

# A Review of Employee Stock Option Plans: Panacea or Pandora's Box for Firm Performance

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**Abstract-** *Employee Stock Option Plans (ESOPs) have gathered enormous attention in recent decades and have become the most controversial component of the compensation package. Organizations around the globe have been using ESOPs to compensate their employees at managerial and non-managerial levels. While traditionally the stock options were reserved for top management employees, lately there has been strong growth of broad-based plans primarily to increase firm value. Recent literature examining the effects of broad-based stock options are not limited to executive but available for all employees (Core and Guay, 2001; Oyer and Schaefer, 2005; and Hallock and Olson, 2010). However, the shareholders have become increasingly apprehensive about the size and proliferation of adoption of stock option plans. Accordingly, they have been an issue of debate in both academic research and practice circles. The present paper outlines the theoretical foundations behind the use of ESOPs in the compensation mix and strives to address the controversy of whether or not stock options adoptions result in enhancement in firm value. Though the evidence is mixed on the implications of ESOPs, however, there exists robust support for a positive interrelationship between the adoption of these plans and firm performance for large sized firms.*

**Keywords-** *agency relationship; employee stock option; productivity; employee engagement; firm performance*

## 1. INTRODUCTION

The theoretical foundations that lead to the emergence of equity-based compensation plans, emanates primarily as a solution to resolve the agency problem that exist between the shareholders and the managers. The theory propounded by Jensen and Meckling (1976) [29] advocated that, in the case of public companies, the managers are more inclined to be opportunistic and undertake actions that are in their personal interest at the expenses of owners. Employee stock options were conceived as a mechanism to co-align the conflicting interests of managers with owners.

While, ESOPs were a common phenomenon in industrialized economies, their spread in the developing market can be traced back to the late 1990's (Aggarwal, 2001)[1]. However, in the recent past employee stock option plan (ESOP) has emerged out to be one of the most important forms of variable pay package. Furthermore, ESOPs are the most conventional method to incentivize employees and maximize firm performance (Kruse, 1993[34]; Jones & Kato, 1995[31]; Park & Song, 1995; Blasi, et al., 1996[3]; Ichniowski, et al., 1997[26]; Cui & Mak, 2002)[14]. Conversely, it makes shareholders' interests vulnerable to a dilution in earnings per share (Lin 2010).

Despite the immense popularity, ESOPs have gathered a lot of controversy deliberating the benefit associated with

the used of stock options. Are stock options successful in generating returns from an ever-increasing use of stock options to compensate employees on a broad-based? Defenders of stock options advocate stock options as being instrumental in driving the economic growth of the late 90's and have been efficacious in aligning the interests of employees with those of shareholders. On the contrary, stock options have condemned on the grounds that the gains arising from stock options are overrated. One of the leading supporters of this view, Warren Buffet presumes, "Although options can be an appropriate, and even ideal, way to compensate and motivate top managers, they are more often wildly capricious in their distribution of rewards, inefficient as motivators, and inordinately expensive for shareholder."

The emphasis of the present paper is to garner the theoretical and empirical testimonies to answer the fundamental question: Do ESOPs have a positive impact on the performance of the firms? The paper aims to highlight the relationship between corporate performance and the adoption of stock option plans.

## 2. LITERATURE REVIEW

A plethora of literature exists on the impact of stock options in US and Europe; impact on share price (Brickley et al., 1985)[5]; impact on accounting profits (DeFusco et al., 1990[16]; Chen and Lee, 2010) [7] and

impact on risk taking behavior (DeFusco et al.1990[16]; Rajgopal and Shevlin, 2002[47] and Chen and Lee, 2010)[7].

## 2.1 Arguments in Favor of Issuance of ESOPs

Prior to 1990's, there exists only scanty evidence on the improvements arising from incentive-based compensation plans. Marsh and McAllister (1981)[38] conducted a survey of ESOP companies and found that their productivity was more than the national average during the late 1970s. Further, Conte, Tannenbaum, and McCulloch (1981)[9], Rosen and Klein (1983)[49] Rosen and Quarrey (1987) also reported superior productivity and profitability of firms with ESOPs.

Theoretically, need for incentive-based compensation plans originated from the agency conflict between managers and shareholders. Jensen and Meckling (1976)[29], Jensen and Murphy (1990)[30] suggest that stock options are effective in better *aligning the interests of both parties* and managers have incentives to take decisions and actions that increase share value. Kumar and Sopariwala (1992)[35] reported results consistent with the notion that stock based plans reduce the agency problem. Significant positive excess returns were found around the announcement of plan adoption. Additionally, the study established subsequent growth in profitability indicating that such plans are successful in motivating an enhancement of profitability and earnings per share. Empirical evidence on the adoption of stock option plans come primarily from the US. Yermack (1994)[58] and Mehran (1995) [40]documented an improvement in performance for firms that awarded stock options to their CEOs. During the same time, Hall and Liebman (1995) found that the incentive effects of salary and bonus changes are fifty-three times lesser than those from stock options grants. Hence, long-term compensation schemes incentivize managers for increased effort to achieve improved firm performance. In another study, a sample of 121 firms from 1992-1994 were examined by Frye (1999) and found a positive relation between equity based compensation and firm performance as measured by Tobin's Q. Heath *et al* (1999)[24] highlighted that on an average the value of stock options comprised 160 percent of base yearly salary in the US. Conyon and Murphy (1999) [10]contrasted the CEO's composition in the US with that of the UK and reported that stock option grants comprise one-third of total compensation of US CEOs compared to a meager 10 percent for UK CEOs. Furthermore, the median stock option pay for CEOs in US was found to be greater by ten times than that of CEOs in UK.

Previous literature also signals a relationship between the percentage of stocks options outstanding and the firm performance. Tai (2001) examined the US firms during 1995-1999 and inferred that the convergence-of-interest hypothesis indicating the benefits arising from use of stock options are offset by the entrenchment hypothesis highlighting the costs associated with its use beyond the

1% threshold level. Further, Kedia and Mazumdar (2002) [32]examined the effect of use of stock options, for both executives and non-executives, on the abnormal stock returns for 200 of the largest Nasdaq firms from 1995-1998. It was revealed that firms that grant stock options to retain key employees and to ease out the financial constraints have shown improvement in firm value and resulted in positive abnormal returns.

Later, Hall and Liebman (1998)[22] established that value of stocks options owned by the CEO helps enhance the firm's performance. Core and Guay (2001) [12]credited stock options as a mechanism of motivating employees and improving firm value. Sesil, Kroumova, Blasi, and Kruse (2002) [53]pointed out that issuance stock options by the new economy firms (i.e., software, high-technology manufacturing, pharmaceuticals and semiconductor) results in better performance. On similar lines, Ittner, Lambert, and Larcker (2003)[27] too, evidenced that new economy firms (i.e., telecommunications, computer, software and Internet) have been increasingly making use of esops in their compensation plans; higher than the companies from traditional sectors and thus showing enhanced performance post issuing stock options. Empirical evidence from Frye (2004) [21]suggested that companies with higher percentage of ESOs render greater performance.

Blasi et al. (1996) [3]established that firms adopting stock options in the same industry and of same size during 1990 exhibited similar levels of profitability, however significantly higher growth in return on assets, price/earnings ratio and profit margin was noted for adopters in comparison to the non-adopters during 1980 – 1990. The study therefore, documented that small companies exhibited a positive relationship between employee stock option adoption and profitability growth but could not find any strong association between stock options and productivity. On similar lines, Sesil and Kroumova (2005)[51] examined the broad-based stock option plans of all firms from small to large sized to measure its impact on labour productivity, operational efficiency, financial performance, and total shareholder return. Results indicated that small firms outperform small non-stock option firms in terms of productivity, return on assets, profit margin and stock returns. More recently, Lin and Tsai (2010) evaluated the performance impact of employee stock options on listed companies in Taiwan and found that companies with low free cash flow (FCF) have improved long-term performance post issuing ESOs lending support to the FCF theory proposed by Jensen (1986)[28].

The use of stock options has also been credited with increase in *risk-taking ability* of managers (Murphy 1999)[41]. When firms compensate managers in the form of fixed salary, there exists no incentive for them for searching for value maximizing investments. Moreover, manager's concern for job security underpins a risk-averse behavior, wherein they have a tendency of avoiding risky investment projects. DeFusco *et al.* (1990)



[16] provided empirical evidence of the risk-averse hypothesis and found an increase in the variability of stock returns for firms announcing the adoption of stock options plans in US. In Singapore, Soon (2001) [54] advocated that firms adopting stock options are less risk taking and cash strapped and found that firms adopting ESOs are encouraging risk taking behavior leading to better performance than their competitors. Soon also lends support to the notion that firms with poor operating performance in are adopting stock option schemes in an anticipation of motivating employees to perform better. Pendleton and Robinson (2010) [46] discussed the interplay between stock option, employee involvement and productivity. Results revealed that despite the negative effect of free-riders, stock plans have independent effects on productivity.

Modern corporation are characterized by a separation of ownership and control which gives rise to *agency cost* (Jensen and Meckling, 1976). ESOPs have been for long used as part of the compensation package to reduce agency problems and costs. The theory propounds that when managers are given the right to buy shares at a specific price (lower than the market price), they are motivated and derive enhancement in long term performance of the firm and therefore get incentivized by increase the value of the shares owned by them. Because it ties employee income and wealth to firm performance, employee ownership is viewed as a means to improve productivity and performance by decreasing labour-management conflicts and encouraging employee efforts, cooperation and information sharing. Besides, ESOPs help create a productive corporate culture by fostering employee participation and encouraging group cooperation, which further reinforces an improved firm performance (Weitzman and Kruse, 1990[56]; Craig, 1993[13]; Kim and Ouimet, 2009)[33]. William (1985) advocated that the stock options inspire employees to concentrate all their holdings in the firm. Quarrey and Rosen (1987) suggested that ESOP firms grow fastest when employees participate in decision making and reported a growth in annual employment by 1.21% faster than competing firms. Winther (1995) too affirmed a positive relationship between stock options and corporate productivity and profitability. It was reinforced that employee ownership improves firm performance by lessening labor-management conflict and aiding as a collective incentive to enhance workplace co-operation. Malon (1999) found that the companies that adopted ESOPs during 1988 to 1994 experienced higher employment growth and significant productivity improvement in post periods.

Another argument supporting the use of stock option plans is that they are an *attractive employment condition* for attracting, retaining and motivating employees. Long 1978, and French 1987 propounded that ESOP may perhaps increase employee satisfaction and strengthen employee loyalty and reduce turnover and productivity levels in the firm. Sengupta et al. (2007)[50] reported a

positive correlation between share ownership and low labour turnover. He inferred that that stock option schemes enhance organizational performance through reduced turnover, economies in hiring/firing costs and protection of valuable human capital and hence. Hillegeist and Penalva (2004) [25] observed a significantly positive impact of ESOPs on return on assets (ROA) and Tobin's Q. Lanouar and Elmarzougui (2007) [36] examined the ESOPs issued in French market and found a strong association between the ESOP and market performance in CAC 40 index companies. Duffhues et al. (2003) [20] and Duffhues and Kabir (2008)[19] examined the performance impact of executive stock compensation plan in the European market and found positive association between ESOP and financial performance. Ozkan (2009) too reported a positive linkage between ESOP and stock return and ROA for 390 British companies.

More recently, Sesil and Lin (2011)[52] made a panel data estimate of stock options by 632 high-tech firms in the United States on productivity for 5 years following. Results indicated that stock options for executives had a positive effect on productivity for the 5 years following the adoption and broad-based stock options employees too had a positive effect on productivity but only for the year of the introduction of stock options as they failed to persist for long. Masayuki (2012) employed a firm-level panel data of Japanese firms to examine the relationship between the use of stock options and productivity. Results indicated that the use of stock options has a positive impact on firm productivity evidenced in increase in R&D investment post the introduction of stock options. Li et al. (2015) [37] the quantile regression model and found a positive correlation between the stock-based CEO incentive and the performance at the higher quantile regions firm in the United States market. Ray (2016)[48] used a quantile regression (QR) model to investigate the impact ESOPs on the financial performance of Indian non-finance companies. Empirical results indicated a positive effect at the higher performance levels. It was also found that firms adopting such plans in their early stage of growth cause a declining financial performance in compared to the matured firms.

## 2.2 Arguments against Issuance of ESOPs

Conversely, many researchers failed to find a strong association between executive stock options and firm performance (Jensen and Murphy 1990)[30]. Similarly, Conyon *et al.* (1995) [11] observed very low pay-performance sensitivity in UK. The skeptics of stock options highlight the hidden costs associated with it. They point out that stock options are a *complex compensation plan* to incentivize employees and are quite *poorly understood* both by the owners and the managers. Without deep understanding these plans easily get the approval of board members while the decision to exercise the stock option rests on the executives who have the capacity to influence the stock price (Hall and Liebman

1998)[22]. Moreover, financial reporting of the costs associated with stock options in company's financial statements is inadequate (Matsunaga 1995; Duffhues *et al.* 1999). It has also been found that companies granting stock options overstate their profits (Murray *et al.*, 1998)[42]. Additionally, stock options act as puzzles for managers and create emphatic need for hedging (Duffhues 2000).

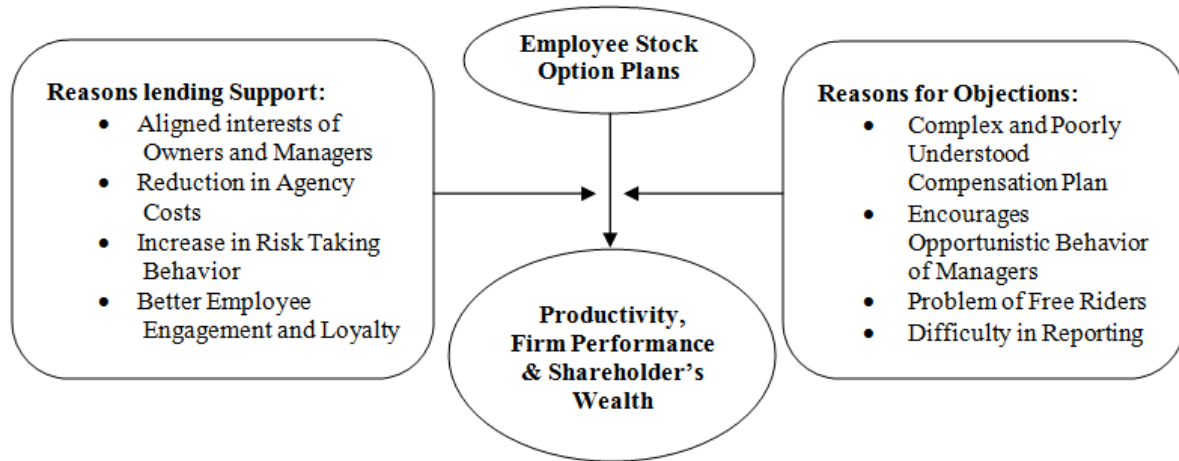
Another argument in opposition of use of employee stock options is that they make managers non-neutral with respect to their risk-behavior. Based on the presumption that stock options tend to be more valuable as the volatility of stock returns increases, managers may be persuaded to raise firm risk inadvertently. Furthermore, managers may also be inclined towards insider trading or display *opportunistic behaviour* by receiving stock options prior to the release of good news (Yermack, 1997)[59].

Parkin (2005)[45] advocated the economic theory and argued that stocks are ineffective in linking individual effort and reward and create a *problem of free riders*. Blasi *et al.* 1996 [3] pointed out that in case the rewards are shared equally, there is a high probability that employees will shirk work as the incentives will be shared equally. Moreover, higher the number of employees, more intense is the problem. Accordingly, this problem is less prevalent in smaller companies. He predicted that employee ownership will adversely affect performance primarily because individual employees shirk of responsibility and dilute the incentive of managers to supervise. In the early 1992, China implemented stock option plans among state owned firms to motivate employees but rapidly terminated it two years later. During this period a study was conducted on 750 firms listed on the Shanghai and Shenzhen Stock Exchanges during the period 1996 – 2000. Results showed no difference in performance of ESOs firms from non-ESOP firms in terms of return on assets (ROA), return on equity (ROE), Tobin's q and productivity. It was inferred that the highly diffused ownership stakes among employees creates in the free-rider problem and therefore fails to act as a motivating incentive to improve corporate performance. Further, Sengupta *et al.* (2007)[50] found that stock option adoption does not necessarily lead to higher levels of commitment.

Smith and Zimmerman (1975) established that granting of options has slight impact on earnings of the firm. In US, Davidson and Worrel (1994)[15] conducted a study of 48 firms and did not find any improvement in operational performance for two years after the adoption of stock options. Rather, in the second year subsequent to ESOP adoption, the financial performance worsened. Financial

performance was measured using four ratios; ROA (Return of Assets), NPM (Net Profit Margin), Asset Turnover and Debt-to-Asset. Here, a lack of improvement in financial performance was observed, however, during the first year, productivity measured by asset turnover ratios showed a greater rise. In a study of 54 companies listed on Stock Exchange of Singapore, Yeo *et al.* (1999)[57] examine the operating performance measured by operating income before depreciation, interest and taxes divided by total assets, net income divided by total assets and net income divided by total sales. The study did not find any improvement in the operating performance post the stock option adoption owing to regulatory restrictions and fiscal disincentive prevailing in Singapore, rendering ESOPs as ineffective in enhancing firm performance. Ng (1999)[43] too, found a decline in the operating performance of Singapore firms post stock option adoption. Later, Pendpeton and Robinson (1999) too, found negligible impact on productivity performance. Dhiman (2008) examined a sample of 202 Indian companies (103 adopters and 99 non-adopters) listed on the Bombay Stock Exchange and found that in short run, stock options do not improve the productivity of firms. Later, Obiyathulla *et al.* (2009) conducted a study with a sample of 52 Malaysian companies (26 stock option firms and their matched industry competitors) over a period of 12 years and found deterioration in the operating performance for companies issuing stock options. The biggest fall in the year immediately subsequent to stock option adoption was observed in net profit margin, return on assets and return on equity. However, the results differed in terms of size of the firm. However, for large firms a minor change in the net profit margin was found post-ESOP adoption and a substantial decline was experienced by small firms. As far as the efficiency ratios are concerned, improvements were witnessed post-ESOP adoption. It was inferred that agency conflicts aggravated for small firms owing to higher payoffs at the expense of shareholders. Jones *et al.* (2010) followed a fixed-effect estimation using panel data of listed firms in Finland (1992-2002) and found an insignificant relationship between stock options for employees and productivity. Brick *et al.* (2006)[4] and Cheng and Farber (2008)[8] too reported similar results. Bulan *et al.* (2010)[6] investigated 917 sample American manufacturing firms during 1992 to 2003 and concluded that accounting performances are negatively associated with the stock option compensations. Lately, Liu, *et al.*, (2014) used a longitudinal dataset from Taiwanese high-tech firms during a period of 1997–2008 and found that the dilution effects of broad-based stock plans put forth a negative influence on profitability and eroded share return.

Figure 1. A Conceptual Framework of Performance Impact of ESOPs



Source: Author's compilation based on Literature Review

### 3. CONCLUSION

The utmost argument that persuades firms to adopt stock options plans is the agency relationship and the problems emerging thereof. The plans are designed to co-align interests; motivate management and employees to take decisions in the best interests of the shareholders and hence guide an improvement in the firm's performance and productivity. Conversely, the economic theory leads to the problem of free-riders among employees that restricts the effects of group-based compensation systems because of the weak link between individual effort and reward. Other motives favoring for the use of stock options relate to higher levels of employee retention, attracting fresh talent and conserving cash. A comprehensive examination of conceptual and empirical studies on stock based compensation plans found no theoretical or empirical consensus on their effect on firm performance. However, a strong evidence for varied reasons has been found to render stock options as favorable instrument to exert a growth in firm performance. However, it has also been observed that the success of stock options also depends upon the firm characteristics, especially the size of the organization, wherein, large sized firms stand at a relative advantage over the small sized firms as per the free-rider theory. Based on the extensive review of existing literature it can be concluded that although the adoption of stock options is valuable in enhancing productivity of firms, it is essential to grant broad-based stock options to employees, frequently in order to sustain a long-term effect.

### 4. SCOPE FOR FUTURE RESEARCH

The comprehensive review cited in the paper provides us with an immense scope for future research. The issues that can be dealt with in future studies on ESOPs is its impact on long-term firm performance, with respect to its accounting and recognizing ESOPs as an expense and adopting fair-value method of accounting pursuant to International Financial Reporting Standard (IFRS).

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