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The Effect of Participative Budgeting on Pay for Performance

참여적 예산설정이 변동 성과급에 미치는 영향

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Graduate School of Business Seoul National University Accounting Major

Min Wook Lee

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지도 교수 신재용

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부위원장	최종학
위 웜	시계요

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Abstract

This paper investigates the effect of the level of budgetary participation on the relative weight of pay for performance to total compensation. First, using a sample of 464 firm-year observations from Korean public firms for fiscal years 2009 to 2017 biannually, this study empirically confirms that higher degree of budgetary participation increases the relative weight of pay for performance to the base salary. The result is consistent with the implication from agency theory with regards to budgetary participation reducing the uncertainty level in achieving the budget targets. Second, this study investigates the mechanism through which the level of budget participation affects the relative weight of pay for performance. Specifically, through path analysis, this study estimates that higher levels of trust and organizational commitment mediate the relationship between budgetary participation and relative weight of pay for performance. Such mediation effect confirms increased perception of fairness towards the performance measurement and decreased dysfunctional behavior of employees with improved levels of trust and organizational commitment.

Keyword: budgetary participation; pay for performance; trust; organizational commitment

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1. Introduction

The influence of budgetary participation on organizational behavior and managerial performance has attracted research attention over the years (Shields and Shields, 1998). Accounting research documents that budgetary participation generally improves overall performance by taking advantage of job-related private information rendered by subordinates. It is indicative that budgeting process is investigated in the context of how information is utilized within firms (Heinle, 2014). With respect to viewing budgetary participation as a function of information process, it is assumed that budgetary participation have implications on another aspect of management control system or compensation contract which is also utilized to elicit more information sharing or effort from employees. Yet, how firms manage compensation contract in the context of budgetary participation is relatively unobserved area.

This study examines the relationship between participative budgeting and the relative weight of pay for performance to total compensation. In particular, first, this study investigates on whether participative budgeting induces higher ratio of incentive compensation to base salary. Second, this paper explores the mechanism through which the relationship between the two types of firm's control system occurs. Specifically, this paper examines whether the trust between subordinates and superiors or firms, and organizational commitment mediate the relationship between the participative budgeting and relative weight of pay for performance to total compensation.

With respect to agency theory, information uncertainties in agents' actions

result in agency problem and such problem induces an interest conflict between principals and agents who exhibit risk- and effort-averse behaviors. This implicates that employment is an agency relationship in which the employee's actions are not perfectly observable by the employer and the two parties have different objectives (Ortega, 2009). Therefore, the balance between monitoring and compensation systems effectively oversee agent's behavior and elicit desired outcomes. Especially in the aspect of compensation scheme, the balance between base salary and incentive compensation is the main objective to align the interest between agents and principals (Baiman, 1990).

The optimal compensation contract is using enough incentive pays to align interests without shifting too much risk on agents (Jensen and Murphy, 1990). This is due to the fact that too much risk deteriorates income stability of employees (Bloom and Milkovich, 1998). In this context, additional costs are imposed on principals when implementing a pay for performance scheme because of risksharing and incentive trade-off process. This implicates that agents bear greater risk when insurance which protects their interests is guaranteed (Holmström, 1987). That is, principals must provide performance pay that exceeds the amount of base salary to compensate for agent's risk sharing and align the interest between agents and principals.

In a setting where high weights of pay for performance impose extra risk on employees' total compensation, their participation in budgeting process is likely to influence the use of incentive pay. With the high level of budgetary participation, the uncertainty level regarding the target achievement can be alleviated and thus, high level of participation in budgeting improves risk sharing. According to Searfoss and Monczka (1973), budgetary participation involves increase in the

internalization of budget goals. Likewise, budgetary participation can induce employees to perceive that budget goals are under their personal control (Govindarajan, 1986). Therefore, the reduced level of uncertainty may allow for employees with risk-averse characteristics to be more receptive toward increasing high weights of pay for performance to total compensation.

In respect to designing incentive systems by the central management, the reduced uncertainty level in achieving the budget targets through budgetary participation can induce principals to increase the relative weights for pay for performance. It is known that the participation increases employees' motivation toward performing the budget targets as employees have better possibility to adjust the budget targets toward their preferences and thus, the central management is able to construct better budgetary targets (Shields and Shields, 1998; Zainuddin and Isa, 2011). With the reduced level of uncertainty and increase in motivation level in respect to achieving the budgetary targets through budget participation, it is conjectured that principals increase the relative weight for pay for performance because aligning the interest between principals and employees is realized with relatively small additional costs for agent's risk sharing.

Although it is conjectured that reduced uncertainty level in achieving the budgetary targets due to information sharing through budgetary participation motivates the use of pay for performance, cost issue may arise in implementing participative budgeting in terms of utilizing employees' private information. That is, although budgetary participation supports principals to gain access to private information from employees, it also induces employees to commit budgetary slack due to information asymmetry (Dunk, 1993). Then in what mechanism budgetary participation influences the relative weight of pay for performance even if the cost

relative to implementing participative budgeting exists? This study suggests that the high trust level from employees toward superiors and firms, and organizational commitment can be the one of major mechanisms connecting participative budgeting and its emphasis on incentive pay scheme.

High level of participation in budget process is often associated with high level of employees' trust. Specifically, in the context of budget emphasis, Ross (1994) suggests that budgetary participation is associated with employee's high level of trust toward their superiors. Such a strong association between budgetary participation and employees' trust toward superiors and firms can be explained by increased level of transparency in target setting process and perception from employees that their opinions are being valued by firms through budgetary participation. Through such mechanism, employees are likely to display beneficial attitudes, such as high commitment level (Ogiedu et al. 2013). Further, prior literature emphasized the link between budget participation and organizational commitment. According to Hanson (1966), budgetary participation increased employees' organizational commitment as they associate themselves more closely with budget goals which they involved to set in the budget setting process.

The issues with utilizing objective and subjective performance measures which generate counterproductive results of implementing pay for performance may render some inferences regarding the mediating effect of trust and organizational commitment on performance pay. According to Baker et al (1988), monetary incentives create unintended and counterproductive results, because it is difficult to accurately identify desired actions and thus, design performance measures. Misspecification of objective measures on bonus compensation may induce resourceful employees to engage in self-interested actions. Likewise, in

respect to utilizing subjective performance measures, superiors must justify the use of such performance metrics as criteria for such measures are not objectively defined. Accordingly, it can be anticipated that trust toward superiors or firms may foster the use of pay for performance scheme by inducing employees to consider that the compensation is fairly based on performance and thus, reducing the conflict caused by implementing subjective measures. The organizational commitment may also promote the use of pay for performance system by lowering the chance of dysfunctional behaviors from resourceful employees as organizational commitment entails the acceptance of firm's value and goals.

This study first examines the link between budgetary participation and relative weight of incentive compensation to the base salary through regression analysis. To conduct the analysis, survey and archival data from Korean publicly traded firms were used. The survey data is from the Human Capital Corporate Panel (HCCP), which estimates human resources status of Korean public and private firms biennially. The archival data on financial performance is collected from KIS-Value.

The result of the regression analysis is consistent with the hypothesized relationship between budgetary participation and the relative weight of incentive compensation. Furthermore, in explaining the mechanism through which the relationship between two types of control system occurs, path analysis was used to evaluate whether employee's trust level toward superiors or firms, and organizational commitment level are factors which induce the acceptance of budgetary goals and influence the use of incentive compensation. The path analysis results confirmed that the level of trust and organizational commitment play mediating role in describing the relationship between the two control systems.

The findings contribute to the literature of budgetary participation in several ways. First, this study collects budgetary participation and relative weights of incentive compensation through publicly available survey and archival data. This allows investigating the relationship between budgetary participation and incentive compensation in relation with financial measures. Moreover, prior participative budgeting research provides evidence for the association between the implementation of participative budgeting and performance of firms but presented mixed results. This study may give future inference regarding the link between participative budgeting and firm performance since pay strategy is one of control systems to boost employee's motivation and commitment. Lastly, this study investigated the mechanism of psychological factor, trust and organizational commitment level in facilitating the link between participative budgeting and incentive pay scheme in organizational level.

2. Prior Literature and Hypothesis Development

2.1 Participative budgeting, incentive alignment and the relative weight of pay for performance

Budgetary participation involves employees' influence over setting budgetary targets by means of communication in budgeting process (Brownell, 1982; Subramaniam and Ashkanasy, 2001). The strength of utilizing budgetary participation within firms has been supported by past literature in the context of investigating on the influence of budget participation on organization behaviors and managerial performance. Budgetary participation is anticipated to trigger better organizational commitment, promotes information sharing, increase the motivation level of employees and contributes to improving subordinates' performance (Shields and Shields, 1998). It should be noted that the purpose of budgetary participation is allowing subordinates to have an influence on budget setting process by communicating their private information for the purpose of structuring more favorable budgets (Chong and Chong, 2002; Zainuddin and Isa, 2011). In respect to utilizing private information, budgetary participation is conjectured to have an implication on another aspect of management control system which is compensation scheme. According to Shield and Young (1993), private information gathered from budgetary participation is utilized for two purposes. That is, the private information is used for improving resource allocation issues and setting better compensation schemes. This paper anticipates that budgetary participation involves the use of incentive compensation since the central issue on compensation aspect is to attain balance between base salary and pay for performance to alleviate agency problem.

In respect to agency problem, there are 3 underlying behavioral assumptions in agency theory: principals and agents are both (1) rationale and (2) self-interested, and (3) that agents are effort- and risk-averse (Jensen and Meckling, 1976). These behavioral assumptions are rationales for moral hazard which indicates that agents take actions to maximize their own benefits without increasing the effort level toward achieving the principal's objectives. To alleviate such agency problem, the central issue is on how to structure monitoring and compensation systems to effectively oversee agent's behaviors and promote agents to induce desired outcomes beneficial to principals. Namely, optimal contracts are

defined as those that maximize the principal's outcomes (Bloom and Milkovich, 1998). Thus, optimal compensation contract is the balance between behavior based pay and outcome based pay: using enough incentive pays to align interests without shifting too much risk (Jensen and Murphy, 1990).

Ideally, when behaviors of agents are perfectly observable, fixed pay contracts reflects the preferences for effort- and risk-averse agents (Baiman, 1990). Specifically, when information asymmetry between agents and principals are low, principals are more lenient on the use of fixed pay contracts as agent's behaviors are easily observable at relatively low costs (Jensen and Murphy, 1990). On the other hand, incentive compensation can be useful measures to align the interest between principal and agents when high level of information asymmetry triggers monitoring costs to be elevated (Baker et al. 1988).

Although incentive compensation is implemented to motivate effort from agents, shifting of risk sharing can lower the preference of pay for performance strategy from employees. This is due to the fact that risk obscures future outcomes and thus impedes the predicting ability (Miller and Bromiley, 1990; Bettis and Thomas, 1990). In this context, agents avoid too much risk in their compensation structure as greater risk impairs their income stability (Bloom and Milkovich, 1998). Due to the shifting of risk sharing, there are cost implications when leveraging incentive compensation, such as higher pay demands from employees as a result of their high risk-aversion. This risk premium is the additional compensation related to the cost of delegation. Such risk premium is trade-off between motivation which is the benefits of delegation and risk sharing (Nagar, 2002). Thus, to successfully implement pay for performance scheme, principals need to guarantee an incentive pay contract incremental to the base pay to

compensate for risk-sharing portion of agents.

When subordinates' participation in budgeting is high, because subordinates internalize goals and increase their sense of control toward the budgeting process (Shields and Shields, 1998), the anticipated risk level regarding the achievement of budget plan can be alleviated. Similarly, according to Govindarajan (1986), budgetary participation can trigger employees to believe that budget goals which are set through budgetary participation are manageable rather those simply imposed on them by superiors. Namely, subordinates' participation in budgeting may induce more effort toward organizational goals through incentive pay contracts by alleviating their perception of uncertainty levels toward failing the budget plan. Consequently, because participation in budgeting alleviates the risk level that employees encounter, they will be more open to the implementation of incentive pay contracts.

Furthermore, in terms of implementing compensation scheme from the central management, budgetary participation is conjectured to have an implication on the implementation of pay for performance scheme. The participation in budgeting process entails the agreement of budgetary goals by subordinates participating in decision making process (Zainuddin and Isa, 2011). In such budgeting process, as subordinates have private information regarding the budgets, principals are more likely to set a better budgetary target, which in turn will motivate employees to attain the budget goals of their preference (Shields and Shields, 1998; Zainuddin and Isa, 2011). The increase level of motivation and the reduced level of uncertainty in achieving the budget targets through participative budgeting are likely to pave the way for principals' preference over utilizing pay for performance scheme. This is because in the perspective of principals, with the

reduced level of uncertainty and higher level of motivation from employees, they can align the interest between themselves and agents with relatively small additional costs for agents' risk sharing. The related hypothesis is stated as follows:

H1: As subordinates' participation in budgeting process enhances, the relative weight of incentive pay will increase

2.2 The mechanism through which participative influence the relative weight of pay for performance

After understanding the possibility of the relationship between budgetary participation and relative weight of pay for performance to total compensation, this paper predicts the factors which mediate the link between participative budgeting and the relative weights of pay for performance. Another major concern in budgetary participation research is that implementing budgetary participation system involves unintended consequences in terms of budgeting and performance evaluations. That is, while subordinates engage in the process of influencing the budget setting process, the incentives for budgetary slacks or budget targets which are easier to achieve also arise (Kirby et al, 1991; Dunk, 1993; Maiga and Jacobs, 2007). Further, in terms of investigating the consequences of the use of budgetary participation, it is noted that past literature emphasized the inconsistent relationship between budgetary participation and job performance (Shields and Shields, 1998; Nouri and Parker, 1998). It is noted that such varying relationship between the two variables may be attributed to the fact that such relationship is not a direct one (Shields and Shields, 1998; Zainuddin). Likewise, the important issue is explaining

how participative budgeting influence the relative weight of pay for performance despite the fact that performance evaluation relevant cost exists in implementing participative budgeting.

This study proposes that employees trust level toward their superiors and firms, and organizational commitment level from participative budgeting can play the mediating role in explaining the link between participative budgeting and relative weights of pay for performance. This study is followed by how employees' trust and organizational commitment is associated with decrease in opposition of budget decision involved by organizations.

2.2.1 Budgetary Participation and Trust

It has been argued from previous literature that employee's participation in budget setting process is related to higher level of trust from the subordinates to their superiors as budgetary participation induces the feeling that employees are valued by the firms. Moreover, as budget setting process is opened to subordinates, this makes the decision process to be more transparent. The high level of transparency in decision making process and the feeling of being respected by the firm through budgetary participation are likely to promote subordinates to agree to take given budget targets. Such acceptance not only lowers the mistrust level of the subordinates towards the evaluation style of their superiors but also superior who implement and process such evaluation schemes (Buckland and Lau, 2001).

Ultimately, it can be argued that firms with higher level of participative budgeting are more likely to experience a greater level of trust between superior and subordinates than firms, which implement lesser extent of the budget participation system (Otley, 1978). Accordingly, the following hypothesis is tested:

H2: Employees' trust level increases as they more actively participate in budgeting process.

2.2.2 Budgetary participation and organizational commitment

In general sense, organizational commitment is defined as a connection that relates employees to their organizations (Soleha et al. 2013). To investigate the association between participation in budget process and organizational commitment, this study employs the classification of organizational commitment from Meyer et al. (1990). According to Meyer et al. (1990), organization commitment can be characterized into two types, which are affective and continuance commitment. Affective commitment is described as an acceptance of the organizational goals and mindset to exert effort for the organization. On the other hand, continuance commitment is characterized as employees level of costs associated with leaving the organization. This study utilizes both aspects of organizational commitment.

Prior literature investigated the determinants of organizational commitment because it positively affects job performance. Among those determinants, Lincoln and Kalleberg (1985) argue that budgetary participation integrates employees and motivates them to commit to organizational decisions. Specifically, Hanson (1966) explains that through budgetary participation, employees become more familiar with and thus, become better aquatinted with the budget goals. Overall, as organizational commitment encompasses employee's positive beliefs toward organizational objectives, participation in budgeting is highly likely to encourage high level of organizational commitment. The related

hypothesis is stated as follows:

H3: Employees' organizational commitment level increases as they more actively participate in budgeting process.

2.2.3 Trust, commitment and incentive compensation

Prior literature emphasized the role of pay for performance as an effective motivator in terms of increasing both effort and performance level of employees. It has been academically argued that benefits of tying pay to performance are obvious. Conversely, findings have shown that many organizations fail to successfully link pay to performance (Lawler, 1971) and it is surprising that firms do not leverage bonus-based compensation as major performance motivators in actual practice (Baker et al, 1988). According to Baker et al (1988), the unintended and counterproductive results of monetary incentives may be induced by difficulty in adequate specification of desired actions by organizations and thereby failure to accurately define performance measures.

In the aspect of bonus compensation schemes, prior literature emphasized the balance between objective and subjective measures as pay for performance system purely based on either one of the measures induce unintended results. For example, misspecification of objective performance measures results in resourceful employees to game the system by optimizing with respect to actual instead of intended results (Baker et al, 1988). For example, self-interested employees have potentials to sacrifice long-term profitability for short-term profitability to meet their performance measures. Such problems associated with objective measures can be resolved with the use of subjective measures, but such measures are difficult to

utilize since they induce conflicts between subordinates and superiors. That is, when implementing subjective performance measures, superiors have to justify the assessment of performance.

Lawler (1971) argues that high degree of trust between employees and superiors is necessary to successfully implement subjective performance measures because high level of trust enables employees to believe that their compensation is based on accurate evaluation of their performance. Accordingly, it can be anticipated that trust level between employees and superiors promotes the use of pay for performance scheme by inducing employees to believe that their pay is fairly based on performance and thus, reduce the conflict caused by implementing subjective measures. Similarly, the organizational commitment is conjectured to support the use of pay for performance system by lowering the chance of dysfunctional behaviors from resourceful employees as high organizational commitment encourages forming positive beliefs toward organizational objectives and values. The related hypothesis is stated as follows:

H4: Employees' trust level and organizational commitment mediate the relationship between budget participation and relative weight of pay for performance.

3. Sample Selection

3.1 Sample construction

In examining the relationship between participative budgeting and

incentive pay scheme, this paper used Korean firm survey data known as Human Capital Corporate Panel (HCCP). HCCP provides a biennial survey data that consists of survey questions pertinent to human relations practices. The HCCP sample period begins from 2005 to 2017 and each year's survey includes responses from more than 400 companies and 10,000 individuals. HCCP survey data collects firm-level data obtained by top HRM officials and managing directors in each firms, and individual-level survey data regarding various questions, including their perceptions of corporate culture. Financial measures for each firm were obtained through the archival data from KIS Value, which provides market value and financial statement-related information for Korean public firms.

In this study, a sample of Korean publicly traded firms from 2009 to 2017 was created. The sample begins in 2009 because (1) in 2005 panel data, the contents and scale of survey questionnaires are different compared to that of rest of the year data and (2) Korea Standard Industry Classification Code is used in the sample data from 2009. To be included in the sample, first, only public firms were chosen. Next, a firm requires positive total assets and non-missing value in financial measures, which are possible determinants of incentive pay scheme. Regarding the survey panel data for regression analysis, unanswered data of participative budgeting and bonus compensation scheme are excluded from the sample. The final sample of regression analysis includes 464 firm-year observations. Likewise, the final sample for path analysis excludes firm-years without trust and organizational commitment data. The final sample includes 445 firm-year observations.

[Insert Table1 About Here]

3.2 Variable explanation

3.2.1 Participative budgeting

Performance evaluation category of the HCCP survey asks the degree of employee's participation in budgeting process. The survey questionnaire is answered on a five-point Likert Scale, where a rating of one corresponds with "superiors having all the decision authority regarding budgeting" and a rating of five corresponds with "subordinates having all the decision authority regarding budgeting". In the case of forming a proxy for the level of participative budgeting, intensity of participative budgeting over the t-2 fiscal year is used because the survey item about participative budgeting and compensation in year t indicates the level of budgetary participation in year t and the relative ratio of incentive compensation in year t-l respectively.

[Insert Figure1 About Here]

3.2.2 The relative use of pay for performance

In the compensation category of the HCCP surveys, HR officials in sample firms were asked questions related to firm's bonus payment system. The compensation pertinent questionnaire in the HCCP survey is the relative level of bonus payment to the average monthly base salary of the firm. The degree of bonus payments is expressed in percentage considering monthly base salary as 100.

3.2.3 Employee's trust level toward superiors and firm

The HCCP survey asks respondents 3 questions pertinent to their firm's

trust level. The three questions that correspond with the trust level of organizations are the following: (1) Employees in my firm trust each other, (2) The evaluation and compensation process in my firm is fairly constructed, (3) Directors in my firm are trustworthy. All the trust related survey questions from HCCP survey are consistent with trust conceptualized in prior literature. Specifically, trust is theorized here as trust between organization members, trust between colleagues, and the scale of trust employees feel toward their superiors (Ross, 1994). A factor analysis of the three trust level variables with oblique rotation was conducted. The factor analysis presents one factor with an eigenvalue greater than unity, on which all three items load with weights greater than 0.45. The three measures of trust level yielded a Cronbach alpha coefficient of 0.78, indicating good internal reliability of the measure. To utilize the survey responses, first the average of the total score for a single employee (3 to 15) for each firm in a given year is created. Second, in accordance with Garrett et al. (2014), the average firm-year measure for trust is converted into a standardized z-score.

3.2.4 Organizational commitment

The four questions in HCCP survey that represents organizational commitment are the following: (1) If there is a firm that offers even a little bit of good terms, I will consider moving, (2) I feel the firm's issues as mine, (3) If I decide to leave this firm I will lose too much of my life, (4) This company deserves my loyalty. A factor analysis of the four commitment level variables with oblique rotation was performed. The factor analysis presents one factor with an eigenvalue greater than unity, on which all four items load with weights greater than 0.45. The measures of organizational commitment yielded a Cronbach alpha coefficient of

0.76, indicating good internal reliability of the measure. To utilize the survey responses, first, the average of the total score for a single employee (4 to 20) for each firm in a given year is created. Second, in accordance with Garrett et al. (2014), the firm-year measure for trust is converted into a standardized z-score.

[Insert Figure2 About Here]

3.2.5 Controls and fixed effects

This paper includes several control variables to mitigate the concern that correlated omitted variables affect the link between participative budgeting and incentive pay. First, the regression model controls for both year- and industry-fixed effects because inclusion of industry fixed affected alleviates the concern that timeinvariant industry characteristics affect the association between participative budgeting and incentive pay. Also, the inclusion of year-fixed effects mitigate the concern that a time-trend factors such as economy-wide shocks or other kinds of environmental factor affect the relation between participative ownership and incentive pay. Along with fixed effects, this study includes natural logarithm of total asset to control for firm size as firm size is the factor that influences compensation structure. The regression controls for several measures that represents firm's risk characteristics such as a firm's total debt relative to total sales, incidents of loss, standard deviation of t-5 to t-1 period sales of firms. As firm's growth opportunities may influence the relative use of incentive compensation, this study input a ratio of market value to-book value. Moreover, to control for performance state of each firm, this study controlled cash flow from operations, and incidents when net incomes were negative. Lastly, accounting performance

measures such as ROA is included as it is the possible determinants of incentive pay scheme.

4. Research Design

Hypothesis (1) investigates the relationship between budgetary participation and the degree of incentive pay scheme and predicts that as the level of budgetary participation increases, firms are more likely to increase the relative weight of incentive pay scheme. To estimate the prediction, the following equation was used:

 $\begin{aligned} DIFFINC_RATIO_{i,t} &= \alpha_t + \beta_1 \cdot PB_{INT\,i,t-1} + \beta_2 \cdot ROA_{it-1} + \beta_3 \cdot SALES_CHG + \beta_4 \\ &\cdot CFO_{i,t-1} + \beta_5 \cdot LEV_{i,t-1} + \beta_6 \cdot KO_{i,t-1} + \beta_7 \cdot SIZE_{i,t-1} + \beta_8 \\ &\cdot B_TA_{i,t-1} + \beta_9 \cdot B_D_{i,t-1} + \beta_{10} \cdot B_OI_{i,t-1} + \beta_{11} \cdot LOSS_{i,t-1} \\ &+ \beta_{12} \cdot MV_BV_{i,t-1} + \beta_{13} \cdot SALES_VOLATILITY_{i,t-1} \end{aligned}$

The dependent variable is the percentage of performance pay relative to the average value of base salary of a firm. In the equation, any firm-level characteristics are controlled that may explain the adoption of performance pay scheme. In estimating hypothesis (2) to (4) path analysis is used to estimate the mediating effect of employee's trust level and organizational commitment. The theoretical model for the analysis is represented in figure 3.

[Insert Figure 3 About Here]

In figure 3, each path coefficient stated on the direction between the variables shows the influence of antecedents on explaining the variance in outcome variables. In other words, path coefficients can be described as the standardized beta coefficient in regression model between an antecedent and outcome variable.

5. Empirical Results

5.1 Descriptive statistics and correlations

Table 2 indicates the descriptive statistics. Panel A of Table 2 presents the summary statistics for regression analysis of the relationship between budgetary participation and relative weights of pay for performance. It is shown that employees participate in budgeting process normally at the intensity of 2.71 out of 5 scale points. The average firm provides 170% of incentive pay when monthly base salary is 100.

[Insert Table2 Panel A About Here] [Insert Table2 Panel B About Here]

Panel C of Table 2 presents the mean and median differences between firms that show high level versus low level budgetary participation. It displays that both mean and median value of the ratio of incentive compensation for high-budget participation firms are significantly higher than those of low-budget participation firms. Such estimation may yield some inferences about the influence of participative budgeting on firm's use of incentive compensation. Moreover, the significant difference in mean and median value of organization commitment between two types of firms may give some inferences about the association between budget participation and organizational commitment. Lastly, it is known that firms with high level of budgetary participation are likely to be bigger in size.

[Insert Table2 Panel C About Here]

Table 3 reports the correlations results. It is shown that the relative weight of incentive pay to base salary is highly correlated with ROA, leverage, loss, and sales volatility. Such result gives some inference that firms use accounting performance and risk signaling measures to determine the level of incentive pays. Further, the correlation between sales volatility and budgetary participation reflects the prior literature which investigated contextual factors such as business uncertainty as an antecedent of budgetary participation. (Shield and Shield, 1998)

[Insert Table3 About Here]

5.2 Empirical results

This paper first employs regression analysis to investigate the association between budgetary participation and the relative weights of pay for performance to total compensation. Table 4 reports linear regression estimation results. The parameter estimates for budgetary participation supports hypothesis 1 (*coefficient*=19.81, p=0.04) as participation in budgeting process is positively

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related to the ratio of incentive compensation. However, the coefficient of volatility in sales is insignificant and this may imply that the sample may consist of firms with low risk variation or the variable cannot capture the risk related to the incentive compensation. Moreover the significant coefficient of firm's leverage and the ratio of market to book value display that firm's risk characteristics and growth opportunities are possible determinants of pay for performance scheme.

[Insert Table4 About Here]

Path analysis methodology is involved to test the indirect and intervening effects in describing the relationship between firm's use of budget participation process, and the relative weights of pay for performance to total compensation. Panel B of Table3 presents the correlation of variables of interest. The result indicates that the correlation between the variables of interest are significant (p<0.01) excluding the correlation between the level of budget participation by employees and trust level from employees toward their superiors and firms. In particular, it is shown that the trust level is significantly associated with organization commitment by employees (r = 0.62; p < 0.01). Table 5 indicates the path coefficients of each corresponding hypothesis. Except for the path coefficient for budget participation to ratio of incentive compensation, each related path coefficient show significant result at 5-percent significance level. The path analysis results support the hypothesis apart from the aforementioned exception. Figure 4 graphically presents the path coefficient in the model.

[Insert Table3 Panel B About Here]

[Insert Table5 About Here][Insert Table6 About Here][Insert Figure4 About Here]

Table 6 presents a summary of the decomposition of observed correlations into direct effects, indirect effects and spurious effects. With regard to estimating the relative magnitude of the total relationship, significance of indirect effects can be estimated by the techniques of Sobel (1982). Table 7 presents the analysis of indirect effects. In terms of evaluating the existence of partial or full mediation relationship between measures, Baron and Kenny (1986) states that mediating variable exists in the significant relationship between an independent variable and outcome variable when: (1) the independent variable and the mediating variable is significantly associated; (2) the outcome variable and the mediating variable form a significant relationship; (3) the relationship between the independent and outcome variable weakens when adjusting for the mediating variable(Nouri and Parker, 1998). According to Baron and Kenny (1986), full mediation relationship is defined as the disappearance of the connection between the independent and the outcome variable when the mediating variable is controlled. Also partial mediation is defined as the relationship when the association between the independent variable and the outcome variable remains statistically significant but weakens even after the mediating variable is controlled.

According to Table 6, the total association between budgetary participation and organizational commitment is 0.20 (p<0.01). The result in table 6 presents that the total relationship consists of direct effect (0.13, p<0.01) and indirect effect (0.07, p<0.05). Such significance in both direct and indirect effect

indicates that trust level partially mediates the relationship between participation in budgeting process and organizational commitment. The spurious relationship between trust and organizational commitment reflects the influence of budgetary participation, which is considered as an antecedent of both measures. The indirect effect of budgetary participation on incentive compensation is decomposed into following paths:

(1)PB→TRUST→DIFFINC	0.10*0.13	=	0.013
(2)PB→TRUST→COMM→DIFFINC	0.10*0.62*0.16	=	0.00976
(3)PB→COMM→DIFFINC	0.13*0.16	=	0.0208
(4)Total		=	0.04356

The insignificance in the direct effect at 5-percent significance level when mediating variables are controlled implies that trust and organizational commitment play mediating role in the association between participative budgeting and the relative weights of incentive compensation to total compensation. In describing the relationship between trust and incentive compensation, the indirect effect of organizational commitment (0.1, p<0.01) indicates partial mediating role of such measure. The spurious relationship may represent the influence of budgetary participation. Lastly, the relationship between organizational commitment and incentive compensation can be separated into direct effect and spurious effect which represent the influence of antecedents trust and budgetary participation.

[Insert Table7 About Here]

6. Conclusion

The area of budgetary participation research has focused on investigating consequences of participative budgeting process in terms of considering organizational behaviors and job performance (Shields and Shields, 1998). In respect to exploring the influence of budgetary participation, the zest of the research is that budgetary participation functions as private information function (Heinle, 2014). Considering how private information from employees is disseminated and utilized in the context of budgetary participation, it is conjectured that budgetary participation is likely to involve implementation of compensation schemes which exist for the purpose of promoting information sharing or effort from employees.

To investigate the influence of level of participative budgeting on the relative weights of performance pay, first this paper employees a regression analysis. It is conjectured that internalization of budgetary goals and increased level of sense of control in terms of setting and accomplishing budget goals through budgetary participation (Searfoss and Monczka, 1973; Govindarajan, 1986) are likely to lower employees' uncertainty level toward achieving the budgetary targets. This paper further elaborates that reduced uncertainty level and increased level of employees' motivation in attaining the budgetary targets from budgetary targets are conjectured to foster the implementation of pay for performance scheme. This is because both change in employees' attitude toward achieving the targets influence employees' acceptance toward risk sharing in their incentive compensation schemes and the amount of risk premium or additional

costs principals pay for risk sharing in implementing such pay scheme.

At the same time, this paper suggests that relationship between budget participation and relative weight of pay for performance is complex as budgetary participation induces the possibility of employees to commit budgetary slack due to information asymmetry (Dunk, 1993). This paper elaborates in the context of performance measures to suggest that the level of trust from employees toward superiors or firms, and organization commitment serve as mediating forces in the relationship between budgetary participation and emphasis on incentive pay scheme. In the setting of increase in employees' trust level and organizational commitment level through budgetary participation, it is suggested that the mediation effect of trust and organization commitment involves the perception of fairness towards the performance measurement and decreased dysfunctional behavior of employees with regards to dealing with budgetary targets.

Besides mentioning the threat of leniency bias in utilizing the survey data, one limitation of this study is that only firm-level average value of relative weight of incentive compensation data were available to perform the statistical analysis. Such limitation may be an issue since the incentive pay disparity between low level employees and managers are relatively high.

Second, it is plausible to argue that antecedents of participative budgeting play a critical role in mitigating the association between participative budgeting and incentive pay scheme. According to Shield and Shield (1998), participative budgeting may arise due to environmental factors such as uncertainty in business environment, need for collaborative work, and information asymmetry between principals and agents. Considering such environmental factors, it may be plausible that when business uncertainty is remarkably high, incentive pay may not be an

ideal option for an agent since risk sharing is detrimental to total compensation level.

Moreover, when job complexity level is high or information asymmetry between employees and principals is noticeable, because, monitoring costs of employee's behavior is higher and thus the level of delegation is high, firms may implement incentive pay strategy that may promote higher level of performance from employees (Nagar, 2002). Therefore, only when the intensity of participation in budgeting responds to the job complexity level, positive association between participative budgeting and incentive pay may be examined.

In methodological aspects, improvements in some aspects are necessary to yield better testing results. First, addition of control variables that may influence the extent to which the incentive pay strategies are used may improve the research. Specifically, considering the employee-level characteristics such as their rank, age and tenure may be an option.

Appendix

Variable	Description
PB_INT	Intensity of participative budgeting (1 to 5 point scale) over the last fiscal
	year;
ROA	Net income divided by total assets in the fiscal year;
LN_TA	Natural logarithm of total asset value of a firm in the fiscal year;
B_TA	Total asset value (in billion won) of a firm in the fiscal year;
B_D	Total liabilities (in billion won) of a firm in the fiscal year;
B_01	Operating income (in billion won) of a firm in the fiscal year;
LEV	Total liabilities divided by total assets at the end of the fiscal year;
CFO	Cash from operations divided by total assets in the fiscal year;
LOSS	Dummy variable equal to 1 if net income is negative in the fiscal year and 0
	otherwise;
SALES_VOL	Standard deviation of sales in t-1 to t-4 year;
SALES_CHG	Dummy variable equal to 1 if sales in a given year is lower than the previous
	year;
KO	Dummy variable equal to 1 if a firm is in KOSPI group;
MV_BV	Enterprise value divided by total assets in a given year;
DIFFINC_RATIO	Firm's percentage of average total incentive pay to employees in the fiscal
	year considering the monthly base salary as 100;
COMM_MEAN	Standardized z-score of average value of the total score for commitment (4 to
	20) for each firm in a given year;
TRUST_MEAN	Standardized z-score of average value of the total score for trust (3 to 15) for
	each firm in a given year;

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Figure 1: Timeline for survey items



Figure 2: Description of Survey dataset

	DESCRIPTION			SCALE		
	SECTION A: Budgetary Participation	1	2	3	4	5
1	How do you set goals for performance evaluation in your company?	Totally decided by the superiors	Negotiate with you, but your superior makes the decision	You and your superior reach to mutual agreement	Negotiate with your superior, but you make the decision	Totally decided by you
	SECTION B: Incentive Compensation					
1	When the monthly base salary is 100, please respond to the level of performance pay at the company-wide level. (%)					
	SECTION C: Trust Level	1=Strongly Disagree	2=Disagree	3=Undecided or not sure	4=Agree	5=Strongly Agree
1	In our company, we trust each other among our members.					
2	Our company is evaluated and compensated fairly.					
3	The management of our company is trustworthy in every way and can be followed.					

	SECTION D: Organizational Commitment Level	1=Strongly Disagree	2=Disagree	3=Undecided or not sure	4=Agree	5=Strongly Agree
1	If there is a firm that offers even a little bit of good terms, I will consider moving.					
2	I feel the firm's issues as mine.					
3	If I decide to leave this firm I will lose too much of my life					
4	This company deserves my loyalty					

FIGURE 3: Theoretical Model



The symbols *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively.

TABLE 1: Sample Selection Procedure				
Firm-years in HCCP survey from 2009 to 2017:	1,922			
Exclude firm-years not publicly traded:	(924)			
Firm-years that are public	998			
Exclude firm-years without survey answers related to budget participation and incentive compensation:	(210)			
Exclude firm-years without financial control variables:				
Final Firm-years for regression analysis				
Exclude firm-years without survey answers related to trust and organizational commitment:	(19)			
Final Firm-years for Path analysis	445			

Fanel A: Descriptive statistics of the sample for regression analysis									
Measure	Mean	Stdev	Median	Min	1st	99 th	Max		
DIFFINC RATIO	169.58	173.10	101.50	0.02	3.00	900.00	1050.00		
PB_INT	2.71	0.74	3.00	1.00	1.00	4.00	4.00		
ROA	0.04	0.06	0.04	-0.19	-0.19	0.20	0.20		
SALES_	9.23	24.74	5.69	-65.68	-65.68	117.82	117.82		
CHG CFO	0.06	0.07	0.05	-0.20	-0.20	0.27	0.27		
LEV	0.39	0.18	0.39	0.06	0.06	0.85	0.85		
ко	0.64	0.48	1.00	0.00	0.00	1.00	1.00		
LN_TA	19.55	1.42	19.17	17.46	17.46	23.99	23.99		
LOSS	0.10	0.30	0.00	0.00	0.00	1.00	1.00		
в та	12438.9	35524.05	2110.5	383.41	383.41	263309.68	263309.68		
- B D	5828.5	18414.3	831.22	41.09	41.09	130764.21	130764.21		
B OI	745.10	2342.48	116.88	-197.26	-197.26	17140.61	17140.61		
SALES VOL	155400	461623	26816	1605	1605	3117708	3117708		
MV_BV	0.87	0.65	0.69	0.20	0.20	4.55	4.55		

 TABLE 2: Descriptive Statistics

 Panel A: Descriptive statistics of the sample for regression analysis

N=464

Measure	Mean	Stdev	Median	Min	1 st	99th	Max
DIFFINC_RATIO	167.32	173.84	100.00	0.02	3.00	900.00	1050.00
PB_INT	2.70	0.73	3.00	1.00	1.00	4.00	4.00
TRUST_SUM	10.58	1.09	10.54	6.00	8.00	14.00	15.00
COMM_SUM	13.72	1.35	13.62	9.00	11.00	17.00	19.00
N=445							

Panel B: Descriptive statistics of the sample for path analysis

Panel C: Mean and median differences between High-PB firms and

	PB High firms		PB Low firms			
	N= 46		N= 147			
	Mean	Median	Mean	Median	Mean Differences	Median Differences
DIFFINC_ RATIO	259.5	120	149.5	100	109.9***	100***
Firm Characteristics						
LN_TA	20.09	19.17	19.20	18.54	0.88***	0.62*
LEV	0.34	0.38	0.38	0.47	-0.04	-0.09*
MV_BV	1.05	0.70	0.82	0.68	0.23*	0.02
Path Analysis						
Trust	0.34	0.22	0.11	0.06	0.22	0.15
Organizational Commitment	0.52	0.12	0.04	-0.44	0.48***	0.56***

Low-PB firms

MV_BV	SALES_ VOL	B_OI	B_D	B_TA	LOSS	LN_TA	КО	LEV	CFO	SALES_ CHG	ROA	PB_INT	
0.14***	0.29***	0.36***	0.29***	0.32***	-0.12***	0.24***	0.03	-0.21***	0.24***	0.12***	0.32***	0.14***	DIFFINC RATIO
0.09*	0.14***	0.16***	0.11**	0.13***	-0.03	0.18***	0.05	-0.04	0.01	0.09**	0.09*		PB _INT
0.24***	0.02	0.13***	-0.03	0.01	-0.41***	0.05	0.04	-0.40***	0.45***	0.32***			ROA
0.05	0.01	0.10**	0.04	0.03	-0.21***	0.01	-0.03	0.11**	-0.01				SALES _CHG
0.14***	0.01	0.13***	-0.01	0.02	-0.30***	0.04	0.03	-0.23***					CFO
-0.05	0.12**	0.07	0.22***	0.13***	0.10**	0.12***	0.01						LEV
-0.06	0.21***	0.21***	0.21***	0.23***	-0.03*	0.54***							КО
0.08*	0.66***	0.64***	0.68***	0.71***	-0.14***								LN_TA
-0.08	-0.07	-0.12**	-0.07	-0.08*									LOSS
-0.01	0.90***	0.90***	0.97***										B_TA
-0.02	0.86***	0.84***											B_D
0.10*z	0.82***												B_OI
0.01													SALES_ VOL

TABLE 3: Pearson Correlation Matrix

Panel A: Sample for regression analysis

I unet D.	sumple for pain analysis		
	DIFFINC_RATIO	PB_INT	TRUST
PB_INT	0.13***		
TRUST	0.24***	0.08**	
COMM	0.26***	0.20***	0.62***

TABLE 3: Pearson Correlation Matrix Panel B: sample for path analysis

The symbols *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively.

TABLE 4: Regression Results

0	(1)	(2)	(3)
Variable			
PB_INT	19.81**	25.66**	24.27**
	(0.04)	(0.02)	(0.02)
ROA	75.30	67.65	54.70
	(0.32)	(0.37)	(0.47)
SALES_CHG	-20.79	-21.26	-13.05
	(0.20)	(0.20)	(0.44)
CFO	318.21***	303.72***	306.70***
	(0.001)	(0.01)	(0.01)
LEV	-225.97***	-214.56***	-226.47***
	(<.0001)	(<.0001)	(<.0001)
KOSPI	-30.57*	-40.79**	-40.51**
	(0.10)	(0.05)	(0.05)
SIZE	10.38	10.05	11.33
	(0.23)	(0.29)	(0.24)
B_TA	0.00	0.00	0.00
	(0.32)	(0.13)	(0.22)
B_D	0.00***	0.00***	0.00***
	(0.001)	(0.001)	(0.001)
B_OI	0.00	0.00	0.00
	(0.18)	(0.19)	(0.30)
LOSS	1.85	-2.48	7.09
	(0.94)	(0.93)	(0.80)
MV_BV	19.32*	23.59**	28.00**
	(0.08)	(0.04)	(0.02)
SALES_VOL	0.00	0.00	0.00
	(0.60)	(0.59)	(0.86)
Industry and Year	No	IND	YES
fixed effects	110		1L0
Constant	176.57***	110.10	79.78
Observations	464	464	464
Adjusted R-	0.23	0.31	0.33
squared			

	Path		Estimate	Standard error	t-Value	$\mathbf{Pr} > \mathbf{t} $
COMMITMENT	←	TRUST	0.13**	0.06	2.19	0.03
DIFFINC_RATIO	←	PB_INT	0.09*	0.05	1.78	0.08
TRUST	←	PB_INT	0.10**	0.05	2.05	0.04
COMMITMENT	←	TRUST	0.61***	0.03	20.81	<.0001
COMMITMENT	÷	PB_INT	0.13***	0.04	3.57	0.00
DIFFINC_RATIO	←	COMMITMENT	0.16**	0.06	2.72	0.01

TABLE 5: Path Analysis Results

The symbols *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively.

TABLE 6: Decomposition of Observed Correlations

Combination of Variables	Observed Correlation	=	Direct Effect	+	Indirect Effect	+	Spurious Effect
BP/TRUST	0.1**		0.1**		-		-
BP/COMMITMENT	0.2***		0.13**		0.07**		-
TRUST/COMMITMENT	0.62***		0.61***		_		0.01
BP/DIFFINC	0.13***		0.09*		0.04***		-
TRUST/DIFFINC	0.24***		0.13**		0.1***		0.03
COMMITMENT/DIFFINC	0.26***		0.16**		-		0.1

The symbols *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively.

TABLE 7: Analysis of Indirect Effects (Sobel Test)

Indirect Effect	Indirect Effect Coefficients	Standard Deviation	<i>p</i> -value		
BP on Commitment	0.06*	0.03	0.04		
Trust on DIFFINC	0.11***	0.04	0.00		
BP on DIFFINC	-	-	-		
via Trust	0.02**	0.01	0.05		
via Commitment	0.04***	0.01	0.00		

국문초록

참여적 예산설정이 변동 성과급에 미치는 영향

본 연구는 참여적 예산설정의 정도가 변동 성과급의 전체 보상에 대한 비 중에 미치는 영향을 분석하였다. 첫째, 해당 연구는 2007년부터 2017년까 지 격년을 기준으로 한국 상장기업으로부터 추출한 464개 기업-연도 관측 치를 통해 참여적 예산 설정의 비중이 높을수록 변동 성과급의 월 기본급 에 대한 비중을 높인다고 실증적으로 분석하였다. 해당 결과는 높은 수준의 참여적 예산설정이 목표달성에 대한 불확실성을 낮추어 준다는 점에서 대 리인 이론에 부합한다고 볼 수 있다. 더 나아가, 본 연구는 경로 분석을 통 해 어떠한 메커니즘으로 참여적 예산 설정이 변동 성과급의 상대적 비중에 영향을 미치는 지 분석한다. 참여적 예산설정은 피평가자가 회사에 대해 느 기는 신뢰도와 조직몰입을 높이며, 증가한 신뢰도와 조직몰입은 변동 성과 급의 상대적 비중에 영향을 미친다. 이러한 매개효과는 피평가자의 회사에 대한 신뢰도 증가로 인한 성과 평가에 대한 공정성 증가 및 피평가자의 조 직몰입 증가로 인한 성과평가에 대한 피평가자의 역기능적 행동의 감소 때 무이라 분석된다.

주요어: 참여적 예산설정; 변동 성과급; 신뢰도; 조직몰입 **학번:** 2017-24598