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Janis Joplin's Yearbook and the Theory of Damages*

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1. Introduction: Making the Plaintiff Whole

The trial on liability is over, and the plaintiff has won. Now the question of the amount of damages arises. There is more than one standard that can be used here. For example, one might award damages to punish the defendant or to deter other prospective offenders. A commonly used standard in civil cases, however, is that of making the plaintiff "whole" in the sense of exact compensation—placing him, her, or it in the position that would have been occupied had the violation not taken place. Even where additional damages are to be awarded (trebling in antitrust cases, for example, or punitive damages generally), the trier of fact is often called upon to calculate the amount of compensatory damages.

Some questions arise as to how this should be done—questions not only difficult in practice but interesting in principle. Most (not all) of these stem from the fact that trials take time, so the damage award will be made long after the violation that caused the damages. In particular, to what extent should the defendant be compensated for the time value of money between the injury and the award?[1] In deciding on the award, should the trier of fact use the benefit of hindsight? This paper considers these and related issues.[2]

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1. In what follows, we assume that injury begins when the violation occurs. If not, there is a question as to whether the plaintiff should be made whole as of the time of violation or as of the time of first injury. We ignore this. Our analysis can easily be adapted to either standard.

2. Many of the same issues are discussed in James M. Patell, Roman L. Weil, and Mark A. Wolfson, 1982, "Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates," *The Journal of Legal Studies* 11(2): 341–364. Although we are in general agreement with the approach there taken, we differ in some particulars and consider some issues not there discussed.

2. The Rate of Prejudgment Interest[3]

We begin with a simple case. The violation took place at a single point of time, time 0. It involved the destruction of an asset whose value at that time is clearly known as Y. Hence, had damages been assessed at time 0, an award of Y would have made the plaintiff whole. Unfortunately, however, the processes of justice take time, and the award is to be made at time $t > 0$. How (if at all) should the plaintiff be compensated for this fact?

At first glance, it may seem that the plaintiff is entitled to interest at its opportunity cost of capital, r. After all, had the plaintiff received Y at time 0, it would have invested the funds, receiving presumably its average rate of return. Hence, by time t, the plaintiff would have had Ye^{rt}, so this is the amount that would make it whole. Another version of this argument would compensate the plaintiff at the rate it reasonably expected to earn on the destroyed asset.

The fallacy here (in either version) has to do with risk. The plaintiff's opportunity cost of capital includes a return that compensates the plaintiff for the average risk it bears. But, in depriving the plaintiff of an asset worth Y at time 0, the defendant also relieved it of the risks associated with investment in that asset. The plaintiff is thus entitled to interest compensating it for the time value of money, but it is not also entitled to compensation for the risks it did not bear. Hence prejudgment interest should be awarded at the risk-free interest rate, $r^* < r$.

One can see the problem with awarding interest at the plaintiff's opportunity cost of capital by considering the following example. The same defendant destroys two identical assets belonging to two different plaintiffs, Hetty and Ravenal. Hetty is extremely risk averse and only invests in government bonds. Ravenal, on the other hand, invests in high-risk ventures. On average, Hetty earns a low rate of return, while Ravenal earns a high one. Naturally, those returns have different distributions: Hetty always earns the same rate on every investment, while Ravenal earns a very high rate on a few investments and loses money on most others.

In this situation, it cannot be right to award Ravenal a higher amount than Hetty just because of the passage of time and their different investment strategies. Had the award been made at time 0, they would each have been awarded the same amount. To give Ravenal more than Hetty at time t is to forget that his higher average rate of return compensates him for the risk

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3. Our views on the appropriate rate for prejudgment interest have been informed by conversations with others, especially A. Lawrence Kolbe, who convinced us of the position here taken. We believe that position to have originated with Stewart Myers. Naturally, neither Myers nor Kolbe is responsible for our errors.

associated with his investments. It is made up of even higher returns on successful ventures and negative returns on unsuccessful ones. The asset destroyed might perfectly well have been employed in an unsuccessful venture; that risk has not been borne.[4]

To vary the example, suppose that Hetty is a prudent investor, while Ravenal is a (very rich) compulsive gambler who always loses and would, by time t, have frittered away the asset. It cannot be right to award Hetty positive interest and award Ravenal nothing at all. In this case, Ravenal's negative returns are the price he pays for indulging his tastes for hopeless risk. He was surely not able to indulge those tastes with the asset in question; hence, he should not have to pay the price. The same general principle applies to less extreme examples with positive returns: The plaintiff should not be compensated (positively or negatively) for risks he or she did not bear.

The paper by Patell et al., agrees with this principle but reaches a different conclusion. It points out that the defendant's actions did not relieve the plaintiff of all risk. Even assuming that the outcome of the trial was certain, the plaintiff bore the risk that the defendant would go bankrupt before paying the damage award. Therefore, the authors argue, the plaintiff is entitled to interest that reflects that risk, interest at the rate paid by the defendants on its own bonds.

This position raises two problems. First, even corporations cannot borrow unlimited amounts at fixed rates.[5] If the value of the asset destroyed was beyond the ability of the defendant to borrow, it is not clear what should be done if one adopts the principle of Patell et al.

More fundamental than this is the second problem. The risk of the defendant's bankruptcy is not the only risk the plaintiff bears. It also bears the risk of losing the case. Moreover, the plaintiff has borne the expense of litigation. Truly to place the plaintiff in the same position as if the violation had not occurred would involve recompensing it for all litigation risks and costs. In the U.S. system, however, this is not usually done. We choose to

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4. On this point we disagree with the conclusions reached in R. F. Lanzillotti and A. K. Esquibel, "Measuring Damages in Commercial Litigation: Present Value of Lost Opportunities," published herewith. The authors there argue that, if the destruction of the asset forces the plaintiff to borrow, then the plaintiff should be compensated by receiving interest at its borrowing rate. But the destruction of any asset forces even plaintiffs with deep pockets to borrow from themselves, as it were, bearing the opportunity cost of foregone earnings. There is thus no reason to distinguish borrowing and nonborrowing plaintiffs in this regard. Further, in the example given in the text, Ravenal will have a higher borrowing rate than Hetty. But, since that higher rate stems from causes having nothing to do with the violation, there is no reason why Ravenal should be compensated at a higher rate than Hetty.

5. If the defendant is not a corporation but an individual, the same argument would suggest using the defendant's borrowing rate.

distribute the risks and costs of litigation differently than do some foreign countries. But the risk that the defendant will go bankrupt during trial is properly associated with the risks of litigation, not with the violation itself. It is hard to see why that risk should be singled out as one for which the plaintiff is to be compensated. Accordingly, we retain the position that prejudgment interest should be awarded at the risk-free rate.

3. The Treatment of Taxes

It is important to realize, however, that the appropriate risk-free rate to use must take account of tax effects, as must the entire damage calculation. Making the plaintiff whole must mean making it whole after taxes, remembering that the damage award is taxable[6] as would have been lost profits and the interest earned thereon. (Naturally, one must account for the possibility that no taxes would in fact have been due.)

The simplest case to handle (and the only one to which we shall give explicit treatment) is that in which the effective tax rate paid by the plaintiff would not have been affected had the award been made in year 0 and will not be affected by the payment of the award in year t. (More complex cases do not present any interesting new matters of principle.)

For $0 \leq i \leq t$, let θ_i be the effective tax rate in year i, and r_i^* be the before-tax, risk-free rate (the rate on treasury bills, say) in that year. Had the award of Y been made in year 0 (coinciding with the damage itself), the plaintiff would have paid taxes on it, invested the remainder at the risk-free rate, r_i^*, and paid taxes on the resulting earnings. The net after-tax interest that would have been retained would therefore have been at the after-tax risk-free rate, which we denote by $\hat{r}_i^*$, where:

$$\hat{r}_i^* \equiv r_i^*(1 - \theta_i). \tag{1}$$

Let

$$\hat{Y} \equiv Y(1 - \theta_0) \tag{2}$$

be the after-tax dollars that would have been retained by the plaintiff in year 0 had the award been made then. Evidently, the plaintiff's net after-tax position would be in year t:

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6. The Internal Revenue Code provides for an exclusion from personal income taxes of damages received on account of "personal injuries or sickness." For a discussion of Tax Court decisions on the interpretation of "personal injuries or sickness," see David G. Jaeger, 1989, "Taxation of Damage Awards: The Tax Court's Shifting Standard," *Taxes*, 67(1):71–78.

$$\hat{S} = Y(1 - \theta_0) \prod_{i=0}^{t} (1 + \hat{r}_i^*).$$ (3)

The before-tax award that results in this after-tax amount is

$$S = \hat{S}/(1 - \theta_t).$$ (4)

Note that if the effective tax rate is the same at times 0 and t, then, when (2) is substituted into (3) and (4), the term in $(1 - \theta_0)$ will be cancelled by the division in (4). Nevertheless, this does not mean that there are no tax effects. The result in that case is equivalent to allowing the before-tax loss of Y to accumulate interest at the *after-tax* risk free rate, $\hat{r}_i^*$.

4. Discounting the Stream of Lost Profits

So far, we have assumed that the damage-producing act consists of the destruction of an asset of known value, Y. In practice, this is not likely to be the case. Rather it is very often the case that the violation removed the opportunity to earn a stream of profits. In the recently concluded *ETSI* case,[7] for example, plaintiffs claimed that the actions of the defendant railroads had prevented them from building a pipeline with which to transport coal in slurry form from Wyoming to the Southwest. Damages were claimed for the lost stream of profits that the pipeline would have earned.

As this example illustrates, there is no difference in principle between a claim for a stream of lost profits and a claim for the destruction of an asset. An asset is in fact worth the present value of the profit stream associated with it; to turn the matter around, the possession of a profit stream is the possession of an asset worth the present value of that stream. Hence our previous treatment applies to such cases.

To stop here, however, would be to overlook some subsidiary matters of vital practical importance. How is one to determine the profit stream to be discounted? Further, what discount rate should be used in doing the discounting? These questions are related, but we begin by focusing on the latter question.

If we consider the loss of a profit stream that would have started at time 0 to be the same as the loss of an asset at time 0, then we must begin by valuing the asset as of that time. The fact that the award will be made at time t > 0 can then be taken into account as already discussed.

Accordingly, having decided on an expected profit stream as seen from

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7. ETSI Pipeline Project et al. *v.* Burlington Northern Inc., et al., Civil Action B-84-979-CA.

time zero (this is discussed below), we must discount that stream, not with a risk-free rate, but with a discount rate that includes a risk premium suitable to the risks involved. If the venture that was injured was similar to others undertaken by the plaintiff, then the plaintiff's correctly measured cost of capital as of the time of violation will be the appropriate rate to use here.[8] Otherwise, a different measure will be needed.

Maintaining the same tax assumptions and notation as before, let M_i denote the value of the before-tax lost profits that would have been earned in year i. Let r denote the value of the appropriate discount rate to be used in discounting after-tax cash flows. (Note that both the discount rate and the tax rate are taken as of time 0 to reflect the plaintiff's reasonable expectations as of that date. The issues involved in doing this are discussed below.)

The difference between this case and that already considered lies in the fact that the term $\hat{Y}$ in (3) will not be given by (2) with Y known, but rather by:

$$\hat{Y} = \sum_{i=0}^{\infty} M_i(1 - \theta_0) \, [1/(1 + r)]^{i}.^{9} \tag{5}$$

Note the major implication here. Lost profits for year i (the difference between "but-for" and actual profits in year i) are not considered to be awarded as of year i and then allowed to accumulate interest. Rather, they are first discounted back to the date of violation, year 0, using a risk-adjusted, post-tax discount rate. They then accumulate interest at the *risk-free* post-tax rate from year 0 to year t when the award is made.

Since the risk-adjusted rate will generally be considerably higher than the risk-free rate, this difference in treatment can amount to a very substantial difference in result, with the difference becoming larger the longer the damage award is delayed. In the *ETSI* case, for example, the plaintiff offered a calculation for a damage award to be made in 1988 (contingent on a finding

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8. It is worthwhile to note that this is not typically the plaintiff's return on equity. The Capital Asset Pricing Model (CAPM) can be used to obtain the required return on equity and adjustment for debt structure can then be made. See, for example, Richard A. Brealey and Stewart C. Myers, 1988, *Principles of Corporate Finance*, New York: McGraw Hill, 3d ed., Chapter 9.

9. The stream in (5) is, in principle, extended to infinity to take account of the fact that the loss of profits resulting from the violation may extend for an indefinite time. Naturally, if it is believed that the cessation of the violation or other relief ends the loss of profits at some particular time, then the calculation can stop there too. To put it another way, the term M_i in (5) represents the difference between profits in the "but-for" world in which the violation never took place and profits (with losses suitably mitigated, if necessary) in the actual world. Those differences may in fact be zero after time t (or some earlier time), but they need not be so.

of liability) as compensation for an injury suffered in 1984. Lost profits in each year were taken to be awarded as of that year and then allowed to accumulate interest (though not at the risk-free, after-tax rate, as we have suggested). Compared to the calculation given by equations (3), (4), and (5), the plaintiff's result overstates the damage award by as much as 100 percent![10]

5. Continuing Violations

So far, we have consistently assumed that the violation involved is a one-time affair resulting in the destruction of an asset or, equivalently, the loss of an opportunity. Very often, however, violations are more complex than this. Damages can result from ongoing violations, from a stream of acts lasting over time. We must now consider how our analysis should be adapted to deal with such cases.

Fortunately, this is easily done in principle, although practice may often prove more difficult. We can consider each violation as a new act and award damages and interest according to the principles already given. More precisely, we must deal with a whole set of but-for worlds: the world with no violation; the world with violations ending at time 1; at time 2; and so forth.

Adapting our previous notation, we assume that the violations began at time 0 and ended at time $s \leq t$. Let $\hat{G}(i, j)$ denote the after-tax profits that would have been earned at time i had there been no violations later than j. ($\hat{G}(i, -1)$ denotes the after-tax profits in the no-violation world.) Let r_i denote the risk-adjusted discount rate appropriate to after-tax cash flows from the plaintiff's projects as of time j and $\hat{r}_k^*$ denote the after-tax, risk-free rate as of time k.

Each time period's violation brings with it (in principle) a continuing stream of lost profits. The undiscounted after-tax lost profits which occur in year i as a result of violations in year j are given by $\{\hat{G}(i, j - 1) - \hat{G}(i, j)\}$. In accordance with the previous analysis, such profits are to be discounted back to the time of violation at j using the risk-inclusive rate and then compounded forward to t using the risk-free rate. This makes the total amount of the damage award after taxes:

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10. A particular feature of the plaintiff's case had the effect of exaggerating the difference between the two treatments. ETSI used different risk-adjusted discount rates for different years. Discounting for the years between 1988 and 1990 (during the construction period of the project) was at a relatively high rate, while a lower discount rate was applied for the years after 1990. This tended to exaggerate the effects of the error made in calculating the damage award, because ETSI's method implied that if the trial was delayed long enough the higher discount rate would never have been applied.

$$\hat{S} = \sum_{j=0}^{s} \sum_{i=j}^{\infty} \frac{\{\hat{G}(i, j-1) - \hat{G}(i,j)\}}{(1 + r_j)^{i-j}} \prod_{k=j+1}^{t} (1 + r_k^*). \qquad (6)$$

The before-tax award is made by adjusting $\hat{S}$ to obtain S as in (4) above.

Despite its complex appearance, this rule is really quite simple in principle. The change in the profit stream brought about by each violation is discounted back to the time of that violation and then compounded forward at the risk-free rate.

In practice, however, this is likely to be impractical. It is hard enough to estimate lost profits in a single but-for world. The task of doing so for s different but-for worlds differing by the date of assumed cessation of violations can easily be overwhelming.

There are several things to be said about this, however. First, the practical importance of making such estimates depends on the amount of carry-over effect that previous violations have on later profits. If cessation of violation would have returned the profit stream to that of the no-violation world in, say, m periods, then $\hat{G}(i, j - 1) = \hat{G}(i, -1) = \hat{G}(i, j)$ for $j \le i - m$. If m is small, then most of the terms in (6) will be zero.

Note, in particular, that if cessation of violation would have instantly restored the no-violation profit stream (m = 1), then (6) takes the much simpler form:

$$\hat{S} = \sum_{j=0}^{s} \{\hat{G}(j, -1) - \hat{G}(j, j)\} \prod_{k=j+1}^{t} (1 + r_k^*). \qquad (7)$$

In this case, only one but-for world need be constructed—that in which no violations took place. Actual profits earned in year j are subtracted from the profits that would have been earned in that year in the no-violation world and the result brought forward from j to t by compounding at the risk-free rate.

It is also useful to note that the deviations from this relatively simple rule that occur in more complex cases are entirely due to discounting and compounding. If all the discount rates in (6) were zero, then the terms corresponding to a given i would simply sum to $\{\hat{G}(i, -1) - \hat{G}(i, s)\}$, the difference between profits in the no-violation world and actual profits.

Accordingly, we recommend that in practice the simple rule given in (7) be followed. If there are small carry-over effects of previous violations, then some adjustment for discounting should be made. For example, if some fraction, g, of lost profits in year j + 1 can reasonably be associated with violations ending in year j, then lost profits up to s + 1 should be adjusted by discounting that same fraction, g, of them for one year by the risk-

including rate and compounding them forward for one more year at the risk-free rate. While g will seldom be knowable, it may be reasonable to place an upper bound on it. If the upper bound is small, the effects of the adjustment involved can be readily limited, particularly because effectively only the difference between the two discount rates matters.

Naturally, such a recommendation would not apply to cases in which a major violation occurred early and would have had long-lasting effects even had there been no further violations.

6. Using Hindsight: Janis Joplin's Yearbook

Most of the analysis so far given has begged an important question. How should one estimate the stream of lost profits to be discounted? In particular, should one use hindsight, estimating what *would* have happened had there been no violation, or should one instead use only such information as was available when the violation took place? Where there are few carry-over effects from a particular violation, this issue does not matter. Where carry-over effects are large and long lasting, it can matter very much. Since, as discussed in the preceding section, ongoing violations are likely best to be treated without much adjustment for carry-over effects, the hindsight problem is most likely to be important in practice in the case of a single violation destroying an asset.[11] We now return to that case.

We have already implicitly indicated our answer to the question at issue. In choosing a discount rate with which to calculate the present value of the stream of returns associated with the destroyed asset, we chose the plaintiff's opportunity cost of capital (or other rate associated with the riskiness of the stream) *as of the time of violation*. Similarly, we used the tax rate prevailing as of that time. (See (5), above.) If hindsight were to be used to estimate the stream of returns, there would be no reason not also to use actual discount rates and tax rates as they developed over time.

As this suggests, our position is that hindsight should not be used.[12] Rather, the stream of returns should be estimated using the information available as of the time of violation. Indeed, as we shall see, expectations as of that time are particularly relevant.

There is, of course, no question but that had the plaintiff been made whole as of the time of violation, time 0, the destroyed asset would have

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11. Note that in the case of an ongoing violation, foregoing the use of hindsight does not mean valuing the entire stream of lost income from the standpoint of the start of the violation; rather it means valuing the effects of each year's violation from the standpoint of that year.

12. This is also the position taken by Patell et al.

been valued as of that time and the plaintiff paid accordingly. The question at issue only arises because this did not happen, and the plaintiff is to be made whole as of time t, a later date.

But we have already discussed this issue. The fact that the plaintiff is to be made whole as of t means that it must be recompensed for the time value of money. This means interest at the risk-free rate on the time 0 award. Why should it mean any adjustment in the award principal itself? The reason that one might be tempted to make such an adjustment is as follows: Had the plaintiff actually not been deprived of the destroyed asset, it would have experienced a particular stream of returns. Hence, if we can tell what that stream would have been, the plaintiff can best be made whole by giving it that stream with an appropriate adjustment for interest.

This argument is wrong. The violation did not merely deprive the plaintiff of the stream of returns that would have accompanied the asset. It also relieved the plaintiff of the uncertainty surrounding that stream. To use hindsight is to ignore the latter effect. As already explained, the way in which both effects can be taken into account is to value the asset as of the time of violation, taking account of uncertainty, and then award the time value of money making no allowance for uncertainty.

Some simple examples will illustrate what is involved. The first—and the one to which we shall return—is a somewhat simplified version of a hypothetical posed to one of us (Fisher) in a deposition in the *ETSI* case.[13] The case was to be tried by a jury in Beaumont, Texas, adjacent to the town of Port Arthur.

Janis Joplin, the rock star, went to high school in Port Arthur, Texas. Suppose that when she graduated she signed one copy of her high-school yearbook. Suppose further that nobody had any idea that Ms. Joplin would one day be famous. Assume that signed high-school yearbooks were being bought and sold for $5.00 in Port Arthur, regardless of whose signatures they contained.

Assume that a thief stole and destroyed the copy of the yearbook with Janis Joplin's signature. The legal proceedings that followed took considerable time, and, by the time a damage award is to be made, Janis Joplin is known to have been a star, with her autograph selling for $1,000. Ignoring punitive issues (and assuming that the yearbook has no sentimental value), what damage award will make the plaintiff (the book's owner) whole?

The temptation, of course, is to use hindsight and award $1,000. The

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13. ETSI et al. *v*. Burlington Northern et al., Deposition of Professor Franklin M. Fisher, Vol. III, pp. 85–90. The examining attorney, Rufus W. Oliver, III, was representing Houston Lighting and Power, whose interests would be served if hindsight was not used. Presumably, he chose this example to nail Fisher firmly to the position taken in the text.

other answer—$5.00 plus interest at the risk-free rate—seems somehow very unfair. That perception is incorrect, however, and the temptation ought to be resisted.

The book's owner was not deprived of a yearbook containing the autograph of a rock star. He or she was deprived of a yearbook plainly worth $5.00 that contained one or more signatures. Associated with that yearbook was uncertainty as to whether any of the autographs it contained would ever be worth anything. The $5.00 price of the yearbook included the value of the small probability that they would. It also included the value of the rather more likely outcome that they would not. A book equally valued by the owner at the time could have been purchased for $5.00, and the owner could have, in effect, mitigated the damage by purchasing a replacement and acquiring an essentially identical asset.

To put this another way, we extend the example somewhat. Suppose that yearbooks without Janis Joplin's signature are worth nothing by the time of the award. Suppose that the thief had stolen and destroyed another yearbook at the same time, a yearbook without Janis Joplin's signature. It is surely unfair for the second plaintiff to be awarded nothing at all while the first one gets $1,000. At the time they were stolen, both yearbooks were considered interchangeable by their owners. The owner of the Janis Joplin yearbook has been deprived of a chance at $1,000, but so has the owner of the other yearbook. Moreover, the owner of the Janis Joplin yearbook has been relieved of the chance of discovering that his or her yearbook turned out to be worthless.

The point may be illuminated further by using a different example.[14] Suppose that the asset destroyed was the opportunity to enter into a long-term contract thought at the time to be valuable. Suppose, however, that, with the benefit of hindsight, we now know that the contract would have been a disaster, losing money for the plaintiff. Surely, one would not assess negative damages, having the plaintiff pay the defendant.

The two cases are symmetric, however. The reader who finds it hard to accept our argument should attempt to enunciate a principle on which the use of hindsight leads to paying a high award when the asset turns out to have been unexpectedly valuable and does *not* lead to negative damages when the asset turns out to have been a loser.[15]

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14. This example arguably applied to Houston Lighting and Power in the *ETSI* case.

15. While one might be content with a principle that leads to this result, such a principle must be avoided for the moral hazard it creates. That is, if a plaintiff always receives the benefit of an unexpectedly favorable turn of events but does not suffer the cost of an unexpectedly disastrous turn of events, then there is an incentive for potential plaintiffs to make violations easy, thereby reducing or eliminating

In fact, there is no such principle. In both cases, the plaintiff was deprived of a valuable asset. The mere passage of time does not change that fact. Further, hindsight does not change the value that the asset had when it was destroyed. Making the plaintiff whole today means making it whole as of the date of the violation plus compensation for the pure time value of money. Giving the plaintiff the lost profits that hindsight suggests does not place it in the position it would have occupied without the violation; it replaces an uncertain world with a particular outcome.

7. Private Information

This result, however, holds most plainly in the case in which the destroyed asset had a clear market value and could be replaced. In that case, one can say that the plaintiff could have mitigated the damage by replacing the asset. But suppose that the asset was not of the sort freely traded or, equivalently, that private information caused the plaintiff to place a different value on this particular asset than did the market.

To fix ideas, return to the example of Janis Joplin's yearbook. Suppose that the owner of the yearbook had information leading him or her—alone in Port Arthur—to believe it likely that Janis Joplin would someday be a star. In that case, the owner would have valued the Janis Joplin yearbook at the time of theft at more than $5.00, the price at which it could then have been sold. If that is so, then making the plaintiff whole as of the time of violation means an award as of that time of more than $5.00. It means an award as of that time of the amount for which the owner would have *sold* the book; in this case, that is greater than the price at which he or she could have bought it.

There are problems here that warrant discussion, however; they combine issues of principle with issues of practice.

Obviously, it will be to the plaintiff's advantage to argue that it valued the destroyed asset especially highly. Here, the burden of proof that such valuation exceeded that which the market either did or reasonably would have placed on the asset belongs to the plaintiff. In the case of Janis Joplin's yearbook, for example, the plaintiff should have to show either contemporaneous private information or, at least, contemporaneous statements revealing that he or she thought Joplin had star potential.

Note that the extra valuation must rest on the peculiar properties of the destroyed asset. If the asset was replaceable in the plaintiff's eyes, then

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their risks. Furthermore, plaintiffs would have an incentive to influence the timing of the trial in their favor. Patell et al. provide a discussion of this issue.

the replacement cost should be used. (As already remarked, replacement of the asset can be considered as a form of mitigation.)

In this connection, it is a mistake to value the asset differently merely because of plaintiff's particular risk preferences. Suppose that the stream of returns reasonably expected to accompany the asset would have a rather low present value if discounted using an appropriate market evaluation of risk. Suppose that the plaintiff asserts that it was less risk averse than the market, so that, in its eyes, that stream of returns was worth a higher value. By itself, this should make no difference. The plaintiff may not have been able to exercise its risk preferences with the destroyed asset, but there are many opportunities to invest in risky assets, paying only the price that the market would pay for risk. This is a different case from that in which private information or belief about the particular asset made the plaintiff value it above market price.

Naturally, the task of assessing the valuation actually put by the plaintiff on a destroyed asset will often be difficult when the asset is not identical to others. Proponents of a particular project within a firm will typically have put forward rosy forecasts about its profitability. Plaintiff will certainly produce those forecasts to show extra valuation. What matters, however, is the extent to which top management took (or would have taken) such forecasts seriously as a cause for action. The refusal of an offer for Janis Joplin's yearbook puts a believable lower bound on the value.

It is in assessing the reasonability of plaintiff's claimed valuations that hindsight can play some role. Under most circumstances, what actually happened is at least within the support of the probability distribution of expectations before the fact. A contemporaneous document of plaintiff coming reasonably close to forecasting what actually occurred is certainly to be taken seriously.

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