



SECTION
Seven

Other Topics and Issues

The final section of the book is like your attic or basement. It's where you store a lot of things that do not fit nicely elsewhere. These nine essays comprise a handful of topics that need some attention but do not fall into any of the other categories, and some rightly must occur at the end of the book. In this section we discuss stock options, those highly publicized instruments that companies award their employees and executives. We next cover value at risk. We also cover how stock itself can be viewed as an option, a notion that creates the possibility of modeling credit risk as an option. We then discuss the credit risk of derivatives, operating risk, how risk is managed in an organization, and how accounting and disclosure of derivatives positions are done. We then look at how some organizations have done a poor if not deadly job of using derivatives. After seeing the bad, we then look at the good: how derivatives should be properly used.

I hope this book has taken you on an interesting journey. Even if it has not, your time has not been wasted. Maybe you just learned that derivatives is not a subject for you. If the journey has been interesting, you will want to learn more. There are many excellent books and articles listed in the references. Remember that learning should never stop.

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ESSAY 65**Stock Options**

This book is filled with material on options, among other types of derivatives. The kinds of options we have covered until now, however, are those that are publicly traded either on an options exchange or on the over-the-counter market. In this essay I cover another type of option, which is often rather loosely referred to as a *stock option*. This terminology can be quite confusing, because publicly traded options on stocks could easily be (and sometimes are) called stock options.¹ But the kinds of options I cover here are the ones that are awarded by companies to employees and executives and permit purchase of the stock of the granting employer. When the options are granted to senior officers and board members, they are often called *executive stock options*. When they are granted to any other employees of the company, they are often called *employee stock options*. Technically, there is little difference. The term “employee stock options” would probably be the more general one, so it could encompass “executive stock options,” but it is rarely used in this way. Usually when the options are awarded to executives, they are called “executive stock options.”² To avoid confusion I will use the term “stock options.”

Because the idea behind stock options is to enable their holders to benefit if the shareholders benefit from stock price increases, these options are always understood to be call options. Thus, we will not even use the term “call” in conjunction with these options. Most of these options provide for

¹ To avoid confusion, the term “equity options” is often (but not always) used to refer to publicly traded options on stocks.

² OK, I have to admit that I believe there is some prejudice on the part of the media. To many journalists, options awarded to executives are, by definition, bad, while options awarded to employees are, by definition, good. The only real difference is that executives have more control over the overall performance of the company, while nonexecutives, that is, employees, have control only over the small little piece of the company in which they do their jobs.

the actual purchase of the stock, but some are cash settled in the same way in which exchange-traded index options are cash-settled, thereby resulting in the holder receiving cash for the difference between the stock price and that exercise price.³

These instruments are widely used to compensate and incentivize executives and employees.⁴ Let us take a look at how they work, and then we shall look at some of the issues and controversies.

Companies typically grant these options to executives and employees for two purposes. One is that the options can serve as compensation. A person granted options worth \$1,000 should be willing to accept the options in lieu of some amount of cash. The amount of cash the person would forgo would not likely be \$1,000, because \$1,000 in cash has more flexibility than \$1,000 of options, as the options cannot be liquidated so easily. We will discuss this point later. The second purpose in granting the options is to induce the recipient to work harder in the future, with the desired result being that the stock price increases, the options subsequently become quite valuable, and the company and the executive or employee both benefit. Of course, this is the incentive nature of the option. So on one hand, with options you are paying an employee for past work, and on the other, you are giving the employee a reason to work hard in the future.

Stock options are typically granted with the stock price equal to the exercise price, which is called at-the-money, as we explained earlier in this book. Stock options are usually illiquid, which arises from two constraints. One is that there is no market for these options, and the other is that most of these options have a vesting period during which they cannot be exercised. Although some companies have instituted a means of adding some liquidity, we must recognize that it is the illiquidity of the options that presumably induces the employee to remain with the company and be motivated to work hard. Hence, it would make no sense to give these options the same liquidity as traded options. The vesting period is a term of usually a few years, at the end of which the employee can exercise the option. Recall that in earlier essays we learned that traded call options should never be exercised early other than for the purpose of capturing a dividend. Stock options, however, do not conform to this rule. Let us consider why that is true.

³ Cash-settled options are sometimes called *share appreciation rights* or *SARs*, but do not let this acronym make you picture employees wearing masks.

⁴ With apologies to all of my former English teachers, I know that “incentivize” is not a word. It has, however, become widely used in the trade as a compact way of saying “provide incentives for.” Therefore, the profession and yours truly have become inured to its usage, and frankly, it doesn’t sound bad at all.

Assume that you own an exchange-listed call option that you purchased in a transaction that was executed on the Chicago Board Options Exchange. The price of the option has fluctuated, and there is still a month to go before expiration. The option has a current value of \$10 per contract, so it is worth \$1,000 in all. Suppose you wreck your car and need \$900 for repairs. You can get the money by selling your option.⁵ Suppose that instead of holding an exchange-listed option, you have stock options that were granted by your employer. If the options are not vested, you have no way to get cash from them to pay your repair bill. If the options are vested, however, you can exercise them. Suppose they are in-the-money by \$900, the amount you need to fix your car. You can then exercise the options and sell the stock. Ignoring some small costs and taxes you might owe, you will have your cash. Recall, however, that we learned that a call option has intrinsic value and time value. By exercising now, you throw away the value of waiting to exercise later when the stock price could be higher. With traded options, the ability to liquidate the option and obtain option fair market value always dominates exercise, except in the case of an option on a stock about to go ex-dividend, and even then, only if the dividend is large enough. For stock options, throwing away the time value can be quite worthwhile, indeed necessary, if that is what it takes to get cash out of the option. Thus, stock options can and frequently are exercised early.

Stock options have typically been awarded with 10-year maturities and vesting periods that run at least 2 years and seldom more than 5. The average option is exercised after about 5 years. Of course, when exercise occurs, the holder is no longer incentivized from that group of options, though additional options that have not yet vested could well have been awarded.⁶

Stock options were tremendously popular during the 1980s and 1990s. Undocumented stories of low-level employees of technology firms getting rich from stock options are probably more common than actual cases, but there is no doubt that stock options helped fuel the technology boom. One reason for their success has almost surely been due to accounting. Until 2006

⁵ Over-the-counter options work essentially the same way, but individuals generally do not own them, so my car wreck example might have to be modified if we need a story. Suffice it to say that organizations that need to liquidate their options can, however, go back to the dealer counterparty and sell an identical option, for which the dealer would typically give cash and cancel the original options, as they have been offset by the new options.

⁶ This point explains why options are so commonly awarded on a periodic basis, usually annually. Holders get rid of them pretty quickly, so employers need to keep a fresh supply in the hands of their employees.

in the United States, accounting rules permitted companies to treat stock options as if they had no cost, as long as the options were not in-the-money when issued. This point partially explains why the options were usually issued at-the-money, though some have argued that at-the-money options provide the most incentives for the cost. This issue, whether to expense stock options or not, was extremely controversial and was heavily debated for more than 10 years. In the United States, the Financial Accounting Standards Board in 2004 issued Financial Accounting Standard (FAS) 123R (a revision of its ruling FAS 123 of 1995, which had permitted but only encouraged expensing). FAS 123 did require that the cost of the options be revealed in footnotes, but this meant that options awarded would not affect a company's reported earnings or cash flow. As you can probably tell, a small growing company could conserve cash and potentially mislead investors by using stock options in lieu of cash compensation. Certainly many did. FAS 123R now mandates expensing.

The debate about expensing stock options was intense. Opponents of expensing swore that American industry would all but die if the charade of treating stock options as free were not continued. They also argued that it was far better to ignore the cost because accurate valuation of stock options could not be guaranteed. They argued, correctly, that the Black-Scholes-Merton (BSM) model does not give the value of a stock option. As we know, the BSM model assumes the ability to trade the option, and as reasoned earlier, the inability to trade the option would make it less desirable to the holder and, therefore, worth less. Stock options are thus said to have a liquidity discount that, if not properly reflected, could result in overstatement of the cost of the options. The effects of vesting and early exercise, however, offset some of the liquidity discount. There has been much research on this subject, and the issues are far too complex to cover in this essay. Let us just say, however, that the argument that assuming no cost is better than doing one's best to estimate the cost of the option is a poor one. Depreciation and pension expenses are excellent examples of cases in which accounting estimates are routinely accepted as the basis for charging an expense, and no one really believes that these estimates accurately reflect true value.

The proponents of expensing have won the argument, but it is not safe to say that the issue is settled. U.S. companies are now required to expense their stock options, but they continue to complain loudly and have active and sympathetic voices in the Congress. It remains to be seen whether the accounting rules will be changed again to accommodate those in favor of pretending that stock options are free to companies.

One immediate response to mandatory expensing, however, has been that many companies have reduced their use of stock options. Some have

begun to use a variation of stock options called *restricted stock*. Restricted stock is simply stock that cannot be sold until the end of the vesting period. It has always been mandatory to expense restricted stock, and some consider its value easier to estimate, but that is not necessarily true. Restricted stock is really the same as stock options with a zero exercise price. Its value ought to be lower than that of ordinary stock, but many do not see it that way. Restricted stock has one very important feature: As stock, its downside risk is greater than that of options. Thus, employees holding restricted stock (or ordinary stock) lose more the more the stock price falls. With options, the losses are limited on the downside.

Two of the many highly publicized controversies over the use of options are *repricing* and *backdating*. The repricing controversy began in the late 1990s when many companies saw their options fall deep out-of-the-money.⁷ The holders of these options felt unmotivated, because they believed that the options were so deeply out-of-the-money (referred to as *underwater*) that nothing they could do would ever bring the options back in-the-money by expiration. Some companies began resetting the exercise prices of their options, a practice that came to be known as repricing. One variation of repricing was to cancel the outstanding underwater options and issue new at-the-money options. In either case, it appeared that the shareholders were getting the shaft. Options had been granted, the stock had performed poorly, and the option holders were then forgiven for their poor performance as employees and executives and given a second chance. If the poor performance was market or industry driven, it might make sense to cut the employees and executives a break. One study, however, coauthored by yours truly, showed that the poor performance was specific to the company and not driven by factors outside of it. Thus, it is tough to argue that employees and executives should be given a break. In spite of this fact, however, the actual cost of repricing is fairly small. Lowering the exercise price certainly increases the value of the option, but our study found that the overall effect on shareholders is small.

Nonetheless, my intuition tells me that while the cost of repricing is low, it just looks bad. If every time I buy groceries, the grocery store charges me an extra penny for no reason, it will not cost much, but if I find out about it, I will consider changing stores. Now, I am not going to say that the final word on repricing is that it is a bad thing. Much has been written and discussed over the years. There are other aspects to the problem and other points of view. Just don't say I didn't tell you about it.

⁷The technology bust was a major reason for the large number of out-of-the-money stock options.

But if repricing has stirred controversy, it has been nothing compared to the backdating issue. Some academics discovered that the issue dates of options were remarkably correlated to the dates on which stocks were at their lowest. Such perfect market timing could not have come at random. Further investigation showed that, indeed, many companies engage in a routine practice of awarding options on one date but setting their award dates to other dates. These other dates might be the date in the last 30, 60, or 90 days on which the stock was the lowest. A few other variations exist. In all cases, however, the options are effectively awarded in-the-money. Now, no one should be bothered by that fact, provided the full information is disclosed and properly accounted for. Needless to say, that wasn't the case. Some bizarre stories associated with backdating have emerged, including one where the chief executive fled the country to avoid prosecution. The government does appear intent on coming down hard on companies and individuals found guilty of backdating. This story is evolving so I cannot put anything resembling a finishing touch on it.

There is no way that I can do full justice to any of these topics in a short essay. I hope that this essay has familiarized you with the general issues and concepts associated with stock options. I also hope you have not come to approve or disapprove of them but will keep an open mind. My own opinion is that restricted stock is a much better device from the shareholders' perspective, but clearly an equilibrium has to be reached in which employees and executives receive something they value sufficiently high to make the proper effort that will benefit themselves and the shareholders. It may well be that they prefer stock options over restricted stock, because the avoidance of downside risk is the reward they receive for tying their careers and much of their investment portfolios to a single company.

FOR MORE READING

- Carpenter, Jennifer N. "The Exercise and Valuation of Executive Stock Options." *Journal of Financial Economics* 48 (1998): 127–158.
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TEST YOUR KNOWLEDGE

1. What are the similarities and differences in *employee* stock options and *executive* stock options?
2. Why are stock options worth less than comparable options that trade on an options exchange or the over-the-counter market? What advantage to the issuing company does this feature provide?
3. What is the primary reason stock options have been issued at-the-money?
4. Identify and briefly describe two recent controversies in the use of stock options.

