

VALUING THE COMPONENTS OF THE COMPENSATION PACKAGE OF EXECUTIVES

by

David R. Williams*

I. Introduction

This article will provide the practicing economist with guidelines on how to calculate the economic damages in a death, injury, discrimination, termination or any other types of case involving a highly compensated executive. The main theme is to break down the executive's total compensation package into more manageable components and then price each of the components separately.

The total compensation package of a top executive will generally have some combination of the following components: base salary, short-term bonus based on performance over the past twelve months, long-term bonus based on performance over the past 3-5 years, stock options (qualified and/or non-qualified), restricted stock, stock purchase plan and profit sharing. Everything in addition to base salary is not typical of what the average worker receives, and each item should be examined individually. On top of the above there will also be a pension, all the usual insurance (health, dental, disability, life) and special fringe benefits ranging from tax preparation to country club membership. Any practicing economist who has ever dealt with the compensation package of a highly paid executive will have an understanding of the complexities involved in valuation, compared to a normal wage earner.

The definition of what is exactly meant by "executive" is not precise, but generally will cover the vice president level and above. Hence, one would include under this definition chairman, president, chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO), controller, and general counsel, to name but a few.

There is no typical compensation package for an executive, and research indicates that compensation packages vary quite drastically across companies and industries. However, a clear trend is emerging in that company and individual performance is becoming the leading determinant of executive compensation, particularly at the higher end of the corporate ladder. More and more, bonuses and other incentive pay are being tied directly to individual and company performance measures.

One of the very first steps the practicing economist should do when dealing with a case involving a highly paid executive is to obtain an individualized compensation statement breaking out all the components of the executive's total compensation package. These data should be available from the benefits or human resource department at the company.

If the practicing economist is interested in looking at general historical trends in the growth and size of executive compensation over time, there are four leading sources of

* David R. Williams is President of Florida Economics Consulting Group, Inc., Miami, Fl. The author would like to acknowledge the comments of Patrick A. Gaughan.

data for executive compensation in the U.S., namely Business Week, Forbes, William Mercer, Inc. and the Conference Board. Other sources include the RMA Annual Statement Studies, the Corporation Source Book of Statistics of Income, the Almanac of Business and Industrial Financial Ratios, the Officer Compensation Report and the proxy statements of publicly traded companies.

Business Week has conducted an annual survey the past 46 years looking at the compensation of the top two highest paid executives at 362 of the largest U.S. companies. Forbes conducts an annual survey of CEO's total compensation at approximately 800 U.S. companies. William Mercer, Inc. conducts an annual survey of approximately 350 large U.S. corporations looking solely at the compensation of CEOs. The results are published annually in the Wall Street Journal. The Conference Board has an annual analysis of the compensation of the five (it was the three highest until the Securities and Exchange Commission (SEC) changed its reporting requirements in 1992 from three to five) highest paid executives at 270 companies out of a total database of approximately 1,000 companies with sales over \$100 million, by major industry.

The precise definition of compensation varies among these four data sources. This data is probably of limited use to the economist on a specific case because it is merely aggregate data. However, it could be useful in helping the economist in establishing overall trends in executive compensation over time.

An additional feature of the Conference Board data is that regression equations are also presented across industry and for each of the five highest paid executives linking executive pay to company size. Company size is measured by different categories across different industries, e.g., total assets for commercial banking and premium income for insurance. The regression equations show that a positive correlation, not surprisingly, exists between company size and executive pay. The regression equations could be used to calculate the average executive pay of an executive in a certain industry by salary rank and by company size.

II. Base Salary and Short-Term Compensation

Base salary can be evaluated using the individual executive's historic salary, the salary of similarly situated executives (if feasible and available) and as a proxy, executive salary by specific industry from such data sources as the Conference Board.

The bonus provided to an executive for performance over the past twelve months is rarely termed a bonus. Corporations are very creative when coming up with names, such as management incentive compensation plan or performance unit incentive plan, for example. In order to project bonuses into the future one can average historical bonus awards or calculate their percent of the base salary. One can also look at the specific firm, the specific industry that the firm is operating in, and the overall market conditions in the economy as a whole to examine whether future cycles are forecast which would affect the pay of the executive in question.

It is very likely that an executive's bonus is formula driven based on company profit, revenue, earnings per share or other company and/or target measures. It could well be a weighted average of various company and individual performance measures relative to set targets. When looking at an executive's historical bonuses one should not be surprised to see some years of zero bonus when targets were not attained by the executive and/or the

company.

It is crucial not only to determine a base salary but also its growth into the future. Unfortunately, the use of 1990 Census figures to derive age earnings profiles is not possible because there are no occupational categories for CEO, Chairman, CFO, or any other executive. Future research could be done in this area to determine whether wage increases at the executive level follow the overall trend in other occupations where generally wage increases slow down or peak over the latter stages of the age earnings cycle.

Historic data on the specific individual and industry trends are probably the most important determinants again with regard to the growth rates of salary and bonus. One can also attempt to interview other executives at the corporation to try and ascertain the executive in question's future compensation growth, whether future promotions were planned, and to try and track a "replacement" or similarly situated executive's compensation over time.

III. Longer-Term Compensation

A. Bonus

There can be longer-term bonuses which are based on company and/or individual performance over the past 3-5 years, for example. Many of the comments under bonus and short-term compensation apply again in this section.

B. Stock Options

Stock options are a form of compensation for top executives which has been increasing dramatically in popularity over the past few years. A growing number of companies are now offering stock options to all their employees, not just their executives. A stock option is the right to purchase company stock in the future at a predetermined price (grant price).

The four determinants of the future value of a stock option, discounted to present value, are :

1. the vesting period, which can run anywhere between 1-3 years, with the shares vesting incrementally over the vesting period. Once the stock option is vested it has the potential to be exercised by the stockholder for a gain in value.
2. the life span of the stock option, which generally runs up to 10 years. The stock option is either exercised sometime before the ten years is up or the stock option expires and becomes worthless.
3. the price increase and volatility in the stock. If the stock does not appreciate in price then the stock option is worthless. One can obtain historical price movements in the company stock in question from the internet, brokerage sources or the company itself. For future stock price movements, one can look at the company's own projection of future expected stock price growth from the company's financial reports/newsletters, or make projections based on historical data. One should be careful of such things as past stock price splits, company takeovers diluting the stock price artificially and other nuances when dealing with

- a company's stock.
4. discount rate - the interest rate used to discount a future nominal gain in value through the exercising of a stock option for profit back to its equivalent present value at the time of the calculations by the economist.

Simply put a stock option works as follows : say an executive is granted or issued the option or right of purchasing 1,000 shares of his company's stock in the future at today's grant price (which will be today's actual stock price or today's stock price with a discount applied) of \$100 per share. The executive cannot take advantage of any increase in the stock price by exercising the stock options and selling these shares for one year, the vesting period in this example. If, after the one year vesting period is up, the stock price has risen to \$110 per share, the executive could decide to exercise his stock option by purchasing the stock at the grant price of \$100 per share and immediately sell the stock for \$110 per share and realize a profit of \$10 per share, or \$10,000 on all 1,000 shares. The executive also has the choice of not exercising the stock option after one year and instead hoping that the stock will increase in price higher than \$110 per share in years two through ten.

The executive cannot lose money with stock options. However, the executive will make no money if (1) the stock price stays at the same level; (2) declines relative to the grant price; or, (3) if the executive does not take advantage of a price increase in the stock which is followed by a price decrease back to the grant price.

There are different types of stock options which fall into two main categories, namely qualified/incentive and non-qualified stock options. Qualified/incentive stock options refer to stock options that are taxed at the time of sale at the capital gains tax rate. Non-qualified stock options refer to stock options that are taxed twice, first at the time of exercise and second at the time of sale. IRS rules govern the tax treatment of different types of stock options.

In terms of the valuation of stock options, there are a number of methods open to the practicing economist. The SEC now requires companies to put a valuation on the unexercised portion of stock options of their five highest paid executives on their company proxy statements. This new SEC reporting requirement took effect in October, 1992. The new SEC reporting requirement allows companies to use the Black-Scholes method of stock option valuation, or other acceptable methods (such as the binomial or the growth model) or to just assume, quite arbitrarily, 5 percent or 10 percent constant compound growth over the full life of the stock option. The appendix goes over the difference between these valuation methods in more detail.

One should also include as an economic loss to an executive stock options which were granted to an executive but lost through the executive's termination because they had not vested yet. Thus, the executive is not in the position to exercise at a future date stock options previously granted.

C. Restricted stock

Companies grant restricted stock to executives, which are forfeitable unless the executive works for the company over a stipulated period of continued employment. Restricted stock is an outright gift of stock given to the executive from the company. The only caveat is that the executive can only sell the stock and realize economic gain once the

stock has vested, hence its name restricted. For example, a third of the stock vests each year so that after 3 years all the stock given initially has vested and can be sold by the executive with no restrictions. The vesting period is meant as an incentive for the executive to stay with the current company, and also creates the incentive for the executive to increase the stock price not just for his shareholders, but also for his own personal financial gain. Similarly to stock options, restricted stock can be forfeited due to termination because it had not vested, and should be included under a calculation of economic loss. Concerning restricted stock, the only stock prices that matter are the stock prices at vesting and sale, not the stock price at initial grant. The executive is taxed on the value of the stock when it vests, with many companies inflating or "grossing up" the executive's salary to provide income with which to pay the tax due.

Discounts exist with restricted stock due to a lack of marketability because stock which cannot be readily sold is worth less than stock which can readily be sold. Pratt (1996) summarizes nine studies on this topic and concludes that a discount in the 35 percent to 50 percent range appears reasonable. However, the SEC has recently reduced the rule 144 holding period for restricted stock to one year, down from two years, which means that the discount should now be lower.

D. Stock Purchase Plans

Stock purchase plans, if offered, give an executive the right to subscribe to buy stock in the company at a discounted or preferential price, for example, at a 5 percent-15 percent discount. The subscription price is the discounted price. The subscription price is the maximum price paid for the shares of stock on a given subscription. Unlike stock options and restricted stock, the executive can lose money under a stock purchase plan, if the company's stock price falls below the subscription price in the future.

IV. Other Fringe Benefits

Other fringe benefits available to executives not discussed so far can include the employer's share of social security and medicare, 401(K) - where forfeiture of accrued assets can result from being terminated from the company, profit sharing and all the typical insurance: health, dental, disability (short and long-term), life, and accidental death and dismemberment. Other fringe benefits could also include a company car and associated expenses, educational programs, financial/tax preparation assistance, professional dues, business, health and golf club memberships, flex accounts - to name a few. The practicing economist can use a market approach to obtaining a value on individual fringe benefits and including in the value of the total compensation package. For example, tax preparation can be priced on the open market and converted into a percent of salary.

One should also treat the pension of the executive as a stand alone category under other fringe benefits. Executive pensions are usually of the defined benefit type where the future pension is a function of the number of years worked with the company (usually with an arbitrary percent for each year of service) and the average income over the last or highest three to five years - a formula driven calculation. One needs to be particularly careful in determining what the company defines as "income" in the pension calculation. Base salary is always included, but short or long-term bonuses or other incentive payments may or may

not be included under the company's definition of income. It is highly unlikely that stock options, restricted stock and other stock related income would be included under the company's definition of income. Obviously, what is included and excluded under the company's definition of income for the executive's pension will have a tremendous effect on the final pension figure.

Another potentially significant fringe benefit for an executive concerns the benefits derived from a severance package. The practicing economist should check with the attorney to determine whether or not to offset losses by the benefits from a severance package, such as continued health insurance coverage. The economist should also be careful in a reduction in force (RIF) situation where a termination results in an enhanced pension package through a generous severance package. One should also be careful if the pension is reduced by formula for expected social security retirement benefits from the U.S. government. Generally speaking, unless legal considerations override economic logic, one is calculating the difference, in present value terms, between the pension but for the termination and the pension post termination. There may not be a pension post termination due to lack of vesting.

The practicing economist needs to be especially careful in dealing with the fringe benefit package of highly paid executives and should not apply the U.S. Chamber of Commerce fringe benefit percentages of approximately 30 percent-40 percent. Some of the Chamber's percentages will be overestimated and some will be underestimated when looking at highly paid executives. One may end up with an overall percent figure comparable to the Chamber's figure, but for the wrong reasons. If the data permit, one should break out the overall fringe benefit package for the executive into as many individual components as possible and price them out separately. The Chamber's data are more applicable when looking at the rank-and-file employees of a company, rather than the executives at the company. Adjustments have to be made when dealing with executives' benefits. For example, the employer's social security share of FICA was 6.2 percent up to \$62,700 of social security earnings in 1996. However, the appropriate percent to use for an executive making \$500,000 per year is not 6.2 percent, but :

$$0.062 * \$62,700 = \$3,887 / \$500,000 = 0.78 \text{ percent}$$

Similarly, an employer's share of health insurance percent of approximately 4 percent from the U.S. Chamber of Commerce study does not mean that health insurance is constant at 4 percent of income for an employee making \$20,000 per year and a highly paid executive making \$500,000 per year. One would expect this percent to decrease as income rises due to there being an upper limit on the value of a health insurance package. One would expect this to be true for other elements in a fringe benefit package also.

V. Conclusion

This article offers guidelines to the practicing economist when valuing a compensation package of a highly paid executive due to the nuances that generally occur. One should attempt to break out the total compensation package into as many separate components as possible and place a value on each one individually. Issues regarding stock, whether stock options and/or restricted stock, which are generally not an issue in the more

typical non-executive case need to be carefully examined and valued appropriately.

More research needs to be done related to the age earnings profile of highly paid executives to see whether pay increases over time follow the same general pattern as for the rest of the workforce. There is no general compensation package for all executives; each one will have its own peculiarities and stock incentives. However, a clear trend has been emerging recently in that executive compensation is becoming increasingly tied to their individual and their company's performance.

Appendix Stock Option Valuation Methods

A. Black-Scholes Option Pricing Model

This model was developed to value publicly traded call options, but it is also commonly used to value employee stock options. Publicly traded call options differ from employee stock options with regard to a longer time to expiration, delayed exercisability, and non-transferability (i.e. are not traded in a secondary market), to name the most significant differences. These and other differences point to potential shortcomings of using Black-Scholes to value employee stock options, but it is still recognized as producing a reasonable estimate of their economic value. The inputs into the Black-Scholes model are:

1. current stock price
2. exercise price
3. option term
4. interest (discount) rate
5. stock volatility

The formula is :

$$C = S[N(d1)] - Xe^{-Rt} [N(d2)]$$

where

$$d1 = \frac{\ln(S/X) + [R + (V/2)t]}{\sqrt{Vt}}$$

$$d2 = d1 - \sqrt{Vt}$$

- C = Option Value
 S = Current Stock Price
 X = Exercise Price of Option
 e = Exponential Constant (2.71828)
 R = Interest (Discount) Rate
 t = Time Until Option Expires
 V = Volatility or Variance in Stock Price
 N(d1) & N(d2) = Area Under Standard Normal Distribution,
 i.e. cumulative normal distribution function

The formula values the difference, in present value terms, between the value of the stock option looking at the current stock price (S) and the exercise price (X), taking into account stock volatility (V). Volatility can be measured using the standard deviation of the log of the daily change in the company's stock price over a historic time period, and should not be confused with the stock's beta. Black-Scholes assumes that the interest rate and stock price volatility are constant throughout the life of the option and that an option can only be exercised at maturity. There are programs for personal computers that will value stock options using the Black-Scholes method readily available, for example OPTION! through Kolb Publishing Company.

B. Binomial Option Pricing Model

This method uses probability theory to estimate the value of an employee stock option. As an example :

- Initial Stock Price	\$10
- Probability of Stock Price Going Up	60%
- Probability of Stock Price Going Down	40%
- Magnitude of Stock Price Increase	150%
- Magnitude of Stock Price Decrease	50%

Using the above data, the expected value of the stock after one period is :

$$(60\% * \$10 * 150\%) + (40\% * \$10 * 50\%) = \$11$$

One can construct a lattice diagram over 52 periods for a probability distribution for the stock price at the end of the 52 weeks. The probabilities of the stock price going up or down and the magnitude of the stock price movement up or down are derived from the stock's volatility, which can be calculated based on historic stock price movements.

In contrast to the Black-Scholes method, one can vary the stock price volatility and not have to wait until the end of the term for the stock option to be exercised with the Binomial model.

C. Growth Model Option Pricing Model

This is the simplest of the three methods. One assumes that the stock price grows from the grant price at a fixed compound rate over a given period of time until it is exercised. One calculates the gain in value of the stock options at the exercise date compared to the grant date and discounts this nominal gain in value to present value dollars using an appropriate discount rate.

Other stock option valuation techniques include those of Shelton (1967), Kassouf (1965), and Noreen-Wolfson (1981).

References

- American Compensation Association. 1994. *Reading Executive Compensation Information in Proxy Statements*. ACA : Scottsdale.
- Baker, George P., Michael C. Jensen and Kevin J. Murphy. 1988. "Compensation and Incentives : Practice vs. Theory." *Journal of Finance*, 43(3) : 593-616.
- Black, Fischer, and Myron Scholes. 1973. "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy*, 81 : 637-654.
- Brookshire, Michael L. and Stan V. Smith. 1990. *Economic/Hedonic Damages: The Practice Book for Plaintiff and Defense Attorneys*. Anderson : Cincinnati.
- Business Week*, various years, Executive Compensation.
- The Wall Street Journal/William M. Mercer, Inc.*, various years.
- CEO Compensation Survey & Design* and Technical Documents.
- Evans, David S. *The Calculation of Economic Losses for Senior Executives in ADEA and Wrongful Termination Cases*. National Economic Research Association : New York.
- Forbes*, various years, Executive Compensation.
- Jackwerth, Jens Carsten and Mark Rubinstein. 1996. "Recovering Probability Distributions from Options Prices." *Journal of Finance*, 51 : 1611-1631.
- Jensen, Michael C. and Kevin J. Murphy. 1990. "CEO Incentives - It's Not How Much You Pay, But How." *Harvard Business Review*, 68 : 138-153.
- Jensen, Michael C. and Kevin J. Murphy. 1990. "Performance Pay and Top-Management Incentives." *Journal of Political Economy*, 98(2) : 225-264.
- Kassouf, Sheen T. 1965. *A Theory and an Econometric Model for Common Stock Purchase Warrants*. Analytical : New York.
- Kolb, Robert W. 1991. *Options : An Introduction*. Kolb : Miami.
- Kuga, Mark, "Estimating Lost Earnings in Wrongful Termination or Harassment Cases : Special Considerations." Paper presented at the Western Economic Association International Conference, San Francisco, June 30, 1996.
- William M. Mercer, Inc. 1996. Internal Memorandum.

- Noreen, Eric and Mark Wolfson. 1981. "Equilibrium Warrant Pricing Models and Accounting for Executive Stock Options." *Journal of Accounting Research*, Autumn (19) : 384-398.
- Pratt, Shannon P. 1996. *Valuing a Business : The Analysis and Appraisal of Closely Held Companies*. Irwin : New York.
- Rubinstein, Mark. 1994. "Implied Binomial Trees." *Journal of Finance*, 49 : 770-818.
- Rubinstein, Mark. 1995. "On the Accounting Valuation of Employee Stock Options". *The Journal of Derivatives*, Fall : 8-24.
- Shelton, J.P. 1967. "The Relation of the Price of a Warrant to the Price of It's Associated Stock." *Financial Analysts Journal*, May-June and July-August.
- The Conference Board, various years, *Top Executive Compensation*.
- U.S. Chamber of Commerce. 1998. *Employee Benefits*, Research Center, Washington, D.C.