COMPENSATORY DAMAGES AND THE APPROPRIATE DISCOUNT RATE

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I. Introduction

Damages are defined as "pecuniary compensation or indemnity, which may be recovered in the courts by any person who has suffered loss, detriment, or injury, whether to his person, property, or rights through the unlawful act or omission or negligence of another" (Black, 1990, p. 389). Damages may be categorized as either compensatory or exemplary. Compensatory damages represent compensation for actual loss sustained by the plaintiff as a consequence of the breach of contract by or the tortious act of the defendant. The purpose of compensatory damage awards is, simply, to make the damaged party whole. Exemplary or punitive damages are "intended to solace the plaintiff . . . or to punish the defendant . . ." (Black, 1990, p. 390), but, in either case, represent an award in excess of economic losses sustained.

The actual loss sustained by the plaintiff is the decrement or total loss of future monetary benefits as measured from date of the illegal action or inaction of the defendant, or the decrement or total loss of past and future losses of monetary benefits as measured from the date of trial. Lost monetary benefits are generically termed lost earnings or lost wages in personal injury cases, loss of support in wrongful death cases, and lost profits in most commercial litigation. The calculation of losses, accumulated at either the date of the wrongful act or at the date of trial, yields a lump-sum award for compensatory damages.

One essential component of calculating a lump-sum award for compensatory damages entails discounting future losses to present value by an appropriate discount rate. The contention of this article is that the appropriate discount rate is one which counterbalances the uncertainties associated with projecting future losses. Such uncertainty is defined, herein, as risk. Parity in risk must be maintained between projected losses and the discount rate. A risk-free rate of interest is an appropriate discount rate only when applied to projected losses which are, themselves, risk-free. As elements of uncertainty, or speculation, enter into the projection of future losses, either those elements must be removed from the analysis or the discount rate must be increased commensurately to maintain parity in risk. To do otherwise would yield an award which overcompensates the plaintiff.

A review of the evolution and application of discounting in the context of commercial and civil litigation immediately follows this introduction. The principal topics of this paper, addressed in subsequent sections, are on the subjects

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of uncertainty and risk, on maintaining parity in risk between the stream of future losses and the discount rate, and on utilizing risk-adjusted discount rates, when appropriate, in computing awards for the recovery of future losses.

What this article cannot do, unfortunately, is to examine all litigated claims to future losses and postulate the discount rate appropriate for each. It is enough, this author believes, to caution the practitioner that all forecasts harbor varying degrees of uncertainty, and that increasing the discount rate is an appropriate tool for restoring parity in risk when forecast uncertainties become material but cannot be removed from the forecasted stream of losses.

II. Discounting and the Courts

One of the earliest authorities in support of the concept of discounting is found in *Chesapeake & Ohio Railway Co. v. Kelly* in 1916. The Supreme Court stated, with Mr. Justice Pitney delivering the opinion of the court, that "... the ascertained future benefits ought to be discounted in the making up of the award" (Kelly at 490) and "... where future payments [or other pecuniary benefits] are to be anticipated and capitalized in a verdict the plaintiff is entitled to no more than their present worth ..." (Kelly at 493). A substantial body of more recent case law has affirmed the principle that future losses must be discounted to present value. See e.g. *Shu-Tao Lin v. McDonnell Douglas Corporation* (1984), *Jones & Laughlin Steel Co. v. Pfeifer* (1983), *Feldman v. Allegheny Airlines, Inc.* (1975), and *Beaulieu v. Elliott* (1967). Most such cases pertain, however, to claims brought under tort law for lost earning capacity resulting from personal injury or wrongful death, not for future lost profits.

Robert L. Dunn notes that while the principle of discounting future lost profits at an appropriate rate has often been approved by the courts in breach of contract matters, "very few cases specifically consider whether future profits must be discounted" (Dunn, 1987, p. 325). Citing *Lehrman v. Gulf Oil Corp.* (1975), Dunn proceeds to speculate that the courts' occasional refusal to discount future profits may be a failure of proof by the defense, because "the court held that failure to instruct the jury to discount future lost profits was not reversible error when defendant had failed to object at trial" (Dunn, 1987, p. 326).

On the subject of the point in time to which future losses are to be discounted, the courts have offered both: (1) the date of the injury, and (2) the date of trial. In a footnote to its opinion in *Jones & Laughlin Steel Co. v. Pfeifer* (1983), the Supreme Court stated:

> It is both easier and more precise to discount the entire lost stream of earnings back to the date of injury—the moment from which earning capacity was impaired. The plaintiff may then be awarded interest on that discounted sum for the period between injury and judgement, in order to ensure that the award when invested will still be able to replicate the lost stream. (at 538, note 22)

The Second Circuit Court of Appeals, in *Shu-Tau Lin v. McDonnell Douglas Corp.* (1984), held for the defendant on the issue of the amount of the award subject to prejudgment interest under New York's wrongful death statute and concluded that:

a wrongful death recovery for lost future income under New York law is thus effectively split into two components: (1) compensation for prejudgment losses, as to which interest is applied at a statutory rate, . . . ; and (2) compensation for post-judgment losses, which are discounted to present value in order to offset future earning power of a present lump sum award for future losses. (pp. 51–52)

As to the appropriate discount rate to be utilized in computing the present value of future losses, Harold R. Dilbeck summarizes and extends for us the guidance offered to litigants by the courts. Dilbeck comments that "[a] critical relationship exists between the cash flow to be discounted or accumulated and the rate of discounting or accumulating" (Dilbeck, 1990, p. 177), and citing, primarily, the Supreme Court in Pfeifer, he proceeds to disaggregate this "critical relationship" into three components which he categorizes as:

- Parity in income taxes,
- Parity in inflation, and
- Parity in risk.

Parity in income taxes refers to consistency in the treatment of income taxes in both the lost stream of income and the discount rate. Dilbeck states "A damage award that reflects gross earnings should be discounted at a rate earned on taxable investments; for an award that includes after-tax earnings, the discount rate should be the rate earned on tax-exempt investments" (Dilbeck, 1990, p. 178). Compensatory damage awards for lost profits are taxable to the recipient. To deduct state and federal taxes from each annual installment of lost profits would effectively result in double taxation. Parity in income taxes is achieved by discounting pre-tax lost profits to present value by a rate of return associated with taxable investments. On the other hand, damages awarded for lost wages are tax-free. The wages lost, however, are not gross wages, but wages that would have been diminished by state and federal income taxes. Citing *Norfolk & Western R. Co. v. Liepelt* (1980), the Supreme Court stated in Pfeifer, "[S]ince . . . the lost stream of income should be estimated in after-tax terms, the discount rate should also represent the after-tax rate of return to the injured worker" (at 537).

Parity in inflation refers to consistency in the treatment of inflation in both the dollar amounts projected and the discount rate. In *Ossenfort v. Associated Milk Producers, Inc.* (Minn. 1977), the court took the position that inflation is a fact of life which cannot fairly and realistically be ignored (at 684). There is now a consensus among courts that equitable treatment of inflation is mandatory in cases involving lost wages. There is no consensus at all, however, regarding what form an equitable response should take. See *Beaulieu v. Elliott* (Alaska 1967), *Feldman v. Allegheny Airlines, Inc.* (Connecticut 1974), *Freeport Sulphur Co. v. S/S Hermosa* (1976), *Culver v. Slater Boat Co.* (1982), and *O'Shea v. Riverway Towing Co.* (1982). The Supreme Court, in *Pfeifer*, declined to select an exclusive method by which all federal courts will calculate lost earnings awards in an inflationary economy. Instead, the Justices addressed the allowable, alternative methodologies stating in part:

. . . if the estimated lost stream of future earnings is calculated to include price

> inflation along with individual factors and societal factors, then the proper discount rate would be the after-tax market interest rate ... On the other hand, if forecasts of future price inflation are not used, it is necessary to choose an appropriate below-market discount rate ... [A]ll that should be set off against the market interest rate is an estimate of future price inflation ... We do not believe a trial court adopting such an approach ... should be reversed if it adopts a rate between 1% and 3% [representing a real rate of interest] and explains its choice. (at 547 through 550)

Parity in risk refers to consistency between the certainty of future lost earnings or profits and the choice of discount rate. It would be inconsistent to discount an expected, but uncertain, stream of future losses by a rate of return earned on investments that are certain, or risk-free. Unfortunately, the courts have not, as yet, adequately addressed this topic either with regard to damages for lost earnings in personal injury or wrongful death cases or for future lost profits in breach of contract cases. The opinion by the Supreme Court in *Pfeifer* appears, in fact, to be contradictory on this point. Mr. Justice Stevens writes that "The lost stream [of income's] length cannot be known with certainty ... The probability that he would still be working at a given date is constantly diminishing" (at 533). While at a later point, the court concludes: "Once it is assumed that the injured worker would definitely have worked for a specific term of years, he is entitled to a risk-free stream of future income to replace his lost wages; therefore, the discount rate should not reflect the market's premium for investors who are willing to accept some risk of default" (at 537). Citing Kelly (at 491), Mr. Justice Stevens concluded that the discount rate should be based on the rate of interest that would be earned on "the best and safest investments" (at 537).

III. The Risk-Free Rate of Return

"The best and safest investments" are considered, generally, to be investments in bills, notes and bonds issued by the United States Department of the Treasury. Yields on Treasury securities are the accepted proxy for the risk-free rate of return because, absent the economic collapse of the United States government, the dollar amounts and the timing of returns on Treasury securities are known with certainty. Rates of interest obtainable from investments in Treasury securities, therefore, lack the market risk premium expected by "investors who are willing to accept some risk of default" or by investors willing to accept the risks associated with equity participation in business enterprises and are, therefore, among the lowest rates of return available in the financial marketplace.

Irving Fisher (1930) is credited with being the first economist to recognize that the market rate of interest is comprised of a real, or noninflation-related component, an inflation premium reflecting price expectations, and a risk premium related to default risk. The short-term Treasury bill rate, however, is comprised of only 1)the real interest rate, and 2)the inflation premium. Longer-term Treasury rates include a horizon premium. Neither short-term nor long-term Treasury rates include a risk premium associated with the prospect of default. Most courts, today, accept Fisher's theory.

From a lender's perspective, the real rate of interest represents compensation for deferring current consumption. From a borrower's perspective, the real rate of interest represents the cost of accelerating current consumption. According to James D. Gwartney and Richard L. Stroup (1987), individuals possess a positive rate of time preference (pp. 571–572). By this they mean that people generally prefer the reality of current consumption to the uncertainty of future consumption. On the other hand, people also prefer more goods to fewer goods. Individuals, therefore, require and accept an incentive to forego liquidity, which provides the means of current consumption, and defer consumption to later periods. The real rate of interest provides that incentive. When prospective inflation has been correctly anticipated, the real rate of interest is determined by the forces of supply and demand in the loanable funds market which, in turn, are functions of growth in the general economy, the preference of individuals for liquidity and current consumption, and government fiscal policies, in particular, the level and trend of the national deficit.

The inflation premium reflects the anticipated decline in the purchasing power of money. According, again, to Gwartney and Stroup:

> Recognizing the decline in the purchasing power of the dollars with which they will be repaid, lenders will reduce the amount of money supplied to the loanable funds market unless they are compensated for the anticipated rate of inflation. Simultaneously, once borrowers become fully aware that they will be paying back their loans with dollars of less purchasing power, they will be willing to pay the inflationary premium as well as the real rate of return. (p. 573)

When the rate of interest available on long-term securities is greater than the rate available on short-term, but identical, securities, the excess is referred to as the term premium or the horizon premium. Interest rates typically vary with maturity. The "relationship between interest rates and the maturity of securities that are identical in every way other than maturity" (Jones, 1987, p. 152) is labelled the term structure of interest rates. The yield curve is the graphical construct of the term structure. A positive term structure (an upward sloping yield curve) means that interest rates increase with maturity; a negative term structure (a downward sloping yield curve) means that interest rates decrease with maturity. Under nominal market conditions, interest rates exhibit a positive term structure. The horizon premium is the additional compensation required by investors for holding longer maturity securities rather than short-term, but otherwise equivalent, securities when the term structure is positive.

One of three explanations for the term structure of interest rates is the Expectations hypothesis. If current short-term rates are low, the market generally expects future short-term rates to rise and vice versa. Under the Expectations hypothesis, the current long-term rate of interest should equal the geometric, or time-weighted, average of the current and expected future short-term rates (Goldberg, 1984, pp. 13–15). In other words, borrowers and lenders reach consensus in their expectations for all future short-term rates and the current long-term rate is the average of those expectations.

Expectations and, therefore, interest rates are constantly changing. Bond prices move inversely to changes in the level of interest rates. The longer the remaining term to maturity, the greater the volatility of a bond's price to a change in the market interest rate. The resulting exposure to the risk of capital gain or loss is referred to as interest rate risk. Although U.S. government securities, whether 30-day Treasury bills or 30-year Treasury bonds, are risk-free to those who hold them to maturity (Brealey, 1984, p. 123, note 7), they are, nonetheless, exposed to interest rate risk at any time prior to maturity. As compensation to investors for accepting exposure to interest rate risk, interest rates should reflect a premium that increases with the maturity of a security, regardless of the market's expectations for future short-term rates.

IV. Parity in Risk

The preferred procedure for calculating damages is to discount *actual* future losses to the date of valuation by a *risk-free* rate of return. The reader should note the use, here, of the term "actual," rather than "expected," when referring to future losses. As discussed earlier, yields on Treasury securities are the accepted proxy for the risk-free rate of return. By discounting actual future losses to present value by a rate of return available on Treasury securities, parity in risk is maintained between the future lost profits or lost earnings, which are known with certainty, and the discount rate.

Unfortunately, analysts are, as yet, incapable of forecasting with certainty the amounts and the timing of any stream of future dollars other than those associated with Treasury securities. Therefore, it follows that all forecasts of damages incorporate, from bias or technical inadequacy, varying degrees of uncertainty. It is this uncertainty with regard to the amount and the timing of future sums of money that most analysts define as risk. To discount expected, but uncertain, future sums of money by a risk-free rate of return lacks parity in risk.

V. What is Risk?

The game of darts offers a useful analogy to illustrate the distinction between certainty and uncertainty. Standing one foot from the dart board, a reasonably skillful player could expect to hit the bull's-eye more times than not. As the player moves away from the dart board, the frequency with which the bull's-eye is struck will diminish, and the spread, or distribution, of darts on the game board will increase. With each throw, the player expects to hit the bull's-eye just as he does at close range, but the dart, nonetheless, may strike far from it in any direction. The spread, or distribution, of darts is a measure of uncertainty, and that uncertainty would be expected to increase as the distance between player and board increases.

Any distribution of observations, such as the distribution of darts in our example above, can be reduced into simple summary measures using descriptive statistics. Such descriptive statistics numerically explain our observations and the relationships between and among those observations. One descriptive measure of interest to the analyst would be a measure of central tendency, or a measure of where the center of the distribution lies. Measures of central tendency identify a single value that "best" describes all values observed in our distribution. The mean, or expected value, is such a measure. It is the simple average of all observations; or, if probabilities have been associated with clusters of observations, it is the weighted average of the values assigned to each cluster, using the associated probabilities as weights.

Having located the expected center of the distribution, the analyst would next calculate a measure of dispersion to describe the extent to which the actual observations may deviate from the measure of central tendency. The variance of the distribution is defined as the average of the squared deviations of the observations from the mean or expected value. The square root of the variance is termed the standard deviation which William F. Sharpe defines as "an estimate of the likely divergence of an actual amount from an expected amount" (Sharpe, 1985, p. 124). The greater the standard deviation, the greater the likelihood that actual results will be more than or less than expected.

Measures of dispersion, such as the variance or the standard deviation, are widely accepted measures of risk. This linkage dates back to 1952. In that year, Dr. Harry M. Markowitz revolutionized the discipline of investment analysis and ushered in the era of modern portfolio theory (MPT). Markowitz (1952) defined risk as uncertainty or the potential for forecast error and quantified the concept in terms of the variance of the expected returns of an individual asset.

Investors require compensation for exposure to risk, however perceived. The required compensation typically takes the form of a rate of return in excess of the risk-free interest rate. The percentage return in excess of the risk-free rate is termed "the risk premium"; the sum of the risk-free rate and the risk premium yields a rate that is said to be "risk-adjusted."

VI. Risk-Adjusted Discount Rates

What risk premium is required to effectively strip away or compensate for the perceived uncertainty in projected future sums of money? Unfortunately, there are as many answers to this question as there are cases and analysts. No formulae or empirical models exist to calculate the ex ante, or before the fact, uncertainty associated with any set of projections.

In certain cases, particularly those involving wrongful death or permanent disability, the economist may combine historical foundation for the plaintiff's claims with conservative assumptions for future wage growth and worklife statistics computed by actuaries to mitigate uncertainty sufficiently to warrant application of risk-free rates to the projections of future losses. In commercial litigation, however, discounting by a risk-free rate will be more difficult to justify despite efforts to provide foundation for each element of the analysis. Revenues, costs and the resulting profits earned by a business enterprise, impacted as they are by innumerable internal and external forces, are typically more variable over time than are the wages of individuals.

When reason dictates against use of a risk-free rate, the economist must add to it a premium commensurate with the adjudged degree of uncertainty in an effort to maintain parity in risk. The appropriate risk premium is typically derived from interest rates currently available on fixed income securities, from rates of return achieved historically on investments in real property, or from historical returns on investments in equity securities.

Observed market rates of return reflect the premiums earned by investors historically to compensate them for exposure to risk. Such premiums are valid surrogates for discount rates that address the future uncertainties associated with a specific set of projections provided that the analyst accepts two hypotheses that we shall label:

1) Constancy of risk,
2) Comparability of risk.

The first hypothesis is that ex post, after the fact, measurements are valid predictors of ex ante results. The calculations of the standard deviations of stock and bond returns from historical information as well as calculations of a stock's beta, or the volatility of its returns relative to the volatility of the market's returns, are all ex post measurements. Keith P. Ambachtsheer and James H. Ambrose (1983) are quoted as follows:

> The only hard data available to estimate standard deviation and beta are historical. Yet, by definition, there is no risk ex post; we know what the return was. By using historical returns to calculate standard deviation and beta, we are assuming future uncertainty can be adequately represented by historical return variability. (p. 52)

The second hypothesis postulates that the market's expectations pertaining to the timing and amounts of future returns for investments in or obligations of enterprises comparable to the subject, for which objective data is publicly available, harbor uncertainties equivalent to the uncertainty associated with the subject projection of losses. The market price of any publicly-traded asset reflects the consensus among dominant, price-setting investors of their expectations regarding the timing and amounts of future returns from that asset discounted at a rate that reflects and compensates for their perceptions of the anticipated dispersion of actual future results about the expected results. If the economic activities that underwrite the market asset are deemed comparable to those in litigation, then, ceteris paribus, so should be the required return to compensate for comparable risk.

VII. A Common Mistake

If, as demonstrated in our darts example, uncertainty increases with distance, one might conclude that the risk-adjusted discount rate should be increased in each successive future period to compensate for increasing uncertainty. While concurring that more distant cash flows bear more risk, Richard Brealey and Stewart Myers (1984) categorize such a conclusion as "a common mistake". They state,

> . . . any risk-adjusted discount rate automatically recognizes the fact that more distant cash flows have more risk. The reason is that the discount rate compensates for the risk borne per period. The more distant the cash flow, the greater the number of periods and the larger the total risk adjustment. (p. 185)

The earlier discussion of term structures suggests another reason why a single discount rate applied to all future periods is correct and why adding to the risk-adjusted discount rate in each future period would be incorrect. Recall that under the Expectations hypothesis the current long-term rate of interest equals the average of the current short-term rate and the market's expectations for all future short-term rates. Thus, risk-adjusted rates of return for securities with remaining terms to maturity comparable to the expected term of future losses already reflect the average of low required compensation for uncertainty in the near-term and higher required compensation for uncertainty in the more distant future.

VIII. Conclusion

The purpose of compensatory damage awards is to make the damaged party whole; to restore, but to no more than restore, that which was lost. To compute a lump-sum award for damages by discounting uncertain, albeit expected, future losses to present value by a risk-free interest rate may yield an award which is excessive and which unjustly enriches the plaintiff. The correct discount rate to apply is one which is risk-adjusted to counterbalance the forecast uncertainties associated with estimating future losses.

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