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The Controversies of Accounting for Employee Stock Options: A Historical and Theoretical Review

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Abstract

In this paper, using a combined method of historical and theoretical analyses, we investigate the controversial accounting treatment of employee stock options (ESOs) by the financial accounting standard board (FASB) and the securities and exchange commission (SEC) in the U.S. We first review the standard setting history of ESOs and then discuss the pros and cons of expensing ESOs which is the current accounting practice. This helps understand why so much controversy existed on the current accounting treatment. Next, we propose four alternative classifications of SOEs and analyze each of them using the financial accounting standards board (FASB) conceptual framework. The arguable vague classification of ESOs in the current conceptual framework contributes to these controversies. Finally, we raise several empirical testing questions whose answers may help guide for future standard setting of ESOs. This paper contributes to the literature of accounting standard setting by critiquing the current practice. We believe it is beneficial to keep other solutions open for future discussion.

Keywords: employee stock options, financial accounting standards board (FASB) statement no. 123, U.S. accounting standard setting, FASB conceptual framework, accounting principles board no. 25, accounting standard updates (ASUs) topic 718 and topic 606.

I. INTRODUCTION

Accounting for executive compensation has been a hot issue for several years. Many people believe that the executives of corporate America have been overpaid, especially compared to those in other countries such as Japan (Scott, 2019). The public were shocked when the media disclosed unexpected compensation frenzies. Executive compensation was "invisible" since there was no required accounting disclosure in the past decade. It remains mysterious how much money the executives are actually making including cash, bonus, and stock related compensation. The lack of disclosure leads to a serious problem of corporate governance (Miller & Banhson, 2006). Effective corporate governance needs to be based on effective accounting disclosure. Transparency on executive compensation enhances corporate governance and ensures there is no overcompensation. The past financial reporting disclosure did not meet this goal of accounting.

Moreover, many people attribute the compensation frenzy to inadequate accounting treatment of executive compensation. Historically, people have believed that the role of accounting is to disclose compensation and let the free market of executive talents determine how much compensation is appropriate. However, more and more evidence show that executives have excessive power to control the so-called "free"

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market to increase their pay. As a result, the free market does not function appropriately in determining compensation due to the influence of executives. In this case, accounting disclosure by itself is not sufficient to solve the problem. There should be some accounting treatment more than disclosure to create an effective compensation mechanism.

The issue of executive compensation is important because it is part of the agency problem (Bebchuk & Fried, 2003). The absentee shareholders have no power to control the cost of contracting and sometimes they are not aware of the true cost of contracting. Consistent with the managerial power view, Sautner and Weber (2006) find that when ownership concentration is low and the exposition to the U.S. capital market little, firms often have ESO plans that are designed to be favorable to managers. Just as what Miller and Bahnson (2006) pointed out, "accounting fails to check against managers' seemingly irrepressible addiction to enriching themselves at shareholders' expense. That check is a critical ingredient of effective governance system."

Employee stock options (ESOs) account for a major portion of an executive's total compensation package. Option usage, at 90%, is well ahead of that of restricted stock, the second-most popular vehicle, at 66% (Kim & Graskamp, 2006). ESOs are options granted to executives allowing them to buy company shares at a specified price (a price lower than the market price) in future. The exercise price is set equal to or lower than the grant day stock price so that it serves as motivation for managers to push up stock price (maximize share values). In that sense, stock options can align the interest of managers with shareholders while offering a different risk utility from stocks (Scott, 2019). Stock options were initially granted only to senior managers in the company. However, with the emergence of high-tech start-ups, small companies give stock options to lower-level employees such as engineers and technicians. The issue of ESOs has then extended to a broader scope that goes beyond executive compensation to employee compensation. The accounting controversy is whether the fair value of stock options should be considered as a compensation cost and be deducted from earnings. The accounting standard statement of financial accounting standards (SFAS) no. 123 revised, share-based payment[1], requires that firms value the stock options on the day of grant using provided option pricing models and charge a prorated compensation expense each year during the service period. Specifically, on the grant day, the fair value of the stock options is calculated but there are no accounting entries being made. During the service period, firms prorated the value of the stock option by the number of years the employee is required to serve the firm. Each year, firms debit compensation expense and credit additional paid-in capital. The release of SFAS 123R has made a great impact on firms because it forces firms to recognize stock options as expense that hits the earnings.

We agree with the opinion that ESOs should be recognized on the income statement for the benefit of transparency and governance. However, we find it hard to justify the accounting treatment for ESOs by the FASB using the conceptual framework. In this paper, we first trace the history of standard setting on ESOs to explore the controversial nature of ESOs. Second, we go deeper to examine some root causes for the controversies arising from the conceptual framework. Third, we propose several

[1] Statement of financial accounting standards no. 123 (revised 2004). *Financial accounting series*, no. 263-C, December 2004. Financial accounting standards board of the financial accounting foundation.

research questions related to ESOs for future research purposes and hope the data results can help guide FASB future standard setting.

II. LITERATURE REVIEW

2.1. History of Standard Setting for ESOs

We can better understand how controversial this issue is by simply tracing back the standard setting history of ESO. The earliest accounting standard on ESO was published in 1972. Accounting principles board (APB) opinion no. 25, accounting for stock issued to employees, requires firms to expense the stock options using intrinsic value. The intrinsic value is defined as the difference between the exercise price and the market price on the day of grant. Stock options are usually granted at-the-money (i.e. the exercise price is the same as the market price at grant) or out-of-the-money (i.e. the exercise price is below the market price at grant). As a result, the intrinsic value of options is zero. Consequently, firms do not need to charge any compensation expense during the service period. Proponents argue that ESOs lack the characteristics of expense because if ESOs expire worthless then there will be no transfer of value (Nwogugu, 2004).

According to Nordquist and Ellingson (1997), ESOs had become a focus point of social and political attention in the 1990s. Under the pressure to do something about 'excessive' executive compensation and the no cost accounting recognition of a significant component of compensation, congress looked to the SEC, which turned the case to the FASB. The corporate executives were resisting because this would 'hit them in the pocketbooks'.

In 1993, the financial accounting standards board (FASB) released an exposure draft (ED) on accounting for stock-based compensation that required income statement recognition of the cost of ESOs using fair value. The fair value of ESOs is calculated using designated option pricing models such as the Black-Scholes model on the grant day. The calculation is based on some parameters such as the market price of shares on grant day, exercise price of the option, estimated future volatility of stock price, expected dividend yield, expected life of the stock option, and risk-free interest rate on grant day. The exposure draft has evoked opposition from start-up and high-tech firms whose earnings would be most affected. FASB received 1,786 comment letters from the public with the vast majority opposed to the ED (SFAS 123, par. 376). The congress made two legislations in opposition to the ED. The equity expansion act of 1993 introduced by Senator Joseph Lieberman directs the SEC not to require ESOs to be recognized as expenses. The accounting standards reform of 1994 proposes to mandate that the SEC explicitly ratify all new accounting standards based on fair values (Mozes, 1998). Under political pressure, the FASB withdrew its 1993 ED in December 1994. Many people comment it as a dangerous example in history when politics interferes with standards setting. The SEC issued a letter of comment (letter no. 121) to support the FASB for the decision to withdraw the ED. In the letter, the SEC stated its belief that a final statement will be issued in the relatively near future. This may imply that the SEC does not think the intrinsic value method (APB No. 25) can be the final solution[2]. The standard setters were searching for more appropriate accounting solutions that can be accepted by the public. In December 1995, the FASB issued SFAS No. 123, Accounting for stock-based compensation, as a compromise it allows firms to adopt either fair value or intrinsic value

[2] At this point of time, since the ED was withdrawn, APB no. 25 that use intrinsic value method to account ESOs and reports zero compensation cost was still in effect.

method (either the ED or APB 25) to account for compensation cost of ESOs. Firms that choose to use intrinsic value should disclose the fair value of ESO in the footnotes.

In the 21st century, more and more countries have adopted the income statement recognition of ESOs using fair values. In 2004, the international accounting standard board (IASB) issued international financial reporting standard (IFRS) no. 2, income statement recognition of share-based payment transactions, which regulates firms to account ESO as compensation expense using fair value. In convergence to international accounting standards, the FASB issued SFAS 123 revised, share-based payment, as a final standard for the controversial issue of ESOs. SFAS 123R supersedes APB 25 and mandates all firms to use fair value to recognize compensation expense starting 2006. Although the ED of SFAS 123R caused the FASB to receive 6500 letters in three months, the FASB successfully released the final rule of stock-based payment in 2004. In addition, the SEC increased the requirements for executive compensation disclosure by a rule proposal in 2006. Detailed information on the fair value of ESOs, such as the parameters used in option pricing model, the modification of terms, exercising history and forfeiture of shares, should be disclosed in the proxy statement (Cortese-Danile & Fitzsimons, 2006). FAS 123R was codified in FASB accounting standards codification (ASC) 718, "compensation-stock compensation" and became effective in 2005.

Over the time, FASB has continued to refine and to expand the policy derived from FAS 123(R) via its accounting standard updates (ASUs). ASC 718 initially applied to share-based payment arrangements with only employees. However, with the release of ASU 2018-07, "compensation-stock compensation (topic 718): improvements to nonemployee share-based payment accounting", ASU 718 addresses both the accounting for employee and nonemployee awards. In November 2019, the FASB further expanded the scope of ASC 718 with the issuance of ASU 2019-08, "compensation-stock compensation (topic 718) and revenue from contracts with customers (topic 606): codification improvements-share-based consideration payable to a customer". In October 2021, the FASB issued ASU 2021-07, "compensation-stock compensation (topic 718): determining the current price of an underlying share for equity-classified share-based awards (a consensus of the private company council)", which provides a nonpublic entity with a practical expedient for determining the current price input for an equity-classified stock compensation award.

Walters and Young (2008), from a critical accounting perspective, argue that the dominate metaphors engaged in the ESOs discourse changed overtime. The earlier time metaphors in 1993 appeared to carry positive attitude with respective to the use of ESOs with corollary rational prescriptions for accounting policy with the backdrop of a stalled economy. The later metaphors in 2003, while in a different socio-economic frame, carried derogatory attitudes with respect to the use of ESOs leading to a different rationalization regarding accounting policy. We agree that the prescription of accounting policy should be set to meet the need for socio-economic change. As ESOs take an increasing proportion out of a business's revenue or assets, accounting standard setting needs to well address the new challenges of disclosure and transparency.

The battle between the standard setters and the politicians seemed to end with the FASB winning it. SFAS 123R is a major milestone in shaping accounting standard conceptual framework about ESO by valuing and expensing it. People may wonder why the recognition of ESOs has aroused so many voices against it. Next, we would like to examine the issue from the points of view of both the supporters and the opponents. What kind of firms are affected most by SFAS 123R? Is there any real economic consequence of it?

2.2. The Pros and Cons of Expensing ESOs using Fair Value

Supporters of the FASB believe the following:

First, accounting information should be representational faithful to the underlying economics. Stock options are compensation to employees in exchange for their service to the firm. When they are exercised, the company issues additional shares and sells them at the exercise price to employees. This will definitely dilute the value of each existing share. Therefore, ESOs granted would be a cost to existing shareholders in the future. If they are considered expenses, they should be subtracted from earnings. Barth et al. (1994), Chair of the FASB committee of the American accounting association, argued, "stock options and other forms of stock-based awards represent compensation and should be recognized as such. These awards differ from other types of compensation only in form, not in substance." Empirical evidence by Aboody et al. -(2004a) shows that there is a negative relationship between stock-based compensation expenses and share prices, which is consistent with the idea that investors view it as an expense of the firm. Supporters of the FSAB claim that the quality of reported earnings is questionable without including the ESOs as expenses in the net income. SFAS 123R is considered a further step toward improving the relevance of accounting earnings in facilitating efficient capital allocation.

Second, expensing ESOs would improve corporate governance via mandatory disclosure. Effective accounting treatment helps to constrain excessive power of executives in designing favorable compensation contracts at the expense of shareholders. Investors can better monitor the performance of executives and their compensations by mandatory expensing of ESOs. In addition, fully expensing stock options would make this type of compensation less attractive for firms under the political and public pressure that seeks to limit executive compensation (Bischof et al., 2020).

Third, SFAS 123R follows the matching principle by charging compensation expense each year during the requisite service period when employees provide service to the firm. This is consistent with the current historical cost accounting system in that it makes accounting earnings more objective.

Fourth, in order to make the U.S. a global capital market, the standard setters are trying to converge to the IASB. There is an external pressure for the U.S. firms to adopt the same accounting method as international prevailing practices (income recognition of ESOs).

However, there are many opposing voices to the FASB mainly because of the economic consequence of SFAS 123R. Young or high-tech firms are hurt most by the expensing of stock options. At early stages, firms cannot generate sufficient cash flows to reward employees using cash. As a result, they rely heavily on stock related compensation such as options and shares to attract and retain talents. On the grant day, the options may be worth nothing but there is huge potential for them to be highly profitable in the future when the firm's stock price rises. ESOs are a good compensation choice for high-tech or start-up firms. These firms claim that the expensing of ESOs will hurt them in several ways.

First, young and small firms usually have unstable stock prices. The high stock volatility will in turn be translated into high option values using the Black-Scholes option pricing model. They claim that they would be charged a higher compensation cost than large, mature firms. In other words, expensing ESOs would impact on the earnings of young, small firms in a different way as it does to large, mature firms. A survey by Akresh and Fuerisich (1994) shows that the decrease of earnings is averaged 31% for a sample of 27 firms. Another study by the Wyatt group (Rodgers et al., 1994) indicates the

reduction in earnings of high-tech firms to almost 50%. For firms such as Yahoo and Adobe, earnings would be decreased as much as 86% and 70% (Apostolou & Crumbley, 2005). This will put the high-tech start-ups in Silicon Valley at a big disadvantage compared to large, mature firms. This is why these firms were actively lobbying the congress against the income statement recognition of ESOs using fair value.

Second, the lowered earnings of these young small firms will impact on their stock prices and hurt their shareholders. In addition, the low stock price will limit the firm's ability to raise capital in the equity market, which in turn destroys the firm's growth potential. People are worried that the economic consequence to this type of firms will slow down the U.S. economic growth and demolish the competitive advantage of U.S. firms' power of innovation.

Third, some high-tech firms have already converted stock options to restricted stocks to avoid expensing of ESOs. For example, Microsoft and Amazon abandoned ESOs in favor of restricted shares. This has raised concerns that the implementation of new accounting regulation will cut back on the use of stock options as a form of compensation. However, there are arguments that employees would favor stock options more than restricted shares due to the stock options' superior long term wealth creation power (Kim & Graskamp, 2006). Frederic W. Cook Co. shows that only a 6% annualized rate of return is required before stock options overtake restricted stock in terms of wealth creation. Golden and Kohlbeck (2019) show there was significant increase in stock repurchase after SFAS No. 123 and the increasing effect is more pronounced for firms with higher level of ESOs. Hegemann and Ismailescu (2017) find a significant and negative relation between stock options granted and shares repurchased in the aftermath of SFAS No. 123R, particularly for the S&P 500 firms known for their heavy use of employee stock options. Furthermore, they find evidence that some of the buybacks may have been funded with debt in the post SFAS 123R period. The chilling effect of SFAS 123R undoubtedly makes high-tech start-ups harder to attract talents. "For years, cash poor companies struggling for a method to attract good managerial and technical talent have squeezed the stockholder equity goose to produce options that have little present value but possess potential for significant gain when stock prices increase." (Cheatham et al., 1995) If the goose that can lay golden eggs was killed, would these firms cry?

Fourth, people are concerned about the objectivity and verifiability of reported compensation cost and reported earnings because the parameters used in the option pricing model are expectations or estimations. For example, people usually do not hold the full term of ESOs. It is at the firm's discretion to estimate the expected life of the options, which is defined as the period of time that the option will remain outstanding before being exercised or forfeited. The most reliable data would be some historical record. However, FASB cannot require firms to use historical data since they are unavailable for many firms. Even if there are historical data available, how the historical data is associated with future exercise behavior is unknown. In addition, firms need to estimate the future volatility of stock price and expected dividend yield. All these estimations are subjective and susceptible to manipulation. Empirical evidence shows that firms shortened the expected lives of stock options and unilaterally apply discounts to the Black-Scholes formula to understate compensation cost (Yermack, 1998). Therefore, one of the biggest problems with the use of fair value is fraud and earnings manipulation.

Fifth, theoretically some people argue that the grant of ESOs is an internal transaction. They believe that the effect of ESOs is best shown by dilution of stockholder interest rather than by expense (Cheatham et al., 1995). As all the grant of ESOs must be

approved by the current stockholders, there is no need to disclose them in the form of expense. We think there is a big gap in these arguments because the grant of ESOs is approved by the board of directors but not by absentee shareholders. In addition, executives have the power to influence the board to grant options to them. The current dysfunctional corporate governance mechanism cannot guarantee that the majority of stockholders' interest is protected. Therefore, it is necessary to account for ESOs as a reported expense.

Despite these economic conflicts, the current conceptual framework of accounting does not give a clear definition for ESOs which also contributes to the controversy. It is hard to find a place in the current FASB conceptual framework to fit ESOs. In the next section, we will examine in detail the conceptual controversy of ESO.

III. RESEARCH ANALYSES AND DISCUSSIONS

What is the nature of ESOs? Are they assets, liabilities or equities? The answer to the question will determine how ESOs should be treated. We examine four different views of ESOs using the FASB conceptual framework as follows.

3.1. Assets View

In the 1993 exposure draft, the FASB required firms to capitalize prepaid compensation cost using fair value on the grant day and amortize the prepaid compensation cost over the service period as compensation expense. This is based on the FASB's assumptions that ESOs are assets. They are treated as an advance payment when shares are granted in exchange for future service to be rendered by employees. The definition of asset is "valuable economic resources that will provide future benefit to the company" (Porter & Norton, 2001). According to this definition, ESOs are resources because the firm has privileged access to the service provided by its employees. However, the contract between the firm and its employees is cancelable. If the employees leave the company, their shares of options are forfeited. It is not legally binding on the employees who receive the options to perform the service to the firm. The privileged access by the firm to the employees' service is not guaranteed when the options are granted. Practically, capitalizing the fair value of ESOs would overstate the assets of the firm. Therefore, it is inappropriate to capitalize ESOs as prepaid assets. Later, the FASB realized the problem and eliminated the capitalization of ESO in SFAS 123. The FASB only requires firms to calculate the fair value of options using the option pricing model on the grant day without capitalizing the cost. Firms charge compensation expense each year during the service period. On the day of grant, there is no journal entry being made. Each year during the service period, the firm should debit compensation expense and credit an appropriate liability or equity account.

3.2. Executory Contract View

Another view considers the grant of ESOs as a forward contract between the firm and employees to sell shares of stocks at a specified (discount) price on the condition that the employees provide services to the firm. In this case, ESOs are considered executory or forward contracts. On the day of grant, there is no exchange/transaction of either payment or service. There is no accounting record being made. Only when services are performed or shares are transferred later, there should be accounting recognition. Hence, "the grant day value of the ESOs does not represent the value that employees expect to receive in the future for their labor services. Since there is no evidence on the grant date of the value employees attach to their labor services, the only logical date to value the ESOs using the executory view would be the vesting date, when

the ESOs are received by employees" (Mozes, 1998). According to Mozes (1998), under the executory view, the treatment of ESOs would be analogous to the treatment of defined benefit pension plans with cliff vesting. Cliff vesting means if employees leave the firm before the vesting period ends, they get zero pension benefits. SFAS 87, Employers' Accounting for Pensions, requires firms to recognize as pension expense an amount equal to the pro-rated pension benefits earned during the year, despite the fact that the employees receive zero benefits if they depart prior to the vesting date. Similarly, the fact that employees do not vest in any ESOs prior to the vesting date should not preclude accounting recognition of compensation expense prior to the vesting date. After partial performance, employees have a receivable representing a pro-rated number of ESOs and the firm has an obligation to issue a pro-rated number of ESOs" (Mozes, 1998). Even if employees depart early and get zero shares of options after the vesting period, the firm still needs to record the prorated compensation cost for the period when they actually provide service. This treatment contradicts with SFAS 123R (p. 73) which requires firms to "examine the actual shares of forfeitures at the end of vesting period and make necessary adjustment to reflect cumulative compensation cost for the number of shares that actually vested".

3.3. Liability View

The liability view considers the service provided by the employees and consumed by the firms as a liability. When service is provided, the liability of the firm is accrued because part of the service has not been compensated. The liability is paid off when employees exercise the options. However, the definition of liability is "a probable future sacrifice of economic benefits arising from present obligation of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events" (FASB, 1985). The definition of liability requires that the obligation to be settled by either transfer of assets or services. Strictly speaking, ESOs do not qualify as liability because when the options are exercised, the firm needs to issue new shares of common stock at the exercise price to the option holders, which dilutes the share value and transfers the equity from existing shareholders to ESO holders. The firm does not transfer any assets or provide any service. Even if the firm uses treasury stock as the settlement of ESOs, ESOs do not qualify as liabilities because treasury stock is equity not asset. SFAS 123R classifies share-based payment as a liability if the future settlement can be made in cash, i.e. firms pay cash equivalent to the difference between the exercise price and market price at exercise to option holders. If future settlement of the instrument is only based on stocks, the ESOs are considered equity. We understand that cash settlement qualifies the definition of liabilities in terms of "transfer of assets" and therefore ESOs settled by cash qualifies liabilities. However, it is hard for me to be convinced that settlement made in shares is equity due to the reasons to be discussed in the next section.

3.4. Equity View

People holding this view argue that ESOs become common shares if they are exercised. This is also the FASB's reasoning that ESOs settled by stocks are equity instruments. However, before the options are exercised, they are not common shares. Option holders bear different risk levels than stockholders. As option holders do not need to invest any personal wealth in stock, their potential loss is zero. But stockholders would have suffered a loss whenever the market price of shares was below the purchase price. This difference is crucial in that we can expect that stockholders have a higher stake in the firm and bear higher business risk than option holders. Therefore, we do not agree

that ESOs should be treated as equity, and the ESOs holders should not be treated as stockholders. However, SFAS 123R as mentioned in earlier section prescribes ESOs as equity if the future settlement is made in shares.

The FASB considers ESOs as equity. They decide the accounting treatment to ESOs to be as follows:

a) On the grant day:
No journal entry but the fair value of options is calculated
b) At the end of each year during the service period:
Dr. Compensation expense.
Cr. Additional paid-in capital
(To recognize compensation cost).
Dr. Deferred tax asset.
Cr. Deferred tax benefit
(To recognize the deferred tax asset for the temporary difference related to compensation cost).
c) On the exercise day:
Dr. Cash.
Dr. Additional paid-in capital.
Cr. Common stock
(To recognize the issuance of common stock upon exercise of share options and to reclassify previously recorded paid-in capital)

These journal entries show that ESOs are treated as equity. The cumulative compensation expense is credited into the additional paid-in capital account. On the exercise day, an equal amount of debit entry to additional paid-in capital account cancels out these compensation cost. "Upon exercise, assuming the firm has no-par common shares, the amount credited to common stock (or other appropriate equity accounts) is the sum of the cash proceeds received and the amounts previously credited to additional paid-in capital in the periods the services were received" (SAFS 123R, p. 74).

Although the FASB has decided to treat ESOs as equity, it does not help much to solve the controversy due to its unconvincing reasoning and a lack of support from the current conceptual framework. The classification cannot be made in a clear-cut way. There are still many people including us holding different views from the FASB. In addition, the different conceptual classifications would lead to different accounting treatment. For example, the asset view leads to capitalizing the prepaid compensation cost. The executory contract view argues to value the ESOs on the vesting day. In our opinion, ESOs have both features of liability and equity. It is something in the middle between the two. On one side, it is a legally binding obligation for the firm to compensate employees if service is provided. On the other hand, with an equity flavor, the reward is linked to stock price and thus has huge potential amount of returns. It would help the FASB to win the political battle if the conceptual framework is defined more clearly (Mozes, 1998).

IV. CONCLUSION AND LIMITATION

4.1. Conclusion

Accounting standard setting related to ESOs has gone through a long debate because not only is the nature of ESOs future oriented and highly uncertain but also because the accounting treatment has its undue economic consequence. We tend to review the history of standard setting for ESOs and present the issues of controversial in

expensing ESOs valued by the Black-Scholes Option Valuation Model. By comparing three alternative views in classifying ESOs using the FASB conceptual framework, we reveal in detail how the conceptual framework can contribute to the controversies. We agree that the vague classification of ESOs in the existing conceptual framework has partly led to the hot debate. Even the current FASB reasoning about the nature of ESOs does not seem to be convincing. In addition, the increased economic consequences to certain firms caused by expensing ESOs also create an incentive for them to fight against it. We believe it will help resolve some of the controversies by performing several empirical tests. The results of future research will help standard setters better understand the nature of ESOs and find innovative methods to account for ESOs.

4.2. Limitation and Future Research

There are many unsolved issues with the accounting treatment of ESOs. While focusing on the balance sheet and income statement recognition of ESOs, we acknowledge our limitations to discuss all the important issues. For example, we do not discuss the impact of each type of treatment from the perspective of tax implications. Since expense has a tax-deductible effect, tax benefit also influences firms' incentive to adopt a particular type of accounting treatment of ESOs. Moreover, we do not examine the effect of each type of accounting treatment on accounting disclosure. Obviously, different types of treatment reveal different amounts of information related to ESOs. What type of accounting recognition provides better disclosure quality? In addition, we do not look at the accounting standard setting beyond US GAAP. It may be helpful to compare the accounting treatment of ESOs in other standard settings such as international financial reporting standards (IFRS). What is the impact on multinational companies that are governed by multiple accounting standards?

Even though the FASB has released SFAS 123R and subsequent statements, there are still many theoretical and practical issues to be resolved. We propose the following empirical research questions focusing on the ex-post effect of the implementation of SFAS 123R. We believe the empirical data will shed insight to answer many of the previously open questions.

First, in addressing the arguments that expensing ESOs is not necessary and that disclosure is sufficient, a relative association test can be designed to compare which form of accounting treatment is more value relevant, i.e. whether expensing or disclosing has a higher R squared (Holthausen & Watts, 2001). In other words, which type will have a higher impact on stock prices? Aboody et al. (2004a) show that ESOs' fair value disclosed but not expensed is incrementally value relevant and it has a negative relationship with earnings. They show that ESOs should be considered an expense during service period. However, their study is silent on the implications of changing stock-based compensation expense from footnote disclosure to income statement recognition. The FASB's assumption would be that expensing is more value relevant than disclosure and has greater impact on stock price. Therefore, the FASB emphasizes it is necessary to expense ESOs. If the result of the test showed that expensing is more value relevant than disclosure, then the FASB's assumption would be supported. Otherwise, it makes no points to expense ESOs from the valuation perspective. Of course, value relevant is not the only driving force for standard setting (Holthausen & Watts, 2001). But it will at least shed some light on standard setting from a valuation perspective.

Second, high-tech or start-up firms claimed that they would be hurt most by SFAS 123R. If there are economic consequences of income statement recognition of ESOs to certain types of firms, what is the profile of these firms? Aboody et al. (2004b) find that

the likelihood of SFAS 123 expense recognition is significantly related to the extent of the firm's participation in capital markets, the private incentives of top management and members of the board of directors, the level of information asymmetry, and political costs. Hegemann and Ismailescu (2017) find S&P 500 firms showed a significant and negative relation between stock options granted and shares repurchased in the aftermath of SFAS No. 123R. But it is not clear the impact on high-tech startup firms and their characteristics such as age, size, industry, free cash flows that may be associated with the firm's decision to voluntarily comply with the fair value expensing under SFAS 123. A logit model can be used to regress the decision of voluntary compliance on firm characteristics. If the parameter estimates are significant, then we can conclude that firms with those characteristics will be less likely to voluntarily comply with income statement recognition.

Third, another empirical test can be done to investigate the economic consequence of SFAS 123R which mandates the adoption of fair value expensing. Will firms cut back the use of ESOs after the implementation of SFAS 123R? Furthermore, it will add value by exploring other possible alternatives for ESOs that firms use to replace ESOs. A few studies have answered part of this question. For example, Hegemann and Ismailescu (2017) find a significant and negative relation between stock options granted and shares repurchased in the aftermath of SFAS No. 123R, particularly for the S&P 500 firms known for their heavy use of employee stock options. Furthermore, they find evidence that some of the buybacks may have been funded with debt in the post SFAS 123R period. It is quite a surprise to see that firms shift from ESO to restricted stocks even at higher cost of debt financing. However, there may be other economic consequences particularly related to stock-based transactions and earnings that could be affected by SFAS 123R.

Fourth, a practical question for the FASB is the exercising behavior of ESO holders. Option holders usually exercise the options before they expire. Using the full term of ESOS as assumptions for the Black-Scholes option pricing model tends to overstate the compensation cost of the firm. Is there any regularity about when people exercise the options? To address this question, data need to be obtained on an individual level. The FASB should encourage each firm to retain the exercising history of employees. The historical data can help firms to predict the expected holding period and expected forfeiture rate. They are the most objective evidence in justifying the firm's parameter assumptions used in the option pricing model.

Finally, there are many accounting innovations proposed to deal with the accounting for ESOs. Although they are not empirically tested, they could shed light on standard setting practices. Balsam (1994) proposes to measure the intrinsic value of ESOs on an iterative basis. Under this approach, the expense for the current period would be the difference between the end-of-period stock price and the exercise price (adjusted for the proportion of the service period completed) minus any expense recorded in previous periods. Obviously, there is a smoothing effect of compensation cost by iterative adjustment. The biggest advantage of this method is that the measurement relies solely on stock price, an objective measure. This avoids the use of any human assumptions in the option pricing model. However, the biggest disadvantage of using intrinsic value is to ignore the time value of money (Cron & Hayes, 2004). The time value of money is implicit in the option because of the possibility that the future stock price may increase more than it has already over the exercise price. Ignoring the time value of money will understate the compensation cost of ESOs in the early years when most of the option's value is derived from its time value (Cron & Hayes, 2004). The Black-Scholes option

pricing model takes into consideration the time value of money. Balsam's method is dynamic because the value of options is allowed to change and be adjusted accordingly each year. However, the valuation method is problematic. It remains a future research topic to find other dynamic methods that use an option-pricing model to account for the time value of money.

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