

Agenda

Advancing economics in business

Damaged interest: the choice of discount rate in claims for damages

Quantifying damages in court proceedings is a hot topic, particularly in the area of competition law where European policy has been to encourage more private claims. Various financial and economic issues arise in these cases—one of which is the choice of discount rate used to adjust past damages to their present value. Several approaches have been proposed, and the choice of discount rate can make a substantial difference to the amount of damages ultimately awarded

When companies or individuals claim for damages as a result of actions of rivals or trading partners which are deemed to be illegal, the basis for the claim is that the complainant should recover the financial position that it would have been in had the illegal activity not occurred. Such damages claims may arise in a number of legal frameworks, such as contract law and patent law, but one area where court activity is expected to grow is competition law. In recent years many European competition regimes have adopted measures to encourage more private damages claims, and in December 2005 the European Commission published a Green Paper on damages, discussing the legal and economic framework for such private enforcement of the competition rules.¹ One high-profile damages case that has generated plenty of debate this year is *Crehan v Innpreneur*, last ruled upon by the House of Lords in the UK.²

A complex economic issue that arises in these cases is that the claim can refer to damages that occurred in the past or that are expected to take place in the future. Typically, quite some time will elapse between the anti-competitive conduct and the final decision on awarding damages—almost 13 years in the *Crehan* case (no damages were awarded in this case). Likewise, part of the damages may be suffered in the future, long after the anti-competitive practice has ceased (eg, an exclusionary practice may have affected a company's reputation or investment plans such that it will take years to recover its market share). To restore the position of the firm in net present value terms, damages that occurred in the past should be uplifted, and damages expected to take place in the future should be discounted to the present day using an appropriate discount rate. Thus, as acknowledged by the European

Court of Justice, the plaintiff's compensation should include the award of interest:

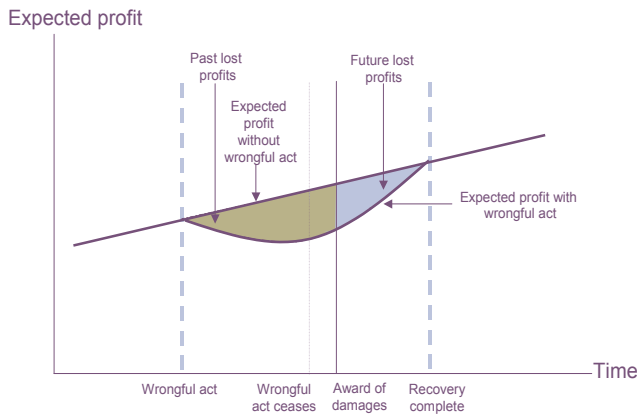
full compensation for the loss and damage sustained ... cannot leave out of account factors, such as the effluxion of time, which may in fact reduce its value. The award of interest, in accordance with the applicable national rules, must therefore be regarded as an essential component of compensation.³

The application of a discount rate can make a significant difference to the size of any damages claim—when assessing past damages, the size will increase with the discount rate, while future damages will decrease with the discount rate. However, legal precedent appears to indicate that there is no single clear approach regarding the choice of discount rate in damages cases. In some cases the risk-free rate has been proposed (ie, the interest rate earned on an investment in government bonds), while in other cases alternative discount rates have been selected without clear explanation.⁴ This article explores the rationale for using the various discount rate approaches that have been highlighted in some of the academic literature and in legal precedent.

Quantification of damages

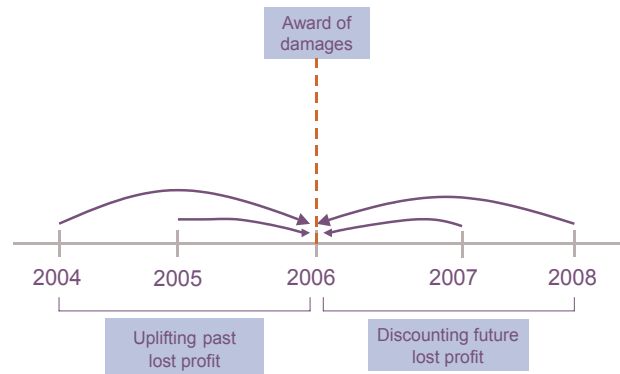
Before moving on to analyse the approach to the appropriate discount rate, the general basis for calculating damages is identified. Quantifying damages involves two main stages. The first (and more substantial) stage consists of calculating the nominal value of the lost profit at the time of the anti-competitive conduct. This typically requires a complicated analysis of the counterfactual, which can vary by type of practice—eg, for a price-fixing cartel case, the damages are

Figure 1 Stylised illustration of loss in profits



Source: Oxera.

Figure 2 Discounting of past and future lost profits



Source: Oxera.

usually defined as the amount of the overcharge (ie, price increase times volume, over the period in question), whereas for exclusionary abuses the profit forgone also depends on the reduction in market share caused by the abuse.⁵ The discount rate matters to the extent that some of the damages extend into the future—eg, because the plaintiff’s counterfactual market share will not be reached for quite some time even after the abuse has ceased.

The second stage is bringing the past and possible future damages to the current level—ie, to estimate the present value at the time of the award. Again, choice of discount rate is of key importance here.⁶ The significance of the timing effects is illustrated in Figure 1.

The total shaded area of lost profit can be separated into three key components—lost revenue, avoidable costs and additional costs such that:

$$\text{Estimated lost profit} = \text{lost revenue} - \text{avoided costs} + \text{additional costs.}$$

Lost revenue is calculated as the difference between counterfactual (projected) and actual (observed) revenue, and avoided costs are measured as the difference between actual and counterfactual costs. Additional costs could consist of, for example, legal fees—or, in the case of an abuse of dominance, the effect of raising a rival’s cost (eg, through refusal to supply or margin squeeze practices).

Discounting is the standard way of comparing monetary values at different points in time. The underlying theory is that individuals exhibit a positive time preference concerning money. An individual will only be indifferent to the choice between receiving £1 today and £1 in a year’s time if they are paid some additional compensation, or interest, for postponing the receipt of the money.

The discount rate is used to uplift lost profits that occurred in the past and discount damages that are expected to take place in the future to their net present value at the time of the awarding of damages. This is illustrated in Figure 2.⁷ The greater the discount rate, the smaller the present value of the *future* lost profits when discounted at this rate. Correspondingly, the greater the discount rate, the greater the present value of the *past* lost profits when uplifted at the discount rate.

Choice of discount rate

Although the method of adjusting nominal lost profits to the present value is straightforward, the choice of discount rate is less so. In general, the discount rate is positively related to risk. This is because riskier projects require a higher return. Thus, a higher discount rate is needed to equalise the preferences of an individual between a risk-free return now and a high return from a risky project in the future.

There are several candidates for the discount rate, and each makes a different assumption about the amount of risk borne by the plaintiff. This raises the question of how much risk the plaintiff should be compensated for when awarding a damages claim.

There appears to be some consensus on which discount rate should be used to discount damages for future lost profits. However, there is no unanimous agreement on which discount rate should be used to uplift past lost profits.⁸ The most frequently mentioned candidates in the literature are the plaintiff’s cost of capital; the cost of equity, or borrowing rate; the risk-free rate; and the defendant’s borrowing rate.

- **Plaintiff’s cost of capital.** There is a strong economic rationale for using the cost of capital as the discount rate. This is because it represents the required rate of

return on which investment decisions are based. During the period in which damages were incurred, a plaintiff earning normal returns would have earned profits consistent in the long run with the cost of capital. Thus, damages uplifted at the cost of capital capture the expected return that the plaintiff could have earned on the lost profits had they been available for investment—ie, it compensates investors for the use of their capital.

There is support in the academic literature for the cost of capital to be used for discounting lost profits which are expected to take place in the future. This reflects the underlying risk associated with investment in the area of business in question, and ensures that the plaintiff is not over-compensated.

- **Marginal source of financing.** In cases where calculating the plaintiff's cost of capital is difficult, the plaintiff's marginal source of financing (ie, the cost of debt or equity, depending on which method the plaintiff uses to finance its projects at the margin) can be used instead. However, it is important to recognise the disadvantages of approximating costs of capital using the marginal cost of financing when taking this approach.

Simply assuming that the damages will cause the firm to increase its borrowing should not imply that the damages should be uplifted at the cost of debt. This is because the increased leverage that the company would bear as a result would lead to both an increased risk of default and an increase in the volatility of returns to equity. This would suggest that the cost of capital would approximate the overall consequences for the firm's financing costs arising from the impact of the anti-competitive practices more effectively than the cost of debt.

- **Risk-free rate.** The risk-free rate is often suggested as the correct rate to use for uplifting past lost profits. The rationale for this is that the repayment of

damages is certain once awarded (subject to any inability by the defendant to pay, which is addressed below), which ensures that the plaintiff is compensated only for the time value of money.

- **Defendant's cost of debt.** This discount rate is perhaps more appropriate in US rather than European courts. This is because in the USA, the interest on damages awarded is only paid from the day of the award (ie, post-judgement interest) rather than from the day on which the plaintiff started incurring the losses. Thus, on receiving a damages judgement, the plaintiff becomes a creditor to the defendant and faces the same risk in receiving the damages award as all other creditors face in receiving their loan payments. Therefore, the plaintiff should receive the same discount rate as the defendant's other creditors. Pattel et al. (1982) presents the case in which the defendant's cost of debt is the optimal discount rate.⁹
- An alternative way of uplifting damages has been suggested by Lanzillotti and Esquibel (1990), and involves two stages.¹⁰ First, the expected lost profits between the time of the wrongful act and the time of the award are discounted back to the time of the act at the plaintiff's cost of equity to account for the risk faced by the plaintiff before the act took place. The sum of the discounted expected lost profits is then compounded forward to the time of the award using the risk-free rate to account for the fact that damages are a lump-sum payment to the plaintiff with no risk attached to it.

The discount rates above will differ in magnitude, with the risk-free rate being the lowest. A higher discount rate would lead to greater compensation associated with past lost profits. Thus the plaintiff has an incentive to argue for the highest discount rate and the defendant for the risk-free rate. The choice of the discount rate can make a substantial difference to the final damages claim, as illustrated in the box below.

How the choice of discount rate makes difference

This hypothetical example demonstrates the extent to which the value of a damages claim can be affected by the choice of discount rate. Firm A suffered damages as result of anti-competitive conduct between 2000 and 2004. The nominal value of the damages was estimated to be £200,000 each year. The damages in each year are uplifted to their present value in 2006, the year of the award, and added together to obtain the total damages claim, as demonstrated in the table. The difference in damages between the lowest and highest rate is 46%.

	Risk-free rate	Cost of debt	Cost of capital	Cost of equity
Discount rate (%)	5.0	7.5	10.0	15.0
Damages claim (£m)	1.22	1.34	1.48	1.78

Source: Oxera.

Conclusion

This article discusses the temporal aspect of damages calculations, and looks at several discount rates that could be used for adjusting past or future damages to present value, as discussed in the academic and legal literature. The main alternatives appear to be either the risk-free rate or the plaintiff's cost of capital. The choice between these reflects a distinction between whether the past lost profit is a specific lump-sum amount, or was uncertain because the firm had to bear the risk of not being compensated when the wrongful act occurred. Legal precedent does not appear to have taken a consistent approach to this issue.

There are related economic and financial issues surrounding quantifications of damages, which are not discussed here—eg, whether the lost profits should be estimated before or after tax, and whether indirect losses (such as increases in the plaintiff's borrowing rate due to the defendant's wrongful act) should be included in the compensation.

With the number of damages claims expected to increase (partly due to the encouragement by European competition regimes of private damages actions), there is a need to develop a consistent economic and legal framework for quantification of damages claims, including the choice of discount rate.

¹ European Commission (2005), 'Damages Actions for Breach of the EC Antitrust Rules', Green Paper, December 19th.

² House of Lords (2006), *Judgments—Inntrepreneur Pub Company (CPC) and others (Original Appellants and Cross-respondents) v. Crehan (Original Respondent and Cross-appellant)*, Session 2005–06, reference UKHL 38.

³ Case C-271/91 M. *Helen Marshall v Southampton and South-West Hampshire Area Health Authority* [1993] ECR I-4367. Quoted in the European Commission Staff Working Paper, Appendix to the European Commission (2005), op. cit.

⁴ For example, in *Malcolm v The Chancellor, Masters and Scholars of the University of Oxford* [1991], the chosen discount rate was 15% as argued by the plaintiff. However, there is no explanation in the case of why the court agreed with the plaintiff's interpretation.

⁵ The methodological issues in these analyses are discussed in Van Dijk, R. and Niels, G. (2002), 'The Economics of Quantifying Damages', *Competition Law Journal*, 1:1, pp. 69–75.

⁶ It should be noted that, in the USA, antitrust law does not provide for pre-judgement interest. Instead, triple damages are issued to act as a deterrent to antitrust practices.

$$PV = \sum_{t=1}^N \frac{\Delta E(\pi_t)}{(1+r)^t}$$

⁷ For discounting, where $E(\pi_t)$ is the expected profit in year t and r is the discount rate.

$$C = \sum_{t=1}^N \Delta\pi_t (1+r)^{N-t}$$

For uplifting, where $\Delta\pi$ is the change in past lost profits and r is the interest rate.

⁸ See, for example, Lanzillotti, R.F. and Esquibel, A.K. (1990), 'Measuring Damages in Commercial Litigation: Present Value of Lost Opportunities', *Journal of Accounting, Auditing and Finance*, Winter, pp. 125–42; Feldman, A.M. (1990), 'Discounting in Forensic Economics', *Journal of Forensic Economics*, 3:2, pp. 65–71; and Bodington, J.C. (1992), 'Discount Rates for Lost Profits', *Journal of Forensic Economics*, 5:3, pp. 209–19.

⁹ Patell, J.M., Weil, R.L. and Wolfson, M.A. (1982), 'Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates', *The Journal of Legal Studies*, 11:2, pp. 341–64.

¹⁰ Lanzillotti, R.F. and Esquibel, A.K. (1990), op. cit.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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