

Best Practices Article

Measuring Lost Profits Economic Damages on a Pretax Basis

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The judicial remedy for many commercial disputes is an award of economic damages related to lost profits. In many situations, the judicial award of lost profits–related economic damages may be calculated on a pretax basis.

INTRODUCTION

Investors typically estimate the market value of a business after adjusting for income taxes payable by the business. In other words, investors typically value the after-tax cash flow available to them. In a business valuation, to calculate value using either a direct capitalization method or a yield capitalization/discounted cash flow method, the valuation analyst typically discounts after-tax cash flow by an after-tax rate of return.

In some situations, the valuation analyst may discount before-tax cash flow by a before-tax rate of return. However, the after-tax analysis is performed more commonly. This is because after-tax rates of return can be more readily observed in the marketplace.

Either way, in a business valuation, the income tax status of the cash flow should match the income tax status of the discount rate or the direct capitalization rate.

The judicial award of economic damages related to lost profits, on the other hand, often includes an amount equivalent to the income taxes payable on the award. Because many judicial damages awards are taxable to the plaintiff, in order to restore the after-tax economic condition of the damaged party, the damages award should include both:

1. the present value of the lost profits and
2. the taxes payable (if any) on the award.

In other words, lost profits–related economic damages analysis typically should be prepared on a pretax basis.

Although there are some complications that we will discuss, the general procedure of including the taxes payable (if any) as part of the damages award is appropriate no matter which of the following generally accepted methods are used to measure the lost profits–related economic damages:

1. the before and after method
2. the yardstick (or “benchmark”) method
3. the projection method

Regardless of the economic damages method applied, the damages analyst’s objective is to measure the award amount that would be required to put the plaintiff in the economic position that the plaintiff would have occupied “but for” the defendant’s alleged misconduct.

In this discussion, we will consider several perspectives on the application of income taxes in measuring economic damages that are based on the projection method.

One procedure that arrives at the present value of lost profits is to “mismatch” the income tax status of cash flow and the discount rate. In other words: “discount before-tax cash flow by an after-tax rate of return.” While this procedure may appear to be counter-intuitive, we will see that it produces the mathematically correct damages conclusion.

THE PROJECTION METHOD

The projection method involves the use of a forecast model for the subject company,

complete with growth and return estimates. Using this model, operating results for the subject company are projected during the damages period absent the effects of the defendant's alleged misconduct.

The results of operations projected by the model are then compared with the actual results realized by the company during the damages period.

The extent to which projected results exceed actual results represents one measure of the plaintiff's lost profits.

When lost profits are used to measure the plaintiff's economic damages, the use of a pretax measure of income is one generally accepted procedure for the damages analyst to perform.

There are two reasons why a lost profits-related economic damages analysis may be performed on a pretax basis. The first reason relates to the measurement of historical lost profits (i.e., lost profits that occurred prior to the analysis date). The second reason relates to the measurement of future lost profits (i.e., lost profits that are expected to occur in the future, after the analysis date).

First, with regard to historical lost profits, the judicial award of lost profits-related economic damages is typically a taxable event to the damaged party. That is, the judicial award of lost profits represents taxable income to the plaintiff. If the lost profits damages were measured on an after-tax basis, the plaintiff would be subject to double taxation.

And, therefore, the plaintiff would not be made "whole" as a result of the economic damages award. That is, the damages award would not return the plaintiff to the same economic condition it would have occupied if the damages event had not occurred.

Second, with regard to expected future lost profits, the actual taxation basis (i.e., pretax or after-tax) is not particularly important to the calculation of the future value component of the damages analysis (although lost profits should be measured on a pretax basis for the other reasons described below).

The present value (i.e., as of the analysis date) of the estimate of future pretax lost profits is normally presented by applying an after-tax present value discount rate to the future pretax lost profits.

A SIMPLE EXAMPLE

Let's consider a plaintiff that would have earned \$200 a year (pretax) for five years, "but for" the damages event. The damaging party wrongfully caused the plaintiff to lose that \$200 a year of pretax

income. Let's assume that the plaintiff paid tax at a 40 percent income tax rate.

Absent the damages event, the plaintiff would have earned \$1000 over the five-year period (i.e., \$200 per year, ignoring, for now, the time value of money during those five years) and paid \$400 in income taxes.

"But for" the damages event, the plaintiff would have earned \$600 in total after-tax income after five years (i.e., \$200 per year in pretax income less 40 percent in income taxes).

Let's assume that the damages analyst erroneously calculates lost profits on an after-tax basis. That is, the damages analyst calculates that the damaged party experienced \$120 per year of lost profits for five years (i.e., \$200 pretax profits less 40 percent income taxes).

Based on this erroneous damages analysis, the total lost profits economic damages conclusion is \$600 (i.e., \$200 pretax profits less 40 percent income taxes for five years).

If the court awards a \$600 damages judgment, the plaintiff will then have to pay income tax on the \$600 damages award. The plaintiff will then pay \$240 in income taxes (i.e., \$600 damages award taxable income times a 40 percent tax rate).

After paying income taxes, the damaged plaintiff will be left with \$360 in total after-tax income (i.e., \$600 damages award less \$240 income tax expense).

However, absent the damages event, the plaintiff would have earned \$600 in total after-tax income during the five-year damages period.

Alternatively, let's assume that the damages analyst correctly calculates lost profits on a pretax basis. That is, the analyst calculates that the damaged party experienced \$200 per year of pretax lost profits for five years.

In this case, the court awards a \$1000 damages judgment. The plaintiff will then pay \$400 in income taxes (i.e., \$1,000 damages award taxable income times a 40 percent tax rate).

After paying taxes, the damaged plaintiff will be left with \$600 in total after-tax income. Based on this economic damages analysis, the plaintiff is made "whole." That is, after the judicial award based on pretax lost profits, the plaintiff is in the same economic condition it would have been in if the damages event had not occurred.

In summary, a pretax lost profits analysis results in an economic damages award that restores the damaged party to its same economic condition "but for" the damages event.

In contrast, an after-tax lost profits analysis results in an economic damages award that exposes the damaged party to the economic effect of double taxation. That is, the damaged party is unfairly penalized by the amount of the income tax expense—and is never restored to the same economic condition it would have enjoyed “but for” the damages event.

CONSISTENTLY USE EITHER PRETAX OR AFTER-TAX LOST PROFITS

When the lost profits that resulted from the alleged misconduct are expected to continue after the trial date, future lost profits may be calculated. Preferably, future lost profits will also be measured on a pretax basis. An after-tax measurement, however, will reach the same conclusion.

To illustrate, let’s slightly modify our simple example. In this case, the damaged party expected to earn \$200 a year in pretax income indefinitely in the future (again, for now, ignoring the time value of money). However, the party was damaged and will now lose the \$200 a year indefinitely in the future.

The indefinite time period avoids, for purposes of this example, the use of complicated present value calculations for a shorter time period.

The plaintiff still pays income taxes at a 40 percent income tax rate. Let’s assume that the appropriate pretax capitalization rate is 10 percent.

The calculation of lost profits economic damages on a pretax basis is presented as follows:

$$\begin{aligned} \text{damages} &= \$200 \text{ (pretax lost profits per year)} \\ &\div 10\% \text{ (pretax capitalization rate)} \\ \text{damages} &= \$2000, \text{ the total present value of} \\ &\text{expected future pretax lost profits} \end{aligned}$$

The calculation of lost profits economic damages on an after-tax basis is presented as follows:

$$\begin{aligned} \text{damages} &= \$120 \text{ } (\$200 \text{ pretax lost profits} - \$80 \\ &\text{income taxes} = \text{after-tax lost profits}) \\ &\div 6\% \text{ (10\% pretax capitalization rate} \\ &\times (1 - 40\% \text{ tax rate})) \\ \text{damages} &= \$2000, \text{ the total present value of} \\ &\text{expected future pretax lost profits} \end{aligned}$$

As this simple example illustrates, the calculation of the present value of lost profits is insensitive to the selection of an income tax rate. In fact, the present value calculation does not change whether (1) a pretax lost profits measure is used or (2) an after-tax lost profits measure is used.

What is important is that both the lost profits measure and the discount rate are both calculated on either a pretax basis or an after-tax basis.

This example is based on several simplifying assumptions, one of which is that the lost profits each period are not available to the plaintiff for reinvestment during the damages period.

DISCOUNT BEFORE-TAX CASH FLOW BY AN AFTER-TAX RATE OF RETURN

In some cases, the economic damages period has not ended as of the trial date.

It is common for the damages analyst to present the economic damages that have been suffered since the beginning of the damage period until the trial without any adjustment for the time value of money. That procedure separates the analysis of “prejudgment interest” from the analysis of the pretax economic damages.

Prejudgment interest may be calculated based upon various rates: statutory, risk-free, prime, commercial paper, cost of capital, and so forth.

When the return that the plaintiff would have earned during the future portion of the damages period is taken into account, the damages analyst may follow this rule: “discount before-tax cash flow by an after-tax rate of return.”

Let’s assume that one year after the trial date, the C corporation plaintiff projected lost profits before tax equal to \$100. If income taxes will be paid at a tax rate of 40 percent at the end of the year, the after-tax lost profits will equal \$60.

Next, let’s assume that the company’s lost profits were expected to earn an after-tax rate of return of



6 percent. This is equivalent to a pretax rate of return of 10 percent.

Now, what before-tax amount should be awarded at today's trial to reimburse the plaintiff for the \$60 after-tax loss that will be suffered one year after trial? The answer is that \$94.34 should be awarded.

Income taxes will be paid immediately on the award at a tax rate of 40 percent, resulting in a net after-tax award of \$56.60 (i.e., \$94.34 times (1 minus the 40 percent tax rate)). In turn, this amount will be invested at a before-tax reinvestment rate of 10 percent to produce \$62.26 before tax at the end of the year.

At the end of the year, income taxes are only paid on the increase in value from \$56.60 to \$62.26 ($40\% \times (\$62.26 - \$56.60) = \$2.26$).

The judicial award amount that remains after income tax at the end of the year is \$60 ($\$62.26 - \2.26). This \$60 remaining amount is equal to the loss to be reimbursed: the projected after-tax loss at the end of the year.

If we name the variable in the place of the previous amounts, we can solve for the before-tax amount of the award. In our example, if income tax rates do not change during the period, then the before-tax amount of the award equals the amount of the future before-tax loss discounted by the after-tax rate of return (i.e., \$100 times 0.9434—the one-year present value factor for the after-tax rate of 6 percent).

So, one common procedure for calculating the present value of expected future lost profit economic damages is: “discount before-tax cash flow by an after-tax rate of return.”

COMPLICATIONS TO THE COMMON PROCEDURE

Depending on the facts and circumstances, the court may weigh evidence concerning the actual economic effect of income taxes. And, legal counsel may want to consider the opportunity to argue for exceptions to the above-described procedure.

First, an award of expected future lost profit economic damages based on the “discount before-tax cash flow by an after-tax rate of return” procedure resembles the actual economic loss, plus actual income taxes payable, only when permanent income tax rates remain constant over time. However, tax laws and income tax rates sometimes change.

In *Polaroid Corporation v. Eastman Kodak Company*,² Kodak presented the argument that the plaintiff's damage calculations overcompensated

Polaroid for its actual economic loss. This was because of the reduction in income tax rates during the damage period.

The Kodak experts pointed out that the plaintiff's pretax losses were calculated at higher income tax rates than the rates that existed at the trial date. The plaintiff actually would have paid less in income tax than the amount of tax included in the pretax award, providing Polaroid with a windfall of approximately \$80 million.

The court rejected the Kodak argument in that case. However, this exception to the tax-affect procedure should be considered, particularly when large amounts are at stake.

Second, to complicate the procedure further, economic damages awards are not always taxable. Damages awards for personal physical injuries are exempt from income tax. And, for businesses, in those rare instances where the taxpayer can support the treatment of damages as a recovery of capital, then damages are exempt from income tax to the extent of the taxpayer's basis in the damaged capital asset.

Third, these calculations are based on the assumption that the plaintiff was a C corporation. When the plaintiff is a C corporation, the after-tax rates of return are the same ones used in a typical business valuation assignment. In other words, the rates of return are those returns available to investors in the financial markets after the corporation has paid corporate income taxes.

However, if the plaintiff is an individual, a partnership, or an S corporation, the rates of return earned on investments in the market may be viewed as before-personal-tax rates of return. The true after-tax rate of return for an individual may best be expressed after deducting personal income taxes as well as C-corporation-level income taxes.

Fourth, not all areas of law treat taxes in this same way. For example, damages for personal injury may be treated differently if brought under a federal statute than if brought under state statute. And, in some jurisdictions, the personal injury awards may be exempt from federal income tax. However, the interest income accumulating on the award may or may not be taxable under state law.

“ . . . one common procedure for calculating the present value of expected future lost profit economic damages is: ‘discount before-tax cash flow by an after-tax rate of return.’ ”

When income taxes are payable on the judicial award, the award should be increased to account for the taxes payable on the lost profits and, perhaps separately, on the prejudgment or post-judgment interest on the award.

If the damages analyst is using the procedure of applying an after-tax rate of return to lost profits, then the analyst may have a few extra computations to consider.

Finally, another way to insure that a plaintiff is made “whole” would be to:

1. estimate all of the projected cash flow on an after-tax basis,
2. use an after-tax discount rate to bring the cash flow to a present value, and

3. “gross up” the after-tax lost profits damage amount to a pretax lost profits damage award using the current income tax rate of the plaintiff.

A TYPICAL LOST PROFITS CLAIM

As demonstrated above, we know that it is not always correct to assume that if the economic damages award should be pretax in order to make the plaintiff whole, the damages analyst can:

1. completely ignore income taxes by using expected future pretax cash flow and
2. discount the cash flow at a pretax present value discount rate.

Exhibit 1 Lost Profits Economic Damages Example

Statement of Cash Flow	Damages Analysis Assumptions	For the Period Ending at the Date of	
		Trial	Future Loss
Cash Flow from Operating Activities:			
Revenue		\$	10,000
Cash operating costs			(7,001)
Depreciation expense			<u>(750)</u>
Earnings before tax			2,249
Interest expense			<u>(24)</u>
Earnings before tax			2,225
Income taxes	$t_c = 40\%$		<u>(890)</u>
Net income			1,335
Add back: depreciation expense			750
(Increase) decrease in working capital			<u>-</u>
Subtotal--cash flow from operations			<u>2,085</u>
Cash Flow from Investing Activities:			
Proceeds from the sale of fixed assets			-
Investment in fixed assets			<u>(750)</u>
Subtotal--cash flow from investing activities			<u>(750)</u>
Subtotal			<u>1,335</u>
Cash Flow from Financing Activities:			
Debt	$k_d = 8\%$	\$	300 (300)
Equity	$k_e = 15\%$		<u>900 (1,035)</u>
Subtotal--cash flow from financing			<u>1,200 (1,335)</u>
Net Cash Flow		<u>\$</u>	<u>1,200 \$ -</u>

The plaintiff will not be in the same economic condition after the plaintiff pays income taxes on the judicial damages award as the plaintiff would have been if the alleged misconduct had never occurred.

For the typical expected future lost profits claim, the damages award is taxable. Typically, the court should follow the procedure, “discount before-tax cash flow by an after-tax rate of return.” Given these assumptions, what is the correct way to define both the pretax lost income and the after-tax rate of return?

Exhibit 1 presents an income and cash flow statement for a hypothetical lost profits analysis. In this example, the company’s capital structure includes a combination of debt and equity. The lost profits are assumed to occur in a single period, one year after the trial date.

The example is constructed so that the after-tax net present value of the project at the date of trial is \$1,200. The cost of debt is 8 percent, and cost of equity is 15 percent.

We can answer the question by starting with the after-tax definitions of cash flow and the after-tax cost of capital used in a typical business valuation.

There are several possible definitions of cash flow corresponding to its cost of capital counterpart that will produce a correct after-tax value. We begin with the most commonly used definitions.

First, for the definition of the after-tax rate of return, we will apply the after-tax weighted average cost of capital ($WACC_{AT}$).

Written in symbols, we combine the cost of debt (k_d), the cost of equity (k_e), the market value of debt (D), and the market value of equity (E), in the formula for $WACC_{AT}$:

$$WACC_{AT} = \left[k_d(1 - \text{tax rate}) \times \frac{D}{D + E} \right] + \left[k_e \times \frac{E}{D + E} \right]$$

Valuation analysts typically use the after-tax definition of net cash flow—that is, the earnings before interest and tax (EBIT) times (one minus the income tax rate), plus depreciation expense, minus the increase in working capital, and minus expected future capital investments.

Below, written in algebraic symbols, we combine EBIT, depreciation expense (depr), the decrease (increase) in working capital (WC), and future investments (I), in the formula for after-tax net cash flow:

$$\text{After-tax net cash flow} = (\text{EBIT}(1 - t)) + \text{depr} \pm \text{WC} - I$$



However, for lost profits economic damages purposes, we need a definition for the before-tax net cash flow in order to follow the tax-treatment procedure. To create this definition, we divide both sides of the equation by one minus the income tax rate ($1 - \text{tax rate}$).

The result of this division is the equation for before-tax net cash flow.

$$\text{Before-tax net cash flow} = \text{EBIT} + \frac{\text{depr}}{(1 - t)} \pm \frac{\text{WC}}{(1 - t)} - \frac{I}{(1 - t)}$$

If we assume that the lost profits encompasses a complete operating cycle, then the net change in working capital is equal to zero. If we also assume that the amount of depreciation expense is equal to the amount of expected future investments, then these terms cancel one another and the expected investment is also equal to zero.

After making these assumptions, all that remains of the formula above is:

$$\text{Before-tax net cash flow} = \text{Earnings before interest and tax (EBIT)}$$

Now we can apply these formulas to our example in Exhibit 1 and demonstrate that they work.

Exhibit 2 Present Value of Future Lost Profits

Calculation of Lost Profits Economic Damages Award	Economic Damages Assumptions	For Period Ending at Date of	
		Trial	Future Loss
Before-Tax Lost Profits			
Earnings before interest and tax		\$	2,249
Add depreciation expense / (1 - t _c)			1,250
Decrease (increase) in working capital / (1 - t _c)			-
Less cash flow for future investing activities / (1 - t _c)			(1,250)
Before-tax net cash flow		\$	<u>2,249</u>
After-Tax Discount Rate			
Weighted average cost of capital (WACC)			
= k _e [Equity / (Debt+Equity)] + k _d (1 - t _c) [Debt / (Debt+Equity)]	WACC =		12.45%
Amount of the Damages Award		\$	2,000
Less income taxes on damages award	t _c = 40.00%		<u>(800)</u>
After-tax proceeds from damages award			1,200
Repay debt			(300)
Repay equity			<u>(900)</u>
Net gain (loss) from lost profits and from the damages award		\$	<u>-</u>

In Exhibit 2, we discount future earnings before interest and tax (\$2,249) by the weighted average cost of capital (12.45 percent). The result is the present value of a before-tax damages award (\$2,000).

After income taxes are paid on the damages award at 40 percent, the after-tax proceeds from the damages award (\$1,200) exactly match the after-tax present value of the lost profits on the project at the trial date in Exhibit 1.

In other words, given our illustrative assumptions, the plaintiff achieves the same economic condition as if the alleged misconduct had never occurred.

This is not the only way that the damages award may be computed. In the example above, we assumed that the marginal capital for the lost profits project was comprised of both debt and equity.

Under different facts and circumstances, a damages analyst may find that the marginal capital for

the lost profits project was comprised entirely of the lost market value of equity.

The choice of an equity value versus an enterprise (or invested capital) value is a question of fact to be determined by the damages analyst. If an equity value is appropriate, then the after-tax cost of capital is equal to the cost of equity (k_e) alone.

The definition of the before-tax loss will remain the same. Of course, when discounted by the cost of equity alone, the amount of the economic damages award will usually be lower.

In addition, we could have started with different definitions for the cost of capital and the after-tax net cash flow that, after adjustment to a before-tax basis, produce the same amount.

Examples of possible matched pairs of definitions for the cost of capital and the after-tax net cash flow are presented in Exhibit 3. These factors can be easily adjusted to a before-tax basis.

Exhibit 3

Alternative Definitions of Cash Flow and of the Cost of Capital

Definition of Cash Flow	Definition of Weighted Average Cost of Capital
ASSUMING LOST PROFITS ARE REALIZED AT OR BEFORE THE TRIAL DATE	
[Earnings before Interest and Tax (EBIT) x (1 - tax rate)] + Depreciation +/- Investment	$k_d (1 - t) [D / (D + E)] + k_e [E / (D + E)]$
Net Income + Depreciation +/- Investment + [(1 - tax rate) x Interest Expense]	Same as above
Net Income + Depreciation +/- Investment + Interest Expense	$k_d [D / (D + E)] + k_e [E / (D + E)]$
Net Income + Depreciation +/- Investment +/- Debt Principal	k_e
ASSUMING LOST PROFITS ARE UNREALIZED	
Earnings before Tax + Depreciation +/- Investment	k_e

"Investment" includes both capital expenditures and working capital

Description of Symbols: k_d = marginal cost of debt, market yield to maturity
 k_e = marginal cost of equity
 D = market value of debt
 E = market value of equity
 t = marginal income tax rate

SUMMARY AND CONCLUSION

In summary, one common procedure to measure the lost profits-related judicial award recommendation is to perform the historical lost profits analysis on a pretax basis. And, the same income tax basis of lost profits (typically pretax) should be used in the historical lost profits damages analysis and in the expected future lost profits damages analysis.

The selection of the income tax basis (i.e., pretax or after-tax) should not affect the present value calculation of the economic damages analysis—as long as all components of the present value analysis are calculated on the same income tax basis.

When applying the sales projection method of calculating economic damages (which includes a periodic return on the future expected lost profits),

the damages analyst may use the procedure “discount before-tax cash flow by an after-tax rate of return.”

Notes:

1. All of the exhibits presented in this discussion are reproduced from *The Handbook of Advanced Business Valuation*, Robert F. Reilly and Robert P. Schweihs, eds. (New York: McGraw-Hill, 2000), Chapter 14.
2. *Polaroid Corporation v. Eastman Kodak Company*, 16 U.S.P.Q. 2d 1481 (D. Mass. 1990, *as corr.* 1991).

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