

## The effect of employee profit sharing and stock option on corporate earnings measurement quality

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### Abstract

This study extends the monitoring effect of employee profit sharing and stock option to the case of corporate earnings measurement quality. It is argued that employee profit sharing and stock option plans are useful to reduce the management opportunistic selection of accounting methods and estimates for self-serving purposes. In this context, the role of employee profit sharing and stock option plans are discussed as a significant monitoring policy. Five different propositions are discussed for the monitoring effect of employee profit sharing and stock option plans on corporate earnings measurement quality. These propositions include the individual and joint effects of employee profit sharing and stock option on earnings measurement quality as well as shareholders' awareness of the monitoring effect of these plans. The theoretical and practical applications of these propositions are discussed.

Keywords: Earnings Quality, Earnings Measurement, Quality Employee Profit Sharing, Stock Options, Monitoring Effect, Management Self-serving, Opportunistic, and Accounting Methods.

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## INTRODUCTION AND LITERATURE REVIEW

The current literature on employee profit sharing plans (EPSH) and employee stock option plans (ESOP) can be classified into two groups:

1. A group that investigates influential factors on adoption of these plans, such as productivity (Ichniowski et al., 1996, Kruse, 1993), wage flexibility issue (Kruse, 1996; Kruse and Blasi, 1999), and tax and regulatory (Beatty, 1994).
2. Another group that studies the effectiveness of these plans on the firm's performance and profitability (Bell and Neumark, 1993; Cable and Wilson, 1990, among others).

While these studies contribute greatly in our understanding of EPSH and ESOP and their effectiveness, further studies are needed for better understanding of influential factors on their adoption and effectiveness. The need for more research in this area is evident, as the use of employee variable pay systems is on the rise. Kruse, Freeman and Blasi (2011) explain in their seminal book "Shared capitalism At work" that almost half of the private sector workers in the U.S. participate in some form of shared capital pay (about 53.4 million American workers), with profit sharing having the highest percentage (38%). These statistics indicates the importance of the subject and the greater need for further study in this area.

Prior studies discuss that employee profit sharing and stock option plans could be effective as they may potentially increase productivity and/or lower agency costs due to peer monitoring effect. According to this argument, the need for direct and costly employee monitoring is lower when variable employee pay system is in place because employees have incentive to monitor co-workers' performance (Kruse, 1993, Long (2000). Thus, employee monitoring and agency costs will be lower (Drago and Heywood. 1995 and Narbantian and Schotter, 1997). However, prior studies focused mainly on the benefits of the employee monitoring effect on reducing employee agency costs and on productivity.

The current study extends this line of research by investigating the effectiveness of EPSH and ESOP on the quality of the reported earnings by management, which is beyond the benefit of these plans merely for employee-related issues. Management is responsible for measuring and reporting fair and accurate earnings numbers. However, management may have incentive to manipulate earnings for various reasons, which are widely discussed by prior studies.

When EPSH and ESOP are in place, employees have incentive to monitor management practices for earnings measurement, which may result in higher earnings quality, better corporate governance, and long-term success of the firm. Such a monitoring effect is also significant, as it will help establish a fair and effective EPSH and ESOP, which may sustain in long-term. In addition, it will benefit shareholders, who will gain from increase in earnings measurement quality. The current study aims to extend this line of research.

The rest of this paper is organized as follows: importance of earnings measurement when EPSH and ESOP are in place, the effect of EPSH and ESOP magnitude on employee monitoring effect, the joint effect of EPSH and ESOP, external validity for the effect of EPSH and ESOP, and summary and conclusion.

## IMPORTANCE OF INCOME MEASUREMENT QUALITY

### Definition of Earnings Measurement Quality

Earnings measurement quality is defined as the overall accuracy of reported earnings numbers in term of how the income numbers are calculated and reported by management. The income measurement quality is important as the numbers for revenues and expenses are affected by management estimates and discretionarily use of alternative accounting methods within the Generally Accepted Accounting Principles (GAAP). Management may opportunistically use its discretion in applying accounting methods, which may result in deviation of the reported earnings numbers from the actual earnings numbers. Earnings measurement quality is considered low when the reported earnings numbers are different from the actual earnings numbers. On the other hand, earnings measurement quality is considered high when the reported earnings are close or the same as the actual earnings. However, the actual quality level of earnings measurement is difficult to gauge because the actual earnings numbers are difficult to observe due to existence of estimated revenues and expenses and alternative accounting methods. Additionally, earnings measurement quality may vary across time for a firm due to changes in the management estimates for revenues and expenses and also application of accounting methods. Thus, a system that helps with continues monitoring of earnings measurement quality is desirable. Only recently, researchers in the financial accounting field have started paying attention to the effect of earnings measurement quality due to management discretionarily use of accounting methods and estimates and the effect of such opportunistic practices on firm value and financial analyses (Chen et al., 1994; Platikanova, 2008; Cahan et al., 2009; Jeong-Bon et al., 2003, Daneshfar, et al, 2009).

### *EPSH and Earnings Measurement Quality*

According to the agency theory when management compensation is tied up to the firm's earnings performance, management has incentive to opportunistically use the accounting methods that result in higher earnings numbers (Palliam and Shalhoub, 2003, Habib and Hansen, 2008). However, there are several other circumstances in which management may have incentive to use the accounting methods that result in lower earnings numbers, for example for tax saving purposes (Yin and Cheng, 2004 and Comprix at al., 2012).

Distortions in earnings numbers can be divided into two groups: the distortions that result in higher reported earnings numbers than the actual earnings numbers, and the distortion that results in lower reported earnings numbers (Dutta and Gigler, 2002). In the first glance, it seems employees will benefit from the distortions that result in higher reported earnings and will lose from the distortions that result in lower reported earnings and it may be obvious why employees will lose when there are the distortions that result in lower reported income numbers. However, employees, in fact, will lose in the case of both types of distortion in earnings numbers. The distortions that result in higher reported earnings numbers than the actual earnings numbers will result in negative factors for the firm, which will affect the firm's financial stability in short-term and long-term (Sun et sl., 2010). The examples of these factors are a larger difference between the firm's cash flow and the reported earnings numbers, which may directly affect the firm's ability to pay employee compensation. Other examples include investors and creditors lack of confidence in the firm, which could negatively affect the firm's access to capital for its projects.

Other negative factors could be possibility of the being subject to investigation and financial statement re-statement, which could significantly affect the firm's financials (Ferguson et al., 2004). Accordingly, employees have strong incentive to monitor management practices for income measurement when EPSH is in place. Employees could exercise such monitoring activities by comparing the reported earnings numbers with their expectation of the actual earnings numbers. On the other hand, management may have less incentive to opportunistically use accounting methods and estimates that results in distortion of earnings numbers because management will be aware of employees' monitoring of earnings measurement quality. In this context, EPSH can serve as a monitoring function that helps achieve higher confidence in earnings measurement quality, which not only benefits employees, but other stakeholders as well. Thus, firms with EPSH are expected to exhibit higher earnings measurement quality in comparison with firms that they don't have EPSH. This argument can be formally stated as the following:

$$\text{Equation 1) } \quad \text{EMQ}_{i,t} = f(\text{EPSH}_{i,t}, \text{CV}_{i,t})$$

where EMQ represents income measurement quality, EPSH represents existence of employee profit sharing plan, and CV is the vector of control variables.

Accordingly, the first proposition is defined as the following:

Proposition 1: Firms with EPSH exhibit higher earnings measurement quality.

### **The Effect of ESOP on Earnings Measurement Quality**

The main argument in support of ESOP effectiveness is that it ties employee compensation to the firm's stock performance. Thus, it encourages employees to work harder to increase the firm's profitability, which consequently will result in higher firm stock prices. This argument is based on the concept that higher firm's profitability will result in higher stock prices. In other words, stock prices are driven by the firm profitability. However, the literature on the earnings quality suggests that the link between the firm's earnings and stock prices changes is affected by the level of earnings measurement quality and by capital market participants' confidence in the reported earnings numbers. In other words, if the quality of earnings numbers is perceived low by the market participants, the stock price reaction to the higher earnings numbers is lower. Thus, similar to the case of EPSH, employee will have incentive to monitor management practices for earnings measurement when ESOP is in place. In addition, other factors that affect the firm's financial stability in the long-term such as lack of investors and creditors' confidence in the firm, as explained for the case of EPSH, are valid for the case of ESOP. Thus, although employee compensation is not directly affected by change in earnings numbers when an ESOP is in place, employees still have incentive to monitor management practices for earnings measurement and increase earnings measurement quality. This argument is formally stated as the following:

$$\text{Equation 2) } \quad \text{EMQ}_{i,t} = f(\text{ESOP}_{i,t}, \text{CV}_{i,t})$$

where EMQ represents income measurement quality, ESOP represents existence of employee stock option plan, and CV is the vector of control variables.

Accordingly, the second proposition is defined as the following:

Proposition 2: Firms with ESOP exhibit higher earnings measurement quality.

### **The Effect of Size of EPSH and ESOP**

The percentage of employee compensation from EPSH and ESOP in comparison to the total employee compensation can play a significant role (Long, 2000, Conte and Kruse, 1991). When the percentage of the employee compensation amount from EPSH and ESOP is significant, employees have higher incentive to monitor management practices for income measurement and they will be more concern about the quality of earnings numbers (Megnan et al., 2005). On the other hand, when employee compensation from EPSH is not a significant percentage of the employee total compensation, employee sensitivity to earnings measurement quality may diminish. This argument is consistent with the transaction cost theory that implies the benefit of the employee monitoring of management practices for earnings measurement shall exceed the cost of such monitoring activity (Wang, 2006, Daneshfar, 2001 and Ghoshal and Insead, 1995). Thus, the percentage of employee compensation from EPSH and ESOP to employee total compensation plays an important role for the effectiveness of employees' monitoring of management practice for income measurement. This argument is formally presented as follows:

$$\text{Equation 3) } \quad \text{EMQ}_{i,t} = f(\text{EPSHSIZE}_{i,t}, \text{ESOPSIZE}_{i,t}, \text{CV}_{i,t})$$

where EMQ represents earnings quality, EPSHSIZE represents the percentage of employee compensation from EPSH comparing to the employee total compensation, ESOPSIZE represents the percentage of employee compensation from ESOP comparing to the employee total compensation and CV is the vector of control variables.

Accordingly, the third proposition is defined as the following:

Proposition 3: The higher percentage of employee compensation payment from EPSH and ESOP is associated with higher income measurement quality.

### **The Joint Effect of EPSH and ESOP**

ESOP ties employee compensation to the firm's stock price performance. However, stock prices could be affected by factors other than earnings (although earnings are a significant determinant of stock prices) and the relation between earnings changes and stock price are not one to one. Thus although the existence of ESOP could be an incentive for employees to monitor management practices for income measurement, such monitoring function is reinforced when an EPSH plan is in place (Hsu, 2008). Also, ESOPs are designed to encourage long-term firm's productivity improvement (Pugh et al., 2000). Employees can use the benefits of ESOP after a certain period of time and for a limited time period (exercise period). Thus, while the effect of EPSH could be immediate and ongoing (Flesher, 1993) on earnings measurement quality, the effect of ESOP could be long-term. Thus, the existence of both plans (EPSH and ESOP) together

could reinforce the employee motive for monitoring management practices for earnings measurement (Pendleton et al., 1995). This argument is formally presented as follows:

$$\text{Equation 4)} \quad \text{EMQ}_{i,t} = f(\text{EPSH}_{i,t} * \text{ESOP}_{i,t}, \text{CV}_{i,t})$$

where EMQ represents earnings quality, EPSH represents employee profit sharing and ESOP represents employee stock option plan, and CV is the vector of control variables.

Accordingly, the fourth proposition is defined as the following:

Proposition 4: The joint effect of ESOP and EPSH is positive on earnings measurement quality.

### External Validity for the Effect of EPSH and ESOP

Propositions one to four present cases where employees have incentive to monitor management practices for earnings measurement. However, in addition to employees, shareholders also will benefit from higher earnings measurement quality, as they use the reported income numbers for their investment valuations. Therefore, investors will welcome any monitoring function that could potentially result in higher earnings measurement quality, including EPSH and ESOP. The shareholders' appreciation of EPSH and ESOP could present an external validity for the positive effect of these plans on earnings measurement quality. Such shareholders' appreciation will be especially higher when there is an evidence of low earnings measurement quality for the firm. This argument is formally stated as the following:

$$\text{Equation 5)} \quad \text{EAE}_{i,t} = f(\text{EMQ}_{i,t} * \text{EPSH}_{i,t}, \text{EMQ}_{i,t} * \text{ESOP}_{i,t}, \text{CV}_{i,t}, \text{et})$$

where EAE represents stock price reaction at the time of the plan announcement, EMQ\*EPSH represents the interaction effect of employee profit sharing plan announcement and the estimated level of earnings measurement quality at the time of the EPSH announcement, EMQ\*ESOP represents the interaction effect of employee profit sharing plan announcement and the estimated level of earnings measurement quality at the time of the ESOP announcement, and CV is the vector of control variables.

Accordingly, the fifth proposition is defined as the following:

Proposition 5: Shareholders reaction to the announcement of EPSH and ESOP is higher when there is evidence of low earnings measurement quality.

### Summary and Conclusion

This study contributes to the research by extending our understanding of the application of EPSH and ESOP beyond employee-related issues. It discusses the role of EPSH and ESOP for monitoring management practices for earnings measurement. In this context, EPSH and ESOP are very valuable elements to not only increase employee productivity, but also improve the corporate governance and firm's financial reporting. This is an important application in today's business environment, as the earnings quality and the management practices for earnings



measurement are becoming a challenge. Attention to the monitoring effect of EPSH and ESOP on earnings measurement quality also will be beneficial in establishing the plans that will result in sustainable variable pay and improve the overall financial health of the firm. Therefore, these plans are not only useful for improving employee productivity and reducing employee agency costs, but also for improving the firm's earnings measurement quality, reducing management opportunistic behavior for financial reporting, and minimizing damages to the firm for lack of shareholders and creditors' confidence in the reported earnings numbers.

This study also contributes to the research in the area of financial reporting and corporate governance. Prior studies in the areas of financial reporting and corporate governance have paid less attention to the potential benefit of employee monitoring of management practices for earnings measurement to increase earnings measurement quality. This study contributes to the literature in this area by investigating the effect of EPSH and ESOP on earnings measurement quality. It discusses that shareholders and employees may jointly benefit from the employee monitoring of management practices for income measurement. This study also provides future studies in this area with the opportunity of testing the propositions presented in this paper with empirical data. Such testing will add significant value to the discussion.

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