation system considers multiple measures, employees can better allocate their efforts to maximize the firm performance and their compensation.

Disaggregation can be particularly useful when a firm wants to emphasize a target performance measure. Without disaggregation, firms add the target performance measure in the performance evaluation system when they want to highlight[4]. Addition of a measure increases the number of causalities in the system, increasing information overload. Even if the new measure motivates employees, increased information overload may decrease overall performance. Disaggregation, however, informs employees of the

[4] For example, car manufacturers use dealer incentive (cash payment to a dealership for a specific item) to achieve a target performance (Investopedia 2010).

relationship between their activities and additional compensation, reducing information overload. It increases motivation for employees to pursue desired activities that the target performance measures motivate. Moreover, due to increased efficiency in resource allocation of employees, the disaggregation of target performance can also improve overall performance.

Disaggregation of feedback consists of two parts of disaggregation: disaggregation of evaluation of performance measures (disaggregated information) and disaggregation of compensation (disaggregated incentives). In a traditional performance evaluation system, individual employees perform sales activities, receive an overall evaluation of performance measures, and accept a lump sum compensation. The first step of disaggregation is on the evaluation of performance measures. Instead of providing an overall evaluation, employees may receive the disaggregated evaluation for product sales, sales of financial products, and insurance. Employees may realize they perform relatively better in one area over others and use the feedback to improve the desired performance areas further. The next step is disaggregated compensation. Employees receive a separate bonus for different core activities such as sales of products and financing instruments. Such disaggregation allows employees to quickly focus on the core activities that increase compensation, further increasing motivation. Through the two steps, connections between sales behavior, performance, and compensation are readily available for employees, reducing information overload. Due to the mitigation of information overload, I expect that the disaggregation eventually increases firm performance. Accordingly, my first hypothesis follows as below.

Hypothesis 1*: Disaggregation of performance measures and compensation that reduces information overload increases firm performance.*

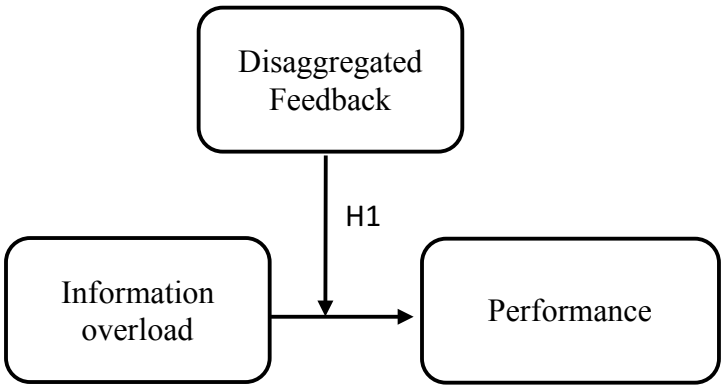

Figure 1. Conceptual Model

Figure 1 illustrates the hypothesized relationship between information load and performance moderated by disaggregated feedback. The information load and performance exhibit an inverted-U shaped relationship. Information is necessary to incentivize employees, increasing performance. However, as the information load exceeds the limited information processing capacity of individuals, more information decreases performance (Information overload). The disaggregated feedback clarifies the causalities between sales employees' actions and compensations, saving time and efforts for employees to process multi-dimensional performance measures. As a result, disaggregated feedback mitigates the adverse effects of information overload.

I note that disaggregation of performance evaluation alone does not necessarily reduce information overload. Without disaggregation of compensation, the causality between sales activities and compensation is not apparent, failing to motivate employees. Besides, providing more evaluation may increase the information that employees need to process, further exacerbating information overload. Disaggregation of compensation is necessary for disaggregated evaluation of multiple measures to be effective.

3.4. Framework for Empirical Evaluation

3.4.1. Data

I collect a dataset for the disaggregation experiment from the firm which conduct a field experiment to test its new policy on performance evaluation. The dataset consists of 39 sales outlets from January 2007 to December 2009. In 2007, only 4 outlets initially implemented disaggregation. Over the sample period of 36 months, some outlets adopted disaggregation, and others stopped disaggregation, allowing staggered treatment design. 23 outlets implement disaggregation at one point during the sample period. At the end of the sample period, 13 outlets out of 39 outlets implement disaggregation. The final data contains 1203 outlet month observations. I collect performance of finance division of the retailer such as the amount and the number of financial instruments sold. I collect outlet-level performance measures such as the volume of units sold and revenue. I multiply all the numbers by a constant to disguise the exact amounts.

Panel A in Table 1 provides the variables for disaggregation experiment. Panel B in Table 1 shows descriptive statistics for the data obtained from disaggregation experiments. I collect sales volume and amount of bonus paid to salespeople, the number of financial instrument and the amount of financial contracts sold together with products, and the penetration rate of financial contracts (e.g., the proportion of sales contracts with financial contracts). Correlation matrix is in Panel C in Table 1.

Table 1. Variable Definitions and Descriptive Statistics for Disaggregation Experiment

Panel A. Variable Definitions

Variable	Definition
Log(Sales Volume)	Logarithmic transformation of total sales volume
Log(Bonus)	Logarithmic transformation of bonus payable to sales employees
Log(Financial Instrument)	Logarithmic transformation of the number of financial contracts sold
Penetration Rate	Proportion of sales utilizing financial instruments
Log(Finance Amount)	Logarithmic transformation of total amount of financial instruments offered to consumers
Disagg. Performance	Indicator being one for disaggregating performance measures and zero otherwise
Disagg. Compensation	Indicator being one for disaggregating compensation of bonus and zero otherwise
Deferred Bonus	Indicator being one for applying differed bonus policy since month 17 and zero otherwise
MarketSales	Logarithmic transformation of total market sales of products

Each observation is for sales outlet-month. Data includes 39 sales outlets for 36 months of sample period. 23 outlets disaggregate performance measures at some point of the sample periods, and 16 outlets do not during the sample period.

Panel B. Descriptive statistics

Variable	N	Q1	Median	Mean	Q3	St. Dev
(1) Log(Sales Volume)	1,203	2.20	2.94	2.75	3.43	1.05
(2) Log(Bonus)	1,203	0.00	14.79	10.85	15.92	7.03
(3) Log(Financial Instrument)	1,203	1.61	2.30	2.13	2.89	1.02
(4) Penetration Rate	1,203	0.33	0.50	0.50	0.67	0.28
(5) Log(Finance Amount)	1,203	19.09	20.04	18.23	20.67	5.75
(6) Disagg. Performance	1,203	0.00	0.00	0.38	1.00	0.49
(7) Disagg. Compensation	1,203	0.00	0.00	0.26	1.00	0.44
(8) Deferred Bonus	1,203	0.00	1.00	0.55	1.00	0.50
(9) MarketSales	1,203	6.37	6.51	6.54	6.69	0.24

Panel C. Correlation Matrix

Pearson correlations are in the upper right triangle and Spearman correlation are at the bottom left.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Log(Sales Volume)		0.50	0.90	0.11	0.87	-0.02	0.12	0.21	0.32
(2) Log(Bonus)	0.38		0.73	0.68	0.74	-0.08	-0.11	0.65	0.29
(3) Log(Financial Instrument)	0.90	0.60		0.45	0.97	-0.07	0.03	0.32	0.28
(4) Penetration Rate	0.21	0.64	0.50		0.47	-0.09	-0.16	0.34	-0.03
(5) Log(Finance Amount)	0.72	0.54	0.76	0.59		-0.06	0.05	0.29	0.29
(6) Disagg. Performance	0.00	0.02	-0.05	-0.07	0.03		0.67	0.10	0.05
(7) Disagg. Compensation	0.13	-0.05	0.04	-0.14	0.05	0.67		-0.02	-0.02
(8) Deferred Bonus	0.20	0.60	0.33	0.31	0.24	0.10	-0.02		0.31
(9) MarketSales	0.28	0.26	0.28	0.00	0.16	0.06	-0.03	0.30	

3.4.2. Research Design

I employ outlet fixed effects design to measure the effects of disaggregation on outlet performance. Each outlet implements identical compensation contracts to the salespeople. Salespeople sells products with financing instruments. They can sell financing instruments of their own finance division or outside financial institutions. Outside financial institutions provide their own incentives to salespeople. Not all treated outlets begin implementation of disaggregation at the same time. The timing of disaggregation is different across outlets. At the beginning of the sample period, 4 outlets implement disaggregation. during the sample period about one thirds of outlets implement disaggregation, and overall 23 outlets implement disaggregation at some point of time during the sample period. Disaggregation includes disaggregating evaluation of performance measures (Disaggregated Performance; variable Disaggregated Perf.) and the bonus paid to employees (Disaggregated Compensation; variable Disaggregated Comp.). Some outlets also use deferred bonus plan to incentivize for more use of internal financial instruments (Deferred Bonus). I examine how these varying treatments affect firm performance. The resulting fixed effects model is as follows:

$$
\begin{aligned}
Performance_{i,t} &= \beta_1 Disaggregated\ Perf_{i,t} + \beta_2 Disaggregated\ Comp_{i,t} \\
&+ \beta_3 Deffered\ Bonus_{i,t} \\
&+ Disaggregated\ Perf_{i,t} \times (\beta_4 Disaggregated\ Comp_{i,t} \\
&+ \beta_5 Deffered\ Bonus_{i,t} \\
&+ \beta_6 Disaggregated\ Comp_{i,t} \times Deffered\ Bonus_{i,t}) + \delta Controls_{i,t} \\
&+ Outlet\ Fixed\ Effects_i + \varepsilon_{i,t}. \quad (1)
\end{aligned}
$$

I include additional control variables. In outlet fixed effects model, I include overall market sales of the products to control for time effects. I also add time fixed

effects in alternative specification. Due to limited access I was granted for the first experiment, I do not have any other control variable for each outlet.

The coefficient of interest are interaction terms with disaggregated evaluation of performance measures and compensation. $\beta_1 + \beta_2 + \beta_4$ measures how disaggregating compensation for corresponding multiple performance measures affect performance relative to no disaggregation. β_4 measures how disaggregating performance measures and corresponding compensation affects performance relative to disaggregating performance measures or compensation only. β_5 and β_6 measure how the effects of additional incentives differ with disaggregated evaluation alone and disaggregating both evaluation and compensation, respectively.

Dependent variables are target and overall performance of outlets, and bonus. I include log of sales volume for overall outlet performance. The target performance includes log of the number of financial instruments, penetration rate as the proportion of sales contracts with financial instruments, and log of the amount of financial contract. In addition, I include bonus paid employees to measure how much additional bonus is paid to employees.

3.5. Empirical Results

Table 2 reports the effects of disaggregation of performance measures and compensation on firm performance. Panel A reports the regression results and Panel B shows the effect estimates for the disaggregation treatments relative to the baseline group.

Panel A and Table 2 suggests that disaggregating performance measures or disaggregating compensation alone do not mitigate information overload. The coefficients of disaggregated performance measures (Disagg. Perf) are negative for all five performance measures. The results are consistent with the notion that disaggregated

performance measures provide more information to employees and may increase information overload. The coefficients of disaggregated compensation (Disagg. Comp) are also negative. The results suggest that sales employees do not make connections between their actions and compensations if the performance evaluation system does not provide detailed performance measures.

I find positive performance effects from disaggregated compensation only when disaggregated performance measures accompany it. The coefficients of the interaction between the disaggregated compensation and the disaggregated performance are positive, indicating that the disaggregated compensation given the disaggregated performance measures increase performance. Panel A shows that the positive performance effects on firm sales measured by sales volume, and targeted performance measures representing the sales of financing options, and bonus paid to employees. The results are consistent with hypothesis 1.

Panel B shows the net performance effects of the three treatment conditions involving disaggregated feedback. I find positive net performance effects when performance measures and compensation are disaggregated, and firms provide specific incentive scheme such as a deferred bonus.

Overall, I find negative performance effects of disaggregating only the performance measures and positive effects of disaggregated compensation accompanied by disaggregated performance measures. The results suggest that providing more detailed feedback through disaggregated performance measures may even exacerbate the information overload problem. The positive effects of disaggregated compensation conditional on the disaggregated performance measures that sales employees can readily understand the connection of their behavior and compensation when they observe performance measures and compensation specific to the performance measures.

The results additionally show that sales employees respond to incentive schemes such as a deferred bonus. The coefficients of deferred bonus are positive for the

regressions of bonus, the number and the amount of financing options, and the penetration rate of financing options. The coefficients of the interaction of the deferred bonus and disaggregated performance measures are positive. The results are similar to the effects of disaggregated compensation and performance measures. Because deferred bonus creates timing differences of a portion of compensation such as salary and the deferred bonus, it indirectly disaggregates compensation and allows employees to make connections between their actions that specifically affect the deferred bonus and other components of compensation.

Table 2. Effects of Disaggregation on Performance Measures and Compensation

Panel A. Firm Fixed Effects Regressions

We estimate the following fixed effects regressions of performance measures:

$$Performance_{i,t} = \beta_1 Disaggregated\ Perf_{i,t} + \beta_2 Disaggregated\ Comp_{i,t} + \beta_3 Deffered\ Bonus_{i,t} + Disaggregated\ Perf_i \times (\beta_4 Disaggregated\ Comp_{i,t} + \beta_5 Deffered\ Bonus_{i,t} + \beta_6 Disaggregated\ Comp_{i,t} \times Deffered\ Bonus_{i,t}) + \delta Controls_{i,t} + Outlet\ Fixed\ Effects_i + \varepsilon_{i,t}. \quad (1)$$

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Standard errors in the parentheses are robust to heteroscedasticity. See Panel A in Table 1 for detailed variable definitions.

	(1) Log(Sales Volume)	**(2)** Log(Bonus)	**(3)** Log(Financial Instrument)	**(4)** Penetration Rate	**(5)** Log(Finance Amount)
Disagg. Perf	-1.24***	-1.96*	-0.96***	-0.18***	-4.49***
	(0.09)	(1.07)	(0.11)	(0.05)	(0.78)
Disagg. Comp	-0.08	-2.06*	-0.30**	-0.14***	-0.66
	(0.10)	(1.13)	(0.12)	(0.05)	(0.82)
Deferred Bonus	0.01	6.47***	0.25***	0.15***	0.86***
	(0.03)	(0.40)	(0.04)	(0.02)	(0.29)
Disagg. Perf×Disagg. Comp	1.41***	4.72***	1.06***	0.23***	6.27***
	(0.14)	(1.64)	(0.17)	(0.08)	(1.19)
Disagg. Perf×Deferred Bonus	0.68***	3.30***	0.79***	0.21***	4.86***
	(0.08)	(0.96)	(0.10)	(0.05)	(0.70)
Disagg. Perf× Disagg. Comp×Deferred Bonus	-0.59***	-0.90	-0.50***	-0.15***	-4.23***
	(0.09)	(1.08)	(0.11)	(0.05)	(0.79)
MarketSales	1.01***	2.21***	0.79***	-0.13***	1.77***
	(0.05)	(0.63)	(0.07)	(0.03)	(0.46)
Outlet Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	No	No	No	No
Num. obs.	1,203	1,203	1,203	1,203	1,203
Adj. R^2	0.85	0.52	0.76	0.32	0.62

Panel B. Effects of Disaggregation

Panel B presents the effects of disaggregation of performance measures in combination with disaggregated compensation, and deferred bonus. The effect is estimated from the regression coefficients from Panel A, Table 1. p-values in the parentheses are robust to heteroscedasticity.

	(1) Log(Sales Volume)	**(2)** Log(Bonus)	**(3)** Log(Financial Instrument)	**(4)** Penetration Rate	**(5)** Log(Finance Amount)
(a) Disaggregation of performance measure and compensation	0.09	0.70	-0.20	-0.08	1.11
	(0.09)	(0.34)	(0.01)	(0.03)	(0.05)
(b) Disaggregation of performance measure and deferred bonus	-0.56	7.81	0.08	0.18	1.23
	(<0.001)	(<0.001)	(0.59)	(0.002)	(0.43)
(c) Disaggregation of performance, compensation, and deferred bonus	0.19	9.58	0.34	0.12	2.60
	(0.003)	(<0.001)	(<0.001)	(<0.001)	(<0.001)

3.6.

3.6. Discussion

Drawing on psychology literature that documents limited information processing capacity, I hypothesize that interventions in the performance evaluation system that alleviate information overload may improve firm performance. I design disaggregated feedback that allows employees to recognize causal links from their actions to compensation specific to each performance measures and infer whether the intervention increases firm performance or not. The disaggregation of performance measures alone decreases firm performance, suggesting the multi-dimensionality of performance measures may exacerbate information overload. When the performance evaluation system disaggregates performance measures and compensates for each performance measure, sales employees and the firm exhibit improved performance. The results suggest that the disaggregated feedback for multi-dimensional performance measures may mitigate information overload problem.

My results are consistent with a recent field experiment that document the negative effect of more detailed feedback. Casas-Arce et al. (2017) document that detailed feedback does not increase employees' performance. I theorize that detailed feedback may increase information employees need to process to understand the performance evaluation system, increasing information overload.

The results also clarify that disaggregation performance measures alone (e.g., providing multi-dimensional performance feedback to employees) does not necessarily incentivize sales employees. I observe an increase in performance only when the interventions strengthen the link between performance measures and actual compensation. I find both deferred bonus (separating cash compensation and deferred bonus) and disaggregated compensation (separating compensation for each performance

measure) increase firm performance only when each treatment is accompanied by disaggregated evaluation of performance measures. Both treatments allow employees to realize the link between their actions and compensations, suggesting that the performance increase arises from mitigating information overload.

CHAPTER 4

DOES FEEDFORWARD REDUCE INFORMATION OVERLOAD?: EVIDENCE FROM A HIGH-END RETAILER

4.1. Introduction

How employees are evaluated and rewarded is an important concern of both practitioners and researchers in accounting and management. Although a performance evaluation system with multiple performance measures may be relevant for evaluating multiple tasks assigned to employees, such complexity often results in imperfect understanding of its implications by employees and leads to inefficient allocation of their effort (Schick et al. 1990; McAdams and Hawk 1994). The information overload literature has recognized the information processing costs imposed by an overly complex performance evaluation system[5]. I examine a field experiment setting where a firm implements feedforward[6]: combines feedback with simulation intended to reduce information overload for its sales employees. My Research setting is a firm at the high-end of a big-ticket retail sales industry. Holding the performance evaluation mechanism and feedback frequency constant, 14 outlets complement feedforward system while 8 controls follow the regular feedback system. Sales outlets in the treatment group implemented a new feedback system that informs individual employees of expected compensation that corresponds to the simulated performance results in addition to the traditional outcome-based feedback. Such feedforward provides marginal pay-performance sensitivity for sales of each additional product and clarifies the relationship

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[5] See Schick et al. (1990) for a review of accounting studies on information overload.

[6] I narrowly define feedback as backward information to compare actual performance and pre-set goals (Pitkänen and Lukka 2011). Future-directed feedforward information forecasts any deviation of anticipated output from pre-set goals.

between extra effort and additional compensation in a complex performance evaluation system. I find that the treatment group exhibits an increase in average individual employee sales performance and the overall outlet performance, suggesting that the feedforward may reduce the negative impact of information overload.

Performance evaluation studies document the benefits of using multiple performance measures. Many studies examine the relevance of financial measures in performance evaluation for both senior executive and frontline customer facing employees (Bacidore et al. 1997; Banker et al. 1996; Biddle et al. 1997; Wallace 1997; Banker et al. 2000). Other empirical studies also support the positive relationship between nonfinancial measures and firm performance (Ittner and Larcker 1998a; Banker, Porter, and Srinivasan 2000; Banker and Mashruwala 2007). Kaplan and Norton (1992) argue that a Balanced Scorecard performance evaluation system using multiple measures including both financial and non-financial measures motivates employees more strongly than a system that relies solely upon financial measures. Although some studies argued employees could not fully appreciate multiple measures intended (Ittner et al. 2003; Neumann et al. 2012), a large body of literature supports the use of multiple measures in performance evaluation system. (Bushman et al. 1996; Ittner et al. 1997; Ittner and Larcker 1998b; Banker et al. 2004).

By contrast, studies on information overload question on the value of using multiple measures that make a performance evaluation system more complex (Eppler and Mengis 2004; Neumann et al. 2012). Increased number of performance measures lead to excessive complexity in the performance evaluation system. According to Wood (1986), the complexity of information comes from the number of information cues, the relations between cues, and dynamics of information. As the performance evaluation system includes more performance measures, the complexity of performance-related information increases exponentially. Therefore, employees who exhibit limited information processing capacity need more time to figure out the complex system which includes

information cues about performance measures and causality between their behaviors and performance outcomes. When this information processing burdens employees, information overload prevents the efficient use and allocation of resources by employees. (Tushman and Nadler 1978; Tuttle and Burton 1999).

To mitigate the information overload problem, organizations may institute feedback. Prior literature documents that feedback can increase the usefulness of performance measures to motivate employees (Cook 1967; Jenson 1967; Sorensen and Franks 1972). Feedback on past behavior or outcome can also be a useful tool to guide behavior for top management and lower level employees alike (Ashton 1990, Jaworski and Kohli 1991). Traditional feedback based on past behavior or outcome helps employees goal setting and effort allocation, resulting in higher task performance (Earley et al. 1990). Overall, feedback may reduce information overload and make decision-making more efficient. However, studies also find that increasing the frequency of feedback may also add to information processing costs, resulting in another form of information overload (Jensen 1967).

An alternative feedback that provides simulated performance results in addition to past behavior or outcome can further improve decision-making efficiency. Simulation clarifies the causal relationships in a complex system (Kahneman and Tversky 1981; Wells and Gavanski 1989). Incorporating simulation in feedback increases understanding of complex performance evaluation system that comprises of complex and multi-dimensional performance measures and presumed causality among measures. I consider the "feedforward" that provides simulated performance results and the corresponding expected compensation in addition to past outcomes and examine the effects of feedforward in performance. Feedforward incorporate with up to date information than feedback which provides past performance outcome while employees make decision of resource allocation.

I examine a firm at the high-end of a big-ticket retail sales industry where the firm considers implementing a feedforward system holding the feedback frequency and metrics used in performance evaluation system constant. The high-end big-ticket retail industry is an ideal setting to evaluate the impact of feedforward as the employees' sales performance is the most important driver for the overall firm performance. To improve individual employees' understanding of the performance evaluation system and thereby to improve effectiveness of performance-based incentives, the firm decided to provide feedback to employees on their expected compensation corresponding to current performance and simulated performance with the incremental compensation for a unit increase in their expected performance. Such feedforward maintains the existing feedback schedule and avoids any extra information processing costs associate with feedback frequency. The single firm setting also controls for other confounding factors such as organization culture and management style that may influence performance evaluation.

I set up the hypothesis that such feedforward improves performance at both individual employee and outlet levels and test it using a panel of data for 22 sales outlets over 25 months. I consider individual performance measures such as sales per employee, and overall sales performance for each sales outlet such as sales volume, revenue, net revenue, and gross margins. In addition, to examine how the compensation system distributes the gains from efficiency increase and whether the employees are strongly incentivized from the feedforward, I examine total compensation paid to sales employees.

I find that feedforward increases both individual and overall outlet performance. After implementing feedforward, sales per employee increase. Employees also exert greater effort in generating sales and achieving strategic goals, receiving greater amount of compensation. The outlet-level performance increases as well in terms of sales volume, revenue, and gross margins. The results suggest that feedforward reduces

information overload at the individual employee level and leads to increases in outlet-level performance.

The study supports a potential solution for the concern that information overload in performance evaluation system adversely impacts performance (Ittner and Larcker 1998b). Firms can implement feedforward when using incentives based on multiple performance measures to avoid the inefficiency introduced by information overload. While the feedforward system at our research site provides clear benefits, it does not seem to require substantial redesign costs. Firms do not need to add or remove performance measures or redesign the organization structure or business processes. My study suggests that feedforward can be a powerful tool for managers using complex performance evaluation system.

The remainder of this chapter proceeds as follows. In the next section, I discuss the theory and develop my hypotheses on the effects of feedforward. In section 4.3, I describe the advantages of research design derived from field experiments run by a retail firm. In section 4.4, I outline the framework of my empirical analyses. In section 4.5, I discuss the empirical results followed by concluding remarks in Section 4.6.

4.2. Theory and Hypotheses Development

4.2.1. Information Overload in Complex Performance Evaluation System

Many organizations now have complex performance evaluation systems as these systems have expanded the set of relevant performance measures. Accounting research has also suggested non-financial measures in addition to financial measures as relevant performance measures (See Ittner and Larcker 1998b for a review). Further, the Balanced Scorecard also recognizes the importance of identifying the causal links between various performance measures to strategic goals (Kaplan and Norton 1992). Behavioral studies

also indicate that managers perceive the benefit of using multiple performance measures for firms diversified in many business units (Banker, Chang, and Pizzini 2004).

Complex performance evaluation system may require excessive information processing, resulting in information overload. Since the conceptual model of human information processing proposed by Schroder et al. (1967), many studies of information overload have argued that individuals have limited capacity to process accounting related information (Casey 1980; Chewning and Harrell 1990). If the amount of information he or she receives exceeds the limited information processing capacity, the information confuses the individual, affects their ability to set priorities in decision-making process, and makes them harder to recall prior information (Ashton 1974; Schick et al. 1990; Stocks and Harrell 1995; Tuttle and Burton 1999), eventually resulting in suboptimal decision-making (Casey 1980; Shields 1983; Wood 1986).

Researchers and practitioners have long been concerned about negative effects of information overload on firm performance (Schick et al. 1990; McAdams and Hawk 1994). Prior literature documents that the inclusion of an increasing number of performance measures may lead to inefficiency in performance evaluation system for this reason (Ashton 1974; McAdams and Hawk 1994). While adding more measures increases the relevance of the system, both managers and employees need to process considerable amounts of information to figure out the links between measures, and consequences of their behavior on compensation (Eppler and Mengis 2004). Such information overload arising from complex compensation contracts hinders efficient decision-making by employees, thereby potentially diminishing firm performance (See Schick et al. 1990 for a review). Although each measure can be relevant to various aspects of firm performance, emphasizing too many measures at the same time prevents employees from efficiently allocating their effort (Tushman and Nadler 1978; Tuttle and Burton 1999).

4.2.2. Feedforward as a Response to Information Overload

The feedback research literature suggests a potential remedy for information overload with a caveat. Prior literature finds that feedback increases the usefulness of performance measures in performance evaluation system (Cook 1967; Jenson 1967; Sorensen and Franks 1972). Specifically, managers can monitor and reinforce employees' behavior by feedback while employees seek feedback to reduce uncertainty about whether current behaviors are appropriate for achieving a goal or about how others evaluate their behaviors (Ashford and Cummings 1983; Larson 1984; Larson 1989). By providing feedback to help employees figure out causality in performance evaluation system, firms can reduce information overload of employees. However, feedback based on past performance outcome is limited to guide employees' behavior which may impact on future performance in a dynamic environment (Earley et al. 1990). Moreover, too frequent feedback also requires information processing, and such feedback can be another source of information overload (Jensen 1967; Luckett and Eggleton 1991; Sprinkle 2000; Bonner and Sprinkle 2002). Empirical studies in psychology and accounting have mixed results on the effects of frequent feedback (Cook 1967; Chhokar and Wallin 1984; Luckett and Eggleton 1991; Frederickson et al. 1999).

Alternatively, psychology literature suggests that simulation as a form of feedback help understand causality between employees' efforts and performance and reduce the perceived complexity in performance evaluation system. Several studies document that managers who utilize simulation in the process of goal setting, effort allocation, and performance achievement have better understanding causality between task and performance, and hence better decision-making (Hall and Foster 1977; Schweiger et al. 1985). Lab experiments find that simulation improves employees' understanding of causality in task and performance (Kahneman and Tversky 1981; Wells

and Gavanski 1989).[7] In addition, simulation helps people develop plans for dealing with situations that may occur (Taylor and Schneider 1989). Moreover, simulation enhances motivations in goal-directed behavior (Pham and Taylor 1999). Therefore, providing simulated results in feedback can improve performance.

Firms can provide "feedforward" that include simulated results to simplify the relationship between performance and incentive compensation. An employee under complex non-linear compensation contracts may want to figure out the additional compensation for his or her extra efforts allocated to various tasks. To reduce the burden of employees to figure out the compensation system, firms may provide feedback not only on the operations of the past but also simulated performance results. Feedforward can provide expected total compensation under simulated performance levels and marginal pay-performance sensitivity of firm's complex non-linear compensation contracts. With the support of feedforward, employees can save time and efforts to understand complex performance evaluation system. Aa a result, they can allocate more efforts or time on performance enhancing behavior. Hence, such feedforward can mitigate the negative impact of information overload and improve performance.

Appendix C shows how sales employees recognize how much additional bonus they can receive for an additional sale with or without a financial contract and guide their resource allocation. A sales employee may be aware of a potential sales contract with specific terms. sales contracts for a particular model may have different down payment amounts or payment schedules. A sales employee provides the information on the potential contract, and the performance evaluation system calculates expected additional bonus for the contract based on the absolute and relative performance of the individual, team, and the entire company. The system can provide such information because it even

[7] Besides studies on simulation based training documented by lab experiment, empirical study test the effectiveness of simulation on employees' performance (Cook and Swift 2006; Salas et al. 2009).

retains relevant information usually not available for an individual sales employee such as team and firm-wide performance. Without second-guessing, the sales employee can evaluate various potential contracts through the feedforward system and make an informed decision on what contract to pursue. Knowing how much of additional bonus they will receive, sales employees can allocate their time and other resources efficiently.

I argue that feedforward can reduce information overload of individual employees. Also, feedforward does not incur recurrent indirect costs to implement. For instance, firms can change the format of their regular feedback. The improvement in individual performance leads to the overall improvement in firm performance. Thus, I predict the increase in outlet level and average individual sales employee performance as the following:

Hypothesis 2-1: Feedforward that reduces information overload increases average individual sales employee performance.

Hypothesis 2-2*: Feedforward that reduces information overload increases outlet performance.*

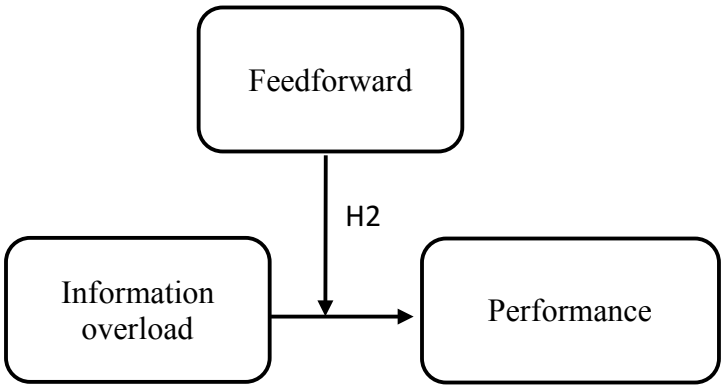

Figure 2. Conceptual Model

Figure 2 stresses the fact that simulation moderates the relation between information overload and performance. Feedforward can simplify the relationship between employees' actions and expected outcomes, saving information processing costs of employees and mitigating information overload problem.

4.3. Industry and Firm Background

4.3.1. Industry

I examine a single firm in a high-end, big-ticket retail sales industry. In this industry, salespeople generate revenue by having direct contact with customers both inside and outside the showroom. Behavior-based control is often not feasible as high-end sales activities are not programmable and difficult to monitor (Churchill et al. 1976; Eisenhardt 1988, Banker, Lee and Potter 1996). Instead, the industry uses outcome-based performance evaluation system that involves multiple products and goals which individual sales employees have to consider (Anderson and Oliver 1987; Eisenhardt 1988; See Appendix A and Appendix B for examples). As sales performance of a high-end retail firm mostly depend on each sales employee's performance, the firm needs to properly manage its performance evaluation system to monitor and evaluate them.

Appendix A illustrates complex multi-dimensionality of a typical compensation contract in this industry. At an individual level, sales employees are subject to a relative as well as absolute performance evaluation. The compensation contracts also stipulate not only individual level but also team and outlet level performance evaluation. Therefore, an individual who wants to assess his or her expected compensation should consider the performance of other employees in the team and outlets. Not only the burden of information processing can be excessive, individual employees often do not have access to required information such as other employees' performance. As industry structure becomes more complex, Sales activities of employees often involve several products with at least two strategic goals such as product sales and financing option sales, adding more complexity to the performance evaluation system. Appendix B shows how the inclusion of multiple goals adds complexity and requires more information processing.

A high-end big-ticket sales industry in this study shares the concern of information overload among sales employees. Information overload increases in the amount of information and decreases in information processing time available to employees (Schick et al. 1990). The industry exhibits relatively high information load in performance evaluation system as well as limited information processing ability available to sales employees.

The characteristics of performance evaluation system increase the amount of information that employees need to process thereby exacerbating information overload. Even though the structure of salesforce compensation that consists of salary and bonus[8] is relatively simple, the performance evaluation system includes complex measures to determine the amount of bonus (Churchill et al. 1990; Slater and Olson 2000). Complex organization structure introduces evaluation at individual, team, sales unit as well as firm level, adding complexity to the performance evaluation (Eisenhardt 1988; Moon and Armstrong 1994; Cummings 2007). As a result, employees face more complex control mechanism (Tushman and Nadler 1978) and less standardized procedure (Cyert and March 1963).

Sales employees in the industry also exhibits limited information processing ability. Information overload literature (Schroder et al. 1967; Chewning and Harrell 1990; For a review, see Schick et al. 1990) argues that salespeople have limited ability to appreciate the complex performance evaluation system fully. Short tenure and high mobility of industry exacerbate the information overload of sales employees. Additional costs also prevent sales employees from hiring temporary assistants to complement their information processing ability (Schick et al. 1990).

In response to the information overload problem, managers need to address information overload by either simplifying the performance evaluation or improving

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[8] Relatively high sales commission in high-end sales industry (Eisenhardt 1988)

information processing ability of sales employees. However, firms in the industry hesitate to simplify their performance evaluation system due to pressure of high mobility of sales employees (Eisenhardt 1988). As a result, managers start to consider how they improve sales employees' understanding of complex performance evaluation system.

My research site has several advantages to test whether feedforward reduces information overload. Firms in the industry tend to use a complex performance evaluation system. As the salespeople comprise the core assets of firms to generate revenue (Farley 1964; Basu et al. 1985; Lal and Staelin 1986; Lal and Srinivasan 1993), any effects from information overload to sales employees are likely to be large and likely to be measured reliably.

4.3.2. Firm

I examine a firm where top managers recognize information overload to the sales employees and seek to remedy the problem. The firm I examine retains multiple and geographically dispersed sales outlets. Wholesaler supplies the products to the firm and its competitors that run outlets, and all the retailers sell homogeneous products. As a result, the market is highly competitive. In a competitive market, the mobility of sales people is relatively high since their selling abilities are not unique to each retailer and employees are more sensitive to incentive system of competitors (Eisenhardt 1988). Thus, changing the firm's performance evaluation system by adding or removing performance measures is not feasible due to the concerns of human capital loss.

Recently, new entrants to the market increase competition and the firm's market share decreases. Management, in a response to the deteriorating performance, considers ways to boost sales performance. An external consultant hired by the firm designs feedforward to avoid negative performance effects of information overload on firm performance. The firm expects this new feedback system help employees learn about the

additional payoffs they can earn for additional efforts without requiring them to analyze all the compensation contracts by themselves.

The firm conducts a field experiment to examine the effects of reducing information overload on firm performance. Every sales outlets utilize a single compensation system and maintain a fixed feedback schedule. The firm divides outlets into a treatment and a control group. For the treatment group outlets, the firm administrates an improved version of feedback. To control for potential confounders, the outlets of the treatment group from urban and rural areas are matched to control group outlets from the identical geographical segment. Prior literature shows that the geographical segment is a strong determinant of sales performance (Banker and Mashruwala 2007).

The firm emphasizes key sales related measures in feedforward. Consistent with industry norms and top managers' strategic goals, the firm provides feedforward on key sales measures such as sales revenue, sales volume, and gross margins of salespeople (Churchill et al., 1990; Slater and Olson 2000). For the treatment group, the firm provides each sales employee access to the individual feedback system that displays the expected total compensation under simulated expected performance levels and marginal pay-performance sensitivity in the firm's non-linear compensation contracts. Appendix C shows how sales employees make resource allocation decision based on the information provided by feedforward. Based on absolute and relative performance results calculated in the system, feedforward provides expected performance outcome for each potential contract and allow employees to evaluate those contracts without consuming additional time for processing information in the performance evaluation system.

In the next section, I detail the data collection and empirical framework for the field experiment conducted for a single firm.

4.4. Framework for Empirical Evaluation

4.4.1. Data and Research Design

I collect data from a firm in high-end big-ticket sales industry. The data consists of 22 sales outlets. In the year 2011, 14 outlets implement feedforward, and the rest of 8 outlets do not. The sample spans over twenty-five months. Sixteen months are before and nine months are after the feedforward treatment. I exclude outlets closed before or opened after the treatment.[9] The final data contains 357 outlet-month observations. Table 3 provides variable descriptions, descriptive statistics, and correlation matrix. All numbers have been disguised by multiplication by a constant.

Table 3. Variable Definitions and Descriptive Statistics

Panel A. Variable Definitions

Variable	Definition
Log(Sales)	Logarithmic transformation of total sales revenue
Log(Net Sales)	Logarithmic transformation of net sales. Net sales are sales after the deduction of sales discount and sales commission.
Sales Volume	Number of products sold in the sales outlet
Log(Gross Margins)	Logarithmic transformation of gross margin. Gross margins are a total sales revenue minus costs of goods sold.
Log(Sales per Employee)	Logarithmic transformation of sales divided by the number of salespeople in outlet
Log(Compensation)	Logarithmic transformation of total compensation of employees in outlet
Log(D_costs)	Logarithmic transformation of direct costs of each sales outlet
Log(Salary)	Logarithmic transformation of salary
Newmodel	One if the firm introduces a new model at month t and zero otherwise
MarketSales	Logarithmic transformation of total market sales of products
Treat	One if a sales outlet adopts feedback intervention and zero otherwise
Post	One if after the adoption of feedback intervention by an outlet (time >=17) and zero otherwise

The data are available from 2009 to 2011. Simulated feedback intervention is adopted on early 2011.

[9] Although outlets open before the treatment, newly opened outlets may have zeros for sales volume over first few months before they are ready to sell.

Panel B. Descriptive statistics

Variable	N	Mean	St.Dev	Min	Q1	Median	Q3	Max
Log(Sales)	357	13.846	1.182	11.034	13.201	13.992	14.79	15.901
Log(Net Sales)	357	13.805	1.175	11.034	13.14	13.948	14.754	15.854
Sales Volume	357	31.014	29.779	0	0	28	53	167
Log(Gross Margins)	357	11.996	0.903	8.35	11.493	12.212	12.7	13.633
Log(Sales per Employee)	200	10.835	1.117	8.047	9.864	10.789	11.844	12.833
Log(Compensation)	357	10.737	0.678	9.16	10.205	10.769	11.208	12.273
Log(D_costs)	357	9.813	1.687	5.509	8.691	10.443	11.096	12.619
Log(Salary)	357	10.29	0.69	8.804	9.757	10.334	10.681	11.873
Newmodel	357	0.336	0.473	0	0	0	1	1
MarketSales	357	7.295	0.388	6.519	6.965	7.328	7.668	8
Treat	357	0.669	0.471	0	0	1	1	1
Post	357	0.378	0.486	0	0	0	1	1

Panel C. Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Log(Sales)	1.000	1.000	0.812	0.752	0.806	0.487	0.954	0.387	0.425	0.167	0.740	0.089
(2) Log(Net Sales)	1.000	1.000	0.810	0.751	0.805	0.491	0.954	0.391	0.422	0.166	0.737	0.087
(3) Sales Volume	0.812	0.810	1.000	0.511	0.722	0.188	0.788	0.047	0.375	0.302	0.741	0.207
(4) Log(Gross Margins)	0.752	0.751	0.511	1.000	0.502	0.809	0.628	0.731	-0.017	0.305	0.178	0.176
(5) Log(Sales per Employee)	0.806	0.805	0.722	0.502	1.000	0.160	0.776	0.062	0.416	0.138	0.736	0.020
(6) Log(Compensation)	0.487	0.491	0.188	0.809	0.160	1.000	0.372	0.973	-0.172	0.202	-0.172	0.173
(7) Log(D_costs)	0.954	0.954	0.788	0.628	0.776	0.372	1.000	0.274	0.475	0.126	0.804	0.072
(8) Log(Salary)	0.387	0.391	0.047	0.731	0.062	0.973	0.274	1.000	-0.164	0.077	-0.259	0.041
(9) Newmodel	0.425	0.422	0.375	-0.017	0.416	-0.172	0.475	-0.164	1.000	-0.198	0.655	-0.127
(10) MarketSales	0.167	0.166	0.302	0.305	0.138	0.202	0.126	0.077	-0.198	1.000	0.000	0.652
(11) Treat	0.740	0.737	0.741	0.178	0.736	-0.172	0.804	-0.259	0.655	0.000	1.000	0.000
(12) Post	0.089	0.087	0.207	0.176	0.020	0.173	0.072	0.041	-0.127	0.652	0.000	1.000

Pearson correlations are in the upper right triangle and Spearman correlation are at the bottom left.

I employ difference-in-differences design to measure the effects of feedforward on outlet performance. I exploit a field experiment setting. The firm conducts an internal evaluation on the feedforward's effectiveness. Salespeople employed in different outlets of the firm are all under identical compensation contracts. The firm matches treated and control group outlets by geographical locations (e.g., urban vs. rural) to balance important covariates such as market size and the degree of competition in the urban and rural areas. Additionally, to accommodate unobservable outlet-level heterogeneity, I include outlet fixed effects. The resulting difference-in-differences model augmented with outlet fixed effects are as follows:

$$Performance_{i,t} = \beta_1 Treat_i \times Post_{i,t} + \beta_2 Post_{i,t} + \delta Controls_{i,t} + \beta_3 Treat_i \times Controls_{i,t} + Outlet\ Fixed\ Effects_i + \varepsilon_{i,t}. \quad (1)$$

where, treat indicates implementation of feedforward for outlet, post indicates period after the initiation of the feedforward. The treatment effects are included in the outlet fixed effects.

The coefficient of interest, β_1, is the difference-in-differences coefficient representing the difference in the changes in performance of treated outlets and control outlets after the feedforward intervention.

4.4.2. Main Variables

Dependent Variables

I examine average employee and outlet level performance variables. The main performance variables are average individual and outlet-level sales. For individual average level, I measure sales per employee as monthly sales of an outlet divided by the

annual average number of salespeople of the outlet. To ensure robustness of analyses on multiple outlets with different size, I log transform variables. For outlet performance, I consider log of monthly sales, net sales after the sales discounts, and sales volume per month as the number of products sold by an outlet. I also consider log of gross margin and compensation paid to sales employees.

Control Variables

I control for the different size of operations. First, I use log of direct costs to control for the relative size of operations of each outlet. Direct costs include costs incurred in each showroom such as transportation, storage, and administrative expenses. Next, I use log of salary to account for the number of employees in the outlet as salary does not significantly vary across sales employees. Also, the salary variables control for varying ability of showroom managers'. A highly competent showroom manager is more likely to supervise a large group of salespeople. I also control for launch of new products to capture instantaneous boosts of sales due to promotions of the new products. Lastly, to account for the overall economy, I control for a log of total market sales of the product.

4.5. Empirical Results

4.5.1. Feedforward and Salespeople Efficiency

My hypotheses predict that feedforward increases individual and firm performance. A crucial link between feedforward and firm performance is that feedforward reduces employees' information overload. Because information overload is not directly observable, I examine changes in sales people behavior to support the first hypothesis that feedforward increases the efficiency of employees by reducing their

information overload. Employees relieved of the information overload can efficiently allocate resources to generate higher sales than before.

Accordingly, my first hypothesis predicts that sales per employee hired by each outlet increase, on average, after feedforward intervention. Column (1) in Table 4 reports that the coefficient on Test×Post is positive (0.520) and statistically significant. The coefficient indicates an average increase of 52% of sales per salesperson for each outlet[10].

The results suggest that feedforward increases the efficiency of employee's sales activity. Each employee working for an outlet that provides information on simulated operational outcomes and expected compensation following the simulated results lead to more efficient effort allocation of employees than before. As a result, employees can generate greater revenue than before. The results provide a link between feedforward and outlet performance. The increase of 52% of sales per employee suggests that increase in efficiency is a primary driver for the improvement of outlet performance under feedforward regime.

[10] Although sales volume per employee decreases in 2011, profit per employee is 7.4 in 2011, which compared to 4.9 in 2010 indicates the increased ability of employees to sell more profitable products. Numbers are provided in the wholesaler's dealership profitability report. I disguised all numbers by multiplying by a constant.

Table 4. Effects of Simulated Feedback on Sales Employee Performance

We estimate the following fixed effects regressions of individual sales employees' performance. (1) log(Sales per Employee). Sales per Employee is sales per salespeople for each outlet.

$$Individual\ Performance_{i,t} = \beta_1 Treat_i \times Post_{i,t} + \beta_2 Post_{i,t} + \delta Controls_{i,t} + \beta_3 Treat_i \times Controls_{i,t} + Outlet\ Fixed\ Effects_i + \varepsilon_{i,t}$$

β_1 indicates the feedback intervention effect in the post-intervention period. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Standard errors reported in the parentheses are robust to heteroscedasticity. See Panel A in Table 3 for detailed variable definitions.

	(1) log(Sales per Employee)
log(Salary)	-0.219
	(0.369)
log(D_costs)	-0.016
	(0.089)
Newmodel	0.027
	(0.095)
MarketSales	0.171
	(0.120)
Post	-0.441***
	(0.114)
Treat×log(Salary)	0.590
	(0.419)
Treat×log(D_costs)	0.697***
	(0.123)
Treat×Post(**β_1**)	0.520***
	(0.138)
Outlet fixed effects	Yes
Adj. R^2	0.849
Num. obs.	200

4.5.2. Outlet Performance

Consistent with the increase in employee efficiency, I predict an increase in outlet performance after feedforward. An increase in efficiency of employees measured by an increase in sales per employee is likely to lead to an increase of outlet performance such as sales volume, gross margins, and revenue. Depending on how the compensation system retains or distribute the efficiency gain, compensation paid to employees from each outlet may increase as well.

Table 5 reports the effect of feedforward on outlet performance. Column (1) in Table 5 reports that the coefficient on Test×Post in the regression of log(Sales). The coefficient is 0.285, indicating that on average feedforward increases sales by 28.5%. The increase in net sales is consistent with that of sales. Column (2) shows that the net sales increase by 25.7% after feedforward, suggesting that the increase in sales not be entirely driven by additional costs such as providing more discounts and promotional gifts to the customer. Column (3) shows that each outlet on average sells 11.024 products monthly after feedforward. Consistent with sales growth, Table 5 also shows that the feedforward increases gross margins. Column (4) reports an increase in gross margins by 32.1% on average by feedforward. The result suggests that sales employees tend to sell more high-end products that command high margins than before the feedforward.

Results in Column (1), (2), (3), and (4) suggest that the feedforward increases the effectiveness of performance evaluation system. The increase in sales revenue and volume suggests that performance evaluation system that implements feedforward incentives motivate sales employees stronger. Increase in gross margins suggests that employees, using limited time and resources to generate revenue, generates higher profits than before, suggesting an increase in efficiency. Along with the increase in sales

employee efficiency measured by an increase in sales per employees, the results suggest that feedforward better focuses employees to exert efforts on value-creating activities and result in greater sales and gross profits.

While each outlet benefits from the feedforward, the compensation system distributes the efficiency gains to the sales employees. Column (5) in Table 5 reports the coefficient of Treat×Post(β_1) as 0.212, indicating that sales employees' compensation increases on average by 21.2% after the feedforward. The result suggests that gain in efficiency is largely distributed back to sales employees.

Table 5. Effects of Simulated Feedback on Outlet Performance

We estimate the following fixed effects regressions of firm performance measures: (1) log(Sales), (2) log(Net Sales), (3) Sales Volume, (4) log(Gross Margins), and (5) log(Compensation).

$$Outlet\ Performance_{i,t} = \beta_1 Treat_i \times Post_{i,t} + \beta_2 Post_{i,t} + \delta Controls_{i,t} + \beta_3 Treat_i \times Controls_{i,t} + Outlet\ Fixed\ Effects_i + \varepsilon_{i,t}$$

β_1 indicates the feedback intervention effect in the post-intervention period. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Standard errors reported in the parentheses are robust to heteroscedasticity. See Panel A in Table 3 for detailed variable definitions.

	(1) log(Sales)	**(2) log(Net Sales)**	**(3) Sales Volume**	**(4) log(Gross Margins)**	**(5) log (Compensation)**
log(Salary)	0.232	0.200	-5.648	0.167	0.755***
	(0.179)	(0.174)	(8.359)	(0.346)	(0.074)
log(D_costs)	0.037	0.034	0.157	0.032	-0.009
	(0.042)	(0.041)	(1.979)	(0.082)	(0.018)
Newmodel	0.062**	0.060*	3.938***	-0.052	-0.037***
	(0.031)	(0.031)	(1.463)	(0.061)	(0.013)
MarketSales	0.193***	0.186***	11.055***	0.246***	0.068***
	(0.047)	(0.046)	(2.186)	(0.091)	(0.019)
Post	-0.178***	-0.161***	-4.832**	-0.146	0.040*
	(0.051)	(0.050)	(2.378)	(0.099)	(0.021)
Treat×log(Salary)	0.063	0.087	16.433*	0.577	0.161**
	(0.192)	(0.187)	(8.955)	(0.371)	(0.079)
Treat×log(D_costs)	0.559***	0.571***	18.750***	0.597***	0.137***
	(0.053)	(0.051)	(2.450)	(0.102)	(0.022)
Treat×Post($\boldsymbol{\beta_1}$)	0.285***	0.257***	11.024***	0.321***	0.212***
	(0.056)	(0.055)	(2.624)	(0.109)	(0.023)
Outlet fixed effects	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.965	0.966	0.880	0.775	0.982
Num. obs.	357	357	357	357	357

The results in Table 4 and 5 reveal how feedforward improves outlet performance. When feedforward informs employees about simulated results and expected compensation, sale employees better understand performance evaluation system with much less time and efforts. Thus, the feedforward reduces information overload of employees, and sales people can more precisely understand how much additional bonus they can receive if they sell an additional unit of products than before. Effectively, feedforward strongly incentivizes salespeople through compensation contracts. Strongly incentivized salespeople exert greater efforts than before. In results, sales per employees and outlet revenue increase as well as compensation that sales employees receive.

4.6. Discussion

I find that implementation of feedforward by a sales firm improves performance of outlets. Specifically, I find an increase in average sales per employees and increase in outlet's overall revenue, sales volume, and gross margins. The results indicate that improvement in outlet-level performance originates from improvement in sales employee efficiency. An increase in compensation received by salesperson suggests that firm's compensation system distributes the efficiency gains to employees. The results are consistent with the hypothesis that feedforward that provides simulated operational results and expected compensation can reduce information overload of a salesperson and increase efficiency in their effort allocation.

Practitioners may mitigate information overload by introducing feedforward. Feedforward does not require any change in performance measures, and managers can implement the feedforward following their current schedule of regular feedback. Feedforward can be a cost-effective way to improve performance evaluation system in general. Although with limitations, my research design of single firm can help reliably establish a positive relation between feedforward and performance. Since the single firm

setting eliminates potential confounding from feedback frequency and the type and the number of performance measures, I can attribute an increase in firm performance to the implementation of feedforward.

The single firm setting is not without limitation. All data is subject to common economic trends and product market competition. The firm overall performs badly in the sample period, especially in the post period. Since, during the post period, the market becomes more competitive and market share of the firm decreases, the firm introduces the field experiment of feedforward to examine the effect. The effects of feedforward I observe may be confounded with a downturn effect. Further studies can re-examine the relationship as well as expand the investigation into a multiple-firm or multiple-industry setting as well. Also, this study does not observe the degree of information overload directly. An experimental study that measures the degree of information overload or an archival study that examine detailed individual-level data is promising for future research.

CHAPTER 5

CONCLUSION

I examine whether managers' strategic choice on managing performance evaluation system mitigates the negative impact of an overly complicated performance evaluation system, improving performance. I conduct two field experiments that implement disaggregation and feedforward in the feedback of the sales outlets of a high-end retail firm and examine whether those changes reduce information overload and improve performance. On average, I find results consistent with the view of psychology studies on disaggregation and simulation. Disaggregation of compensation for each performance measure clarifies causalities in complex information of feedback, reduces complexity, and increase information processing capacity (e.g., time) available for sales employees. Without severe information overload, sales employees can allocate more resources on desired activities which can increase sales performance. Feedforward based on simulation provides more up-to-date information to motivate sales employees. Sales employees who receive feedforward in addition to feedback based on past performance can make better informed-decisions and also improve information processing capacity through learning process facilitated by simulation. Hence, the group of employees who receives feedforward reduces the negative impact of the complex performance evaluation system, resulting in a sales performance increase.

My dissertation has distinct advantages and limitations. Performance evaluation of sales employees is important in the high-end retail industries where sales employees create a customer base and generate revenue for the firm. As sale employees work for typically more than two goals (e.g., product sales and financing option sales), the performance evaluation system applied to each sales employee is more complicated than that of low-end retail industries, making the setting more appropriate for testing hypothesis related to information overload. Still, the field experiments are confined to a

single level of organization, and a single firm in a single industry, making it difficult to generalize across different industries and levels of organizations. Future research may extend my dissertation to other industries with unique challenges in performance evaluation and executive compensation where data is publicly available.

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Appendix A EXAMPLE OF SALES EMPLOYEE INCENTIVE CONTRACT AS OF JANUARY 2011

1. Sales Incentive

1.1. Profit Margin-based Sales Incentive

$$Individual\ Profit\ Margin = Sales\ Volume * MSRP - total\ discount + sales\ subsidy\ from\ wholesaler - Costs\ of\ sales$$

where $Cost\ of\ sales = Referral\ bonus + transportation\ expenses + promotional\ items\ (e.g., accessories, golf\ bags) + credit\ card\ fee + other\ expenses\ (e.g., lease\ interest\ subsidy, etc.)$

(1) Sales $Volume\ Incentive = Individual\ Profit\ Margin \times Bonus\ Rate$

Sales Volume	1	2	3	4	5	6	7+
Bonus Rate	14%	20%	20%	20%	22%	22%	23%

Bonus rates are reviewed and updated quarterly based on market conditions and competition.

(2) $Profit\ Margin\ Incentive = Individual\ Profit\ Margin \times Bonus\ Rate$

Individual Gross Margin	Up to 5 M	5~7 M	7~10 M	10 M +
Bonus Rate	0.5%	1%	1.5%	2%

Bonus rates are reviewed and updated quarterly based on market conditions and competition.

2. Volume Bonus

Volume bonus is bases on sales quantity in evaluation period.

$$Sales\ Volume\ Bonus = Sales\ Volume \times Fixed\ amount$$

Period	Target sales	Bonus Amount
Monthly	Salesperson: 2, Asst. Sales Manager: 3 Sales Manager: 4	100 per unit sold
Bi-Monthly	Salesperson: 5, Asst. Sales Manager: 6 Sales Manager: 7 (Sales targets may vary across regions following competition level defined by wholesaler)	If target is achieved, 150 per unit sold up to target, 200 for 1 additional unit, 250 for 2 or more unit sold
Quarterly	Salesperson: 6, Asst. Sales Manager: 8 Sales Manager: 9 (Sales targets may vary across regions following competition level defined by wholesaler)	If accumulated individual gross profit is less than .06 M, 100 per unit sold. If Between .06 M and .1 M, then 150. Over .1 M, 300.
Annually	Semiannual/Annual personal target (agreed with top managers)	If achieved, 1,000 (semiannual) and 2,000 (annual)

3. Rewards

Period	Rewards	Subjects
Monthly	500	Top Salesperson of each level
Quarterly	1,500	Top Salesperson of each level
Semi-annually	500 for next 6 months	Top Salesperson of each showroom

Annually	Gold bar and travel voucher	Sold more than 42 units per year
	Sports membership and travel voucher	More than 50 units per year
	Fleet car support for a year	More than 60 units per year
	Golf membership and travel voucher	Renew the sales record

Reward policy are reviewed and updated quarterly

4. Team/Showroom performance bonus

Team manager's bonus is calculated based on team performance.

$$Team\ manager's\ bonus\ =\ Team\ Profit\ Margin \times Bonus\ Rate$$

Avg. unit sold of team*	1	1~1.6	1.6~2	2~2.6	2.6~3	3+
Bonus rate	1%	1.15%	1.3%	1.5%	1.75%	2%
*Avg. unit sold = Total unit sold by team / Headcount including manager (excluding interns)						

Team rewards	Top sales team of a month, quarter, and year	1,500 / 3,000 / 5,000
Showroom rewards	Top showroom of a quarter and a year	3,000 / 10,000

5. Penalty

If sales performance falls below minimum required sales volume per month, sales employees receive reduced salaries.

Rank	Required sales volume	0	1	2
Salesperson	Penalty as a percentage of base-salary	25%		
Asst. Sales Manager		25%	15%	
Sales Manager		25%	15%	5%

Appendix B FINANCIAL SERVICE INCENTIVE

1. Financed Amount Based Incentive

   $$Financed\ Amount = (MSRP - total\ discount + fees\ and\ taxes) - Down\ Payment$$

   where operating lease does not exclude deposit amount from financed amount. Only finance lease and installment exclude amount of down payment from financed amount.

   $$\text{Incentive} = Financed\ Amount \times Bonus\ Rate$$

	Model #528 Bonus Rate
Operating Lease	5.2%
Finance Lease	2.5%
Installment	4%

   Bonus rates are reviewed and updated monthly based on market conditions and competition.

2. Penetration Rate Based Incentive

   Penetration rate of financial contracts is the proportion of sales contracts with financial contracts, usage rate of financing instrument. Penetration rate is calculated based on outlet level performance. Once the penetration rate is determined, bonus rate of each penetration rate is applied to financed amount of each sales of employee.

   $$\text{Incentive} = Financed\ Amount \times Bonus\ Rate$$

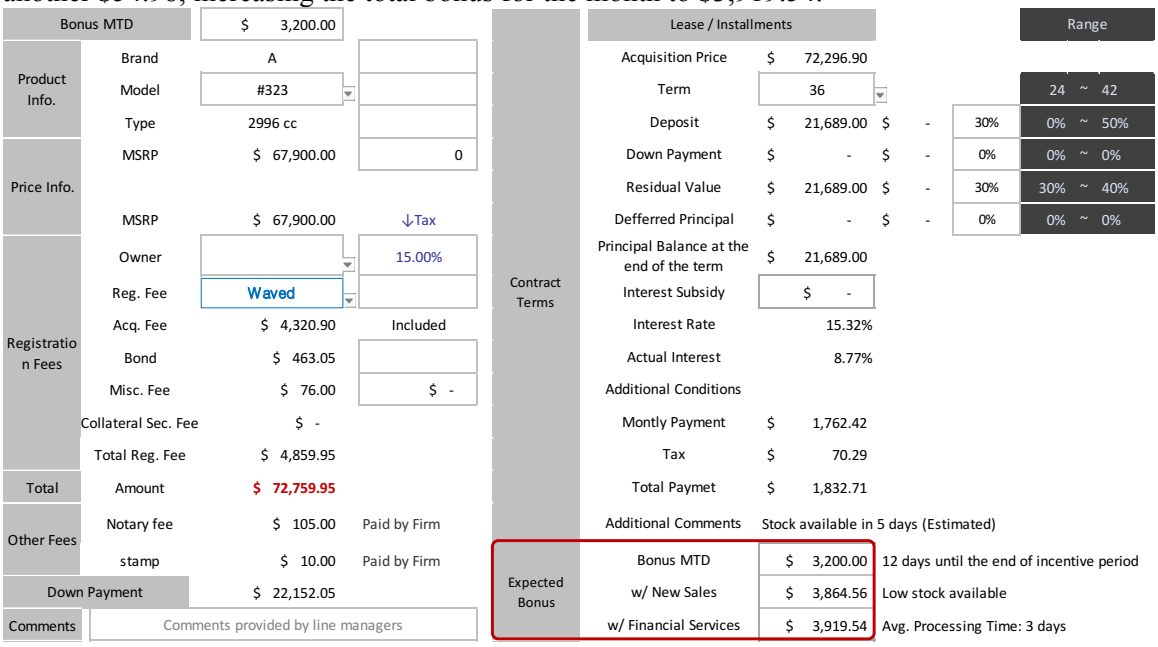
Penetration Rate	Bonus Rate	Bonus Rate with Admin. Support
PR < 30%	0%	0%
30% ≤ PR < 35%	0.2%	0.2%
35% ≤ PR < 40%	0.6%	0.3%
40% ≤ PR < 45%	0.8%	0.4%
45% ≤ PR < 50%	1.0%	0.6%
50% ≤ PR < 55%	1.2%	0.8%
55% ≤ PR < 60%	1.3%	0.9%
60% ≤ PR < 65%	1.4%	1.0%
65% ≤ PR < 70%	1.5%	1.1%
70% ≤ PR	1.6%	1.2%

   Bonus rates are reviewed and updated monthly based on market conditions and competition.

   Administrative support (Documentation, handling registration and subsequent processes of financing) may be provided by financial division.

Appendix C EXAMPLE OF FEEDFORWARD TO SALES EMPLOYEES

Appendix C shows an example of feedforward to sales employees. Note that all numerical information is disguised by a multiplying a constant. The screen requires inputs from sales employees on a sales contract including product type and terms of financing contracts. In this example, the sales employee has a potential sale of model #323. The MSRP is $67,900. After accounting for other fees, the billable amount is $72,759.95 before down payment. The customer considers a lease contract for 36 months. The sales employee can try different lease terms for different models. The performance evaluation system presents the expected bonus including the additional contract with or without a financial contract along with additional information such as the availability of stock. The sales employee's current bonus amount is $3,200. Upon sales of an additional unit of Model #323, the employee receives an extra bonus of $664.56 with a total of $3,864.56. If the customer purchases the product by a lease contract, the employee is entitled to another $54.98, increasing the total bonus for the month to $3,919.54.



Bonus MTD		$ 3,200.00			Lease / Installments				Range
Product Info.	Brand	A			Acquisition Price	$ 72,296.90			
	Model	#323			Term	36			24 ~ 42
	Type	2996 cc			Deposit	$ 21,689.00	$ -	30%	0% ~ 50%
Price Info.	MSRP	$ 67,900.00	0		Down Payment	$ -	$ -	0%	0% ~ 0%
					Residual Value	$ 21,689.00	$ -	30%	30% ~ 40%
	MSRP	$ 67,900.00	↓Tax		Defferred Principal	$ -	$ -	0%	0% ~ 0%
Registration Fees	Owner		15.00%		Principal Balance at the end of the term	$ 21,689.00			
	Reg. Fee	Waved		Contract Terms	Interest Subsidy	$ -			
	Acq. Fee	$ 4,320.90	Included		Interest Rate	15.32%			
	Bond	$ 463.05			Actual Interest	8.77%			
	Misc. Fee	$ 76.00	$ -		Additional Conditions				
	Collateral Sec. Fee	$ -			Montly Payment	$ 1,762.42			
	Total Reg. Fee	$ 4,859.95			Tax	$ 70.29			
Total	Amount	$ 72,759.95			Total Paymet	$ 1,832.71			
Other Fees	Notary fee	$ 105.00	Paid by Firm		Additional Comments	Stock available in 5 days (Estimated)			
	stamp	$ 10.00	Paid by Firm	Expected Bonus	Bonus MTD	$ 3,200.00	12 days until the end of incentive period		
Down Payment		$ 22,152.05			w/ New Sales	$ 3,864.56	Low stock available		
Comments	Comments provided by line managers				w/ Financial Services	$ 3,919.54	Avg. Processing Time: 3 days		