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Prejudgment Interest in International Arbitration

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PREJUDGMENT INTEREST IN INTERNATIONAL ARBITRATION

Jeffrey M. Colón[*] *and Michael S. Knoll*[**]

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I. INTRODUCTION

In arbitration, as in litigation, there is often a significant delay between the time when a harm occurs and a decision is rendered.[1] If there were no delay, a claimant would be made whole by the arbiter's award. Because there is always a delay and because a dollar today is worth less than a dollar tomorrow, the failure to adjust awards by prejudgment interest would cause true economic harm to claimants and provide a windfall to respondents. Recognizing that claimants would not be justly compensated if prejudgment interest were not

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1. *See, e.g.*, Compania del Desarrollo de Santa Elena. v. Costa Rica, 15 ICSID (W. Bank) 169 (2000) (ruling for claimant in 2000 for a 1978 expropriation) (hereinafter *Santa Elena*).

awarded, arbitration tribunals have a long history of awarding pre-award or prejudgment interest.[2]

Arbitration is growing in importance as an alternative to civil litigation, especially in cross-border disputes.[3] It is, therefore, surprising that there is still considerable uncertainty and confusion concerning the proper calculation of prejudgment interest in arbitration awards. In particular, there is no consensus on whether interest should be compounded, what interest rate and compounding conventions should be used, and what adjustments, if any, should be made for harms measured in one currency and awards measured in another.[4]

In some arbitrations, a tribunal must calculate prejudgment interest pursuant to either a statutory formula or the terms of the agreement between the parties and will therefore have little or no discretion to determine the method or set the interest rate. In other cases, however, such as cases in which a tribunal is to apply customary international law, the tribunal will have broad discretion to calculate an award of interest. Given the significant size of some awards and the extensive delays between the occurrence of the underlying harm and resulting award, prejudgment interest can potentially represent a significant portion, or in some cases, a multiple of the underlying award.[5] Calculating prejudgment interest

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2. *See, e.g.*, Norwegian Shipowners' Claims (Nor. v. U.S.), 1 R.I.A.A. 307, 341 (1922) (awarding simple interest).

3. Australian Centre for International Commercial Arbitration, *Managing Cross Border Disputes: International Arbitration Explained*, 10-13, *available at* http://www.virgilcameron.acica/ACICA-IABooklet.pdf (". . .the ICC [ ] received 337 requests for arbitration in 1992. In 2006, it received 593 requests. The AAA received 204 demands for arbitration in 1992 and 580 demands in 2005. The CIETAC received 981 new cases in 2006, up from 267 in 1992 . . . ").

4. For useful surveys and discussions of the calculation of prejudgment interest in international arbitration, *see* Natasha Affolder, *Awarding Compound Interest in International Arbitration*, 12 AM. REV. INT'L ARB. 45 (2001); Paolo Cerina, *Interest as Damages in International Commercial Arbitration*, 4 AM. REV. INT'L ARB. 255 (1993); John Y. Gotanda, *A Study of Interest* 2 (Villanova University Legal Working Paper Series, Villanova University School of Law Working Paper Series, Book 83, August 2007) *available at* http://www.law.bepress.com /villanovalwps/papers/art83; John Y. Gotanda, *Compound Interest in International Disputes*, 34 LAW & POL'Y INT'L BUS. 393 (2002-2003); John Y. Gotanda, *Awarding Interest in International Arbitration*, 90 AM. J. INT'L L. 40 (1996); F.A. Mann, *Compound Interest as an Item of Damage in International Law*, 21 U.C. DAVIS L. REV. 577 (1987-1988).

5. *See, e.g.*, *Santa Elena*, *supra* note 1 (claimant awarded $4.15 million and $11.85 million of interest for 1978 expropriation); In re Oil Spill by the Amoco Cadiz off the Coast of France on March 16, 1978, 954 F.2d 1279 (7th Cir. 1992) (awarding $148 million in prejudgment interest on a judgment of $65 million).

may be in many cases the most important financial aspect of an arbitration. It is therefore vitally important that tribunals and claimants calculate prejudgment interest properly.

The fundamental role of prejudgment interest is to fully compensate claimants for the delay between the date of the harm suffered and the award of damages. Prejudgment interest is, thus, an integral part of compensating the claimant for its injury. A properly calculated award should return the claimant to its position had the injury not occurred. The failure to grant prejudgment interest at a proper rate thus thwarts justice for claimants.

Apart from concerns of justice, if prejudgment interest is not awarded properly, a party may have incentives to engage in behavior that causes damages for which it will not have to pay. For example, if the prejudgment interest rate is too low, a party may have an incentive to breach an unfavorable contract realizing that if the delay between the harm and the award is long, the financial cost of the breach may be significantly less than the cost of complying with the terms of the contract. This may cause inefficient breaches of contracts. In addition, once a dispute has begun, if the interest rate is set too low, the respondent may have the incentive to prolong arbitration, and if the rate is set too high, the claimant may have a similar incentive. In addition, because of the many uncertainties arising in computing prejudgment interest in international arbitration, parties often find it difficult to evaluate the expected value of their positions, thereby thwarting settlement negotiations. Accordingly, for all the reasons given above, not getting prejudgment interest right wastes arbitral resources.

This article discusses what arbiters need to do to get the award of prejudgment interest right. It reviews some of the basic principles regarding the proper calculation of prejudgment interest, critiques the use of several alternate methods, and discusses some of the important issues that frequently arise in international arbitration, most notably foreign currency adjustments. It also briefly discusses the adjustments that need to be made when the claimant is not a large, widely held corporation.

II. PREJUDGMENT INTEREST

Prejudgment interest refers to interest that a judge or arbitration tribunal awards in connection with a judgment or arbitration award. Prejudgment interest generally runs from the date of harm until a decision is rendered. As the U.S. Supreme Court stated in *City of*

Milwaukee v. Cement Division, National Gypsum Co.:[6] "The essential rationale for awarding prejudgment interest is to ensure that an injured party is fully compensated for its loss." For an award of prejudgment interest to compensate a plaintiff fully for delay, the prejudgment interest plus the original award should restore the claimant to the same financial position it would have been in had the original award been made immediately after the harm.[7] Arbitration tribunals have also endorsed this rationale.[8]

In U.S. federal cases, no federal statute prescribes the award of prejudgment interest, and a court has discretion whether or not to award it. Even though there is no specific law mandating prejudgment interest in federal cases, federal judges routinely grant prejudgment interest.[9]

In contrast, many states have specific statutes that permit the award of prejudgment interest and also specify the interest rate, which ranges from a fixed rate to a market-based rate.[10] A judge—including a U.S. federal judge in a diversity action—applying state law would generally be required to award prejudgment interest in accordance with the applicable state prejudgment interest statute, unless an agreement specified otherwise.[11] Similarly, in most developed European and Asian countries, successful litigants are also

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6. 515 U.S. 189, 195 (1995).

7. *See id.* at 196 (". . .an award of prejudgment interest helps achieve the goal of restoring a party to the condition it enjoyed before the injury occurred[.]").

8. *See, e.g.*, Metalclad Corp. v. United Mexican States, ICSID Case No. ARB (AF)/97/1, 40 I.L.M. 36 (2001) ("So as to restore the Claimant to a reasonable approximation of the position in which it would have been if the wrongful act had not taken place, interest has been calculated at 6% p.a., compounded annually.").

9. Kansas v. Colorado, 533 U.S. 1, 10 (2001) ("Our cases since 1933 have consistently acknowledged that a monetary award does not fully compensate for an injury unless it includes an interest component."); Gorenstein Enterprises, Inc., v. Quality Care-USA, Inc., 874 F.2d 431, 436 (7th Cir. 1989) ("While the statute makes no reference to prejudgment interest, [plaintiffs] do not question that federal common law authorizes the award of such interest in appropriate cases to victims of violations of federal law.").

10. *See, e.g,* N.Y. Civ. Prac. L. & R. §§ 5001 & 5004 (McKinney 1992 & Supp. 1995) (interest on contract and property damage cases accrues from the earliest ascertainable date the cause of action existed at 9% simple interest per annum); 6 Del.C. § 2301(d) (rate of Federal Reserve discount rate plus 5% for tort action for compensatory damages applied generally from date of injury).

11. The scope of some state statutes is unclear. The Delaware statute on prejudgment interest specifically applies to tort actions for compensatory damages, but the Delaware Court of Chancery, a court of equity, has interpreted it to be a "mere guide, not the inflexible rule." Summa Corp. v. Trans World Airlines, 540 A.2d 403, 409 (Del. 1988).

generally entitled to prejudgment interest as a matter of domestic law, although the interest rates and methods vary from country to country.[12]

In international arbitrations,[13] a tribunal evaluating a claim for prejudgment interest would generally first examine the agreement, if any, giving rise to the dispute to see whether it specifically addressed the issue.[14] If so, the tribunal would follow the parties' intentions and award interest in accordance with the agreement. In the absence of a contractual prejudgment interest provision, a tribunal could follow the relevant national law,[15] in which case the relevant interest rate and compounding conventions would apply.[16] Finally, the tribunal could follow customary international jurisprudence.[17]

In practice, prejudgment interest awards in international arbitrations are subject to much uncertainty. An agreement may not contain a provision on prejudgment interest, may fail to specify the interest rate or how the interest is to be calculated, or a court may not follow it.[18] Furthermore, because application of choice of law principles is highly dependent on complex factual findings, they oftentimes do not yield a predictable result. And finally, tribunals

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12. For an overview of prejudgment interest rules of other countries, *see* Gotanda, *Compound Interest*, *supra* note 4, at 399-419.

13. Prominent international arbitration tribunals include the International Chamber of Commerce (ICC), the World Intellectual Property Organization—Arbitration and Mediation Center, the American Arbitration Association (AAA), and the International Centre for Settlement of Investment Disputes (ICSID). A detailed list is available at: http://www.asil.org/resource/arb1.htm.

14. *See, e.g.*, ICSID Convention on the Settlement of Investment Disputes Between States and Nationals of Other States, Art. 42(1), April 10, 2006: "The Tribunal shall decide a dispute in accordance with such rules of law as may be agreed by the parties. In the absence of such agreement, the Tribunal shall apply the law of the Contracting State party to the dispute (including its rules on the conflict of laws) and such rules of international law as may be applicable."; ICC Rules of Arbitration, Art. 17(1) "The parties shall be free to agree upon the rules of law to be applied by the Arbitral Tribunal to the merits of the dispute. In the absence of any such agreement, the Arbitral Tribunal shall apply the rules of law which it determines to be appropriate." *See also* discussion in Affolder, *supra* note 4, at 63-77.

15. The national law that would apply would depend on choice of law principles. For a discussion, *see* Affolder, *supra* note 4, at 59-63.

16. One commentator has stated that the method most commonly used is national law. Gotanda, *A Study of Interest*, *supra* note 4, at 18 (2007).

17. *See, e.g.*, RJ Reynolds Tobacco Co. v. Iran, 7 Iran-U.S. Cl. Trib. Rep. 181 (1984); McKesson Corp. v. Iran, 116 F.Supp.2d 13 (D.D.C. 2000).

18. For example, in RJ Reynolds Tobacco Co. v. Iran, Award of Aug. 6 1984, 10 Y.B. COM. ARB. 258 (1985), the tribunal awarded simple interest even though the contract at dispute specifically provided for interest to be compounded on unpaid balances.

awarding interest under principles of customary international jurisprudence have used a variety of inconsistent methods and rates.[19]

The lack of a uniform methodology of awarding prejudgment interest in international arbitrations that is based on sound financial principles has resulted in an inefficient squandering of arbitral resources and the unjust over or under-compensation of claimants. The remainder of this article sets forth a methodology for awarding prejudgment interest based on sound financial principles. Its adoption would produce more predictable and fairer awards as well as conserve arbitral resources.

III. CALCULATING PREJUDGMENT INTEREST: OVERVIEW OF THE PROBLEM

When a tribunal is faced with the issue of determining an award of prejudgment interest, it must make, at the very least, the following three important determinations:

1. The period over which prejudgment interest is to run;
2. The prejudgment interest rate; and
3. The compounding frequency.

In addition, if the damage and award are in different currencies, a tribunal must also determine when to convert these currencies.

Once these determinations are made, the final award (FA), consisting of the prejudgment interest and original award (OA), is computed according to the following formula:

$$FA = OA \times \left(1 + \frac{r_m}{n}\right)^{nT},$$

where:

r_m = the prejudgment interest rate;
n = the number of compounding periods per year; and
T = the prejudgment period in years.

The term with the parenthesis is often referred to as the prejudgment interest multiplier or growth factor and represents by how much the original award will increase because of prejudgment interest. The total amount of interest is the difference between the final and original

19. *Compare Santa Elena* (compound interest awarded with interest rate and compounding period unspecified) *with* Anaconda-Iran Inc. v. Iran, Case No. 167 of 1986, 13 Iran-US Cl. Trib. Rep. 199 (1986) (simple interest awarded).

awards.[20]

The period over which prejudgment interest accrues typically ends on the award date—interest accruing after the award date until the date of payment is post-judgment interest[21]—but there is some controversy when the prejudgment interest period begins. Both courts and tribunals have used several dates, including the date of incident, the date of harm, and the date of filling. Because the goal of the prejudgment interest is to place the parties, especially the successful claimant, in the same position they would have been in had the respondent immediately paid the claimant, the best choice is the date of harm.[22] Additional computational issues arise in the case of subsequent harms by respondent, but they are beyond the scope of this article.[23]

IV. THE PREJUDGMENT INTEREST RATE

A. Simple or Compound Interest

One of the most persistent issues confronting a tribunal considering a claim for prejudgment interest is whether to award simple or compound interest. In both civil litigation and arbitration, awards of simple interest have historically been more common,[24] but as financial sophistication has increased, tribunals and courts have increased the frequency with which they award compound interest.[25]

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20. The multiplier is sometimes described as the term with the parenthesis minus one. In that case, applying the multiplier to the original award yields the prejudgment interest. Adding the original award to the prejudgment interest gives the final award.

21. Postjudgment interest is granted from the date of the award until the date of payment. The same principles that we advocate using to calculate prejudgment interest can also be used to calculate postjudgment interest. Under some laws (for example, U.S. federal law), however, the postjudgment interest rate is set by statute.

22. For a discussion of this issue, see Michael S. Knoll, *A Primer on Prejudgment Interest*, 75 Tex. L. Rev. 293, 353-54 (1996); Gotanda, *A Study of Interest*, *supra* note 4, at 11-13.

23. For a discussion of multiple non-synchronous harms, *see* Knoll, *supra* note 22, at 9-14; and Michael S. Knoll & Jeffrey M. Colon, *Prejudgment Interest*, *in* LITIGATION SERVICES HANDBOOK: THE ROLE OF THE FINANCIAL EXPERT (Roman Weil et al. eds., 4th ed. 2007) 9-14.

24. *See* Knoll, *supra* note 22, at 306 ("The traditional, common-law rule is that prejudgment interest is not compounded."); Anaconda-Iran Inc. v. Iran, Case No. 167 of 1986, 13 Iran-U.S. Cl. Trib. Rep. 199 at ¶ 138 (noting that the Iranian Claims Tribunal had never awarded compound interest).

25. *See, e.g.*, ADC Affiliate Ltd. and ADC & ADMC Mgmt. Ltd. v. Hung., ICSID Case No. ARB/03/16 at ¶ 522 (Oct. 2, 2006), *available at* http://www.worldbank.org/icsid/cases/awards.htm ("…[T]ribunals in investor-State arbitrations in recent times have recognized economic reality by awarding compound interest…"); and *ONTI, Inc. v. Integra Bank*, 751 A.2d 904, 929 (1999) (in awarding compound interest in an

Awarding simple interest generally fails to compensate claimants fully and can create strong incentives for respondents to delay arbitration proceedings and cause harms, thereby wasting resources.

Simple interest is calculated by applying the applicable interest rate in each period to the original award over the total prejudgment period. The interest rate is applied to a balance that does not change so that each period the outstanding balance grows only by the interest rate times the original balance. The interest that accrues each period is not added to the base that is used to calculate interest in future periods. The formula for simple interest accumulation after *T* years is simply:

$$FA = OA \times (1 + T \times r_m).$$ [26]

In contrast, if interest is compounded, the interest that accrues, but is not paid each period, is added to the outstanding balance, and the interest that accrues for the subsequent period accrues on the unpaid interest plus the original balance. The outstanding balance grows each period by the amount of unpaid interest, and consequently, the subsequent interest that accrues each period increases as well. If interest is compounded yearly on an original award, the final award after *T* years is given by the following equation:

$$FA = OA \times (1 + r_m)^T.$$ [27]

Over longer prejudgment periods and higher interest rates, the difference between a final award calculated using simple and compound interest (compounded annually) can be quite significant as shown in the following table for an original award of $1 million:

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appraisal case, the Delaware Court of Chancery stated: "The grounds for the rule of simple interest are at best the inability of a prudent investor to receive compound interest and are at worst a blind adherence to the past.").

26. Another way to derive this equation is to note that each period the interest that accrues is $OA \times r_m$. The total interest that would accrue over *T* periods is $(OA \times r_m) \times T$, which, when added to *OA*, would yield $OA+(OA \times r_m) \times T$. Simplifying the equation yields the above result.

27. The equation can be derived by noting that at the end of the first year, the outstanding balance, *FA*, will *be* $OA + OA \times r_m$, or $OA \times (1+ r_m)$. It can easily be shown that after *T* years, *FA* will equal $OA \times (1+ r_m)^T$. MARK GRINBLATT & SHERIDAN TITMAN, FINANCIAL MARKETS AND CORPORATE STRATEGY 313 (2d ed. 2002).

T	r_m	FA (Simple)	FA (Compound)	% Difference
1	5%	1,050,000	1,050,000	0.00%
1	10%	1,100,000	1,100,000	0.00%
5	5%	1,250,000	1,276,282	2.10%
5	10%	1,500,000	1,610,510	7.37%
10	5%	1,500,000	1,628,895	8.59%
10	10%	2,000,000	2,593,742	29.69%
15	5%	1,750,000	2,078,928	18.80%
15	10%	2,500,000	4,177,248	67.09%
20	5%	2,000,000	2,653,298	32.66%
20	10%	3,000,000	6,727,500	124.25%

For example, the difference over five years with an interest rate of 5% is only a 2.1% difference in the amount of prejudgment interest. In contrast, over ten years with an interest rate of 10%, the difference is almost 30%.

In finance and all commercial transactions, compound interest is the norm. If a bank, for example, were to only offer simple interest on deposits, after the simple interest accrued, a depositor would merely withdraw the balance, consisting of principal and interest, and deposit it in another bank, thereby creating a return equal to the return he would have received had the first bank paid compound interest. Consequently, parties dealing at arm's length will always insist that interest be compounded on any outstanding balances for the simple reason that compound interest could have been earned on the money had it been paid.

That simple interest is inadequate compensation can be seen by noting that a party receiving simple interest is in essence making interest-free loans to the party paying the simple interest. Assume, for example, that an original award is $1 million, r_m is 5%, and the prejudgment period is five years. Each year the respondent actually pays the interest of $50,000 to the claimant, who, in turn, re-loans the proceeds *interest free* to respondent. At the end of year five, the respondent must repay the four interest-free loans of $50,000, the year five interest of $50,000, and the original award for a total of $1,250,000. From the above table, it can be seen that this is the exact final award a claimant would receive if it were awarded $1 million and five years of simple interest.

Because the goal of prejudgment interest is to place parties in the same position that they would have been had the award been made immediately after the cause of action arose, awarding simple interest fails to fully compensate claimants. All awards of prejudgment interest should therefore be computed using compound interest.

B. Selecting the Prejudgment Interest Rate

Once the prejudgment period has been determined, the next step is to determine the prejudgment interest rate. In international arbitrations, where the tribunal is not bound by an agreement between the parties or a domestic statute, there has not emerged a consensus on either the appropriate interest rate or a convention for selecting an interest rate. Tribunals have used rates ranging from LIBOR, LIBOR plus some premium, the rate on U.S. certificate of deposits, the rate on six-month U.S. treasury bills, and in some instances, tribunals have not explained how the rate was selected.[28] We argue that in the case where the claimant and respondent are either large publicly traded companies or sovereigns, the proper prejudgment interest rate is the respondent's short-term borrowing rate. If the claimant is not publicly traded or a sovereign, a tribunal should make certain adjustments discussed below.

When a respondent causes harm to a claimant, the claimant's net worth—liabilities minus assets (computed using market valuations)—has been reduced either because the claimant lost an asset, for example, through expropriation, or the claimant incurred a liability that it wouldn't otherwise have incurred, for example, the claimant incurred costs related to the remediation of respondent's pollution. If a respondent had immediately compensated the claimant for harm caused by its actions, the claimant's net worth would be the same as it was before the harm. Because arbitration decisions are not

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28. S*ee, e.g.*, *Santa Elena*, *supra* note 1 (only total amount of compound interest awarded stated; no discussion of rate or compounding period); Metalclad Corp. v. United Mexican States, *supra* note 8 (award of 6%); Azurix Corp. v. Argentine Republic, ICSID Case No. ARB/01/12 (July 14, 2006), *available at* http://www.worldbank.org/icsid/cases/awards.htm (interest awarded at average rate of six-month U.S. certificates of deposit); Middle East Cement Shipping and Handling C0. S.A. v. Egypt, ARB/99/6, 16 ICSID (W. Bank 2001) 602, *available at* http://www.worldbank.org/icsid/cases/awards.htm (stating that awarding 6% interest, compounded annually, was appropriate "in view of the rates in financial markets during the relevant period…"); PSEG Global Inc. v. Republic of Turkey, Award, ICSID Case No. ARB/02/5, (Jan. 17, 2007), *available at* http://www.investmentclaims.com /decisions/PSEGGlobal-Turkey-Award.pdf (interest awarded at LIBOR plus two percent).

immediate, a tribunal must add prejudgment interest to the original award so that the net worth of the claimant after the final award is the same as it would have been had the respondent not harmed the claimant.

In place of the lost asset (or as an offsetting asset against the additional liability), the claimant holds instead a claim against the respondent, which can be referred to as the *judgment asset*. When a tribunal makes a final award to the claimant, the judgment asset is replaced with that award. In order for the award to equal the lost asset (or additional liability), the judgment asset must be adjusted for both the passage of time and any risk to which it was subject. Importantly, the return on the judgment asset has nothing to do with the claimant's assets and liabilities, but rather depends on the respondent's risk characteristics.

The most important risk to which an award is subject is the risk that the respondent will default.[29] The rate of return that compensates for both the risk of default and the delay in paying the award is the respondent's borrowing rate. To the extent that the holder of an unsatisfied judgment would be treated in a bankruptcy action like the holder of unsecured debt, the proper interest rate is the respondent's unsecured borrowing rate.[30]

This approach—adjusting the award by the respondent's unsecured borrowing rate—implicitly treats the harm of the respondent as a forced borrowing by the respondent. In the economics and legal literature, it is referred to as the *coerced loan theory*.[31] The claimant has loaned to respondent an amount equal to

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29. An award is also subject to the risk that the tribunal will under-compensate the claimant. Prejudgment interest should not compensate a claimant for this risk. For a discussion of this issue, *see* Knoll, *supra* note 22, at 311 n. 98.

30. This is the rule in the United States. If the claimant were from a country in which awards or judgments had the same priority in bankruptcy as secured debt, for example, that rate should be used.

31. The coerced loan theory, first developed in James M. Patell, Roman L. Weil, & Mark A. Wolfson, *Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates*, 11 J. OF LEG. STUD. 341 (1982), was further developed by Knoll (Knoll, *supra* note 22), and has been explicitly endorsed by the Seventh Circuit in *Gorenstein Enterprises*, 874 F. 2d at 437 ("The defendant who has violated the plaintiff's rights is in effect a debtor of the plaintiff until the judgment is entered and paid or otherwise collected. At any time before actual payment or collection of the judgment the defendant may default and the plaintiff come up empty-handed. The plaintiff is an unsecured, uninsured creditor, and the risk of default must be considered in deciding what a compensatory rate of interest would be."); *Amoco Cadiz*, 954 F.2d at 1331 ("By committing a tort, the wrongdoer creates an involuntary creditor. It may take time for the victim to obtain an enforceable judgment, but once there is a judgment the obligation is dated as of the time of the injury. In voluntary credit transactions, the

the harm respondent caused. When the award is rendered, the *loan* must be repaid. Since the *loan* was made to respondent, the claimant would insist that it bear the same interest rate as other unsecured debt of the respondent.

C. Why Other Rates Used by Tribunals Often Fail to Properly Compensate Claimants

Tribunals, courts, litigants, and commentators have not consistently followed or unanimously endorsed the coerced loan theory of prejudgment interest. Although there is widespread consensus that the goal of prejudgment interest is to put the claimant in the same position it would have been in had the respondent not committed the harm, there is disagreement how to craft an award of prejudgment interest to achieve that goal.[32]

A common method used by tribunals and the method favored by many commentators is to award prejudgment interest at the opportunity cost of the *claimant*.[33] That method reflects the view that the respondent's actions have deprived the claimant of resources that the claimant could have profitably invested, either in its own business or in other assets. Tribunals following this approach have awarded prejudgment interest based upon some hypothetical investment the claimant could have made.[34] Because there is practically no limit on what the claimant could have done with additional funds, the selected

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borrower must pay the market rate for money. (The market rate is the minimum appropriate rate for prejudgment interest, because the involuntary creditor might have charged more to make a loan.) Prejudgment interest at the market rate puts *both* parties in the position they would have occupied had compensation been paid promptly.").

32. *See Santa Elena, at* ¶ 104 ("In particular, where an owner of property has at some earlier time lost the value of his asset but has not received the monetary equivalent that then became due to him, the amount of compensation should reflect, at least in part, the additional sum that his money would have earned, had it, and the income generated by it, been reinvested each year at generally prevailing rates of interest.").

33. *See, e.g.*, Gotanda, *A Study of Interest*, *supra* note 4, at 32 ("awarding interest the claimant's opportunity cost would be the most appropriate way to compensate it for the loss of the use of its money").

34. *See, e.g.*, *PSEG Global Inc. v. Republic of Turkey*, *supra* note 28 (rejecting claimant's argument that prejudgment interest should be its cost of capital or Turkish sovereign bond yield and awarding LIBOR plus two per cent because tribunal viewed that as appropriate rate that claimant would have earned on global investments outside of Turkey), *but see* Wena Hotels v. Egypt, 41 I.L.M. 919, 932 (2002) (awarded interest of 9%, which was based on respondent's long-term bond rate less 1%); Maffezini v. Spain, ARB/97/7, 16 ICSID (W. Bank 2001) 1 (awarded compound interest based on annual LIBOR peseta rate).

rates vary greatly. Accordingly, the rates that have been put forth under this method are the claimant's return on capital, or the return on some market-based index. None of these rates, however, is correct, and all fail to compensate claimants properly.

The argument for using the claimant's return on capital is based on the assumption that the claimant would have invested the foregone funds in its business and thereby would have earned the same return as it earns on other projects. Given our assumption that the parties are large, publicly traded companies or sovereigns, which have access to capital markets, if the claimant needs funds to pursue a project, it can obtain them in the capital markets. Thus, it is not reasonable to claim that the injury prevents claimants from making profitable investments.

Instead of examining the actual return on claimant's equity, some commentators have argued and some tribunals have awarded prejudgment interest at a rate equal to the cost for the claimant of raising equity or debt capital. The rationale for such an approach is that the respondent's actions might have forced the respondent to raise additional funds, either debt (more common) or equity.[35]

There are a couple of responses to this argument. The most intuitive might be as follows: Assume that as soon as the respondent harmed claimant, it issued the claimant an IOU for the amount of the harm. If the claimant were to offer the IOU in the market, the discount rate used to the value the IOU would equal the respondent's borrowing rate, not the claimant's. The claimant's cost of raising the additional capital then would be the respondent's unsecured borrowing rate.

If the claimant raises new capital on its own—assume debt, but the argument holds equally for equity—the interest rate it has to offer new creditors will reflect their position in the claimant's capital structure. If that rate is greater than the respondent's unsecured borrowing rate, the new creditors are assuming not only the respondent's default risk, but other additional risks as well, for which they demand compensation in the form of a higher interest rate. A respondent should not have to compensate the claimant for risks

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35. *See, e.g.*, Renusagar Power Co. v. Gen. Elec. Co. (1993) *reported in* 8 (11) Int'l Arb. Rep. 3-4 (1993) (compound interest awarded because "claimant would have had to pay compound interest if it had replaced the improperly withheld funds by borrowing."); John C. Keir & Robin C. Keir, *Opportunity Cost: A Measure of Prejudgment Interest*, 39 Bus. Law. 129 (1983) (arguing for assessing prejudgment interest at average return on plaintiff's equity or plaintiff's weighted average cost of capital); Susan Escher & Kurt Krueger, *The Cost of Carry and Prejudgment Interest*, 6 LITIG. ECON. REV. 12 (2003) (employing a cost-of-carry pricing model using the plaintiff's implied financing cost or cost of debt capital).

unrelated to the litigation that the claimant transfers to new investors. If, conversely, the new interest rate is lower than the respondent's unsecured borrowing rate, the new creditors do not assume the respondent's entire default risk and the claimant retains some of that risk. The tribunal should not fail to compensate the claimant for the risk of respondent's default simply because it continues to bear that risk.

Finally, a common approach of tribunals is to award prejudgment interest based on a market-based index, such as the return on certificates of deposits or LIBOR. There are several objections to using such indices. First, if the tribunal uses a risk-free interest rate, such as a U.S. treasury rate, the claimant is not being compensated for respondent's default risk. This may permit the respondent to unilaterally increase its bankruptcy risk by pursuing riskier projects and shift the costs of that risk to claimant.

Second, tribunals need to be careful if they use other market-based rates, *e.g.*, LIBOR or LIBOR plus a premium. Such rates should not be used blindly for the simple reason that they reflect different risks than the risk the claimant is assuming: the risk that the respondent will default and the judgment will not be paid. The rate that properly compensates a claimant for this risk is the respondent's borrowing cost.[36] These rates can, however, sometimes be reasonable proxies. Tribunals, however, need to ensure themselves that any rate used is a good proxy in a particular case.

D. Floating Rates or a Fixed Rate

Once a tribunal has decided to use the respondent's borrowing rate to determine prejudgment interest, it must then face the issue of whether to use a single, long-term rate or a series of short-term rates. The final award will generally not be the same with both methods as interest rates usually increase with time to maturity.[37] Using a single long-term rate is administratively easier because the tribunal must ascertain only one rate, and the multiplier is easily calculated. (The issue of compounding periods is discussed below.) In contrast, using short-term rates requires the tribunal to ascertain a rate for each period from the date of harm to the date of the award.

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36. For additional discussions of criticisms of alternate prejudgment interest rates, *see* Knoll & Colon, *supra* note 23, at 9-4 – 9-7.

37. The yield curve, also known as the term structure of interest rates, shows the relation between the interest rate ("yield") and the time to maturity ("term") for a given borrower and is usually upward sloping.

In theory, either method would be acceptable as the claimant would be compensated for the risk borne. Of course, neither party should be allowed to choose the method ex-post: It would be unfair for either party to be able to choose between short-term and long-term rates after they are known. We argue that an arbitration panel should use a series of short-term rates in order to promote efficient use of arbitration resources and to prevent overcompensation of the claimant.

Using short-term rates to award prejudgment interest promotes the efficient use of arbitration by not interfering with settlements. Assume that at the time of harm short-term and long-term rates were 5%. If short-term rates significantly increased and long-term rates were used to calculate prejudgment interest, the respondent would have an incentive to delay the arbitration proceedings. Because the award grows at below-market rates, the respondent would be borrowing from the claimant at below-market rates. Although the nominal amount of the final award increases with time, its present value declines. Thus, delay benefits the respondent by reducing the present value of the final award.

Conversely, if short-term rates were to decline significantly and the award was adjusted by long-term rates, the claimant would have the incentive to delay arbitration. Although in both of these examples the counterparty would have the opposite incentive—to speed up or delay arbitration—it is usually easier to delay than speed up proceedings.

There is a second problem with using the long-term interest rate at the date of the harm. If a long-term rate was used and the respondent increased the risk of its business operations, thereby making it more likely that the award will not be paid, the claimant would be, in effect, bearing the cost of that increased risk without compensation. In the extreme, such a rule can encourage respondents to increase their risk.

Long-term rates are usually (but not always) higher than short-term rates. It has been hypothesized that the reason for the upward sloping yield curve is that risk-adverse lenders generally prefer to lend short-term and risk-adverse borrowers generally prefer to borrow long-term.[38] Consequently, lenders must be offered a premium to lend long term at fixed rates.[39] This explanation is

38. For lenders, long-term loans are riskier because the future value of the loan (prior to maturity) depends on future interest rates, which are unknown.

39. Assume that an investor wants to lend for two years. He can make a loan for one year, receive the principal and interest and then re-loan the balance for an additional year, or he can make a two-year loan. At the time of the original loan, the one-year and

known as the liquidity preference hypothesis.[40] If the claimant were compensated with the respondent's long-term interest rate, that rate would reflect a term premium for lending long term at a fixed rate. Because prejudgment interest is calculated at the end of the arbitration when the series of interest rates can be observed, the claimant can avoid the risk from locking in a fixed rate on the loan it was forced to make to the respondent by using a floating rate. A claimant should not be compensated for a term premium, and therefore a series of short-term variable rates should be used.

E. How to Determine the Respondent's Unsecured Borrowing Rate

A tribunal should use the respondent's unsecured, floating borrowing rate to calculate prejudgment interest. Because this rate will change in response to changes in economy-wide interest rates and the risk of the respondent over the duration of the arbitration, the tribunal will have to ascertain a series of interest rates. We set forth several methods a tribunal can use. Although some of these methods yield rates that may vary somewhat from precise, theoretically correct rates, they will produce credible results when done with some care.

The first choice would be to use the rate on respondent's outstanding unsecured, floating-rate debt that matures around the end of the prejudgment period. Although this represents the conceptually correct interest rate, few defendants will likely have any long-term variable interest rate debt outstanding, because most corporations borrow at fixed rates.[41] Accordingly, that rate will usually have to be estimated.

One option is to use commercial paper rates. In the United States and many other foreign countries, large companies have access to and regularly borrow through the commercial paper market. Commercial paper is short-term, unsecured promissory notes. The rates vary

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the two-year rates are known, but the spot rate one year from now is not known. By investing for two years, the lender is investing at the one-year forward rate implied by the two-year rate. The question is whether that one-year forward rate is generally equal to the expected spot rate one year from today, and for longer term debt, whether the long-term rates equal the average of expected spot rates. It appears that the one-year forward rate, which an investor gets by investing for two years, is greater than the average of expected future spot rates.

40. Long-term loans at floating rates do not contain a term premium.

41. If a respondent has outstanding long-term variable interest rate debt, the tribunal should adjust the rate for the value of any put and call provisions held by the holder or issuer, for example, the right to demand payment prior to maturity or the right to prepay the loan principal.

depending on the risk of the borrower,[42] so a tribunal could estimate the respondent's rate based in its credit risk as determined by an independent credit rating agency, such as Standard and Poor's, Moody's, or a foreign equivalent. Another option would be to use an easily available unsecured borrowing rate applicable to large borrowers. In the United States, the prime rate is one choice.[43] Because the commercial paper market is more restrictive than the market for bank loans at prime, the interest rate on commercial paper is regularly 200 to 300 basis points below the prime rate.[44]

Some commentators have argued that the short-term commercial paper rate does not compensate a plaintiff for the risk the defendant will go bankrupt before the plaintiff receives the full award.[45] This occurs because the risk of bankruptcy increases with the horizon, and most plaintiffs have been forced to make a long-term loan (perhaps many years in duration) to the defendant, whereas the holders of commercial paper typically make loans for a year or less.

To compensate for this risk, a tribunal can use a variable interest rate, such as, for example, LIBOR plus a fixed premium. If LIBOR changes, the interest rate will change but the premium will not. The fixed premium is intended to compensate the claimant for the risk of the respondent's bankruptcy over the life of the loan.

One method a tribunal can use to estimate the respondent's long-term risk premium is to use the average premium paid by similarly risky companies. A determination of the respondent's credit risk for unsecured long-term debt can be obtained from independent bond-rating services, such as Moody's and Standard and Poor's. The tribunal can then add a yield premium based on the average yield premia for companies with the same credit rating as the respondent to an appropriate index.

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42. The U.S. Federal Reserve publishes daily the commercial paper rates at http://www.federalreserve.gov/releases/cp/.

43. *See Gorenstein Enterprises*, 874 F.2d at 436 (suggesting that courts use the prime rate for fixing prejudgment interest where there is no statutory interest rate, stating that it is "a readily ascertainable figure which provides a reasonable although rough estimate of the interest rate necessary to compensate plaintiffs not only for the loss of the use of their money but also for the risk of default.").

44. A basis point equals 0.01%; 100 basis points equals 1%. On October 9, 2007, the prime rate was 7.75% and the commercial paper rates were 4.78% (AA) and 5.17% (A2).

45. *See generally* Robert L. Losey, Michael Mass & Jingsan Li, *Prejudgment Interest: The Long and the Short of It*, 15 J. FORENSIC ECON. 57 (2002).

F. The Compounding Period

Once the prejudgment period and a series of applicable short-term rates have been determined, the last task to calculate the final award is for the tribunal is to choose a compounding period. Interest rates are generally quoted as annual rates, but that rate may be compounded daily (bank deposits), monthly (residential mortgages), semi-annually (corporate bonds), or annually. The more frequently a given interest rate is compounded, the greater is the *effective* or true interest rate. For example, a quoted interest rate of 6%, compounded quarterly, would mean that each quarter, interest of 1.5% (6% / 4) would accrue on the outstanding balance. This would translate into an effective annual interest rate of 6.136%, calculated as follows: $6.136\% = ((1+.06/4)^4 - 1)$.[46]

As the above example demonstrates, the choice of compounding periods can greatly affect the size of the award. Courts have sometimes chosen a particular interest rate that is compounded over a particular period, for example, quarterly, and applied the interest rate annually.[47] A tribunal should therefore use the same compounding period in computing the award as the reference interest rate.

V. FOREIGN CURRENCY ADJUSTMENTS

When the parties do not operate in the same currency or when the harm is caused in one currency but the award is rendered in another, it is necessary to take into account complications caused by different interest rates. For example, assume an American company fails to pay a French company $100 (€100) in year 1 when the U.S. dollar-Euro exchange rate is 1 to 1, and an award is rendered in year 5 when the U.S. dollar-Euro exchange rate is 1 to 0.7. The arbitration tribunal must determine whether to adjust the award using an interest rate from a loan denominated in U.S. dollars or a loan denominated in Euros.

Interest rates differ depending upon the currency the loan is denominated in because of the expectations about relative exchange

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46. The difference between the two is roughly 2.27%. Over longer prejudgment periods, this can materially increase a final award. For example, on an award of $10 million, a 6% interest rate, and a prejudgment period of ten years, the final award will be $17.91 million if interest is compounded annually and $18.14 if the interest is compounded quarterly. This represents a difference of around $231,000.

47. In *Amoco Cadiz*, the court used the U.S. prime rate and applied annual compounding. The U.S. prime rate is in practice compounded quarterly. It has been estimated that compounding the award quarterly would have increased the interest component of the award by about $11 million. *Knoll*, *supra* note 22, at 328-29.

rate shifts. Thus, it is necessary to coordinate the choice of currency with the selection of an interest rate. The two decisions are not independent.

There are two basic approaches. First, a tribunal could apply the Euro interest rate to the €100 harm and then convert the final Euro award into U.S. dollars. Alternatively, the tribunal could convert the award to dollars at the time of harm and then apply the U.S. dollar interest rate to the award. The final award is nonsense, however, if the tribunal converts the award to dollars at the *beginning* and uses a Euro interest rate. Similarly, the result is wrong if the award is converted at the *end* and a dollar interest rate is used. Surprisingly, both correct approaches yield the same expected outcome, and therefore a tribunal could select either in calculating the award. To see this, it is necessary to understand the relationship between currency exchange rates and interest rates.

There are two ways that parties can agree to exchange currency, either today or in the future. The rate at which currency would be exchanged today is the current or spot exchange rate. But at what rate should parties agree *today* to exchange currency in the future when the future exchange rate is unknown? It turns out that this rate, known as the forward rate, is determined solely by today's exchange rate and the interest rates of the two currencies to be exchanged; it is not determined by any expectation of the parties or the market as to future exchange rates. This is known as the covered interest-rate parity relation and is given by the following equation:

$$F = X \times \left(\frac{1 + r_{US}}{1 + r_E} \right)^T,$$ [48]

where:

X = the current exchange rate expressed in dollars per one unit of foreign currency;
F = the forward exchange rate;
r_{US} = the U.S. dollar interest rate;
r_E = the Euro interest rate; and
T = the term or maturity.

48. This relation can be shown to hold by arbitrage arguments. Note, if the Euro exchange rate is quoted in units of Euros per one U.S. dollar, the fraction in parenthesis would have to be inverted.

The equation tells us that if U.S. dollar interest rates are higher than Euro interest rates, the forward exchange rate will be higher than the spot exchange rate, and vice versa.

An example can illustrate this. Assume the current U.S. dollar/ Euro exchange rate is 1 to 1 and the respective interest rates are 5% and 3%. A one-year forward exchange rate would be 1.01942 to 1. At expiration of the forward contract, the parties will exchange 1.01942 U.S. dollars for 1 Euro. The spot U.S. dollar value of the Euro received at the expiration of the contract, however, could be greater or lesser than 1.01942 U.S. dollars. If the value is greater, the party receiving the Euro has made money on the forward contract, because it can exchange the Euro for more than 1.01942 U.S. dollars; if the value is less than 1.01942 dollars, the party receiving the Euro has lost money on the contract.

Now assume that a tribunal has found that an American company caused €100 harm to a European company last year when the exchange rate was 1:1 and the respective interest rates were 5% and 3%. Accordingly, the one-year forward rate would be 1.01942 to 1. If a tribunal converted the award to dollars using the 1 to 1 rate and then computed interest on the award at the *U.S. interest rate*, the final award would be $105. Alternatively, if the tribunal computed interest on the Euro award, the final award would be €103, which would be converted to U.S. dollars at *the time of the award* using the U.S. dollar/Euro spot exchange rate. Note that if the spot rate *at the time of the award* equaled the forward rate *at the time of harm*, these two amounts would be equal: 103 Euros x ($1.01942/1 Euro) = $105. Thus, viewed from the time of the harm, a claimant is fully compensated if it receives 3% on a €100 award or 5% on a $100 award.

As mentioned above, a tribunal should not apply a U.S. dollar interest rate to an original award in Euros or a Euro interest rate to an original award in dollars.[49] The former applies a U.S. dollar interest rate to a Euro borrowing and the latter applies a Euro interest rate to a dollar borrowing. Using the above numbers, the former applies a 5% U.S. dollar interest rate to a 100 Euro loan, generating a final award of €105. Such an award is too large. The latter implies an award of $103. Such an award is too small. The correct award in Euros is 103.

Although it does not matter ex-ante whether the original award is in Euros and prejudgment interest is calculated using a Euro interest

49. In *Amoco Cadiz*, 954 F.2d at 1337, the Seventh Circuit used a U.S. dollar interest rate on a franc denominated loan. This mistake may have cost plaintiff more than $40 million. *See* Knoll, *supra* note 22 at 363-364.

rate or the original award is in dollars and a dollar interest rate is used, it is important to note that the *ex post* outcomes will *not* be the same because of unanticipated movements in foreign exchange rates. In one year, the U.S. dollar-Euro spot exchange rate will almost never be 1.101942 to 1 or even 1.02 to 1. In an environment with floating exchange rates, the actual exchange rate will almost surely differ from the predicted rate and so one method will favor the claimant and the other the respondent. It is therefore improper to let a party choose one method or the other when the exchange rates are known.

There is no obvious and universal solution as to which method a tribunal should select. Because the spot rate on the award date will almost certainly not be equal to the forward rate for that date as of the harm date, the results under either correct method will not be identical, and one party will benefit. One approach would be to have the parties choose the method at the time the arbitration has begun, but because exchange rates movements between the time of harm and the commencement of arbitration are already known, this approach likely gives one party an advantage.

This is an area in which arbitration tribunals should strive to develop a coherent default rule for foreign currency conversions and prejudgment interest accruals that will minimize any strategic behavior on the part of the parties. [50] The central point that we want to emphasize is the need for consistency between the currency conversion rule and the currency in which the interest rate is quoted. If the decision on currency is made first, then the interest rate calculation should match the currency of the original award.

VI. CLOSE CORPORATIONS AND INDIVIDUALS

We have assumed that both parties are either large, publicly traded entities or sovereigns with access to capital markets and whose owners hold diversified portfolios. This assumption has allowed us to ignore the effect of respondent's actions on claimant's investment opportunities: if the respondent's actions deprived the claimant of necessary capital, the claimant could have obtained the capital in the public debt or equity markets. In addition, because the claimant's owners have little capital tied up in the claimant, they would value the arbitration claim in the same way as other market participants and would require a return on the arbitration claim commensurate with its

50. For a brief discussion of the U.S. rules regarding the conversion of awards in foreign currencies into dollars in judicial decisions, *see* Knoll, *supra* note 22, at 364 n. 316.

risk, the risk that the respondent will default. That risk is precisely measured by the respondent's unsecured borrowing rate.

If these assumptions do not hold because the claimant is either an individual, or more likely, a close corporation, the respondent's unsecured borrowing rate may not fully compensate the claimant.[51] First, the respondent's actions may have prevented the claimant from making a desired investment. Second, if the arbitration claim is large relative to the claimant corporation's (or it owners') wealth, the claimant will bear unsystematic risk that is not compensated for by the respondent's borrowing rate, which is set by diversified market investors. Unfortunately, to accurately adjust the rate, a tribunal would have to know the claimant's risk aversion, which the claimant would have incentive to inflate. Although it might not be possible to get a theoretically and precisely accurate result, there are adjustments that can be made to reach a reasonable result. [52]

VII. ADDITIONAL ISSUES IN CALCULATING PREJUDGMENT INTEREST

This section very briefly mentions two additional issues that warrant attention in awarding prejudgment interest, taxes and multiple respondents.

The goal of prejudgment interest is to place the claimant in the same position it would have been in had the arbitration award been paid immediately. If the claimant's country taxes interest as it accrues (whether or not it is received), the claimant is better off receiving a lump sum award of prejudgment interest because it did have to pay tax earlier on the interest as it accrued. In addition, if the award would have been taxable, the claimant would have been able to have invested only the after-tax proceeds and consequently would not have earned as much interest. In both of these cases, the multiplier should be adjusted to compensate the claimant properly.[53] In spite of the conceptual correctness of making such adjustments, we are not aware of any courts or tribunals that have done. The one court that addressed the issued declined to make such an adjustment.[54]

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51. If the claimant is publicly traded but the respondent is not, the analysis set forth above should still hold. The difficulty faced by a tribunal in such a case is to estimate the respondent's unsecured borrowing rate. Many consumer rates may not be appropriate because they may be secured, for instance, car loans and home mortgages. Credit card rates may be a viable alternative, although they can vary greatly.

52. The interested reader might want to see Knoll, *supra* note 22, and Knoll and Colon, *supra* note 23.

53. The precise adjustments are set out in Knoll & Colon, *supra* note 23, at 9-12 and 9-13.

54. Cement Division, National Gypsum Co. v. Milwaukee, 950 F. Supp. 904, *aff'd*,

If there are multiple respondents or the respondent carries insurance that will cover the award, the claimant will recover as long as the insurance company, the respondent, or the other respondents are solvent. The prejudgment interest rate should therefore take into account the probability that the claimant will recover from any source. Accordingly, the prejudgment interest rate should not exceed the lesser of the respondent's, the other respondents', or the insurance company's unsecured borrowing rate. The same rationale applies if the respondent is a member of an affiliated group of corporations and another member of the group, for example, the parent, has agreed to guarantee the award.

VIII. CONCLUSION

This article has described the conceptually correct method for assessing prejudgment interest. If the parties are publicly traded corporations or sovereigns, tribunals should award interest based on the respondent's unsecured borrowing rate. This rate will compensate the claimant for both the delay of the award and the risk that the respondent will be insolvent when the award is rendered. We also argue that a series of floating rates should be used instead of a single long-term rate to prevent either party from benefiting from unforeseen interest rate changes. Using this rate not only will properly compensate claimants but will also economize arbitral resources by ensuring that neither party will have an incentive to delay because of favorable interest rates. Finally, we caution tribunals that calculate damages in one currency and grant an award in another currency to be consistent in their choice of a currency conversion rule and a prejudgment interest rate.

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144 F.3d 1111 (7th Cir. 1998).