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*The Crystal Report on Executive Compensation*



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### **PLAYING OPTION VALUATION GAMES AT APPLE COMPUTER**

On the evidence, Apple Computer Inc. can tease out of the Black-Scholes option valuation model just about any number it happens to need at the time, whether or not that number is consistent with the company's earlier-reported option valuation figures.

To understand what went on here, we need to go back to Jan. 12, 2000. On that day, Apple CEO Steve Jobs received what was, and I believe what still is, the largest option grant in the history of mankind made in a single day, an option covering 40 million shares and carrying a strike price of \$21.80 a share. (All numbers of shares and prices in this article have been adjusted for all subsequent stock splits.)

To give you an idea of how large this option was, consider that on the date of its grant, you could have bought a 10-year zero-coupon Treasury bond, which would have provided you with a guaranteed compounded annual yield of 7.06 percent.

Were the price of Apple stock to increase by that very percentage for 10 years and were Jobs to have exercised his option on the last day of its 10-year term, he would have received pre-tax profits of \$942 million. Yet Apple shareholders could have had the same return from U.S. Treasury bonds without taking one iota of risk.

As it turns out, Apple stock did not increase at the rate of 7.06 percent a year. No, it declined. By Oct. 19, 2001, the stock had dropped to \$9.15 a share from \$21.80 on Jan. 12, 2000.

Now, suppose you felt sick one day and went to your doctor. He gave you a shot to help you out, but you subsequently became even sicker. So you went back to your doctor. And he proposed a second shot. Would you have let him give you that shot?

Well, if you were a member of Apple's board compensation committee, you certainly would. Having handed Mr. Jobs history's largest stock option and having witnessed that this horse-needle injection backfired, the committee promptly reasoned that Mr. Jobs needed a second shot.

So on Oct. 19, 2001, he was given another option grant, this one covering 15 million shares and carrying a strike price of \$9.15 a share.

### **Option Repricing**

Herewith a brief digression: Prior to reformed proxy disclosure rules, which came into effect in the 1992-93 period (and were reformed again in 2006), the normal practice in Silicon Valley, when confronted with an underwater option, was to “reprice” it. In this process, the optionee handed back his option agreement to the company. Then, on page 2, where it said “to exercise this option, you shall pay \$21.80 a share”, that figure of \$21.80 was erased and a new figure was written in, namely, \$9.15 a share.

Some companies repriced options multiple times. Interestingly, the worst offender I could find was Apple Computer, which, if memory serves, repriced some eight or nine times.

It’s no wonder that such companies’ option agreements were printed on 20-lb. paper, except for page two, which was printed on 100-lb paper. That page had, after all, to withstand multiple erasures.

In devising the new proxy disclosure rules, I was an unpaid, unofficial consultant to Richard Breeden, then the chairman of the U.S. Securities and Exchange Commission.

He told me early on that he was not going to bash high executive pay. All he wanted to do, he said, was to shed a spotlight on it and let shareholders act however they wanted with the new, expanded information.

But when it came to the issue of repricing options, he turned visibly angry. He thought that practice was utterly abusive.

So in the new proxy rules, there appeared the requirement that if a company repriced, it had to show all repricings done in the past 10 years for any person who was then or had been an executive officer of the company, i.e., one of the five top executives. And that was so even if the particular person had left the company and joined a competitor.

That potential display of dirty laundry caused a number of Silicon Valley companies to decide that repricings were not such a good idea, at least for the top five executives. So they repriced options for lower-level folks and did not reprice for the top five. That way, that onerous table could be avoided.

But lest you think that these companies were discriminating against their most highly-paid, this attempt by the SEC to make repricings unpalatable had, like most governmental regulations, an unforeseen outcome.

Take Apple. Instead of repricing Mr. Jobs' 40 million option share grant made in 2000, the company let him keep it and then issued him a second grant.

That approach was more user-friendly to Mr. Jobs than an outright repricing. If the market price recovered – say to \$35 a share – he stood to make a ton of money on his first grant. And a ton of money on his second grant as well.

Indeed, on Oct. 22, 2003, yet another Apple repricing occurred. Employees, other than the people listed on the proxy statement, were permitted to turn in 33.2 million underwater option shares with strike prices of \$12.50 or higher in return for 13.4 million at-the-market replacement options.

By not covering Apple's most senior executives in the repricing, Apple dodged the bullet of having to lay out the sordid past history of its multiple repricings.

### **Free Shares for Underwater Options**

But the notion of giving Mr. Jobs a second option on top of his original option backfired. After handing Mr. Jobs' that second option – the one with the strike price of \$9.15 a share – the company's stock price continued its decline, reaching \$7.475 a share on March 19, 2003. With his two options underwater, both Apple's board and Mr. Jobs threw in the motivational towel, so to speak. Mr. Jobs surrendered all 55 million of his by-then underwater stock option shares, and he received in return a grant of 10 million free shares, worth \$74.8 million at the time of the grant.

Subsequent to the awarding of the 10 million free shares, it was discovered that backdating had occurred with respect to Mr. Jobs' 2001 option grant. (Apple has consistently denied that any backdating occurred with respect to the much larger grant made in 2000, although the pattern of closing prices both shortly before and shortly after the grant were quite favorable to Mr. Jobs.)

In defending the company over the backdating charges, Apple's vaunted public relations spokespeople offered two arguments:

- The backdating in the case of Mr. Jobs was merely academic, because his 2001 option was never exercised. (And neither, of course, was his 2000 grant.) This argument is of the “no harm, no foul” variety.
- There was no real connection between the surrender of Mr. Jobs' two stock options and the subsequent awarding of 10 million free shares. Or, if there was a connection, Mr. Jobs “voluntarily surrendered” his 55 million underwater option shares so as to increase the number of shares available for options to other Apple employees.

But there would have been harm and foul had Mr. Jobs' supposedly high-minded behavior been re-labeled as a simple bargain, i.e., “I turn in 55 million underwater option shares, and you give

me in return 10 million free shares”. In that case, it would be impossible to argue either that his options had no value or that he was doing, as the Bible calls it, “a good work”

And that is precisely what happened. Hearken to the words of Apple’s compensation committee report contained in its proxy statement filed on March 11, 2004: “In keeping with its philosophy to relate compensation to building shareholder value, **in exchange for his cancelled options** (emphasis is mine), the Board approved a new retention and incentive program in the form of long-term equity compensation consisting of five million (10 million shares following a subsequent two-for-one split) restricted shares of the Company’s common stock.”

### **How Much Were Steve Jobs’ Underwater Options Worth?**

Now we come to the heart of this complicated story. There’s one thing we know here: Mr. Jobs’ 10 million free shares had a market value at grant of \$74,750,000.

But what is arguable is how much those 55 million underwater option shares were worth on March 19, 2003, the date they were traded in for the 10 million free shares.

According to a Declaration contained in a filing by Apple’s outside counsel at the time the exchange was made, Apple stated that: “Under a Black-Scholes valuation, the cancelled option grants (totalling 55 million shares) were valued at the time at \$124 million, **or \$49 million more than the restricted shares** (emphasis is mine).

Taken at face value, this statement implies one of two things:

- Steve Jobs is stupid. He took \$75 million of value in exchange for giving up \$124 million of value. Of course, we know that he is anything but that.
- Steve Jobs is a pay hero. Not only did he give up options that could be re-awarded to other employees, but he also took much less in return than that to which he was entitled. This argument is consistent with his continuing to work for \$1 a year. But that token \$1 omits his two huge options and his 10 million free shares. And don’t forget the personal jet the board gave him as a gift, including all the cash needed to pay the taxes on the gift and the taxes on the taxes, etc. etc., the total cost of which was reported to be \$90 million, according to the proxy statement filed on March 12, 2001.

But how about a third possibility, namely, that Apple speaks out both sides of its mouth when it comes to putting a price tag on a stock option?

To follow this argument, you need to know that the Financial Accounting Standards Board (FASB), the rulemaking body for American accounting, requires that a company charge its earnings with the grant date fair value (also known as the present value) of stock options. The standard used by most companies is the Black-Scholes model, although some use a binomial model or another lineal descendant of the Black-Scholes.

## Navigating the Shoals of the Black-Scholes

The Black-Scholes requires six inputs to produce a present value:

- The market price at grant. Other things equal, the higher the market price, the higher the option's present value.
- The strike price at grant. Other things equal, the higher the strike price, the lower the option's present value.
- The estimated future volatility of the stock. Other things equal, the higher the estimated future volatility, the higher the option's present value.
- The estimated future dividend yield of the stock. Other things equal, the higher the estimated future dividend yield, the lower the option's present value.
- The risk-free rate of interest. Other things equal, the higher the risk-free interest rate, the higher the option's present value.
- The term of the grant. Other things equal, the longer the option's term, the higher the option's present value.

Let's focus on the option term assumption for the moment.

In an ideal world, no employee would exercise an option until the very last day of its term (10 years in the case of most options, including Mr. Jobs' options). That is the only date that captures the true value of the option. In the public option markets, in contrast, the true value can be captured on any date, because, as long as there is time remaining before its expiration, it can be sold for more than the amount by which it is then in-the-money. That's because there is added value to the time remaining prior to the option's expiration. But employees may not sell their options; they may only exercise them.

You also need to know here that an underlying premise of the Black-Scholes model is that the investor is perfectly diversified. But that's the one thing your typical employee is not. Most employees' balance sheets are heavily weighted with company equities – either free shares or option shares. And because that is so, most employees are relatively risk averse. Sure, they can wait until the last day of the option's term. But what if the stock describes a perfect parabola, rising sharply in the middle of the term and then plummeting at the end?

Ira Kay, a leading compensation consultant, once told me that, in his view, whenever a stock had doubled in value compared to an option's strike price, employees begin to feel a compelling urge to exercise their options, in other words, to take the money and run. "It's in their mothers' milk", he claimed.

To capture this aspect, FASB permits a company to use something lower than the full nominal term of the grant. The company is allowed to study the past exercise history of its employees and to use as the option's term the so-called "effective" term.

OK, so how did Apple and its pay consultant come up with the \$124 million then present value of Mr. Jobs' 55 million underwater shares?

Well, we can pretty easily set aside four of the six assumptions in the Black-Scholes model:

- The market prices at grant are not arguable.
- The strike prices are not arguable.
- Apple has never paid a dividend and assumes that it will not in the foreseeable future.
- The risk-free rate of interest properly depends on the assumption being used for the length of the option's term, but within a pretty broad range of risk-free rates, it is not a killer variable in dramatically changing the option's present value.

So that leaves us with the volatility assumption and the term assumption.

### **What Assumptions to Use?**

Although a company is supposed to estimate its future stock price volatility, most companies assume the past is prologue. That is to say, they concentrate on the stock's past volatility.

Here are a few stats:

- For the three years prior to March 19, 2003 (the date of the exchange of option shares for free shares), the daily volatility was 72 percent.
- For the two years prior to March 19, 2003, the daily volatility was 52 percent.
- For the one year prior to March 19, 2003, the daily volatility was 44 percent.

You can see here that the trend from the past was a lowering of volatility to something in the mid-40s range.

That finding is heightened by going to the public options markets and examining the volatility implied in the pricing of publicly-traded, at-the-market stock options. On March 19, 2003, according to Bloomberg data, the implied volatility was 47.8 percent. For the entire month of March 2003, the daily implied volatility ranged from 41.9 percent to 50.6 percent, with an average of 46 percent and a median of 46.1 percent.

But what about the term of the grant? One thing we do know is the remaining terms of the two underwater option grants. As of March 19, 2003, the grant made in 2000 had 6.82 years to go before its expiration. And the one made in 2001 had 8.59 years to go.

Now let's work backwards. We know that Apple claimed the two options had a present value of \$124 million as of March 19, 2003. So, for the fun of it, let's use the full remaining terms of the grants, and let's also use a volatility assumption of 46.1 percent, the median implied volatility for March 2003.

Bingo! That combination produces a present value of \$123 million. (If the volatility assumption is increased slightly, to 46.4 percent, the present value rises to the \$124 million cited by Apple.)

Besides knowing that 46.1 percent is the median implied volatility for March 2003, we also know that figure is not out of line with historical volatility levels in the recent prior past.

But how about that assumption that Mr. Jobs would wait until the very last day of his options' terms to exercise?

For guidance here, we turn to Apple's 10-K filed with the SEC on Dec., 19, 2003. According to its own declarations, Apple used an effective term assumption for option grants made in 2003 of just 3.5-4 years.

Of course, a proper effective term assumption for Mr. Jobs' options would have been more than 3.5-4 years, because they were both underwater at the time of the valuation.

The bottom line, for me, is that the true value of Mr. Jobs' underwater options was not much different than the \$75 million in free shares he was given in exchange. And that, therefore, the \$124 million valuation claimed by Apple's board had a lot of air in it. And that therefore Mr. Jobs was neither stupid nor a pay hero but rather was trading something worth \$X for something else worth \$X.

So how do we get to a valuation of \$75 million for the two options? One possibility is to use a volatility assumption of 42 percent (certainly in the range of likely volatilities), coupled with option terms that are higher than the 3.5-4 year terms used in Apple's 10-K but lower than the full remaining terms of the two options.

Here, for the most underwater option, the one with a term of 6.82 years remaining until expiration, let's assume exercise after 5.5 years. And for the second option, which had a term remaining of 8.59 years but which was not all that underwater as of March 19, 2003, let's assume a term of 4.5 years. On that basis, the present value of the two grants would have been \$76 million, a figure quite close to the \$75 million value of Mr. Jobs' 10 million free shares.

Did Apple commit some sort of fraud by claiming that Mr. Jobs' options were worth \$49 million more than the free shares he received in exchange? I wouldn't go that far. What we have seen here is that the Black-Scholes has a lot of elasticity in it.

Still, I remember a conversation I once had with the chief financial officer of CBS Corp., one of my clients when I was a consultant. I asked him one day: “Is CBS on LIFO or FIFO?” (LIFO and FIFO are two methods of valuing inventories.) His reply: “We’re on MICO”. “What’s MICO”, I asked? “Make It Come Out.”

In my opinion, Apple made it come out.

### **What If Steve Jobs Had Kept His Options?**

One final question: How would Steve Jobs have fared had he kept his 55 million underwater option shares and not exchanged them for 10 million free shares?

His 10 million free shares vested on March 19, 2006. The close price at that time was \$64.66, so those shares would have been worth \$647 million.

Had he kept his 55 million option shares, they would still be outstanding. At the close on Nov. 7 of \$98.24, his paper profits would have been \$4.4 billion.

Steve Jobs is a terrific innovator and one of the most admired people in America. But in this one instance, he sure got it wrong.

2009 marks Graef Crystal’s 50<sup>th</sup> anniversary in the executive compensation field. He has been a director of compensation for General Dynamics and Pfizer, worked as a consultant for Booz, Allen & Hamilton, served as worldwide practice director at Towers Perrin for 18 years, was a professor at the University of California at Berkeley’s Haas School of Business for 10 years and a syndicated columnist for Bloomberg News for almost nine years. He has written six books and more than 1,600 articles on executive pay. In the Spring of 2009, he will be teaching a course in executive compensation at the University of California at Berkeley’s Boalt School of Law.