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Remitted via email to: CommentLetters@iasb.org.uk

I am writing to comment on the International Accounting Standards Board's (IASB's) Exposure Draft ED 2, *Share-based Payment* ("the ED"). I am employed by a large, employee-owned research and development firm that has extensively used broad-based employee option awards. This has enabled our steady growth over 30 years to become a Fortune 300 company. My experience is that properly awarded employee options have a motivation efficiency that can add significant corporate value. A proper option expense would not discourage such constructive employee option usage.

However, I have strong concerns that the current proposal could do more harm than good. Specifically, the "expected life" treatment gets an expense that is too high for long vesting options and possibly too low for short vesting options. Corporate and employee response to this flaw could be an incentive for shorter employee option vesting periods which could in turn motivate executives to more aggressive and risky activities.

I note that invitation to comment question 13 asks, "do you have any suggestions for how vesting conditions should be taken into account when estimating the fair value of shares or options granted?" My concern with employee option valuation involves the interrelated impacts of nontransferability and vesting which I do not believe have yet been sufficiently developed in finance theory. I do have suggestions about how those interrelated issues might be reflected in an option pricing model, and I submitted such a paper during the 1993 FASB debate. However, this really is a series of mathematical finance derivations which I would be pleased to provide should you express additional interest in my views.

No Exit Risk

Consider a basic scenario where an employee is granted even-money options with long-vesting, nearly European-style options. The options are nontransferable. Initially the underlying stock price increases rapidly so that the options become far into the money and have considerable intermediate value. The stock price has increased so rapidly, however, that the employee no longer believes that the firm can build the financial performance to meet this high price. As discussed in paragraph BC152 of the Exposure Draft, he believes that over the remaining term the share price is more likely to decline[1], perhaps considerably. A declining stock price will

[1] This scenario, in fact, agrees with the 1995 findings of Huddart and Lang, namely that employees are most likely to exercise their options early when there has been an unexpected increase in the underlying share price.

cause a considerable loss in the value of his option holdings, particularly because the long vesting allows no exit that captures the intermediate value.

Black-Scholes was derived to measure the fair value of a European call option under terms of near-perfect liquidity. By definition, this liquidity enables selling and hedging. Under Black-Scholes, the skeptical employee in the example would be able either sell his in-the-money options or hedge them. Instead, he is unable to do either since the shares are nontransferable and he does not have access to a willing hedge counterparty (BC159-160).

This is a significant risk to the employee and a major violation of the liquidity under which Black-Scholes was derived. Without any intermediate exit tactic, neither hedging, trading, nor early exercise, there should be a significant discount to the unvested employee option value. I will refer to this as the "no exit" discount. ED paragraph BC161 recognizes this, stating "But if the option cannot be transferred and cannot be exercised, and assuming other derivatives are not available, the holder is unable to extract any value from the option or protect its value during the vesting period." Likewise Bodie, Kaplan, and Merton in their recent Harvard Business Review article refer to this same risk as the "deadwood cost."

This no-exit discount should be proportional to the risk of a price drop and proportional to the time remaining before the employee can capture his value. Although not rigorous, this risk adjustment is likely to take the same form as discounted cash flow, namely $exp(-s^2V/2)$ where V is the time in years remaining to vesting and the half factor changes the probability of a price change into a probability of a price drop. This no-exit discount would be in addition to the forfeiture discount proposed in BC171. Suppose that q were the annual probability of an option holder leaving the firm. The forfeiture discount should also be proportional to q and V. The combined and proper discount for the no-exit and the forfeiture risk would look like $exp(-(q+s^2/2)V)$.

Unfortunately, the ED does not follow through on the importance of this combined effect of vesting and illiquidity. Paragraphs BC162 and 163 argue against the importance of this no-exit risk. It is oft repeated but incorrect to say that ". . . the employee has not yet paid for the option . . . so has nothing to lose." An employee option is a bonus which has value and is paid by the company to motivate employees[2]. As noted in paragraph BC168, employees pay for all bonuses by working harder or smarter and, much more so than cash or even employer stock awards, employee option holders have great risk of losing all of their bonus value before they are able to convert it to cash. The payment of the exercise price has nothing to do with the employee option holder's significant risk.

Paragraph BC163 further ignores the no-exit risk, stating "But, in any event, the value of the option at grant date already incorporates future possibilities . . . ." No! As discussed above, the Black Scholes derivation assumes liquidity that presumes the option holder has access to any intermediate value. Therefore Black Scholes fair value certainly does not capture the future possibilities of an employee option holder being unable to lock in or capture intermediate values.

[2] Is this not part of basis for recording an expense for employer option awards?

At this point the exposure draft shifts from the value to the employee to the cost to the firm. BC 164 concludes that "There does not seem to be any additional effect, from the entity's perspective of the combination of non-exercisability and non-transferability during the vesting period." Likewise, Bodie, Kaplan and Merton also ignore their deadwood cost, arguing that it doesn't seem to affect the cost to the firm. Instead, I will counter this by showing that there can be a significant risk to the firm when employees exercise early. Current American option theory finds that early exercise forfeits the remaining time value of the options, so that the firm has a lower eventual cost when employees exercise early. This theoretical assumption becomes the basis that the "expected life" treatment, and the claim that expected life approximately corrects for early exercise. If the accountants expect the options to be exercised early, the shortened expected life is inserted as the term into the Black Scholes or other option pricing equation. This can give a much lower expense, nearly as low as the cost of an interest free loan over the expected life. Instead, our discussion has already shown that when employees exercise early, it is usually because the stock has risen rapidly and the employees are using their only exit to capture this intermediate value. Expected life finds a very low cost to the firm under the same conditions where employees can make significant gains!

This brings to conclusion the first point of the initial thesis: that the current proposal to insert expected life into option pricing models gets the expense backwards -- too high for long-vesting option awards and too low when the expected life is expected to be short. Proponents of recording expense for employee option awards may argue that recording some amount, even if not precisely accurate, is better than recording nothing. Perhaps; however, in reaching that conclusion, I urge you to closely consider the second portion of my thesis: that the expected life treatment is so wrong as to cause significant harm.

Expected Life Encourages Risk

When firms are required to record expense for employee option awards, they may seek option awards that have a lower expense. In fact companies may issue shorter vesting options so that their accountants can estimate shorter expected life and thereby obtain much lower option expenses. To understand why this is a problem, let us add a twist to our initial scenario where the employee receives options and the stock price moves sharply higher. Instead, let the employee option holder be a significant executive who has received a very large, short-vesting option grant. This gives that executive a correspondingly very large incentive to increase share price in the near term, be it by business expansion, takeover, aggressive accounting, or even fraud.

I am not claiming that the "expected life" treatment of option expenses would lead all companies to issue short-vesting options nor that, in turn, would it lead employees toward fraud. I do believe that it will in some cases and even if it does not promote fraud, it will tend to promote other corporate moral hazards that go with a hyper-focus on short-term share gains, including short-sighted business models, over leveraging, and misdirected acquisition and divestiture activities. I observe that short vesting periods lower the risk borne by employees by enabling them to exercise and sell in order to capture intermediate option values. However, the flipside of this benefit to employees is that short vesting may well increase the risk borne by shareholders.

This is backwards, and it can do harm. In bubble scenarios, the remaining time value of options can be much less than the immediate value of locking in a high intrinsic value. The expected life

treatment gives no discount for long vesting options when the employees will bear the most risk and deserve the biggest discount. Instead the expected life treatment can give a very large discount for short or no vesting, so that this flawed treatment can actually encourage risky management practices. The backwards nature of the expected life discount can be said to add to the moral hazard of risky executive option abuse. Both the Exposure Draft and the Bodie, Kaplan, Merton paper are mistaken to claim that early exercise has no additional effect on the cost to the firm. Both have missed the significant shareholder risk that can occur when short vesting overly motivates executives to generate short-term gains.

Summary
The inability to transfer, hedge, or exercise nontransferable, unvested employee options during the vesting period prevents an employee from capturing any intermediate option values. Thus current option pricing models (including Black Scholes) get the value wrong and too high for vesting, nontransferable employee share awards. The form of this risk should increase with longer vesting. The "expected life" treatment is flawed because it can give a much lower option expense when vesting is shorter. The current exposure draft will improperly motivate shorter vesting options which can, in fact, add significantly to shareholder risk. The expected life treatment is so flawed as to do more harm than good.

I would be pleased to discuss any of the issues raised in this comment letter in greater detail. Further, I would be happy to submit suggestions for a proper no exit discount for employee options should the IASB desire to explore this issue.

Sincerely,

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