

TIME IS MONEY—BUT HOW MUCH MONEY IS TIME?
INTEREST AND INFLATION IN COMPETITION
LAW ACTIONS FOR DAMAGES

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Private enforcement of competition law is on the rise worldwide.¹ In the United States, it has grown since the 1950s to become a major enforcement tool.² In Europe, private actions for damages have been at the heart of the legal and policy debate since the Court of Justice handed down the groundbreaking³ *Courage* judgment,⁴ spurring reform initiatives by the European

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¹ Daniel L. Rubinfeld, *Antitrust Damages*, in RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 378 (Einer R. Elhauge ed., 2012); David Romain & Ingrid Gubbay, *Plaintiff Recovery Actions*, 3 EUR. ANTITRUST REV. 47, 49–50 (2011).

² For in depth analysis, see Reza Rajabiun, *Private Enforcement and Judicial Discretion in the Evolution of Antitrust in the United States*, 8 J. COMPETITION L. & ECON. 187, 192–93, 205–06, 211–18 (2012).

³ Alexander Italianer, Dir.-Gen., Directorate Gen. of Competition of the Eur. Comm'n, Remarks at the 5th International Competition Conference: Public and Private Enforcement of Competition Law (Feb. 17, 2012).

⁴ Case C-453/99, *Courage Ltd. v. Crehan*, 2001 E.C.R. I-6297.

Commission⁵ and several Member States⁶ to facilitate private actions for damages.

⁵ The latest reform package at the European level comprises a directive of the European Parliament and the Council on certain rules governing actions for damages under national law for violations of the competition law provisions of the Member States and of the European Union. *See infra* Part II.B.2.b.

For a critical review of earlier Commission initiatives, see Jindrich Kloub, *White Paper on Damages Actions for Breach of the EC Antitrust Rules: Plea for a More Holistic Approach to Antitrust Enforcement*, 5 EUR. COMPETITION J. 515, 516–18, 532–45 (2009).

⁶ Clifford A. Jones, *Editorial, After the Green Paper: The Third Devolution in European Competition Law and Private Enforcement*, 3 COMPETITION L. REV. 1, 2 (2006). In the United Kingdom, important private enforcement reforms have entered into force on October 1, 2015 as part of the Consumer Rights Act 2015. In particular, the Act has (1) introduced a new regime for collective proceedings that allows for opt-out collective actions as well as opt-in collective actions, (2) widened the jurisdiction of the Competition Appeal Tribunal (CAT) and granted it additional powers, most notably to apply a fast track procedure for follow-on damage claims and to grant injunctions, and (3) empowered the Competition and Markets Authority to approve voluntary redress schemes. *See generally* Lucy Davies, *Consumer Rights Act 2015: Reforms to Damages Litigation in the UK for Infringements of Competition Law*, OLSWANG (Apr. 22, 2015), www.olswang.com/20547.aspx (including related posts); Emily Clark & Ruth Sander, *Navigating the Quantum Minefield in Cartel Damage Cases*, 6 J. EUR. COMPETITION L. & PRAC. 153 (2015); Marianne Charrier & Gordon Downie, *UK and EU Developments in Collective Action Regimes for Competition Law Breaches*, 35 EUR. COMPETITION L. REV. 369, 369–75 (2014); Stephen Wisking et al., *Competition Law Class Actions*, COMPETITION L. INSIGHT, Mar. 19, 2013, at 3–5; DEP'T FOR BUS. INNOVATION & SKILLS (UK), PRIVATE ACTIONS IN COMPETITION LAW: A CONSULTATION ON OPTIONS FOR REFORM—GOVERNMENT RESPONSE (Jan. 2013), www.gov.uk/government/uploads/system/uploads/attachment_data/file/70185/13-501-private-actions-in-competition-law-a-consultation-on-options-for-reform-government-response1.pdf.

In France, the legislature has recently inserted an opt-in group claim mechanism for consumer damages in Art. L. 623-1 to Art. L. 623-32 of the French consumer code, the Code de la consommation (Ccons.). The amendment, which was brought about as part of the Loi n° 2014-344 du 17 mars 2014 relative à la consommation (“loi Hamon”), published in the Journal Officielle de la République Française, n° 65 du 18 mars 2014, 54, is (inter alia) to promote claims for damages in cartel cases (*cf.* Art. L. 623-1 Nr. 2 et Art. L. 623-24 to Art. L. 623-26 Ccons.). *See generally* *Class Actions: La France Comble Enfin Son Retard*, PETITES AFFICHES, Mar. 25, 2014 (Ozan Akyurek ed.) (special issue of articles); Stephanie Rohlfing-Dijoux, *Reform des Verbraucherschutzes in Frankreich durch die Einführung einer Gruppenklage in das französische Recht*, 2014 EUROPÄISCHE ZEITSCHRIFT FÜR WIRTSCHAFTSRECHT [EuZW] 771; Kami Haeri & Benoit Javaux, *France*, in THE INTERNATIONAL COMPARATIVE LEGAL GUIDE TO: CLASS AND GROUP ACTIONS 2016 § 1.2 (Glob. Legal Grp. ed., 2015). Further reforms to facilitate private actions for damages will be brought about following the adoption of the bill for the “loi relatif à la transparence, à la lutte contre la corruption et à la modernisation de la vie économique” (loi Sapin II), which is pending in parliament at the time of writing. The act will authorize the French government to introduce the necessary measures to bring French law in line with the EU Damages Directive. *See infra* Part II.BB.2.b, text accompanying notes 81–82.

In Germany, the 8th amendment of the German Act against restraints of Competition (GWB), in force since July 30, 2013, has expanded private enforcement by consumer associations. Other important changes to foster private enforcement were implemented with the 7th amendment. GWB, June 2005, BGBI. I. at 1954. *See* Wolfgang Wurmest, *A New Era for Private Antitrust Litigation in Germany? A Critical Appraisal of the Modernized Law Against Restraints of Competition*, 6 GERMAN L.J. 1173–90 (2005).

On September 28, 2016, the Cabinet of the German Government approved a draft by the German Ministry for Economic Affairs and Energy for the ninth amendment of the GWB (www.bmwi.de/BMWi/Redaktion/PDF/E/entwurf-eines-neunten-gesetzes-zur-aenderung-des-gesetzes-gegen-wettbewerbsbeschaenkungen,%20property=pdf,bereich=bmwi2012,sprache=de,

Irrespective of the legal system in question, the success of private enforcement in making a claimant whole hinges on the accuracy of the damages calculation, i.e., whether the law allows recovery of all elements of the claimant's loss. If damages are primarily supposed to fulfill a compensatory purpose, as typically is the case in Europe,⁷ awards should mirror these losses as closely as possible.⁸ Furthermore, private enforcement in the EU is also supposed to deter violations,⁹ a goal that would be compromised if damages are systematically underestimated. However, a systematic overestimation may also produce adverse effects, e.g., by increasing incentives to pursue meritless claims.¹⁰ Moreover, where damages are deliberately increased to achieve a

rwb=true.pdf). The ninth amendment, inter alia, serves to transpose the EU Damages Directive and thereby to strengthen the right to damages of cartel victims by making it easier and quicker to obtain damages in court. For overviews of the draft amendment, see Harald Kahlenberg & Lena Heim, *Referentenentwurf der 9. GWB-Novelle: Mehr Effizienz für die private und behördliche Rechtsdurchsetzung*, BB 2016, 1863-1871; Rainer Bechtold, *Zum Referentenentwurf für eine 9. GWB-Novelle—Ein kurzer Überblick*, 2016 NZKART 391-96.

Apart from the three aforementioned EU countries that we consider in detail in this study, other EU Member States have implemented important reforms as well. For example, Austria included special provisions on claims for damages in § 37a of its law against cartels (KartG) on March 1, 2013, to facilitate claims for damages. Section 37a KartG, inter alia, provides for an explicit right to damages, grants cartel victims interest on damages from the occurrence of the loss, makes final decisions of European competition authorities (within the meaning of council regulation (EC) No 1/2003) binding for the Austrian civil courts with respect to the finding of an infringement, and authorizes the judge to estimate damages pursuant to the code of civil procedure taking into account the cartel member's gains. At the time of writing, a draft for a further amendment of the KartG is pending to transpose the EU Damages Directive. The draft will introduce new provisions in the KartG (§§ 37 a bis 37 m KartG) that serve to strengthen the right to damages of cartel victims by making it easier and quicker to obtain damages in court. For an overview of the draft amendment, see Raoul Hoffer, *Kartellgesetz-Novelle in Österreich—Der Begutachtungsentwurf des Bundesministeriums für Justiz*, 2016 NZKART 466-71.

The developments in the European Union have also triggered a reform initiative in Switzerland which has, however, recently been rejected by the National Council, the Grand Chamber of the Swiss Federal Assembly. See ANDREAS HEINEMANN, *STRUKTURBERICHTERSTATTUNG NR. 44/4, EVALUATION KARTELLGESETZ, DIE PRIVATRECHTLICHE DURCHSETZUNG DES KARTELLRECHTS* (2009); Carl Baudenbacher, *Schweizer Kartellrechtsreform gescheitert*, WIRTSCHAFT UND WETTBEWERB [WUW], Nov. 2014, at 1065-69 (Ger.).

⁷ See Clifford A. Jones, *Private Antitrust Enforcement in Europe: A Policy Analysis and Reality Check*, 27 *WORLD COMPETITION* 13, 16 et seq. (2004); Paolisa Nebbia, *Damages Actions for the Infringement of EC Competition Law: Compensation or Deterrence?*, 33 *EUR. L. REV.* 23 (2008); Joaquín Almunia, *Speech Before the European Parliament, ECON Comm.: Public Enforcement and Private Damages Actions in Antitrust* (Sept. 22, 2011) (SPEECH/11/598). Notably, this is compatible with the position that private actions for damages also contribute to the prevention of violations. See Gerhard Wagner, *Schadenersatz bei Kartelldelikten* 10 (German Working Papers in L. & Econ., Paper No. 18, 2007); Daniel Zimmer & Jan Höft, *"Private Enforcement" im öffentlichen Interesse?*, 38 *ZEITSCHRIFT FÜR UNTERNEHMENS- UND GESELLSCHAFTSRECHT [ZGR]* 662, 688 (2009).

⁸ Wouter P.J. Wils, *Should Private Antitrust Enforcement Be Encouraged in Europe?*, 26 *WORLD COMPETITION* 473, 479 (2003).

⁹ Case C-453/99, *Courage Ltd. v. Crehan*, 2001 E.C.R. I-6297, ¶ 27; Joined Cases C-295/04 to C-298/04, *Vincenzo Manfredi v. Lloyd Adriatico Assicurazioni SpA*, 2006 E.C.R. I-6619, ¶ 91.

¹⁰ Wils, *supra* note 8, at 482-83.

more profound deterrent effect and offset the low probability of detection and prosecution, such as with trebling of damages in the United States, a systematic underestimation of compensatory damages will detract from this goal.

One aspect that is often overlooked but of enormous practical importance in cartel cases is the way a legal system deals with costs associated with the passage of time, expressed through interest and inflation. Such costs can be significant as a result of the procedural aspects of a typical cartel case. First, cartel damages generally are spread over a cartel's lifespan. From the beginning of the cartel, its members collect and benefit from the overcharge¹¹ while the victims are deprived of the same funds.¹² Interest and inflation both have effects that work over the period of time during which the cartel operates. Second, a considerable time span often elapses between the incidence of the damage (e.g., the purchase of the cartelized product) and the award of damages.¹³ When the victims are finally compensated, inflation may have dimin-

¹¹ Overcharges are measures of overpayments by individuals or businesses as the result of an antitrust violation. Rubinfeld, *supra* note 1, at 378–79.

¹² Robert H. Lande, *Are Antitrust "Treble" Damages Really Single Damages?*, 54 OHIO ST. L.J. 115, 130 (1993) [hereinafter Lande, *Are Antitrust "Treble" Damages Really Single Damages?*]. See also Michael S. Knoll, *A Primer on Prejudgment Interest*, 75 TEX. L. REV. 293, 297 (1996).

¹³ For an empirical overview concerning the United States, see Lande, *supra* note 12, at 130–34. Lande finds that the average private antitrust conspiracy between 1960 and 1990 lasted between seven and eight years, that the time from its discovery to the filing of a lawsuit usually took up to six months, and that the lawsuit takes another four and a half years to resolve, resulting in an average delay between the incidence of damages and judgment of between eight and nine years. *Id.* Earlier, the Georgetown Study of Private Antitrust Litigation found that cases lasted on average slightly over two years (the median was less than 1.5 years), with the vast majority being settled. Multidistrict litigation cases, however, averaged 5.7 years in duration. See Steven C. Salop & Lawrence J. White, *Private Antitrust Litigation: An Introduction and Framework*, in PRIVATE ANTITRUST LITIGATION: NEW EVIDENCE, NEW LEARNING 3, 8–11, 40–42 (Lawrence J. White ed., 1988). Further analysis of the non-multidistrict cases revealed that 15% of the follow-on cases and 10% of the independently initiated cases lasted longer than five years. See Thomas E. Kauper & Edward A. Snyder, *Private Antitrust Cases that Follow on Government Cases*, in PRIVATE ANTITRUST LITIGATION, *supra*, at 329, 350–55. Furthermore, it appeared that the average time between filing of the first case in a multidistrict litigation docket and termination of the entire multidistrict litigation proceeding was approximately 6.1 years. *Id.* at 329, 357.

In Europe, most actions for damages are follow-on actions. Kai Hüschelrath et al. examine all cartel cases from 2000 to 2011 and find an average cartel duration of 8.8 years (median 6 years) and an average length of the Commission's public enforcement procedure of 4.2 years, which however did not always begin to run immediately from the discovery of the violation. While there are no studies on the average length of follow-on actions in the various EU Member States (but see *infra* note 265 and accompanying text), there are empirical studies on the average length of the EU public enforcement procedure, which is only the first step before a follow-on action can start. Kai Hüschelrath et al., *Cartel Enforcement in the European Union: Determinants of the Duration of Investigations*, 34 EUR. COMPETITION L. REV. 33, 33–39 (2013). Generally, a typical cartel case at the European Commission with the standard procedure (i.e., no settlement) is estimated to last at least three years. See Jochen Burrichter & Daniel J. Zimmer, *Reflections on the Implementation of a "Plea Bargaining"/"Direct Settlement" System in EC Competition Law*, in EUROPEAN COMPETITION LAW ANNUAL 2006, at 611, 615 (Claus-Dieter Ehlermann & Isabela Atanasiu eds., 2007); Eric Gippini-Fournier, *The Modernisation of European Competition Law*:

ished the purchasing power of the sum that had been overpaid. Whether and how this is taken into account can make an enormous difference in the damages award.¹⁴

Importantly, however, with international cartels there is no single legal framework, but instead a diverse menu of frameworks associated with the various jurisdictions affected by the conspiracy, each with different substantive and procedural rules governing actions for damages. Claimants often may be able to choose among these venues to a certain extent.¹⁵ Concerning European-wide cartels, the so-called Brussels I Regulation,¹⁶ now recast as the Brussels Ia Regulation¹⁷—according to a widely shared, though controversial view—usually offers claimants alternative courts of jurisdiction in several

First Experiences with Regulation 01/2003, Institutional Report, in *DIE MODERNISIERUNG DES EG-KARTELLRECHTS* 375, 388 (Margit M. Karollus & Heribert F. Koeck eds., 2008) (1999–2007: average time of cartel cases 46.5 months); Massimo Motta, *On Cartel Deterrence and Fines in the European Union*, 29 *EUR. COMPETITION L. REV.* 209, 211 (2008). However, some have estimated shorter durations. See Memorandum, Eur. Comm'n, Question & Answer on the Leniency Policy 3 (Feb. 13, 2002) (Memo/02/23) (averaging 2–3 years duration); Maarten Pieter Schinkel, *Effective Cartel Enforcement in Europe*, in *THE MORE ECONOMIC APPROACH TO EUROPEAN COMPETITION LAW* 131, 134 (Dieter Schmidtchen et al. eds., 2007) (averaging 26.7 months). With the recent proliferation of settlements in cartel cases in the European Union, it is, however, to be expected that procedural times will decrease, even if the first settled cases lasted considerably longer than two years.

¹⁴ If interest is available, the respective claims can easily be twice the overcharge damages in the case of a long-lasting cartel. See Till Schreiber, *Strategische Überlegungen bei der gerichtlichen Durchsetzung von kartellrechtlichen Schadensersatzansprüchen* 14, www.studienvereinigung-kartellrecht.de/downloads/forum-kartellrecht/outline-schreiber.pdf.

¹⁵ Cf. MARK BREALEY & NICHOLAS GREEN, *COMPETITION LITIGATION: UK PRACTICE AND PROCEDURE* ¶¶ 5.02–5.05 (2010).

¹⁶ Council Regulation (EC) No. 44/2001, 2001 O.J. (L 12) 1 [hereinafter Brussels I Regulation].

¹⁷ Regulation (EU) No. 1215/2012, 2012 O.J. (L 351) 1 [hereinafter Brussels Ia Regulation]. This new version of the Brussels I Regulation applies as of January 10, 2015. *Id.* art. 81. For an overview of the amendments, see Fabien Cadet, *Main Features of the Revised Brussels I Regulation*, 2013 *EuZW* 218; Tanja Domej, *Die Neufassung der EuGVVO—Quantensprünge im europäischen Zivilprozessrecht*, 78 *RABELS ZEITSCHRIFT FÜR AUSLÄNDISCHES UND INTERNATIONALES PRIVATRECHT* [RABELSZ] 508 (2014); Tarec Alio, *Die Neufassung der Brüssel I-Verordnung*, 2014 *NEUE JURISTISCHE WOCHENSCHRIFT* [NJW] 2395.

Despite a renumbering of Articles, the substantive issues discussed with respect to claims for damages in competition law have not changed. Cf. Manuel Kellerbauer & Olaf Weber, *Joint and Several Liability for Fines Imposed Under EU Competition Law: Recent Developments*, 2014 *EuZW* 688, 692 n.46 (in the context of recovery claims for fines between jointly and severally liable parties).

Member States.¹⁸ Building on that, the Rome II Regulation¹⁹ roughly speaking allows plaintiffs to base their claims against all cartel members on the law of the Member State where they file the action.²⁰ This legislation has fostered a kind of competition among national fora, the decisive question being which offers the best prospects for claimants.²¹ In case of transatlantic cartels, claimants may furthermore decide to sue in the United States.²²

¹⁸ See RICHARD WHISH & DAVID BAILEY, *COMPETITION LAW* 329–30 (8th ed. 2015). First, a company can generally be sued in the Member State where it is domiciled. Brussels Ia Regulation arts. 4(1), 63(1) (formerly Brussels I Regulation arts. 2(1), 60(1)). Second, a cartel member can be sued in the place where the harmful event occurred, i.e., either where the event that gave rise to the harm occurred, the courts of the state of this place having jurisdiction to award damages for all the harm caused, or where the harm arose, the courts of that state having jurisdiction only with respect to the damage caused in that state. Brussels Ia Regulation, art. 7(2) (formerly Brussels I Regulation, art. 5(3)); Case C-68/93, *Shevill v. Presse Alliance SA*, 1995 E.C.R. I-415, ¶ 33. Third, if cartel members are domiciled in different EU countries, Brussels Ia Regulation, art. 8(1) (formerly Brussels I Regulation, art. 6(1)) allows a claimant to sue all the cartel members in the courts of the state where (at least) one cartel member is domiciled, provided that all claims are so closely connected that it is reasonable to hear and determine them together—which is often considered to be the case with cartel damages. See Case C-352/13, *Cartel Damage Claims (CDC) Hydrogen Peroxide SA v. Akzo Nobel NV*, ECLI:EU:C:2015:335 (ECJ May 21, 2015); Anthony Maton et al., *The Effectiveness of National Fora for the Practice of Antitrust Litigation*, 2 J. EUR. COMP. L. & PRAC. 489 (2011); see also *Provimi Ltd. v. Aventis Animal Nutrition SA*, 2003 E.C.C. 29, ¶¶ 45–47; *Cooper Tire & Rubber Co. v. Shell Chems. UK Ltd.*, [2009] EWHC 2609 (Comm), ¶ 34, ¶ 64; confirmed in *Cooper Tire Rubber & Rubber Co. v. Dow Deutschland Inc.* [2010] EWCA Civ864 ¶ 44. *Kemira Chems. OY v. CDC Project 13 SA*, No. 200 156 295/01, ECLI:NL:GHAMS:2015:3006 (Court of Amsterdam July 21, 2015), deep link.rechtspraak.nl/uitspraak?id=ECLI:NL:GHAMS:2015:3006. The details, however, are in dispute, see Jürgen Basedow & Christian Heinze, *Kartellrechtliche Schadensersatzklagen im europäischen Gerichtsstand der Streitgenossenschaft*, in RECHT ORDNUNG UND WETTBEWERB, 63, 69–70 (Stefan Bechtold et al. eds., 2011); Zheng Sophia Tang, *Multiple Defendants in the European Jurisdiction Regulation*, 34 EUR. L. REV. 80 (2009).

¹⁹ Regulation (EC) No 864/2007, 2007 O.J. (L 199) 40 [hereinafter Rome II].

²⁰ Under certain conditions, Art. 6(3)(b) Rome II allows a plaintiff who concentrates his actions against all cartel members in one court pursuant to Brussels Ia Regulation art. 8(1) (formerly Brussels I Regulation art. 6(1)) to base all his claims on the law of the Member State where he files the action (lex fori). See also *supra* text accompanying note 18. Again, the details are unresolved. See generally BREALEY & GREEN, *supra* note 15, ¶¶ 6.08, 6.14–6.18; Peter Mankowski, *Der europäische Gerichtsstand der Streitgenossenschaft aus Art. 6 Nr. 1 EuGVVO bei Schadensersatzklagen bei*, WuW, Oct. 5, 2012, at 947–48. Before Rome II entered into force, the private international laws of the Member States applied. In this respect, the lower regional court of Düsseldorf recently decided that German international private law led to a similar result. See LG Düsseldorf, Judgment of Nov. 19, 2015 (Az. 14d O 4/14), 2016 NZKART 88; Andreas Grünwald & Jens Hackl, *Mosaikprionzip adé?—Anwendbares Recht bei Schadensersatzklagen gegen multinationale Kartelle—Das Autoglasurteil des LG Düsseldorf*, 2016 NZKART 112, 112–16.

²¹ See Neumann, *Klagewelle: Kartell-Geschädigte suchen das beste Gericht in Europa*, 14 JUVE 87 (2011); WHISH & BAILEY, *supra* note 18, at 330.

²² Claims for damages can be brought in the United States insofar as the cartel had effects there that were more than remote or indirect in nature. For in-depth analyses, see John M. Connor & Darren Bush, *How to Block Cartel Formation and Price Fixing: Using Extraterritorial Application of the Antitrust Laws as a Deterrence Mechanism*, 112 PENN. ST. L. REV. 813 (2008); Max Huffman, *A Standing Framework for Private Extraterritorial Antitrust Enforcement*, 60 SMU L. REV. 103 (2007).

Against this background, from a practitioner's as well as from a public policy perspective, it is essential to understand how major legal systems deal with interest and inflation in the context of antitrust damage claims, what the consequences are for recoverable damage amounts, and whether the approaches are economically sound. This topic is, however, usually neglected in the literature, probably because of the rather complex law on interest in many jurisdictions. While at least a few authors—often in a rather supplementary way—discuss interest on cartel damages with a single national jurisdiction,²³ comparative approaches are scarce,²⁴ and no study combines thorough comparative and quantitative analyses.

This article attempts to narrow the research gap by concentrating on damages of direct cartel purchasers,²⁵ which are at the heart of the private enforcement debate. However, our analysis and findings concerning the role of interest and inflation apply to other antitrust cases as well.

I. DETERMINANTS OF CARTEL DAMAGES

A hard core cartel, i.e., a group of firms that coordinate explicitly to raise market price, may increase the market price up to the monopoly level and lower the cartel members' incentives to innovate, thereby reducing consumer as well as total welfare substantially. Hard-core cartels are therefore illegal per se.

²³ For the United States, see Lande, *Are Antitrust "Treble" Damages Really Single Damages?*, *supra* note 12; ANTITRUST MODERNIZATION COMMISSION, REPORT AND RECOMMENDATIONS 243–44, 248–50 (2007) [hereinafter AMC REPORT]. See generally Knoll, *supra* note 12; Robert M. Lloyd, *Discounting Lost Profits in Business Litigation: What Every Lawyer and Judge Needs to Know*, 9 TRANSACTIONS: TENN. J. BUS. L. 9 (2007). For Germany, see HANS PHILIP LOGEMANN, DER KARTELLRECHTLICHE SCHADENSERSATZ 265–72 (2009); Till Schreiber, *Praxisbericht Private Durchsetzung von kartellrechtlichen Schadensersatzansprüchen*, 2 KÖLNER SCHRIFT ZUM WIRTSCHAFTSRECHT [KSzW], 37, 39 (2011). For France, see Nathalie Jalabert-Doury, *Chapter 17: France*, in THE INTERNATIONAL HANDBOOK ON PRIVATE ENFORCEMENT OF COMPETITION LAW 316, 327 (Albert A. Foer & Jonathan W. Cuneo eds., 2010) [hereinafter FOER & CUNEO]. For European competition law, see CLIFFORD A. JONES, PRIVATE ENFORCEMENT OF ANTITRUST LAW IN THE EU, UK AND THE USA 231 (1999).

²⁴ The only, though very concise, comparative contributions of which we are aware are DENIS WAELBROECK ET AL., STUDY ON THE CONDITIONS OF CLAIMS FOR DAMAGES IN CASE OF INFRINGEMENT OF EC COMPETITION RULES: COMPARATIVE REPORT 85–87 (2004) [hereinafter ASHURST STUDY]; GERO MEESSEN, DER ANSPRUCH AUF SCHADENSERSATZ BEI VERSTÖßEN GEGEN DAS EU-KARTELLRECHT 537–40 (2011). In addition, there are some general treatments of the law on interest and inflation that also contain comparative analyses with contract and general tort law, most notably CHARLES PROCTOR, MANN ON THE LEGAL ASPECT OF MONEY (7th ed. 2012).

²⁵ Other parties that might suffer losses from a cartel include indirect purchasers downstream, input suppliers upstream, or suppliers of complementary products and their downstream customers.

Compensating the victim for losses caused by the defendant is a major goal of civil damages.²⁶ Thus, damage awards in a system of private antitrust enforcement must be based on a sound theory of harm to ensure that the award approximates the losses incurred in a reasonably correct way, whether or not compensatory damages are—in a second step—increased (e.g., trebled) to achieve a deterrent effect. The damages assessment involves two steps: measuring overcharge damages, and calculating the time value of money during the period between when the overcharge is paid and damages are awarded.

Generally speaking, the damages a hard-core cartel causes initially can be calculated as the difference between the actual cartel price and the estimated but-for price (the “overcharge”) multiplied by the affected sales volumes. Depending on the case at hand, additional factors may come into play, e.g., pass-on rates,²⁷ exchange rates or tax rate differences.²⁸ Various methods are available to estimate the overcharge.²⁹

However, in view of the often considerable time lag until compensation is obtained, awarding overcharge damages typically would not suffice to make the victim whole. The economics literature has noted the significance of pre-judgment interest as a component of damage claims.³⁰ Overcharge damages incurred in the past must be compounded to the present to account for the time value of money and inflation. Recommendations on which interest rate to use diverge, partly because of country-specific characteristics of the damages awarding procedure. The following general alternatives have been proposed:

²⁶ For the United States, see *Mitsubishi Motors v. Soler Chrysler Plymouth, Inc.*, 473 U.S. 614, 635 (1985); Robert H. Lande & Joshua P. Davis, *Benefits from Private Antitrust Enforcement: An Analysis of Forty Cases*, 42 U.S.F. L. REV. 879, 880–83 (2008). For the European Union, see Wouter P.J. Wils, *The Relationship Between Public Antitrust Enforcement and Private Actions for Damages*, 32 WORLD COMPETITION 3 (2009).

²⁷ On this issue, including econometric approaches to measure pass-on rates, see Rubinfeld, *supra* note 1, at 378, 388–91.

²⁸ Cento Veljanovski, *The Economics of Cartels* (Case Associates, Working Paper 2007), papers.ssrn.com/sol3/papers.cfm?abstract_id=975612.

²⁹ See OXERA, QUANTIFYING ANTITRUST DAMAGES: TOWARDS NON-BINDING GUIDANCE FOR COURTS 37–86 (2009) (prepared for the European Commission).

³⁰ Examples include Allan M. Feldman, *Discounting in Forensic Economics*, 3 J. FORENSIC ECON. 65 (1990); Franklin M. Fisher & R. Craig Romaine, *Janis Joplin's Yearbook and the Theory of Damages*, 5 J. ACCOUNTING, AUDITING & FIN. 145 (1990); R.F. Lanzillotti & A.K. Esquibel, *Measuring Damages in Commercial Litigation: Present Value of Lost Opportunities*, 5 J. ACCOUNTING, AUDITING, & FIN. 125 (1990); James M. Patell et al., *Accumulating Damages in Litigation: The Roles of Uncertainty and Interest Rates*, 11 J. LEGAL STUD. 341 (1982); John D. Taurman & Jeffrey C. Bodington, *Measuring Damage to a Firm's Profitability: Ex Ante or Ex Post?*, 37 ANTITRUST BULL. 57 (1992). For an overview, see Oxera, *Damaged Interest: The Choice of Discount Rate in Claims for Damages*, AGENDA, Sept. 2006, www.oxera.com/Oxera/media/Oxera/downloads/Agenda/Damaged-interest.pdf?ext=.pdf.

(1) the plaintiff's cost of capital, (2) the plaintiff's cost of equity, (3) the risk-free rate, or (4) the defendant's borrowing rate.³¹

Proponents of the latter two notice that in having to wait to receive the damages award, the plaintiff has, in effect (though unintentionally), invested in an asset where the payout is the overcharge damages plus "interest," where the interest rate is the rate of return on the asset. In determining the appropriate rate of return on this asset, and thus the appropriate rate of interest, an economist would start by assessing the riskiness of the asset's payout. One could then identify another asset with a similar risk profile for which the rate of return is known and use this rate as an estimate of the rate of return on the asset in question.

The rationale for using the risk-free rate as the interest rate arguably is that, as such, waiting for the damages award entails little or no risk to the plaintiff. But this overlooks that the defendant could have gone bankrupt prior to paying the award.³² The defendant's borrowing rate (for debt instruments of similar maturity to the length of time asset in question) accounts for such default risk. Generally the defendant's debt instruments have a similar risk profile to waiting for the damages award. From this perspective, they appear to provide an appropriate estimate of the interest rate to use in pre- and post-judgment interest calculations.

However, using the defendant's borrowing rate for pre- and post-judgment interest makes the defendant whole only in the sense that the overcharge damages are treated as if they were given as a loan on a free market. In fact, though, the plaintiff would most likely not have made such an investment if he had not been deprived of the overcharge. Ignoring this hypothetical fails to fulfill the purpose of compensatory damages, namely to put the defendant in the position he would have been in had the damaging event not occurred.³³

³¹ For detailed discussions of the merits and vulnerabilities of the alternatives, see Lanzillotti & Esquibel, *supra* note 30, at 132–38, Oxera, *supra* note 30, at 2–3; Roy J. Epstein, *Prejudgment Interest Rates in Patent Cases: Don't Compound an Error*, IPL NEWSL., Winter 2006, at 1.

³² Moreover, it (1) holds only before a limitation period is completed and (2) abstracts from the possibility that the body of evidence for proving the infringement and the extent of damages deteriorates over time. As to (2), it may indeed be plausible to say that in cartel cases, the body of evidence available to a plaintiff often improves in the time period immediately after the breakdown of the cartel, so that a certain waiting period before filing a claim for damages is not harmful for the plaintiff.

³³ On this goal of compensatory damages for English law, see *Livingstone v. Rawyards Coal Co.* (1880) 5 App Cas. 25, 39 ("I do not think there is any difference of opinion as to its being a general rule that, where any injury is to be compensated by damages, in settling the sum of money to be given for reparation of damages you should as nearly as possible get at that sum of money which will put the party who has been injured, or who has suffered, in the same position as he would have been in if he had not sustained the wrong for which he is now getting his compensation or reparation."); Gordon Blake et al., *England and Wales*, in INTERNATIONAL COMPETITION LITIGATION 123, 133, ¶ E-029 (Gordon Blanke & Renato Nazzini eds., 2012). For

Using the defendant's borrowing costs ties the plaintiff to the return of an investment that the cartel enticed him to make inadvertently and that will often not be rational.³⁴

Against this background, proponents of using the plaintiff's cost of capital argue that, had the injury not been incurred, the plaintiff would have invested the overcharge in its own business instead of granting (involuntarily) a credit to the defendant. In view of this (hypothetical) behavior but for the cartel, the appropriate interest rate is the plaintiff's cost of capital or cost of equity.

Whether one resorts to the defendant's borrowing costs or the plaintiff's cost of capital, from an economic point of view both suffer from the flaw that the rates proposed relate to the defendant's "average" loan and the plaintiff's "average" investment project, respectively. Any additional borrowing of the defendant as well as any additional investments the plaintiff may have made with the funds in question likely would have concerned marginal projects, the former with a higher³⁵ and the latter arguably with a lower than average return.³⁶

Finally, a mixture of both approaches is conceivable. For instance, one might start off with calculating interest at the defendant's borrowing rate and treat the incremental cost of capital incurred at the time of investment as a form of consequential damages.

The following comparative law analysis shows that economic discussions about the appropriate interest rate do not match legal practice. The legal systems we survey here prefer simplicity and easy measurability of statutory interest over economic accuracy: Interest on damages is calculated with standardized rates that are standardized accounts of the capital costs in the economy or of the plaintiff, and sometimes deliberately increased to incentivize quick payment. The rough rule of thumb approach is then fine-tuned

German law, see § 249(1) BGB, stating that a person who is liable in damages must restore the position that would exist if the circumstance obliging him to pay damages had not occurred; *see also* Hartmut Oetker, in *MÜNCHENER KOMMENTAR ZUM BGB*, § 249 BGB ¶¶ 16-22 (7th ed. 2016). For French law, see GENEVIÈVE VINEY, PATRICE JOURDAIN & SUZANNE CARVAL, *LES CONDITIONS DE LA RESPONSABILITÉ* 25, ¶ 249 (4th ed. 2013) ("principe de comparaison des situations antérieure et postérieure du fait dommageable").

³⁴ In particular, using defendant's borrowing costs for discounting privileges large solvent firms as defendants in relation to small, less-creditworthy firms as plaintiffs. For the latter, it would not be sensible economically to invest in the bonds of a firm that has lower costs of capital and lower borrowing costs than they have themselves. Generally, an investment has a negative present value and therefore should not be undertaken if its (annual) return is lower than the (annual) capital costs of the investor.

³⁵ Because borrowing costs will increase with the amount of outstanding debt capital.

³⁶ This assumes that the plaintiff has a basket of investment opportunities of which he selects the most promising until funds are exhausted. Note, however, that there may be uncertainty as to when, and how, business, investment opportunities or other conditions will eventuate.

with the potential to claim additional consequential damages (lost profits) on a case by case basis.

II. A COMPARATIVE SURVEY ON INTEREST AND INFLATION IN COMPETITION LAW ACTIONS FOR DAMAGES

A. THE LEGAL TOOLBOX

While the economics literature at least agrees that interest and inflation should be taken into account when awarding compensatory damages, competition law systems vary considerably in their treatment of non-contractual claims for cartel damages.³⁷ The “cost of time” can theoretically—in whole or in part—be offset with three instruments from the legal toolbox, which may appear in several forms and can be applied individually or in combination: (1) by granting interest, (2) by awarding consequential damages or resorting to other mechanisms with a de facto compensatory effect, and (3) by indexing damages for inflation.

B. THE ROLE OF INTEREST

As to the first instrument in the toolbox, while all jurisdictions analyzed in this article generally provide for pre-judgment interest on antitrust damages in one way or the other, the specific approaches vary greatly. Generally speaking, they can be located on a continuum between two textbook approaches.

On one end of the spectrum, the legislator may adopt a “legalistic” approach by excluding any judicial discretion: First, a particular formula for the (pre-judgment) interest rate may be specified by the statute. Notwithstanding, the interest rate may still be flexible. For example, a statutorily fixed mark-up may be added to a reference rate set by an independent institution. Second, a rather different legalistic approach excludes pre-judgment interest, but substitutes a generous right to compensatory damages (e.g., trebling).

On the other end of the spectrum, the legislator may choose a wholly discretionary approach, leaving virtually every aspect of pre-judgment interest to the discretion of the judge. A middle course between the two ends of the spectrum combines a statutory interest rate (fixed or flexible) with judicial discretion concerning the point in time from which interest runs.

³⁷ Direct cartel victims may try to claim contractual damages, too, and, at least in some EU countries often do so. Rainer Bechtold, *Der Referentenentwurf der 8. GWB-Novelle im Überblick*, BETRIEBS BERATER (BB) 3075, 3078 (2011). However, claims based on the general cartel prohibition offer decisive advantages for victims, in particular, joint and several liability of all cartel members and often extended limitation periods. That is why damage awards typically are not based on contractual claims.

All these approaches figure in our survey. Roughly speaking, the four approaches identified above can be found in German law, U.S. federal law, English law, and French law, respectively.

1. *The United States*

According to U.S. federal and state law, damages are in principle determined as of the time of the loss. For losses denominated in currency units, nominalism applies.³⁸ Nominalism means that a monetary obligation involves a payment of so many currency units that, if added together according to their nominal values, produce a sum equal to the amount of the debt, regardless of both their intrinsic and their functional value.³⁹ In other words, for the purpose of discharging legal obligations, the value of money is presumed constant—which has the advantage of convenience, avoiding the difficulty of inquiring into the relative economic value of goods over time, but implies the risk of under-compensation in an inflationary economy.⁴⁰ Therefore, with overcharge damages, the question arises as to how to deal with the devaluation of money over time.

U.S. federal and state law have abandoned the initial common law position not to award pre-judgment interest on damages.⁴¹ However, a new universal approach has not yet emerged. For this reason, it is important to recognize that antitrust claimants may proceed on different levels. Traditionally, civil antitrust litigation is predominantly federal, due, inter alia, to well-developed Supreme Court case law and the fact that actions based on federal law can be instituted in federal courts only, without any threshold jurisdictional amount.⁴² However, all U.S. states have antitrust laws, too. By now, most state antitrust statutes have language that is substantially identical to that of the Sherman Act, and even where they are not identically worded, state antitrust statutes are generally interpreted by the state courts to be consistent with federal law.⁴³ As a consequence, it is now common practice in private federal antitrust actions to assert a violation of state antitrust law as well.⁴⁴ The scope for interest differs across the two regimes, but both regimes are extremely restrictive.

³⁸ PROCTOR, *supra* note 24, ¶ 9.21 et seq., at 268–69.

³⁹ *Id.* ¶ 9.09, at 260.

⁴⁰ KENNETH L. KARST & KEITH S. ROSENN, *LAW AND DEVELOPMENT IN LATIN AMERICA* 442 (1975). For further details including the development of nominalism, see PROCTOR, *supra* note 24, ¶¶ 9.00–9.23, at 255–74.

⁴¹ Duane E. Clapp Jr., *Prejudgment Interest in Tort Cases*, 51 *INS. COUNS. J.* 73 (1984).

⁴² Lee Loevinger, *Defending Antitrust Lawsuits*, in 24 *AM. JUR. TRIALS* 1, § 26 (1977) (Oct. 2016 Update).

⁴³ AMC REPORT, *supra* note 23, at 185.

⁴⁴ Loevinger, *supra* note 42, § 26 n.87.

a. Federal Law

Insofar as claims for damages are based on federal antitrust law, pre-judgment interest is generally not available.⁴⁵ This is justified as being consistent with the traditional rule in tort lawsuits that pre-judgment interest is unavailable where damages are not readily quantifiable (“liquidated”) at the time of injury.⁴⁶

Under certain exceptional conditions, the court may award simple interest on actual (not treble)⁴⁷ damages from the date of service of the plaintiff’s pleading up to the date of judgment or for any shorter period therein pursuant to Section 4 of the Clayton Act. This provision is supposed to discourage opportunistic behavior that aims at delaying the proceedings.⁴⁸ However, the conditions⁴⁹ are strict and interpreted very narrowly in practice. It appears that to date no court has awarded pre-judgment interest to a successful plaintiff in a cartel case.⁵⁰

Interestingly, if the U.S. government seeks treble damages based on 15 U.S.C. § 15a for its own injury, the law governing pre-judgment interest is more generous. The court, pursuant to a motion, may then award pre-jud-

⁴⁵ LOGEMANN, *supra* note 23, at 193; Franklin M. Fisher, *Economic Analysis and Antitrust Damages*, 29 *WORLD COMPETITION* 383, 387 (2006); Lande, *Are Antitrust “Treble” Damages Really Single Damages?*, *supra* note 12, at 130; Robert H. Lande, *Five Myths About Antitrust Damages*, 40 *U.S.F. L. REV.* 651, 652 (2006) [hereinafter Lande, *Five Myths About Antitrust Damages*].

⁴⁶ AMC REPORT, *supra* note 23, at 249 (citing *Wickham Contracting Co. v. Local Union No. 3, Int’l Bhd. of Elec. Workers*, 955 F.2d 831, 835 (2d Cir. 1992)).

⁴⁷ 2A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW*, ¶ 393a, at 391 (4th ed. 2014).

⁴⁸ AREEDA & HOVENKAMP, *supra* note 47, ¶ 393a, at 391; W. Joseph Bruckner & Matthew R. Salzwedel, *Chapter 11: Plaintiffs’ Remedies*, in FOER & CUNEO, *supra* note 23, at 199, 207.

⁴⁹ The language regarding pre-judgment interest in § 4 of the Clayton Act, 15 U.S.C. § 15(a), is:

In determining whether an award under this section for any period is just in the circumstances, the court shall consider only

(1) whether such person or the opposing party, or either party’s representative, made motions or asserted claims or defenses so lacking in merit as to show that such party or representative acted intentionally for delay, or otherwise acted in bad faith;

(2) whether, in the course of the action involved, such person or the opposing party, or either party’s representative, violated any applicable rule, statute, or court order providing for sanctions for dilatory behavior or otherwise providing for expeditious proceedings; and

(3) whether such person or the opposing party, or either party’s representative, engaged in conduct primarily for the purpose of delaying the litigation or increasing the cost thereof.

⁵⁰ AMC REPORT, *supra* note 23, at 249; Bruckner & Salzwedel, *supra* note 48, at 207; Lande, *Are Antitrust “Treble” Damages Really Single Damages?*, *supra* note 12, at 130 n.57; *see also Westport Taxi Serv. v. Westport Transit Dist.*, 664 A.2d 719, 741 n.46, 742 (Conn. 1995); Steven R. Kolodziej, *Prejudgment Interest on Antitrust Treble Damages in Connecticut After Westport Taxi Service, Inc. v. Westport Transit District*, 19 *QUINNIPIAC L. REV.* 209 (2000).

ment interest on actual damages for the same period that is available to private claimants not only if the conditions applying to private claimants are met, but also if “the award of such interest is necessary to compensate the United States adequately for the injury sustained by the United States.”⁵¹

In any case, an antitrust plaintiff may at least obtain an award of post-judgment interest pursuant to 28 U.S.C. § 1961.⁵² Post-judgment interest starts to run from the date the judgment is entered,⁵³ under current legislation at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the judgment.⁵⁴ Prior to December 21, 2000, the rate of interest was based on the coupon issue yield equivalent (as determined by the Secretary of the Treasury) of the average accepted auction price for the last auction of 52 week U.S. Treasury bills settled immediately preceding entry of the judgment. This implies that the effective date of new interest rates changed from quarterly to weekly on December 21, 2000.

Interest is computed daily to the date of payment and is compounded annually. In addition, some courts have allowed for post-judgment interest on recoverable attorney’s fees under certain conditions.⁵⁵

b. State Law

In contrast to federal law, state law may provide for pre-judgment interest on antitrust damages, albeit with important limitations.⁵⁶ In principle, all states allow for pre-judgment interest statutorily, but there are numerous differences concerning the claims and the time range covered as well as the interest rate.⁵⁷ Interest is awarded from an early point in time predominantly for contractual

⁵¹ 15 U.S.C. § 15a(4); *see also Westport Taxi*, 664 A.2d at 742 n.48.

⁵² *See, e.g., Bruckner & Salzwedel, supra* note 48, at 207; Lande, *Are Antitrust “Treble” Damages Really Single Damages?*, *supra* note 12, at 130.

⁵³ This applies also if the judgment is confirmed on appeal. Then, post-judgment interest is payable from the date when the district court’s judgment was entered. FED. R. APP. P. 37(a).

⁵⁴ The Director of the Administrative Office of the United States Courts distributes notice of that rate and any changes in it to all federal judges. 28 U.S.C. § 1961. A list of post-judgment interest rates from 1994 to 2011 is available online. *See* U.S. DIST. CT., DIST. OF UTAH, POST-JUDGMENT INTEREST RATES, www.utd.uscourts.gov/documents/judgpage.html.

⁵⁵ *See, e.g., Detroit v. Grinnell Corp.*, 575 F.2d 1009 (2d Cir. 1977); *see also* 54 AM. JUR. 2d *Monopolies & Restraints of Trade* § 684 (2016).

⁵⁶ LOGEMANN, *supra* note 23, at 193 n.228; Fisher, *supra* note 45, at 387.

⁵⁷ For instructive overviews, *see* CHRISTINA L. DIXON, A PRIMER ON PREJUDGMENT INTEREST (2009), www.jdsupra.com/post/fileServer.aspx?fileName=09d05a17-d8fd-4a8e-ad6a-51d9374472f.pdf; COZEN O’CONNOR, JURISDICTIONS COMPARATIVE CHART: PRE/POST JUDGMENT INTEREST 1–8 (Apr. 2008), www.cozen.com/cozendocs/Outgoing/charts/ChartOfTheMonth/Pre-Post%20Judgment%20Interest.pdf; *see also* Knoll, *supra* note 12; Tyler J. Bowles & W. Cris Lewis, *Prejudgment Interest: Issues and Case Studies*, LITIG. ECON. DIG., Fall 1999, at 110.

claims. Notwithstanding, most provisions also cover tort claims.⁵⁸ Concerning tort claims, several states also provide for interest from the time of the loss, either statutorily or, if the accrual of interest is subject to judicial discretion, according to the relevant case law.⁵⁹ However, it always appears to be required that claims are *liquidated*, meaning that the amount of damages is fixed or easily ascertainable.⁶⁰ Otherwise, an award of interest is available only from a later point in time, typically from the date of filing or the service of the claim and sometimes from the rejection of a settlement offer.⁶¹ In cartel cases, damages usually are not easily ascertainable, notably if the but-for price the victim would have paid in a competitive market must be estimated.

Moreover, in view of state antitrust laws providing only for equitable relief, treble damages, taxable costs, and reasonable fees,⁶² the Supreme Court of Connecticut has held that Connecticut's state law excludes pre-judgment interest, arguing that treble damages provide sufficient compensation and pointing to the parallel interpretation of the federal antitrust laws.⁶³

If—as an exception—interest should be justified from the time of the loss, it must be kept in mind that some states exclude interest on punitive damages.⁶⁴ Finally, it is noteworthy that defendants in the United States have argued that prejudgment interest should be reduced to account for advantages due to delayed tax payments. Lawyers consider this to be a promising argument against high interest payments.⁶⁵

c. Critique and Reform Initiatives

The current legal situation has generated strong criticism. Judge Easterbrook, dissenting in *Fishman v. Estate of Wirtz*, remarked:

Neither a count of judicial noses nor the observation that the Sherman Act was silent should obscure the fact that the time value of money works in defendants' favor. Antitrust cases can be long-lived affairs. . . . During all of the time, the defendants held the stakes and earned interest. . . . To deny pre-judgment interest is to allow the defendants to profit from their wrong Is this small beer, to be made up by the trebling of the damages? Hardly. Any erosion of the trebling on account of a denial of interest undermines the

⁵⁸ COZEN O'CONNOR, *supra* note 57, at 1–8.

⁵⁹ This applies to numerous states. See Clapp, *supra* note 41, at 73.

⁶⁰ Dixon, *supra* note 57, at 44; see also Jorge A. López, *Prejudgment and Postjudgment Interest: What's in a Name?*, 76 FLA. BAR J. 20 (2002). According to Knoll, this is the general common law rule. Knoll, *supra* note 12, at 294, 298.

⁶¹ COZEN O'CONNOR, *supra* note 57, at 1–8.

⁶² E.g., DEL. CODE ANN. tit. 6, § 2108 (2016); CONN. GEN. STAT. §§ 34–35 (2016).

⁶³ *Westport Taxi Serv., Inc. v. Westport Transit Dist.*, 664 A.2d 719, 740–42 (Conn. 1995).

⁶⁴ Dixon, *supra* note 57, at 41.

⁶⁵ *Id.* at 44.

deterrent force of the antitrust law. Trebling makes up for the fact that antitrust violations are hard to detect and prove.⁶⁶

Subsequently, others, especially Robert Lande, have repeatedly argued that the lack of pre-judgment interest severely erodes the effect of treble damages.⁶⁷ In 2007, the Antitrust Modernization Commission (AMC), examining whether the law on interest should be reformed, concluded that it should not be, in a seven to five vote. The arguments were: (1) treble damages adequately compensate for the general unavailability of pre-judgment interest in antitrust cases, (2) antitrust damages are usually not easily calculated at the time of injury, the rule disallowing pre-judgment interest thus being consistent with the traditional rule in tort lawsuits, and (3) some courts had effectively compensated for the lack of pre-judgment interest by including inflation and interest paid on borrowed capital in the determination of damages.⁶⁸

This reasoning appears debatable. First, the purpose of treble damages already is to offset restrictions flowing from the direct injury rule, the statute of limitations, and a low probability of detection. Whether they can also offset a lack of pre-judgment interest seems questionable. Second, the fact that antitrust damages are usually not easily calculated does not seem to be a convincing argument to refuse pre-judgment interest outright, given that prejudgment interest is regularly awarded in patent infringement cases in U.S. federal courts,⁶⁹ where damages are also often difficult to calculate. Third, it seems somewhat bizarre to retain a rule because some courts—but by far not all—have been willing to explore ways to circumvent it. Interestingly, the U.S. discussion has not yet taken a look across the Atlantic where the approaches to interest on antitrust damages are much more generous.

⁶⁶ *Fishman v. Estate of Wirtz*, 807 F.2d 520, 583–84 (7th Cir. 1986) (Easterbrook, J., dissenting).

⁶⁷ Lande, *Five Myths About Antitrust Damages*, *supra* note 45, at 652–57; Lande, *Are Antitrust “Treble” Damages Really Single Damages?*, *supra* note 12, at 130–36.

⁶⁸ AMC REPORT, *supra* note 23, at 249–50.

⁶⁹ In patent cases, an award of prejudgment interest is up to the discretion of the court, based on Section 284 of the Patent Act (35 U.S.C. § 284). The Supreme Court has held in *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 655–56 (1983), that the proper standard governing the award of prejudgment interest under § 284 is that it should ordinarily be awarded because “[a]n award of interest from the time that the royalty payments would have been received merely serves to make the patent owner whole, since his damages consist not only of the value of the royalty payments but also of the forgone use of the money between the time of infringement and the date of the judgment.” This means that prejudgment interest should be awarded under § 284 absent some justification for withholding such an award, e.g., where the patent owner has been responsible for undue delay in prosecuting the lawsuit. *Id.* at 657.

2. *The European Union*

a. Current Legal Situation

The law of the European Union currently does not provide for rules that (directly) govern claims for cartel damages and thus the laws of the Member States apply. However, with damages for violations of EU competition law, national law must comply with the guidelines set up by the European Court of Justice (ECJ). According to settled case law, the European cartel prohibition, Article 101 of the Treaty on the Functioning of the European Union (TFEU), confers a right on any individual to seek compensation for losses caused by a violation of Article 101 TFEU, comprising actual loss (*damnum emergens*) and loss of profit (*lucrum cessans*) plus interest.⁷⁰

It is up to the domestic legal system of each Member State to prescribe the detailed rules governing the extent of the damages for harm caused, provided that such rules are not less favorable than those governing similar domestic actions (principle of equivalence) and that they do not render practically impossible or excessively difficult the exercise of rights conferred by Community law (principle of effectiveness).⁷¹ According to the ECJ, an award of interest in accordance with the applicable national rules constitutes an essential component of compensation.

Many implications of this case law are still open questions. In particular, the ECJ has neither ruled on the point in time from which interest should be calculated—e.g., the date of the occurrence of the damage or only the date of the damages award—nor on whether simple interest suffices or whether there are any EU law standards regarding the interest rate.

In the view of former Advocate General Walter van Gerven, the European Commission, and some scholars, the ECJ's reasoning implies that EU law requires the national legislator to provide for interest from the time/date of occurrence of the damage.⁷² Others argue that alternative mechanisms which

⁷⁰ Case 271/91, *Marshall v. Southampton & South-West Hampshire Area Health Auth.*, 1993 E.C.R. I-4367, ¶¶ 31–32; Joined Cases C-295/04 to C-298/04, *Vincenzo Manfredi v. Lloyd Adriatico Assicurazioni SpA*, 2006 E.C.R. I-6619, ¶¶ 95, 97, 100; Case C-536/11, *Bundswettbewerbshilfe v. Donau Chemie AG*, ECLI:EU:C:2013:366, ¶ 24 (ECJ June 6, 2013).

⁷¹ *Manfredi*, 2006 E.C.R. I-6619, ¶¶ 61–64; Case C-453/99, *Courage Ltd. v. Crehan*, 2001 E.C.R. I-6297, ¶ 29; Case C-360/09, *Pfleiderer AG v. Bundeskartellamt*, 2011 E.C.R. I-5161, ¶¶ 24, 30; *Donau Chemie*, ECLI:EU:C:2013:366, ¶ 24.

⁷² Case C-128/92, *H.J. Banks & Co. v. British Coal Corp.*, 1994 E.C.R. I-1209, ¶ 54 (Opinion of Advocate Gen. van Gerven); Eur. Comm'n, *Commission Staff Working Paper Accompanying the White Paper on Damages Actions for Breach of the EC Antitrust Rules*, SEC(2008) 404, ¶¶ 185–187; JONES, *supra* note 23, at 231 et seq.; see also FRIEDRICH W. BULST, *SCHADENSERSATZANSPRÜCHE DER MARKTGEGENSEITE IM KARTELLRECHT* 264 (2006); Schreiber, *supra* note 23.

effectively compensate for the “cost of time” are equally acceptable, pointing to the occasional practice (in antitrust cases) of awarding consequential damages for lost business opportunities (lost profits) that implicitly make up for the deprivation of funds, so that additional (statutory) interest would result in overcompensation.⁷³

b. The Competition Law Damages Directive

It appears that, for future cases, the European legislature has resolved the controversy with the directive on certain rules governing actions for damages under national law for violations of the competition law provisions of the Member States and of the European Union (Damages Directive). The Damages Directive has been in force since December 2014⁷⁴ but includes a transposition period of two years for the Member States to bring into force the laws, regulations, and administrative provisions necessary to comply with the Damages Directive, so that Member States have until December 27, 2016 to comply.⁷⁵ Article 22(1) provides that Member States shall ensure that the national measures adopted to comply with substantive provisions of this Directive do not apply retroactively, meaning that only those cartel damages that are caused after a certain Member State’s reform will be subject to the provisions.⁷⁶

⁷³ See Eckart Bueren, *Die Berücksichtigung der Anspruchsentwertung im Zeitablauf bei Schadensersatz wegen Verstößen gegen EU-Kartellrecht*, 77 RABELSZ 504, 535–43 (2013).

⁷⁴ Directive 2014/104/EU of the European Parliament and of the Council of 26 November 2014 on Certain Rules Governing Actions for Damages Under National Law for Infringements of the Competition Law Provisions of the Member States and of the European Union, 2014 O.J. (L 349) 1 [hereinafter EU Damages Directive]. For a brief summary of the legislative history as well as the main provisions of the EU Damages Directive, see Roger Gamble, *The European Embrace of Private Enforcement: This Time with Feeling*, 35 EUR. COMPETITION L. REV. 469, 475–79 (2014); in more detail Christopher Weidt, *The Directive on Actions for Antitrust Damages after Passing the European Parliament*, 35 EUR. COMPETITION L. REV. 438 (2014); from the point of view of Commission officials, see Daniele Calisti et al., *The Directive in Antitrust Damage Actions: Towards a Stronger Competition Culture in Europe, Founded in the Combined Power of Public and Private Enforcement of the EU Competition Rules*, 2014 Neue Zeitschrift für Kartellrecht [NZKART] 466–73.

⁷⁵ EU Damages Directive, *supra* note 74, art. 21(1).

⁷⁶ By contrast, any other (i.e., in particular procedural) national measures shall not apply to actions for damages of which a national court was seized prior to the date of entry into force of the Damages Directive (Art. 22(2)), meaning that, insofar as procedural reforms are concerned, the Directive allows for applying new (national law) provisions to all cartel cases that have been instituted after the Directive has entered into force. National law might furthermore require that national procedural law reforms apply, as soon as they are enacted, only to cases that are instituted after the entry into force of the respective reform.

Inter alia,⁷⁷ the new Directive specifies the *acquis communautaire*⁷⁸ on the scope of damages (Articles 1, 3, and 4). While Art. 3(2) of the Damages Directive confines itself to repeating the established case law, recital 12, after highlighting the Directive's deference to it, also explains what the legislature understands the ECJ's case law to mean:

Anyone who has suffered harm caused by such an infringement can claim compensation for actual loss (*damnum emergens*), for gain of which that person has been deprived (loss of profit or *lucrum cessans*), plus interest, irrespective of whether those categories are established separately or in combination in national law. The payment of interest is an essential component of compensation to make good the damage sustained by taking into account the effluxion of time and should be due from the time when the harm occurred until the time when compensation is paid, without prejudice to the qualification of such interest as compensatory or default interest under national law and to whether effluxion of time is taken into account as a separate category (interest) or as a constituent part of actual loss or loss of profit. It is incumbent on the Member States to lay down the rules to be applied for that purpose.

The legislature thereby makes clear that, at least as soon as the Directive's transposition period expires, a cartel victim shall receive compensation for "the cost of time" from the occurrence of the loss,⁷⁹ which, however, need not

⁷⁷ Other reforms were and to some degree still are more controversial. In particular, the Directive prescribes a form of discovery ("disclosure of evidence," EU Damages Directive, *supra* note 74, arts. 5–8), which is sometimes thought to entail a marked shift in Member States with civil law systems. See generally Stephen Wisking et al., *European Commission Finally Publishes Measures to Facilitate Competition Law Private Actions in the European Union*, 35 EUR. COMPETITION L. REV. 185, 187 (2014). As a general rule, national courts shall not order a party or a third party to disclose in any form leniency statements or settlement submissions. EU Damages Directive, *supra* note 74, art. 6(6). Moreover, the Damages Directive harmonizes several important features of private enforcement, in particular limitation periods (art. 10); joint and several liability with a liability privilege for leniency applicants (art. 11); the passing-on defense (arts. 12–15) (see Magnus Strand, *Indirect Purchasers, Passing-on and the New Directive on Competition Law Damages*, 10 EUR. COMPETITION J. 361 (2014)); availability of consensual dispute resolution (art. 18); and a presumption of harm (art. 17(2)). In addition, art. 9(2) of the Damages Directive mandates a moderate form of mutual recognition of violation decisions by providing that Member States shall ensure that final violation decisions in another Member State may be presented before their national courts as at least *prima facie* evidence of a violation. Originally, the Commission had proposed an EU-wide binding character of violation decisions from all Member States.

⁷⁸ The *Acquis Communautaire* or Community *acquis* is the accumulated body of EU law, i.e., of common rights and obligations that bind all the Member States together within the European Union. It is constantly evolving and comprises, inter alia, the content, principles, and political objectives of the Treaties, the legislation adopted in application of the treaties, and the case law of the Court of Justice. The EU *acquis* takes precedence over national law if there is a conflict and may have direct effect in the Member States.

⁷⁹ Interestingly, the European Parliament's draft report had advocated deleting the requirement to provide for interest from the time of the loss and instead proposed to grant interest only "where appropriate." See EUR. PARL., COMM. ECON. & MONETARY AFF., DRAFT REPORT ON THE PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON CERTAIN

necessarily be achieved by granting interest, endorsing the view that alternative effective mechanisms are equally acceptable. Importantly, the Directive will continue to leave the rate to be applied to the Member States. All this implies that existing divergences between the Member States' approaches towards interest and inflation will arguably persist to a considerable, though smaller, extent even after the transposition period.

It should also be kept in mind that any substantive changes in the Member States' laws to comply with the Directive will not apply retroactively. This means that, given the usually considerable time span that elapses between when a cartel begins and an action for damages is adjudicated, the current national laws on interest will remain applicable for many years. In any case, the legislative reactions by the Member States to the impending Damages Directive are not fully known yet: Germany is about to transpose the Damages Directive with the ninth amendment of the Gesetz gegen Wettbewerbsbeschränkungen [GWB] [Act Against Restraints of Competition]. The Cabinet of the German Government approved a draft by the German Ministry for Economic Affairs and Energy on September 28, 2016, that does not affect the current law on interest in actions for damages against cartels.⁸⁰

France will likely make a first step to transpose the Directive with the bill for the "loi relatif à la transparence, à la lutte contre la corruption et à la modernisation de la vie économique," called loi Sapin II,⁸¹ which is pending in Parliament at the time of writing. Article 49 no. 1 of the bill authorizes the government to take, within six months after the publication of the act, all measures necessary to assure the transposition of the Damages Directive by way of an order. A draft ratification act shall be submitted to parliament three months before the publication of the order. The measures the government

RULES GOVERNING ACTIONS FOR DAMAGES UNDER NATIONAL LAW FOR INFRINGEMENTS OF THE COMPETITION LAW PROVISIONS OF THE MEMBER STATES AND OF THE EUROPEAN UNION, 2013/0185(COD), amend. 3, at 7; amend. 18, at 18 (Oct. 3, 2013). This would arguably have allowed for preserving the existing national approaches that we analyze in the following (Parts II.B.3.–5.) to an even greater extent, especially in France. The final version of this report did not retain this position but supported "payment of interest accruing from the time the harm occurred until compensation is paid," but "without prejudice to the existence or extent of the right to interest recognized under national law." EUR. PARL., COMM. ECON. & MONETARY AFF., REPORT ON THE PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON CERTAIN RULES GOVERNING ACTIONS FOR DAMAGES UNDER NATIONAL LAW FOR INFRINGEMENTS OF THE COMPETITION LAW PROVISIONS OF THE MEMBER STATES AND OF THE EUROPEAN UNION, A7-0089/2014, 9, 51–52, 60 (Feb. 4, 2014).

⁸⁰ On the ninth amendment of the GWB, see *supra* note 6. In a similar vein, Austria, which has introduced interest from the occurrence in 2013, i.e., already before the adoption of the EU Damages Directive, will not change its law on interest as part of the amendment that is to transpose the EU Damages Directive on the draft amendment. See *supra* note 6.

⁸¹ See Noëlle Lenoir & Alice Jacquin, *Le projet de loi Sapin II: de la lutte anticorruption comme champ prioritaire de conformité*, LA SEMAINE JURIDIQUE ENTREPRISE ET AFFAIRES, n° 18 – 5 Mai 2016, 9.

might take are not known at the time of writing. Several scholarly treatments on the necessary reforms in French law do not, however, mention any changes in the law on interest with respect to cartel damages.⁸²

Against this background, the following overview sketches Member States' national laws as they stand at the time of writing.

3. England and Wales

a. Simple Interest

In English law, the court assesses damages with reference to the time of the loss.⁸³ Inflation is usually not considered explicitly.⁸⁴ Therefore, a plaintiff must rely on interest to compensate for the deprivation of funds. Interest is available pursuant to statutory law and/or based on common law.

The provisions governing statutory interest formally depend on the court involved. A cartel victim may bring an action for damages either in the Chancery Division of the High Court of Justice (in some cases also in the Commer-

⁸² Cf. Rafael Amaro, *La transposition de la directive 2014/104/UE en droit français*, CONCURRENTES REV., May 2015 (n° 2-2015), at 21–24 (2015); Müller, *Die Umsetzung der Richtlinie 2014/104/EU: Eine effektive Stärkung von Kartellopfen in Frankreich*, WUW 2016, 472–78. But see Muriel Chagny, *Quelle(s) réforme(s) et adaptation(s) du droit français? Approche critique et prospective*, CONCURRENTES REV., July 2014 (n° 3-2014), at 59–70, 65–66 ¶ 229 (stating that in principle the French law on interest is compatible with the Damages Directive but that in practice the significance of interest is often underestimated).

⁸³ This may be important if the claimant—as in the *Crehan* case—was driven out of the market by illegal conduct. The damages as assessed at the time of its occurrence can be equated with the (going concern) value of the business at the time of its closing; the claimant receives interest (only) on that sum, see BREALEY & GREEN, *supra* note 20, ¶ 17.20; *Crehan v. Inntrepreneur Pub Co. (CPC)*, [2003] EWHC (Ch) 1510, [267]. To better account for profits the claimant would have made if he could have continued the business successfully, Justice Park in *Crehan* assessed damages at the time of the trial. The Court of Appeal reversed, [2004] EWCA (Civ) 637, ¶¶ 173–180. The precedential value of the latter judgment is however in dispute. While Whish and Bailey consider it to be generally valid, Brealey and Green, and George Cumming and Mirjam Freudenthal, argue that the Court of Appeal's decision instead resulted from Justice Park not having sufficiently taken account of future uncertainties when awarding damages for lost profits. WHISH & BAILEY, *supra* note 18, at 334; BREALEY & GREEN, *supra*; GEORGE CUMMING & MIRJAM FREUDENTHAL, CIVIL PROCEDURE IN EU COMPETITION CASES BEFORE THE ENGLISH AND DUTCH COURTS 251 et seq. (2010). In the same vein, Proctor argues that, although the case law is unclear, courts may consider inflation up to the time of judgment. PROCTOR, *supra* note 24, ¶¶ 10.18–10.21. Apart from this, Brealey and Green rightly observe that, in principle, both approaches should yield the same or very similar results because the going concern value at the time of the loss should equal the time- and risk-discounted value of expected future profits. BREALEY & GREEN, *supra*, ¶ 17.20 n.31.

⁸⁴ *Tate & Lyle Food & Distrib. Ltd. v. Greater London Council* (1982) 1 WLR 149 (156); but see PROCTOR, *supra* note 24, ¶¶ 10.18–10.21, 10.24; references cited *supra* note 83.

cial Court of the Queen's Bench Division)⁸⁵ or in the Competition Appeal Tribunal (CAT).⁸⁶ Both courts have essentially the same fivefold discretion, albeit pursuant to different provisions:⁸⁷

- (1) whether to award simple interest,
- (2) on all or any part of the damage,
- (3) for all or any part of the period between the date when the cause of action arose with loss which also then accrued⁸⁸ and the judgment or, where payments have been made before that time, the date of payment,
- (4) at such rate as the court thinks fit or as rules of the court may provide, and
- (5) possibly calculated at different rates for different periods.⁸⁹

⁸⁵ Civil Procedure Rules (CPR), Rule 30.8; WHISH & BAILEY, *supra* note 18, at 329; Daniel Beard, *Damages in Competition Law Litigation*, in TIM WARD & KASSIE SMITH, *COMPETITION LITIGATION IN THE UK*, ¶ 7-009 (2005).

⁸⁶ Until the Consumer Rights Act 2015, a claimant could approach the CAT only in case of a “follow-on” action, within a two-year period after the cartel had been established in a legally valid way by the Competition and Markets Authority or the European Commission. *See* BREALEY & GREEN, *supra* note 15, ¶¶ 1.37–1.38; Simon Holmes & Phillip Girardet, *United Kingdom*, in *THE INTERNATIONAL COMPARATIVE LEGAL GUIDE TO: CARTELS AND LENIENCY 2016* § 2.1 (Global Legal Group ed., 2015). While the CAT could grant permission to bring an action even when appeals were still pending, a UK-claimant seeking such a permission risked other litigants bringing an action in a different EU Member State, in which case art. 27 reg. 44/2001 would deprive the CAT of jurisdiction. *See* WHISH & BAILEY, *Competition Law* 319 (7th ed. 2012). This problem disappeared in October 2015, with the Consumer Rights Act 2015 allowing the CAT to hear follow-on claims, too. *See* WHISH & BAILEY, *supra* note 18, at 342. Furthermore, the Act has extended the limitation period in the CAT to match that of the High Court, i.e., from two to six years. *See supra* note 6. Against this background, it is expected that claims for damages will be brought to a much larger extent than in the past before the CAT rather than the High Court.

⁸⁷ For the High Court: Senior Courts Act 1981, c. 54, § 35A, *see* MCGREGOR ON DAMAGES, ¶ 18–031 n.114 (19th ed. 2014) [hereinafter MCGREGOR]; CUMMING & FREUDENTHAL, *supra* note 83, at 252–53.

For the CAT, the applicable rules depend on the time when a case commenced in the Tribunal, due to the recent reform of the CAT rules following the Consumer Rights Act 2015. *See supra* notes 6 and 86. The relevant rule on interest did not incur substantive change. *See* Competition Appeal Tribunal Rules 2015 (SI 2015 No.1648) R. 105(3)(a)–(b) (concerning cases that commenced after Oct. 1, 2015); Competition Appeal Tribunal Rules 2003 (Statutory Instrument 2003 No. 1372) R. 56(2)(a)–(b) (concerning cases that commenced before Oct. 1, 2015; same rule as post Oct. 1, 2015). On the CAT rules, *see* Ben Rayment, *Practice and Procedure Before the Competition Appeal Tribunal*, in WARD & SMITH, *supra* note 85, ¶ 4-146; CUMMING & FREUDENTHAL, *supra* note 83, at 253.

⁸⁸ The latter qualification is not explicit in the wording of the respective provisions, *supra* note 87. But both rely on the assumption that the cause of action coincides with the occurrence of the damages. For this reason, interest can be awarded only from the occurrence of the damage. *See* MCGREGOR, *supra* note 87, ¶¶ 18-078, 18-080; MEESSEN, *supra* note 24, at 537. This also holds (except for personal injury) if the damage occurred gradually. Then, interest in principle runs from the occurrence of the respective part of the total damages. Notwithstanding, in particular if damages are inflicted continually over a longer period, the courts resort to simplifying methods. *See* MCGREGOR, *supra*, ¶¶ 18-084 to 18-086.

⁸⁹ MCGREGOR, *supra* note 87, ¶ 18-031; MEESSEN, *supra* note 24, at 537. The power to award different rates for different periods implies the possibility to reduce interest for certain periods

As a rule, simple interest is awarded from the occurrence of the loss, i.e., the earliest possible point in time.⁹⁰ Concerning the interest rate, there is no generally accepted practice, apart from the CAT-Rules stating that it shall not exceed the judgment debts rate,⁹¹ which is currently 8 percent.⁹² However, the courts resort to standard approaches depending on the kind of damage and the area of life affected.⁹³ The common guiding idea is to compensate the plaintiff for having been deprived of funds.⁹⁴ Notwithstanding, the divergences are historically rather than rationally motivated.⁹⁵

While there is arguably not yet a settled practice for awards in competition law actions for damages, and in particular no supreme judicial authority on the issue,⁹⁶ the Commercial Court's usual approach in commercial and business law cases appears to have become the relevant standard. It has been used in the three judgments that have awarded competition law damages so far⁹⁷

and/or to award interest at a variable rate; on both issues see MCGREGOR, *supra* note 87, ¶ 18-096 to 18-135.

⁹⁰ CLAUDIUS GELZER, VERZUGS-, SCHADENS- UND BEREICHERUNGSZINS ¶ 168 (2010).

⁹¹ Competition Appeal Tribunal Rules 2015 (SI 2015 No.1648) R. 105(2); Competition Appeal Tribunal Rules 2003 (Statutory Instrument 2003 No. 1372) R. 56(2): "The rate specified in any Order made pursuant to section 44 of the Administration of Justice Act 1970"; Rayment, *supra* note 87, ¶ 4-146. On the reform of the CAT rules due to the Consumer Rights Act 2015, see *supra* notes 6 and 79.

⁹² The Judgment Debts (Rate of Interest) Order 1993 (Statutory Instrument 1993 No. 564 (L.2)); see also MCGREGOR, *supra* note 87, ¶¶18-105 to 18-107.

⁹³ See ANDREW TETTENBORN, THE LAW OF DAMAGES ¶ 10.75 (2003). For an overview, see Stephen Gerlis, *Interesting Facts About Interest*, L. SOC'Y GAZETTE (Oct. 18, 2007), www.lawgazette.co.uk/law/interesting-facts-about-interest/4479.article; Stephen Gerlis, *More Interesting Facts About Interest*, L. SOC'Y GAZETTE (Oct. 26, 2007), www.lawgazette.co.uk/law/more-interesting-facts-about-interest/4491.article. For a critical view, especially on the resulting uncertainty, see MCGREGOR, *supra* note 87, ¶ 18-105. Concerning non-personal injury, the courts distinguish whether a private individual or a businessperson is affected.

⁹⁴ *Sempra Metals Ltd. (formerly Metallgesellschaft Ltd) v. Inland Revenue Comm'rs*, [2005] EWCA (Civ) 389, [46]; MCGREGOR, *supra* note 87, ¶ 18-105; Gerlis, *Interesting Facts About Interest*, *supra* note 93; Gerlis, *More Interesting Facts About Interest*, *supra* note 93.

⁹⁵ MCGREGOR, *supra* note 87, ¶ 18-105.

⁹⁶ Cf. WHISH & BAILEY, *supra* note 18, at 334, 339-42; BREALEY & GREEN, *supra* note 15, ¶ 16.36. In contrast, there are numerous cases in which claims for damages were settled, sometimes with considerable payments. See, e.g., Barry Rodger, *Private Enforcement of Competition Law, the Hidden Story: Competition Litigation Settlements in the United Kingdom, 2000-2005*, 29 EUR. COMPETITION L. REV. 96 (2008); Barry Rodger, *Competition Law Litigation in the UK Courts: A Study of All Cases to 2004—Part III*, 27 EUR. COMPETITION L. REV. 341, 346 (2006).

⁹⁷ First, the approach was applied in the second instance in the Crehan case, probably the most famous action for damages in EU competition law. According to reports from practitioners, the Court of Appeal intended to award interest at 3.5 percentage points above the 1993 base rate (the time of the loss) up to the date of judgment. See BREALEY & GREEN, *supra* note 15, ¶ 17.20. Eventually, the High Court denied a right to damages. *Crehan v. Intntrepreneur Pub Co. (CPC)*, [2003] EWHC (Ch) 1510 upheld by the House of Lords, [2006] UKHL 38 (HL). More recently, the CAT awarded interest at the Bank of England base rate plus 2 percentage points on compensatory damages for a small local bus operator that had been driven out of the market by the incumbent's predatory pricing, leaving the calculation of the precise amount to the parties. *Travel Group PLC (in liquidation) v. Cardiff City Transp. Servs. Ltd.*, [2012] CAT 19, [415]. In

and has previously been adopted by other courts in cases of economic loss.⁹⁸ The approach is based on the premise that the interest rate should reflect the commercial value of money, measured by the credit costs of a plaintiff with the typical characteristics of the plaintiff at hand.⁹⁹ As a basic (“presumptive”) rule, the interest rate has commonly been set at 1 percent above a suitable base rate.¹⁰⁰ If this is shown to be too low, especially for small companies, about 2 to 3 percentage points are added to the base rate.¹⁰¹ Even in the Commercial Court, there is no uniform practice as to which interest rate is to be taken as the relevant base rate. Traditionally, courts resort to the Bank of England bank rate or base rate, formerly the minimum lending rate.¹⁰² This was also done in the three judgments on competition law damages mentioned above.¹⁰³ Alternatively, especially in cases that display a cross-border element, the (three-month) London Inter-Bank Offered Rate (LIBOR) has come into focus.¹⁰⁴

In addition, foreign interest rates have occasionally been used to reflect the circumstances of the parties, for instance the United States Prime rate or commercial credit rates in Switzerland and Germany.¹⁰⁵ This is the regular approach if judgment is given for a sum denominated in a foreign currency.¹⁰⁶

Albion Water Ltd. v. Dwr Cymru Cyfyngedig, [2013] CAT 6, [225]–[228], concerning an abusive margin squeeze as well as excessive and unfair pricing, the CAT awarded simple interest at the rate of 2 per cent over the base rate, again leaving the details of the calculation to the parties.

⁹⁸ LAW COMMISSION, PRE-JUDGMENT INTEREST IN DEBTS AND DAMAGES, 2004, HC 295, ¶ 3.12 (UK).

⁹⁹ See Tate & Lyle Food & Distrib. Ltd. v. Greater London Council, [1982] 1 W.L.R. 149 (HC) 153; MCGREGOR, *supra* note 87, ¶¶ 18-109, 18-112; OLIVER BRAND, DAS INTERNATIONALE ZINSRECHT ENGLANDS 71 (2002). It does not matter if no borrowing or investment decision was involved. See, e.g., Metal Box Co. v. Currys, [1988] 1 W.L.R. 175 (HC) 180B–C; MCGREGOR, *supra* note 87, ¶ 15–116.

¹⁰⁰ MCGREGOR, *supra* note 87, ¶ 18-113; Brand, *supra* note 99, at 72; see, e.g., Shearson Lehman Hutton Inc v. Maclaine Watson & Co., [1990] 3 All E.R. 723. See TETTENBORN, *supra* note 93, ¶ 10.75, for the special case of a refused encashment of a check, points to the Practice Note (Claims for Interest) (No. 2), [1983] 1 W.L.R. 377, of the Queen’s Bench Division of the High Court, recommending a “reasonable rate around or somewhat above base rate.”

¹⁰¹ CPR 16.4(2), annotation 6 (as cited in ATKINS ENCYCLOPEDIA OF COURT FORMS IN CIVIL PROCEEDINGS, RULES AND GUIDES, 2d ed., Civil Procedure 2011 issue, [904]). From the case law, see, e.g., Claymore Servs. Ltd. v. Nautilus Props. Ltd., [2007] EWHC (TCC) 805, [70]–[82]; from the literature, see MCGREGOR, *supra* note 87, ¶ 18-114; GELZER, *supra* note 90, ¶¶ 86, 289; see also BRAND, *supra* note 99, at 72 et seq.

¹⁰² GELZER, *supra* note 90, ¶¶ 85, 289.

¹⁰³ *Supra* note 97.

¹⁰⁴ MCGREGOR, *supra* note 87, ¶ 18-115; LAW COMMISSION, *supra* note 98, ¶ 3.12 n.9. Cf., e.g., Sempra Metals Ltd. (formerly Metallgesellschaft Ltd.) v. Inland Revenue Comm’rs, [2005] EWHC (Civ) 389; [2006] QB 37 [52]. See also BRAND, *supra* note 99, at 72; PETER WESSELS, ZINSRECHT IN DEUTSCHLAND UND ENGLAND 104 n.212 (1992). However, in Albion Water Ltd. v. Dwr Cymru Cyfyngedig, [2013] CAT 6, [225]–[228], the CAT explicitly rejected LIBOR, though the claimant had inter alia proposed this rate.

¹⁰⁵ MCGREGOR, *supra* note 87, ¶¶ 18-120 to 18-121.

¹⁰⁶ Gerlis, *More Interesting Facts About Interest*, *supra* note 93.

Importantly, the courts, including the CAT in the existing competition law damage judgments, simplify greatly with respect to the calculation of interest if the base rate fluctuated during the relevant period and/or if damages accrued gradually in commercial and business law cases.¹⁰⁷

It also should be noted that, despite the aforementioned standard approach, plaintiffs usually claim pre-judgment interest at the more attractive judgment debts rate of 8 percent.¹⁰⁸ This is for two reasons. First, an information brochure of the former¹⁰⁹ Her Majesty's Courts Service in 2007 recommended that potential plaintiffs claim interest of 8 percent,¹¹⁰ probably because the judgment debts rate is the maximum interest rate a plaintiff may be awarded in default judgments without judicial intervention.¹¹¹ The successor authority describes 8 percent to be the usual interest rate on its website.¹¹² Second, since the turn of the century, courts have increasingly relied on the judgment debts rate for calculating pre-judgment interest, inter alia, in business law cases.¹¹³ In view of the rigidity of the judgment debts rate¹¹⁴ and the resulting over-compensation, this has met considerable criticism¹¹⁵ and is regarded as an unfounded deviation from the usual method.¹¹⁶ In line with these arguments, the

¹⁰⁷ For example, interest on damages may be calculated on a yearly basis by aggregating the plaintiff's annual losses, assuming their accrual by the middle of the year, and calculating yearly interest on the aggregated sum, based on the average bank rate (minimum lending rate). See the plaintiff's approach accepted in *Tate & Lyle Food & Distribution Ltd. v. Greater London Council*, [1982] 1 WLR 149 (HC) 155–57; BRAND, *supra* note 99, at 72; MCGREGOR, *supra* note 87, ¶ 18-085. Concerning claims for damages that accrued continuously over a longer period (e.g., loss of income), either the full interest rate is applied from the mid-point of the time for which damages are awarded (see, e.g., *Albion Water Ltd.*, [2013] CAT at [227]; 2 Travel Group PLC (in liquidation) v. Cardiff City Transp. Servs. Ltd., [2012] CAT 19, [415] (each time leaving the precise calculation to the parties)), or the actual interest rate is halved and subsequently applied to the cumulated loss. See *Jefford v. Gee*, [1970] 2 QB 130; GELZER, *supra* note 90, ¶ 290.

¹⁰⁸ A limited empirical study can be found in the Law Commission Report, which, however, could only resort to data about the claims, not about the result of the proceedings. LAW COMMISSION, *supra* note 98, app. C. See generally GELZER, *supra* note 90, ¶ 292.

¹⁰⁹ On April 1, 2011, the former Her Majesty's Courts Service and the Tribunals Service were merged into an integrated agency, the Her Majesty's Courts and Tribunals Service, providing support for the administration of justice in courts and tribunals. See HM COURTS & TRIBUNALS SERV., www.justice.gov.uk/about/hmcts/.

¹¹⁰ HER MAJESTY'S COURTS SERV., EX302, HOW DO I MAKE A COURT CLAIM 6 (2010), nml.org.uk/Library/howtomakesmallcourtclaims.pdf.

¹¹¹ CPR 12.6(1); see also LAW COMMISSION, *supra* note 98, ¶¶ 3.6–3.9.

¹¹² Making a court claim for money: an introduction, www.direct.gov.uk/en/MoneyTaxAndBenefits/ManagingDebt/Makingacourtclaimformoney/DG_19563.

¹¹³ MCGREGOR, *supra* note 87, ¶¶ 18-104, 18-118; GELZER, *supra* note 90, ¶¶ 85, 287.

¹¹⁴ The judgment debts rate remained at 4% from its 19th century inception until 1971, when 7.5% was substituted, and then went to a high of 15%, which was reduced to the present rate in 1993. See MCGREGOR, *supra* note 87, ¶ 18–106.

¹¹⁵ LAW COMMISSION, *supra* note 98, ¶¶ 3.22–3.23.

¹¹⁶ MCGREGOR, *supra* note 87, ¶ 18-118; Elizabeth Repper, *Common Ways to Claim Interest*, PRACTICAL LAW CONSTRUCTION BLOG (Dec. 2, 2009), construction.practicallaw.com/blog/construction/plc/?p=296 (recommending always to oppose such demands).

CAT has consistently rejected claims for interest at 8 percent in the existing judgments on competition law damages cited above.¹¹⁷

Starting from the time of entering the judgment, the award carries interest at the rate on judgment debts pursuant to Section 17 of the Judgments Act 1838,¹¹⁸ which has been fixed at 8 percent since 1993.¹¹⁹ The sum claimed and awarded therefore continues to bear interest without interruption, but not necessarily at the same rate.¹²⁰

Whereas statutory interest provides for a blanket compensation for the deprivation of funds (interest on damages), common law allows a plaintiff to claim compensation for interest he actually paid as a consequence of his initial losses (interest as damages). The House of Lords abandoned important restrictions on that possibility in 2008.¹²¹ The rules governing the period of time for which interest is awarded are identical for interest under statute and interest at common law.¹²² Again, the court, in well-founded circumstances, may award interest only for part of the period between the occurrence of damages and the date of judgment, e.g., if the plaintiff caused undue delay.¹²³

Importantly, in calculating interest, the English courts have repeatedly taken into account that the plaintiff saved taxes due to the economic loss for which compensation was claimed (e.g., because of deductible expenses or lower profit). In particular, the courts have calculated (hypothetical) interest on tax savings and subtracted the result from interest on or as damages. As a consequence, interest might be awarded only on three-quarters or less than two-thirds of the total losses.¹²⁴

b. Compound Interest

Statutory interest before the CAT and the High Court (interest on damages) allows only for simple interest.¹²⁵ In contrast, interest as damages pursuant to common law may include compound interest insofar as the plaintiff actually

¹¹⁷ *Albion Water Ltd. v. Dwr Cymru Cyfyngedig*, [2013] CAT 6, [225]–[228].

¹¹⁸ *McGREGOR*, *supra* note 87, ¶ 18-073; *GELZER*, *supra* note 90, ¶ 286.

¹¹⁹ Statutory Instrument 1993 No. 564 (L.2), *supra* note 92; *GELZER*, *supra* note 90, ¶ 286.

¹²⁰ *McGREGOR*, *supra* note 87, ¶ 18-073.

¹²¹ See the leading case, *Sempra Metals Ltd. (formerly Metallgesellschaft Ltd.) v. Inland Revenue Comm'rs*, [2008] 1 AC (HC) 561; *McGREGOR*, *supra* note 87, ¶¶ 18-059 to 18-070 (providing an in depth analysis).

¹²² *McGREGOR*, *supra* note 87, ¶18-103.

¹²³ *Id.* ¶¶ 18-080, 18-096 to 18-097 (with delay in particular).

¹²⁴ See *id.* ¶¶ 18-135 to 18-140.

¹²⁵ Cf. Senior Courts Act 1981, c. 54, § 35A(1) (“simple interest”); Law Reform (Miscellaneous Provisions) Act 1934, 24 & 25 Geo. 5 c. 41, § 3(1)(a) (“[N]othing in this section shall authorize giving interest upon interest.”); *McGREGOR*, *supra* note 87, ¶ 18-036; *PAULA GILIKER & SILAS BECKWITH*, *TORT* ¶ 17-036 (4th ed. 2011).

had to pay it (e.g., for a bank credit).¹²⁶ Hence, compound interest is indemnifiable only as part of damages actually sustained,¹²⁷ provided that the ordinary requirements are fulfilled. In particular, the plaintiff must set out and prove the respective losses.¹²⁸ Probably because of the lack of this condition, the CAT, in its latest judgment on competition law damages, rejected a claim for compound interest at 1 percent above LIBOR saying that the case at hand was not one “where it is appropriate to award compound interest.”¹²⁹ Concerning cartel cases, there is no case law yet.¹³⁰

4. Germany

a. Simple Interest

In Germany, the court assesses damages with reference to the situation at the end of the trial, but nominalism applies to claims for losses denominated in currency units, which are therefore subject to devaluation. For this reason, on July 1, 2005, as part of the 7th amendment of the German act against restraint of competition, the German legislature inserted a provision in Section 33(3) of the German Act Against Restraints of Competition (GWB) providing, by reference to the German Civil Code (BGB), that whoever has violated competition law, at least negligently, must pay interest on monetary claims from the occurrence of the damage,¹³¹ for instance from the time when the victim bought the cartelized product for an inflated price. The standard rate of

¹²⁶ *Sempra Metals*, [2008] AC ¶¶ 92–100 (abandoning the former case law); MCGREGOR, *supra* note 87, ¶ 18-061.

¹²⁷ MCGREGOR, *supra* note 87, ¶ 18-067.

¹²⁸ *Sempra Metals*, [2008] AC ¶¶ 95–100, 132; MCGREGOR, *supra* note 87, ¶ 18-062; GELZER, *supra* note 90, ¶ 330. A possible example would be that the plaintiff had to take out a loan as a consequence of the damage incurred and did not act unreasonably in doing so. MCGREGOR, *supra*, ¶ 18-070; *see also* ROBERT RIBEIRO, DAMAGES AND OTHER REMEDIES FOR BREACH OF COMMERCIAL CONTRACTS 19 (2002).

¹²⁹ *Albion Water Ltd v. Dwr Cymru Cyfyngedig* [2013] CAT 6, ¶¶ [225]–[228].

¹³⁰ Vincent Smith, Anthony Maton & Scott Campbell, *Chapter 16: England and Wales*, in FOER & CUNEO, *supra* note 23, at 310 (in favor of an award).

¹³¹ GWB, July 21, 2014, BGBL. I at 1066, § 33(3), sentences 4–5 in conjunction with BÜRGERLICHES GESETZBUCH [BGB] [CIVIL CODE], §§ 288–289, sentence 1, *translation available at* www.gesetze-im-internet.de/englisch_gwb/englisch_gwb.html#p0205. On the legislator’s intention for creating this provision, *see* Reg.-Begr. BT-Drucks. 15/3640, 54; LOGEMANN, *supra* note 23, at 265 et seq. The amendment is supposed to improve the protection of the victim’s interest in compensation by taking into account that victims often have to wait for the competition authority’s decision to be able to prove the violation. This implies that they can claim damages only long after the conspiracy took place and only then trigger an obligation to pay interest based on the ordinary rules. Besides, the amendment shall guarantee that cartellists do not take advantage of lengthy official investigations by costlessly using capital from illegal cartel profits for their business. At the same time, the amendment serves to strengthen the deterrent effect of civil actions for damages.

interest is five percentage points above the basic rate of interest.¹³² The latter changes on January 1 and July 1 of each year by the amount (i.e., the percentage points) a reference rate has risen or fallen. Since January 1, 2002, due to the introduction of the Euro, the reference rate is the rate of interest for the most recent main refinancing operation of the European Central Bank (ECB) before the first calendar day of the relevant six-month period.¹³³

It is in dispute whether the standard rate of five percentage points above the basic rate of interest (Section 288(1) BGB) increases when the claimant and the opponent are both entrepreneurs. This depends on whether the referral in Section 33(3) 5 GWB allows the application of Section 288(2) BGB, which provides that, in the case of legal transactions to which a consumer is not a party, an augmented rate of interest applies to claims for payment (Entgeltforderungen).¹³⁴ As from July 29, 2014, this augmented rate is nine, previously eight,¹³⁵ percentage points above the basic rate of interest, instead of the standard markup of five percentage points. In its recent case law, the German Federal Court has held that Section 288(2) BGB has a certain, though very limited scope of application in claims for damages following an abuse of a dominant position,¹³⁶ but the holding's implications for cartel cases are still

¹³² BGB § 288(1), translation available at http://www.gesetze-im-internet.de/englisch_bgb/englisch_bgb.html#p0867.

¹³³ BGB § 247; GELZER, *supra* note 90, ¶ 274. The effective base rate of interest is announced by the German Federal Bank in the Federal Gazette. Additionally, the German Federal Bank lists the base rates for different periods on its homepage: www.bundesbank.de/Navigation/EN/Statistics/Money_and_capital_markets/Interest_rates_and_yields/Central_bank_interest_rates/central_bank_interest_rates.html; www.bundesbank.de/Redaktion/EN/Standardartikel/Bundesbank/Interest_rates/historical_interest_rate.html.

¹³⁴ Writing in favor of this interpretation, see Volker Emmerich, in WETTBEWERBSRECHT: GWB (Ulrich Immenga & Ernst-Joachim Mestmäcker eds., 5. Aufl. 2014), § 33 GWB ¶ 76; Marc Schütt, *Individualrechtsschutz nach der 7. GWB-Novelle* [Protection of Individual Rights by the 7th Amendment to the GWB], WuW, Aug. 2004, at 1124, 1132; Erik Staebe, in KARTELLRECHT, § 33 GWB ¶ 55 (Josef Schulte & Christoph Just eds., 2012); implicitly, Wurmnest, *supra* note 6, at 1184. These authors must argue that GWB § 33(3), sentence 5 provides for an application of BGB § 288(2) with the necessary modifications, obviating the requirement of an "Entgeltforderung." Following this argument, GWB § 33(3), sentence 5 would refer to the legal effects of BGB § 288(2) independent of whether all conditions listed in that statute are fulfilled.

The counterview is put forward by LOGEMANN, *supra* note 23, at 268 et seq.; RAINER BECHTOLD & WOLFGANG BOSCH, KARTELLGESETZ: GWB § 33 ¶ 36 (8th ed. 2015); Eckard Rehlinger, in ULRICH LOEWENHEIM, KARL M. MEESEN, ALEXANDER RIESENKAMPFF, KARTELLRECHT, § 33 ¶ 58 (3d ed. 2016).

¹³⁵ The increase was implemented by the law against delay of payment in commercial matters (Gesetz zur Bekämpfung von Zahlungsverzug im Geschäftsverkehr und zur Änderung des Erneuerbare-Energien-Gesetzes), GERMAN FEDERAL LAW GAZETTE (BUNDESGESETZBLATT) 2014 pt. I, No. 35 of July 28, 2014, at 1218.

¹³⁶ The German Federal Court held in late 2013 (BGHZ 199, 1-19 = NVwZ-RR 2014, 515-521, ¶¶ 68-71) that Section 288(2) BGB does not apply to competition law claims for damages that trace back to an unjust enrichment of the defendant. According to the Federal Court, the application of Section 288(2) BGB is limited to cases in which the abuse refers to an "Entgeltforderung" of the victim, for instance systematically late payment of due claims or im-

unresolved. Against this background, we adopt a cautious approach and follow the view that Section 288(2) BGB is, as a basic rule, not applicable to actions for damages for violations of competition law because the wording requires a claim for payment that relates to the parties' primary obligations governed by the principle "do ut des"¹³⁷ (Entgeltforderung¹³⁸).

The generous interest provision in Section 33(3) GWB was introduced only on July 1, 2005. Given the considerable time spans for public and private enforcement set out above,¹³⁹ cartels that are currently subject to actions for damages in many cases started to operate earlier than July 1, 2005. While some scholars argue that in such cases pursuant to the new version of Section 33(3) GWB interest should accrue from July 1, 2005 onwards,¹⁴⁰ the majority view, shared by the courts, is that the new version of Section 33(3) GWB does not apply *at all* to cartel damages inflicted before July 2005.¹⁴¹

Insofar as the reform of 2005 does not apply, practitioners and the courts conventionally have applied provisions of the German general law of obligations, which state that the debtor must pay interest on a monetary claim as soon as he is in default¹⁴² or—at the latest—from the pendency of the creditor's claim.¹⁴³ The relevant statutory interest rate on default changed over

posing disproportionately low purchasing prices (or other forms of remuneration) in an abusive way, e.g., in the form of high purchase rebates.

¹³⁷ "Do ut des," which in Latin translates to "I give in order that you may give," characterizes the main performance duties in a contract, in which one person gives something to another person in order to receive something in return (so called synallagmatic contract). Cf. *Do ut des*, BLACK'S LAW DICTIONARY 565 (10th ed. 2014).

¹³⁸ See Christian Grüneberg, in PALANDT, BÜRGERLICHES GESETZBUCH, § 288 ¶ 8 (75th ed. 2016) (arguing that the term Entgeltforderung stems from Directive 2000/35/EC of the European Parliament and of the Council on Combating Late Payment in Commercial Transactions (2000 O.J. (L 200) 35), and must be understood in the same way as in § 286 III BGB); Grüneberg, *supra*, § 286 BGB ¶ 27 therefore defines Entgeltforderungen only as those which aim at a payment in return for the provision of goods or services (BGH 63 NJW 1872 (2010)) and concludes that § 286 III BGB is not applicable to claims for damages; see also GELZER, *supra* note 90, ¶ 277; Manfred Löwisch & Cornelia Feldmann, in J. VON STAUDINGERS KOMMENTAR ZUM BÜRGERLICHEN GESETZBUCH § 286 ¶¶ 97, 99 (rev. ed. 2014) [hereinafter STAUDINGERS].

¹³⁹ See *supra* text accompanying notes 13 and 14.

¹⁴⁰ Daniel Zimmer & Hans Logemann, *Unterliegen "Altfälle" der verschärften Schadensersatzhaftung nach § 33 GWB?*, WuW, Oct. 2006, at 982, 988-989; Staebe, *supra* note 134, at § 33 GWB ¶ 56;

¹⁴¹ OLG Karlsruhe, 6 U 118/05 (Kart.) (08), June 11, 2010, BeckRS 2011, 26582, ¶¶ II.1., II.9.; OLG Karlsruhe, 6 U 115/11 Kart, August 27, 2014, ¶ 174; Joachim Bornkamm, in 1 KOMMENTAR ZUM DEUTSCHEN UND EUROPÄISCHEN KARTELLRECHT § 33 GWB ¶ 160 (Eugen Langen & Hermann-Josef Bunte eds., 12th ed. 2014); Andreas Fuchs, in ULRICH IMMENGA & ERNST-JOACHIM MESTMÄCKER, WETTBEWERBSRECHT: GWB, 4. Aufl. 2007, § 131 GWB ¶ 20; see generally with § 33 GWB (right to damages as such, not specifically interest) KG, 2 U 17/03 Kart, Oct. 1, 2009, ¶ 37; BGH, judgment of 28.06.2011, case KZR 75/01, WuW/E DE-R 3431-3446 = 65 NJW 928 (2012) = BGHZ 190, 145, ¶ 13.

¹⁴² § 288 BGB.

¹⁴³ § 291 BGB. On both, see LOGEMANN, *supra* note 23, at 265.

time, due to repeated reforms,¹⁴⁴ from a fixed 4 percent and 5 percent for businessmen,¹⁴⁵ respectively (until April 30, 2000¹⁴⁶), to a flexible rate of 5 percentage points above the former base rate of interest¹⁴⁷ (from May 1, 2000–December 31, 2001) and further, since January 1, 2002, to a rate of interest on default of five percentage points above the current basic rate of interest. It is then necessary to determine which provisions apply if a claim accrues over a period spanning more than one reform interval. The relevant interim law is set forth in Article 229 Section 1(1) and Article 229 Section 7(1), (2) EGBGB.¹⁴⁸

While, according to conventional practice, concerning the time before July 1, 2005, interest on competition law damage claims is thus only available after

¹⁴⁴ An unofficial list with the respective basic rates of interest and interest rates on default can be found at basiszinssatz.info. The homepage also includes a tool to calculate interest. basiszinssatz.info/zinsrechner/.

¹⁴⁵ German Commercial Code (HGB) § 352. It is however in dispute whether this augmented rate of interest applies only to claims based on commercial contracts between businessmen or also to tort claims that originated from a commercial transaction. The traditional view, in particular the existing (though a bit dated) case law, supports the restrictive interpretation (see BGH III ZR 90/81, 36 NJW 1420, 1423 (1983)), while the more recent scholarly literature advocates the more extensive one. See Karsten Schmidt, in *MÜNCHENER KOMMENTAR ZUM HGB* §§ 352 HGB ¶ 7a, 352 HGB ¶ 7a (3d ed. 2013); Rüdiger Pamp, in *OETKER, HANDELSGESETZBUCH (HGB)* § 352 HGB ¶ 8 (4th ed. 2015); Peter Kindler, in *EBENROTH, BOUJONG, JOOST & STROHN, HANDELSGESETZBUCH* § 352 HGB ¶ 13 (3d ed. 2015).

¹⁴⁶ BGB, § 288(1) (in the then applicable version).

¹⁴⁷ As defined in § 1 of the *Law on Transition for the Official Rate of Discount* (Diskontsatz-Überleitungsgesetz), FED. L. GAZETTE (Bundesgesetzblatt) I 1242. The starting point for the former base rate was the German Federal Bank's official rate of discount on December 31, 1998. This rate was then adjusted three times a year (on January 1, May 1, and September 1) by the change of the rate of interest for long-term refinancing operations of the ECB, provided that the change exceeded 0.5 percentage points. See *Basiszinssatz-Bezugsgrößen-Verordnung*, FED. L. GAZETTE I No. 6, Feb. 2, 1999, at 139 (FNA 7601-15-2); Jörg Pertershausen, *Der neue Basiszinssatz des BGB—eine kleine Lösung in der großen Schuldrechtsreform?*, 55 NJW 1455 (2002); GELZER, *supra* note 90, ¶ 273.

¹⁴⁸ The provisions are very technical and complex. Ultimately, for claims having matured before May 1, 2000 (in case of doubt, a debt claim matures immediately, § 271(1) BGB), the rate of interest on default is 4%, because for such claims, § 288(2) BGB in the version of April 30, 2000 remains applicable. See Manfred Löwisch, in *STAUDINGERS, supra* note 138, art. 229 § 1 EGBGB, ¶ 5; BGH IX ZR 172/06, 23 NJW-RR 786, 788 ¶ 22 (2008). Besides, if these (part) claims stem from commercial transactions between businessmen, the augmented legal rate of interest on default of 5% pursuant to § 352 HGB remains applicable. Cf. art. 229 § 1(1) 3 EGBGB; Löwisch, *supra*, ¶ 6; Pamp, *supra* note 145, § 352 HGB ¶ 12. Note, however, that it is disputed whether it also applies to tort claims. See *supra* note 145.

For (part) claims having matured from May 1, 2000, onwards, the interest rate on default first was five percentage points above the basic rate of interest as defined in the Law on Transition for the Official Rate of Discount (Diskontsatz-Überleitungsgesetz) (this is laid down in art. 229 § 1(1) 3 EGBGB, art. 229 § 7(2) EGBGB. See Jan Busche, Art. 229 EGBGB § 1 ¶ 2, in *MÜNCHENER KOMMENTAR ZUM BGB* (6th ed. 2015); Löwisch, *supra*, ¶ 5. Since January 1, 2002, § 247 BGB in its current version applies, i.e., the reference rate taken from the ECB (with claims governed by the reformed German law of obligations, this is laid down in art. 229 § 5 BGB, with claims covered by § 288(1) BGB in the version of May 1, 2000, the same result is laid down in art. 229 § 7(1) nr. 1 EGBGB. See Löwisch, *supra*, art. 229 § 1 EGBGB, ¶ 5; Busche, *supra*).

the defendant has been put in default, one of us recently argued that, also before July 1, 2005, interest on damages accrues from the time of the loss based on a provision of tort law (Section 849 BGB), which provides for a right to simple interest at a constant rate of 4 percent (Section 246 BGB). The argument rests on case law of the German Federal Court (Bundesgerichtshof, BGH), which extended the field of application of Section 849 BGB significantly in 2008, overruling a more restrictive view of some higher regional courts.¹⁴⁹ In mid-2014, the Higher Regional Court of Karlsruhe has supported this view.¹⁵⁰

b. Compound Interest

Irrespective of which versions of the provisions on statutory interest are applicable, statutory interest does not produce compound interest (Section 33(3) sentence 5 GWB in conjunction with Section 289 sentence 1 BGB). In principle, this does not invalidate the creditor's right to claim compound interest he actually paid or lost because of the cartel as further damages pursuant to Section 289 sentence 2 BGB.¹⁵¹ However, Section 33 GWB does not refer to this provision.¹⁵² For this reason, compound interest paid or forgone cannot be claimed as long as a claim for interest is based solely on Section 33(3) sentences 4, 5 GWB. Rather, it is necessary that the debtor is in default, so that Sections 288, 291 BGB apply directly.

5. France

a. Simple Interest

Under French law, cartel victims are entitled to damages pursuant to art. 1240 Code Civil new version since October 1, 2016¹⁵³ (equivalent to art. 1382

¹⁴⁹ See, e.g., Eckart Bueren, *Zinsen ab Schadenseintritt schon vor der 7. GWB-Novelle!*, WuW 2012, 1056, 1061.

¹⁵⁰ OLG Karlsruhe, Judgment of Aug. 27, 2014, 6 U 115/111 (Kart), ¶¶ 178–179.

¹⁵¹ Wolfgang Ernst, *MÜNCHENER KOMMENTAR ZUM BGB § 289 BGB* ¶¶ 1, 7 (7th ed. 2016).

¹⁵² Section 33 III sentence 5 GWB explicitly states that “Sec. 288 and 289 sentence 1” shall apply *mutatis mutandis*, i.e., not § 289 sentence 2 BGB.

¹⁵³ A comprehensive reform of the French law of obligations has become effective on October 1, 2016. Technically, the reform has been implemented by a regulation, *ordonnance n° 2016-131 du 10 février 2016 portant réforme du droit des contrats, du régime général et de la preuve des obligations*. An English translation of the new provisions of the Code civil created by *Ordonnance n° 2016-131*, commissioned by the French Ministry of Justice, is available at http://www.textes.justice.gouv.fr/art_pix/THE-LAW-OF-CONTRACT-2-5-16.pdf.

The reform concerns first and foremost articles 1100 to 1386-1 Code Civil. While important aspects of the former law have been fundamentally revamped, many other provisions have mainly changed their numbering. For a detailed and comprehensive treatment of the new law of obligations in the order of the Code Civil, see GAËL CHANTEPIE & MATHIAS LATINA, *LA RÉFORME DU DROIT DES OBLIGATIONS*, 2016; more briefly, see NICOLAS DISSAUX & CHRISTOPHE JAMIN, *RÉFORME DU DROIT DES CONTRATS ET DE LA PREUVE DES OBLIGATIONS*, 2016; for a

Code Civil old version¹⁵⁴). Damages are assessed at the time of the judgment. They are considered to be a *dette de valeur*, meaning that the economic value of the damages has to be compensated, irrespective of whether the amount to make the plaintiff whole increases (e.g., due to cost increases that might occur in the course of the legal proceedings).¹⁵⁵ However, this does not protect the claimant from devaluation if he seeks compensation for excess payments (e.g., a cartel overcharge) and nominalism applies.¹⁵⁶ Originally, nominalism widely prevailed in French law. The issue was controversial mainly in the case of liabilities that are not (initially) directed to monetary payments.¹⁵⁷ For these, a change to valorism is by now established in important sub-fields, especially in tort law.¹⁵⁸ Valorism means that the amount of obligation is, where necessary, adjusted to reflect the reduction in the purchasing power of money between the date at which the obligation is incurred and the date on which it falls to be performed.¹⁵⁹ With damages, legal obligations are then discharged only upon payment of a sum which corresponds to the real economic value of the injury suffered.¹⁶⁰ But, even in tort law, nominalism¹⁶¹ still applies insofar as claims for damages aim at the repayment of overpaid funds.¹⁶²

commentary of the entire Code Civil new version, see, for example, PASCAL ANCEL ET AL., *CODE CIVIL 2017* (116th ed. 2016).

At the time of writing, the French Department of Justice furthermore is pursuing a plan to reform the French law of torts, i.e., the relevant part of the Code Civil. A preliminary draft proposal has been released for public comment on April 29, 2016 (avant-projet de loi réforme de la responsabilité civile, www.textes.justice.gouv.fr/art_pix/avpj1-responsabilite-civile.pdf). A final draft is announced for the end of 2016. At the time of writing, the outcome of the reform project still remains to be seen.

¹⁵⁴ With reference to this provision, see, e.g., CA Paris, 25^e ch. A., June 28, 2002, SARL Philippe Streiff Motorsport et a. c/SAS Speedy et a. [Juris-Data n° 2002-186210]; ROGER BOUT ET AL., *LAMY DROIT ÉCONOMIQUE: CONCURRENCE, DISTRIBUTION, CONSUMMATION*, n° 919, at 300, and n° 1426, at 537–38 (2016 ed.); Muriel Chagny, *REVUE LAMY DE LA CONCURRENCE* n°4/2005, 186, 188.

¹⁵⁵ PHILIPPE LE TOURNEAU, *DROIT DE LA RESPONSABILITÉ ET DES CONTRATS*, n° 2652, 832 (8th ed. 2010/2011); YVES CHARTIER, *LA RÉPARATION DU PRÉJUDICE DANS LA RESPONSABILITÉ CIVILE*, ¶ 457, at 568–69 (1983).

¹⁵⁶ See CHARTIER, *supra* note 155, ¶ 466, at 579.

¹⁵⁷ GENEVIÈVE VINEY & PATRICE JOURDAIN, *LES EFFETS DE LA RESPONSABILITÉ*, ¶ 322, at 711 (3d ed. 2011).

¹⁵⁸ *Id.*

¹⁵⁹ PROCTOR, *supra* note 24, ¶ 9.07; for a corresponding definition in French doctrine see DISSAUX & JAMIN, *supra* note 153, at 212.

¹⁶⁰ KARST & ROSENN, *supra* note 40, at 442; DISSAUX & JAMIN, *supra* note 153, at 212.

¹⁶¹ For an explanation of the term, see *supra* text accompanying notes 39–40.

¹⁶² CHARTIER, *supra* note 155, ¶ 466, at 579; ASHURST STUDY, *supra* note 24, at 83–84, tbl.12; see generally CHANTEPIE & LATINA, note 153, ¶ 963 at 819–20 (stating that the nominal amount of a “dette de monnaie” is fixed from the beginning, while a “dette de valeur” has no fixed value upfront). This seems indeed necessary to avoid inconsistent results if contractual claims for repayment against the cartel member from which the victim bought coincide with tort claims against the remaining cartel members, which are jointly and severally liable.

The new law of obligations of October 1, 2016¹⁶³ now lays down an explicit basis for the two concepts: Art. 1343 ¶ 1 Code Civil provides that the debtor of a monetary obligation is discharged by payment of its nominal amount,¹⁶⁴ while Art. 1343 ¶ 3 Code Civil states that the debtor of a “dette de valeur” is discharged by payment of a sum that results in the liquidation of his obligation.¹⁶⁵

Consequently, cartel victims claiming the overcharge depend on other means of protection against devaluation. In this respect, French law generally provides for interest on default (*intérêts moratoires*) and/or compensatory interest (*intérêts compensatoires*).¹⁶⁶

Interest on default accrues at the statutory rate from a request for payment or a reminder, provided that the claim is for a specified amount of money (art. 1344, 1344-1 Code Civil new version, art. 1153 Code Civil old version),¹⁶⁷ i.e., a sum that is fixed objectively (contractually or by law) without prior intervention of a judge.¹⁶⁸ Concerning cartel damages, it might however be difficult for the victim to come up with a reasonable estimate upfront.¹⁶⁹

¹⁶³ On the reform, see *supra* note 153.

¹⁶⁴ Besides, nominalism was reflected in Art. 1895 Code Civil already, before the latest reform of October 1, 2016.

¹⁶⁵ In French: “Le débiteur d’une dette de valeur se libère par le versement de la somme d’argent résultant de sa liquidation.” This provision rather describes the functioning of the principle of valorism than defining it, and appears a bit circular. In essence, however, it simply codifies the existing case law. See CHANTEPIE & LATINA, *supra* note 153, ¶ 959 at 816; DISSAUX & JAMIN, *supra* note 153, at 211–12 (also critical on the wording); see also Rapport au Président de la République relatif à l’ordonnance n° 2016-131 du 10 février 2016 portant réforme du droit des contrats, du régime général et de la preuve des obligations, JO 11. Fév. 2016, at 28 (also reproduced in DISSAUX & JAMIN, *supra* note 153, at 210–11).

¹⁶⁶ See generally LE TOURNEAU, *supra* note 155, at n° 2454, 779.

¹⁶⁷ CHANTEPIE & LATINA, note 153, ¶ 979, at 833; Rapport au Président de la République, note 165, at 28 (also reproduced in DISSAUX & JAMIN, *supra* note 153, at 213–14) (both on the Code Civil new version); LE TOURNEAU, *supra* note 155, at n° 2456, 780 (Code Civil old version).

¹⁶⁸ The wording has slightly changed with the reform: Whereas 1344-1 Code Civil new version requires an obligation for a sum of money, art. 1153 Code Civil old version required an obligation that is limited to the payment of a certain sum. This does not appear to imply a change in substance (*cf.* the references in note 167). In particular, the requirement in section 1153 Code Civil old version was not violated if the judge evaluated the claim with an expert report, *Cass. Iere civ.*, June 4, 2009, n° 08-12.658: Bull. Civ. I, n° 117, which is often done by judges dealing with anticompetitive practices. See Louis Vogel & Joseph Vogel, *France*, in GORDON BANKE & RENATO NAZZINI, *INTERNATIONAL COMPETITION LITIGATION*, 2012 at 209, 226, ¶ FR-066. It follows that the requirement that the sum has to be fixed objectively refers only to the legal character of the claim. It does not imply that the precise amount must be easily ascertainable by the parties before the judgment.

¹⁶⁹ But see *Cass. 3e civ.*, 6 mai 1988, n° 96-14.339: Bull. Civ. III, n° 92. If the creditor demands a sum considerably higher than the amount that is later awarded by the judge (in the case 540721.94 francs versus 190900.37 francs), the request for payment is effective to the extent that it corresponds with the subsequent award, and leads to award of interest from that time. ANCEL ET AL., *supra* note 153, Art. 1231-6, ¶ 21. On the other hand, the Cour de Cassation has held that a reminder that is based on inaccurate accounts is invalid and does not put the debtor in default,

Besides, interest is governed by art. 1231-7 Code Civil (art. 1153-1 Code Civil old version).¹⁷⁰ Pursuant to this provision, as a basic principle, claims for damages produce interest at the legal rate from the pronouncement of the judgment, except as otherwise provided by law.¹⁷¹ The court is entitled to award interest at its discretion *ex officio*¹⁷² from an earlier date to fully compensate the damages suffered, without the need for detailed substantive reasoning.¹⁷³ The judge may award interest, for instance, from the filing of the civil action¹⁷⁴ or its service,¹⁷⁵ or—at the earliest¹⁷⁶—from the occurrence of the loss.¹⁷⁷

There does not yet seem to be an established practice for how the courts use this power in the context of competition law actions for damages. Practitioners provide very divergent views.¹⁷⁸ The only empirical study we are aware of dates from 1999, is not specifically related to competition law, and covers only cases that were appealed.¹⁷⁹ It analyzes a random sample of 728 judg-

Cass. soc., 7 novembre 1963: JCP G 1964, II, 13180; Joseph Issa-Sayegh, *Jurisclasseur Civile Code Art. 1235 à 1248*, fasc. 40, ¶ 21 (22 décembre 2011).

¹⁷⁰ CHANTEPIE & LATINA, *supra* note 153, ¶ 979, at 833 (Code Civil new version) ; LE TOURNEAU, *supra* note 155, at n° 2456, 781; Sabine Bertolasco, *Jurisclasseur Civil Code Art. 1146 à 1155*, fasc. 20, ¶ 18 (25 mai 2001) (Code Civil old version).

¹⁷¹ Code Civil Art. 1231-7, ¶ 1, sentence 1; *see also* MEESSEN, *supra* note 24, at 538; Jalabert-Doury, *supra* note 23, at 327; LE TOURNEAU, *supra* note 155, n° 2459, 782, with statutory rights n° 2463, 784. *See, e.g.*, *Cour de Cassation*, chambre civile 1, Audience publique du Mardi 20 février 1996, n° 93-19681 (inter alia with a claim based on the law on unfair competition).

¹⁷² A request by a party is not necessary. *See Cass. 2e civ.*, 20 juin 1990: Bull. civ. II, n° 141; JCP G 1990, IV, 316; Jacques Miguet, *Fasc. 515*, in *JURIS CLASSEUR, PROCÉDURE CIVILE* ¶ 73 (Cote: 01.1998). The award of pre-judgment interest is considered to be an additional form of compensation and therefore an integral part of the damages to be awarded. *See Normand*, *Jurisprudence Française en matière de droit judiciaire privé*, RTD civ. 1991, 395, 398.

¹⁷³ For further details, see LE TOURNEAU, *supra* note 155, n° 2463, 784; MEESSEN, *supra* note 24, at 539; Miguet, *supra* note 172, ¶¶ 74–77; Pascal Ancel & Christiane Beroujon, *La prise en compte par le droit du coût de la durée du procès*, ¶¶ 126, 129–131 (1999); *Civ. 2e*, 27. Jan. 1983, Bull. Civ. II, n° 25.

¹⁷⁴ *Cass. Ire civ.*, 18 janv. 1989: Bull. civ. I, n° 32; *Cass. Ire civ.*, 7 mars 1989: Bull. civ. I, n° 114; JCP G 1989, IV, 173; *Cass. soc.*, 6 nov. 1991: JCP 1992, IV, 99; Miguet, *supra* note 172, ¶ 72; Chantal Momège & Nicolas Bessot, *France Report*, in *ASHURST STUDY*, *supra* note 24, at 24.

¹⁷⁵ *See, e.g.*, *Cour de Cassation*, chambre civile 1, n° 10-18694, www.legifrance.gouv.fr/affichJuriJudi.do?oldAction=rechJuriJudi&idTexte=JURITEXT000024334035&fastReqId=710635599&fastPos=1.

¹⁷⁶ JACOB ET AL., *CODE CIVIL*, Art. 1153-1, ¶ 10 (111th éd. 2012); ANCEL ET AL., *supra* note 153, Art. 1231-7, ¶ 13.

¹⁷⁷ *See, e.g.*, *Cour de Cassation*, Chambre civile 1, 16 Mars 1999, n° 97-12.930, *JurisData* n° 1999-001116, *Bulletin civ.* 1999, I, n° 95, 62; *sommaire*: *La Semaine Juridique Edition Générale* n° 19, 12 Mai 1999, IV.1914; *Cass. 2e civ.*, 20 juin 1990: Bull. civ. II, n° 141, JCP G 1990, IV, 316; LE TOURNEAU, *supra* note 155, n° 2459, 782; MEESSEN, *supra* note 24, at 539.

¹⁷⁸ Jalabert-Doury, *supra* note 23, at 327 report such orders to be very rare; according to Momège & Bessot, *supra* note 174, at 24, the starting point for the calculation of interest is much debated, with many diametrically opposed judgments.

¹⁷⁹ Ancel & Beroujon, *supra* note 173.

ments of the French Cour de Cassation,¹⁸⁰ of which a sub-sample of 217 judgments concerned actions for damages. The study found that in about 50 percent of these cases, the trial or appellate judges respectively had awarded pre-judgment interest, resorting to very different starting points, sometimes without clear precision in the reasoning. The most frequent starting point was the filing of the action (56 judgments).¹⁸¹

The statutory interest rate is determined by Art. L313-2 sentence 1 Code monétaire et financier. It has also been reformed recently. Up to January 1, 2015, Art. L313-2 sentence 1 Code monétaire et financier stated that the statutory interest rate is determined for each calendar year by decree.¹⁸² Pursuant to Art. L313-2 sentence 2 Code monétaire et financier, the rate was equal, for the year in question, to the arithmetic mean of the last 12 monthly averages of the actuarial rate of return of the 13-week fixed-rate Treasury Bill auctions.¹⁸³

Since January 1, 2015, the statutory interest rate is fixed by an order of the French minister of economics, and comprises two separate rates:¹⁸⁴ One if the creditor is a natural person who is not acting for professional requirements, and another for all other cases. Both are calculated biannually, in relation to the European Central Bank's key rate for the main refinancing operations and rates practiced by credit institutions and financing companies. Concerning the case that the creditor is a natural person not acting for professional requirements, the law specifies the latter as the average effective rates granted to private individuals. The detailed calculation methods of the two statutory interest rates are fixed by an order and laid down in Article D313-1-A Code monétaire et financier, which mandates the Banque de France to make the calculations and communicate the results to the department of trade and industry.

The reason for the reform was that the French legislator considered, in view of the strong decline of short-term rates for risk-free credit in recent years, that the former statutory rate could not fulfill its purpose any more to give an incentive for rapid payment. The new rates for private non-professionals for 2015 and 2016 have indeed been markedly higher than the previous statutory

¹⁸⁰ *Id.* §§ 21–32.

¹⁸¹ Only four judgments chose the occurrence of the damages, i.e., the earliest possible date; 25 judgments chose the rendering of the judgment in first instance (when the damages award had been made by a trial judge); eight chose the delivery of an expert's opinion estimating the damages; and six chose a reminder putting the debtor in default before the filing of the claim. *See id.* ¶ 133.

¹⁸² LE TOURNEAU, *supra* note 155, n° 2456, 780.

¹⁸³ French wording: "Il [le taux de l'intérêt légal] est égal, pour l'année considérée, à la moyenne arithmétique des douze dernières moyennes mensuelles des taux de rendement actuariel des adjudications de bons du Trésor à taux fixe à treize semaines."

¹⁸⁴ For a brief overview, see GUIDE JURIDIQUE DALLOZ, MISE À JOUR 2015, INTÉRÊT DES CAPITAUX, n° 308-1.

rates of the years 2010–2014, but the difference to the new rates for professionals is comparably small.¹⁸⁵

After the defendant has been sentenced to payment and a time limit of two months since enforceability of the judgment has expired, the statutory rate increases by five percentage points (Art. L313-3 Code monétaire et financier).¹⁸⁶ On request of the creditor or the debtor, the court may decline to award this increase or may award a smaller increase.¹⁸⁷ A judgment is enforceable if no further appeal with suspensive effect against the decision is possible or if it is provisionally enforceable, either by law or because of a court order.¹⁸⁸ As with most judgments, judicial awards of competition law damages require a judicial order for provisional execution.¹⁸⁹ The judge may make such an order for the whole or part of the judgment except for costs, at the request of the parties or ex officio, each time the judge deems it proper and compatible with the nature of the matter and if it is not prohibited by law.¹⁹⁰ The judge furthermore may subject provisional enforcement to the delivery of a guarantee.¹⁹¹ The judge has substantial, but not complete, freedom in making an order of provisional execution,¹⁹² which is reinforced by the fact that the Cour de Cassation does not control the reasons the judge gives for his decision. As a consequence, no settled judicial practice has evolved.¹⁹³

b. Compound Interest

According to French law, statutory interest does not automatically produce compound interest.¹⁹⁴ But if a court order specifies so (or pursuant to a special legal provision), compound interest is awarded on interest that is due for at least one year (Art. 1343-2 Code Civil new version, art. 1154 Code Civil old

¹⁸⁵ Cf. *Le Taux de L'intérêt Légal*, BANQUE DE FRANCE, www.banque-france.fr/economie-et-statistiques/changes-et-taux/le-taux-de-linteret-legal.html.

¹⁸⁶ This occurs automatically by law; it is neither necessary for the claimant to request the increase nor for the judgment to order it. Christian Gentili, *JurisClasseur Voies d'exécution*, Fasc. 218: Majorations de l'intérêt légal, ¶ 22 (Oct. 4, 2012). The increase was introduced on July 1975. See LE TOURNEAU, *supra* note 155, n° 2461, 783.

¹⁸⁷ LE TOURNEAU, *supra* note 155, n° 2461, 783.

¹⁸⁸ Art. 500, 501, 514 Code de procédure civile (CPC, French Code of civil procedure); see also Gentili, *supra* note 186, ¶ 27–33.

¹⁸⁹ L'exécution provisoire facultative, the default case. See JACQUES HÉRON & THIERRY LE BARS, *DROIT JUDICIAIRE PRIVÉ*, ¶ 527, at 427–28 (5th ed. 2012).

¹⁹⁰ Art. 515 CPC.

¹⁹¹ Art. 517 CPC.

¹⁹² LOIC CADDIET & EMMANUEL JEULAND, *DROIT JUDICIAIRE PRIVÉ* ¶ 750, at 580 (8th ed. 2013); XAVIER L.G. COUCHEZ, *PROCÉDURE CIVILE* ¶ 409, 409 et seq. (14th ed. 2006).

¹⁹³ See HÉRON & LE BARS, *supra* note 189, ¶ 527, at 428 n.196.

¹⁹⁴ LE TOURNEAU, *supra* note 155, n° 2456, 780.

version),¹⁹⁵ including the increased interest rate of Article L313-3 Code monétaire et financier.¹⁹⁶ Art. 1154 Code Civil old version required a request by the claimant. The court then did not have any discretion, but had to grant the request.¹⁹⁷ However, compound interest was available only from the date of the request in court, i.e., not retroactively.¹⁹⁸ Art. 1343-2 Code Civil new version does not explicitly refer to a request any more, but if such a request is made, the language of the new provision still seems to imply that the judge must grant it.¹⁹⁹ Indeed, the legislature intended to maintain the preexisting regime concerning interest on interest.²⁰⁰

In addition, interest on interest may accrue pursuant to Article 1344, 1344-1 Code Civil (Article 1153 Code Civil old version), for instance after the creditor has put the debtor in default with an existing claim for interest.²⁰¹

C. FURTHER COMPENSATION MECHANISMS

The most important form of the second instrument in the legal toolbox is awarding consequential damages²⁰² to the victim of a tort (e.g., a cartel). Such damages may account for interest and/or inflation indirectly, irrespective of whether the legislature follows a legalistic, discretionary, or middle course approach with (pre-judgment) interest. Consequential damages are in principle indemnifiable in all legal systems surveyed. In practice, they are available mostly for undertakings, with the case law seeming to be more restrictive as to their availability for consumers. This is warranted insofar as, in cartel cases, consequential damages of individual consumers will often be rather small,

¹⁹⁵ This implies that interest on interest that accrues for instance every three or six months is inadmissible. Bertolasco, *supra* note 170, ¶ 31 (C. civ old version); CHANTEPIE & LATINA, *supra* note 153, ¶ 967, at 823 (C. civ new version)

¹⁹⁶ Gentili, *supra* note 186, ¶ 24.

¹⁹⁷ Jalabert-Doury, *supra* note 23, at 327; LE TOURNEAU, *supra* note 155, n° 2462, 783–84; Bertolasco, *supra* note 170, ¶ 27. The court could however refrain from applying Art. 1154 Code civil if the claimant is responsible for a delay of payment. *Id.*

¹⁹⁸ Cour de Cassation, Civ. 1^{re}, 19 déc. 2000, n° 98-14.487, Bull. civ. I, n° 330; LE TOURNEAU, *supra* note 155, n° 2462, 784; Bertolasco, *supra* note 170, ¶ 27. The request in court may however be made in advance, i.e., before the minimum time of one year has expired or even before the judge has ruled about the claim for interest, provided that interest accrued already before the judgment, Cour de Cassation, Civ. 1^{re}, 6 juin 2001, n° 99-11.528, Bull. civ. I, n° 157.

¹⁹⁹ CHANTEPIE & LATINA, *supra* note 153, ¶ 967, at 824.

²⁰⁰ Rapport au Président de la République, *supra* note 165, at 28 (also reproduced in DISSAUX & JAMIN, *supra* note 153, at 211).

²⁰¹ LE TOURNEAU, *supra* note 155, n° 2462, 783.

²⁰² Consequential damages are losses that were not caused directly by the damaging act, but by its consequences for the victim. For instance the victim may have needed (additional) credit to pay the cartel overcharge. The lending interest on this (additional) credit will regularly exceed the inflation rate; if the inflation rate increases, credit interest rates will increase as well. Damages for incurred interest thereby implicitly shield the victim from being worse off due to inflationary price increases.

meaning that the cost of calculating them would usually exceed the extra damages awards.

With collective action mechanisms (e.g., group claims, class actions, etc.), typically it would also be impractical to analyze consequential damages of each group (class) member. As consequential damages depend on each claimant's specific situation, we can consider them only in a general way in our comparative analysis. The same holds for other mechanisms that may de facto provide compensation for losses that arose due to the passage of time.

In any case, it seems reasonable to propose that the rules governing interest should yield an economically sound compensation for the deprivation of funds even if the claimant cannot prove consequential damages. In particular, end consumers will often not be able to meet this standard.

1. *The United States*

While U.S. law is very restrictive concerning pre-judgment interest, occasionally compensation for the passage of time until the judgment has been awarded indirectly by including in the damages calculation economic disadvantages that result from the claimant having been kept out of money. In particular, in some cases plaintiffs were awarded lost opportunity costs of capital in addition to their direct financial losses.²⁰³ Other judgments have included inflation²⁰⁴ or interest on borrowed capital²⁰⁵ in the damages award.²⁰⁶ Both approaches are controversial and by no means a universal practice of all courts.²⁰⁷ Furthermore, it is notable that the relevant cases did not concern cartels. However, the general approaches seem, at least in theory, applicable to cartel cases as well. Moreover, the Antitrust Modernization Commission

²⁰³ See, e.g., *Multiflex v. Samuel Moore & Co.*, F.2d 980, 996–97 (5th Cir. 1983); *Heattransfer Corp. v. Volkswagen AG*, 553 F.2d 964, 986 & n. 20 (5th Cir. 1977). For a critique of awarding lost opportunity costs of capital, see AREEDA & HOVENKAMP, *supra* note 47, ¶ 393a, at 393.

²⁰⁴ See, e.g., *Law v. NCAA*, 185 F.R.D. 324, 346–48 (D. Kan. 1999) (Adjustment of the damages based on the consumer price index to account for reduced purchasing power was permitted and not considered the functional equivalent of prejudgment interest (“prejudgment interest in disguise”)); *Concord Boat Corp. v. Brunswick Corp.*, 21 F. Supp. 2d 923, 935–36 (E.D. Ark. 1998) (Adjustments to the award to reflect present value were proper and not an award of prejudgment interest; the expert consulted apparently chose a discount rate based on the plaintiff's credit interest rate.), *rev'd on other grounds*, 207 F.3d 1039 (8th Cir. 2000).

²⁰⁵ *Minpeco S.A. v. Hunt*, 686 F. Supp. 420, 425–27 (S.D.N.Y. 1988) (The damages award included interest the plaintiff had paid for credit which he had taken out because of the cartel price increase.); see also *Concord Boat*, 21 F. Supp. 2d 923.

²⁰⁶ AMC REPORT, *supra* note 23, at 249.

²⁰⁷ The controversies result from diverging interpretations of the Supreme Court's case law as well as from differing views regarding whether a present value calculation is in effect a prejudgment interest calculation that is legally precluded. Cf. *Concord Boat*, 21 F. Supp. 2d at 935–36.

explicitly pointed to these approaches as a justification for not recommending the introduction of pre-judgment interest.²⁰⁸

Finally, and most important, the automatic trebling of damages guarantees that a successful claimant receives more than necessary to make him whole for the overcharge plus the cost of time.

2. *England and Wales*

There are two²⁰⁹ legal institutions in English law that can lessen the importance of an award of interest for the victim or substitute for it. First, pre-judgment interest is of lesser importance to the extent the plaintiff can obtain an order of (partial) interim payment. Both the CAT and the High Court may make such order on account of any damages if either (1) the defendant against whom the order is sought has admitted liability to pay damages or (2) if the court is satisfied that, if the claim were to be heard, the claimant would obtain judgment for a substantial amount of money (other than costs) against the defendant,²¹⁰ or (3) if the plaintiff has obtained judgment on the substance of the claim.²¹¹ In any case, the interim payment must not exceed a reasonable proportion of the likely amount of the final judgment.²¹² In *Healthcare at Home Ltd. v. Genzyme Ltd.*,²¹³ which concerned an unlawful margin squeeze, the CAT made an interim payment order of £ 2 million.²¹⁴ The case was subsequently settled.

Second, interest might become secondary if punitive or exemplary damages are available, which is in principle the case in England.²¹⁵ Importantly, however, the High Court has held that, where a defendant has already been or-

²⁰⁸ See *supra* note 45; see also Lande, *Are Antitrust "Treble" Damages Really Single Damages?*, *supra* note 12, at 130 n.57 (considering it an implicit compensation of prejudgment interest when damages for a destroyed business or for lost goodwill include forgone (expected) future profits. However, this type of situation usually does not arise in cartel cases.).

²⁰⁹ One might just as well also include interest as damages pursuant to common law in this Part as a third alternative compensation mechanism. In fact, the German equivalent to interest as damages pursuant to English common law is an award of consequential damages. In view of the commonalities between interest on damages and interest as damages in English law (*see supra* text accompanying notes 122–123), we decided to present both in the same subsection.

²¹⁰ For the CAT: rule 66 of the CAT rules 2015, rule 46 of the CAT rules 2003; for the High Court: Section 32 of the Senior Courts Act 1981; BREALEY & GREEN, *supra* note 15, ¶¶ 8.64–8.65; Lesley Farrell et al., *United Kingdom, Private Enforcement*, 3 EUR. ANTITRUST REV. 238 (2011).

²¹¹ Section 32 of the Senior Courts Act 1981; BREALEY & GREEN, *supra* note 15, ¶¶ 8.31–8.36. This seems only possible since the CAT rules 2015 are in force (R. 66(4)(b)); the predecessor provision in the CAT rules 2003, R. 46, did not provide for that possibility.

²¹² Farrell et al., *supra* note 210.

²¹³ [2006] CAT 29.

²¹⁴ BREALEY & GREEN, *supra* note 15, ¶ 8.64.

²¹⁵ *Id.* ¶¶ 16.55–67; Barry Rodger, *Private Enforcement and the Enterprise Act: An Exemplary System of Awarding Damages*, 24 EUR. COMPETITION L. REV. 103, 110–11 (2003).

dered to pay a substantial fine, for example by the CMA or the European Commission, exemplary damages are to be excluded due to the principle of *ne bis in idem* (equivalent of double jeopardy). In addition, the court argued that Article 16 regulation 01/2003,²¹⁶ which provides that Commission decisions on matters of European competition law are binding for national courts, precludes an award of exemplary damages.²¹⁷ Based on this case law, a court might be inclined to award exemplary damages where there have been no administrative proceedings and a claimant has been harmed by particularly serious anticompetitive behavior.²¹⁸

In July 2011, the CAT, for the first time, awarded exemplary damages in a case concerning abusive predatory practices. The CAT considered these practices to be conduct calculated to make a profit that may well exceed the compensation payable to the claimant, justifying exemplary damages.²¹⁹ The CAT awarded interest only on the compensatory part of damages, arguing that interest is intended to compensate the claimant for being deprived of money.

3. Germany

Concerning German law, a claimant who has lost or had to pay interest at a rate above the statutory rate may claim such losses as damages pursuant to Section 288(4) BGB.²²⁰ The amount of interest recoverable in addition to the statutory rate is determined by the excess interest forgone or paid, respectively,²²¹ which the claimant must set out and prove on a case by case basis. An abstract calculation is permitted for banks only.²²²

Important applications are that the victim has taken out a loan at an interest rate exceeding the statutory rate or has missed a corresponding investment rate of interest.²²³ To be entitled to damages for such losses, it is not necessary that the credit has been taken strictly because of the “initial” damages claimed

²¹⁶ Council Regulation No. 1/2003, 2003 O.J. (L 1) 1.

²¹⁷ *Devenish Nutrition Ltd. v. Sanofi-Aventis SA* [2007] EWHC 2394 (Ch), ¶¶ 54–55; *upheld by Devenish Nutrition Ltd. v. Sanofi-Aventis SA (France)* [2008] EWCA Civ. 1086; on this case, also see BREALEY & GREEN, *supra* note 15, ¶¶ 16.58–16.64; Farrell et al., *supra* note 210, at 237; Simon Holmes et al., *United Kingdom: Cartels*, 2 EUR. ANTITRUST REV. 239 (2010); *see generally* WHISH & BAILEY, *supra* note 18, at 335.

²¹⁸ WHISH & BAILEY, *supra* note 18, at 335; *see also* JOHN F. CLERK & WILLIAM H.B. LINDSELL, *TORTS* ¶¶ 28.133–28.148 (21st ed. 2014).

²¹⁹ *2 Travel Grp. PLC (in liquidation) v. Cardiff City Transp. Servs. Ltd.* [2012] CAT 19, ¶¶ 461 et seq.

²²⁰ LOGEMANN, *supra* note 23, at 267–68.

²²¹ GELZER, *supra* note 90, ¶ 280.

²²² BGH 6 NJW-RR 1406 (1991); BGH 41 NJW 1967, 1969–1970 (1988); Grüneberg, *supra* note 138, at § 288 BGB ¶ 13.

²²³ Löwisch & Feldmann, *supra* note 138, § 288 ¶ 41, 43–52 (forgone investment rate, investment losses), ¶¶ 53–62 (credit costs).

(e.g., the payment of the overcharge).²²⁴ Furthermore, with businesspeople regularly utilizing credit, it is presumed that they would have paid back standing loans if they had not suffered losses from the defendant's illegal conduct.²²⁵

4. France

As, according to French law, damages are determined at the time of the judgment, in principle the assessment encompasses all losses sustained until that date, including those caused by the delay between the violation and compensation.²²⁶ The victim may thereby be compensated "indirectly" for having been kept out of money by adding losses to the award that arose because the violation deprived the victim of funds.²²⁷ In this respect the French courts seem generally open towards awarding damages for lost profits (*lucrum cessans*) under the doctrine of "perte d'une chance."²²⁸ However, the reasoning of the judgment may not be explicit in this regard and therefore whether such damages were awarded cannot always be readily ascertained.²²⁹ The plaintiff may thus obtain interest actually spent or forgone on a case-by-case basis irrespective of an order pursuant to Article 1231-7 paragraph 1, sentence 2 Code Civil (former Article 1153-1 paragraph 1 sentence 1).²³⁰ Furthermore, French courts have occasionally allowed for generous awards of consequential damages, which may de facto have the effect that losses, even if denominated in currency units, are inflated to the date of the legal decision.

For instance, the Cour d'Appel de Paris (CA Paris) found in *Pompes Funèbres* that losses caused directly by a dominant company's market foreclosure and auxiliary cartel agreements had a negative impact on the liquidity position of the aggrieved company.²³¹ Without the antitrust law violation, that company could have reinvested the forgone profits or used them to pay off

²²⁴ BGH 37 NJW 371 (1984); OLG Karlsruhe, VersR 1992, 173.

²²⁵ BGH VIII ZR 35/90, 6 NJW-RR 793-794 (1991); BGH VI ZR 306/03, 20 NJW-RR 611, 613 (2005); Grüneberg, *supra* note 138, § 288 BGB ¶14; Klaus J. Hopt, *in* HANDELSGESETZBUCH § 352 ¶ 5 (Adolf Baumbach & Klaus J. Hopt eds., 37th ed. 2016); Löwisch & Feldmann, *supra* note 138, § 288 ¶ 48.

²²⁶ CHARTIER, *supra* note 155, ¶ 420, at 524.

²²⁷ *Cf.* Ancel & Beroujon, *supra* note 173, ¶ 120 (pointing out that the judge in first instance makes an independent assessment in this respect that the Cour de Cassation cannot control).

²²⁸ VINEY, JOURDAIN & CARVAL, *supra* note 33, ¶ 251, at 46-47; *id.* ¶¶ 280-284, at 130-49 (in further detail); Louis Vogel & Joseph Vogel, *supra* note 168, at 209, 227-29, ¶¶ FR-069 to FR-077.

²²⁹ Ancel & Beroujon, *supra* note 173, ¶ 120.

²³⁰ *See generally* GUIDE JURIDIQUE DALLOZ, *supra* note 184, at n° 308-1.

²³¹ CA Paris, 23 juin 2004, SARL Exploitation des Marbreries Lescarcelle, SA Pompes funèbres des Memoris, L'Union Nationale des Entreprises de Services Funéraires C/Société OGF (SA Pompes Funèbres Générales), with a comment on this aspect by André, RLC 2005/n°2, n° 160, 86; *see also* ROGER BOUT ET AL., *supra* note 154, n° 1426, at 537-38 (on this case and related cases).

debts or to make profitable financial investments. Therefore, the court awarded considerable additional damages corresponding to about 27 percent of the total award, or 37 percent of the “initial” (basic) losses for each of the two claimants.²³² Given this background, interest on damages as such was awarded only from the pronouncement of the judgment.

D. INFLATION

The third and final potential instrument in the legal toolbox, accounting for inflation as part of the damages assessment, turns out to be of little help for cartel victims. At first glance, this conclusion would seem to depend on the reference point for assessing damages. If the assessment is made *ex ante*, i.e., at the point when the loss occurred, inflation does not come into play. If, to the contrary, damages are assessed *ex post*, i.e., at the time of the judgment—as in France and Germany—one might be tempted to infer that damages were automatically adjusted for inflation. Actually, however, it depends on whether damages are determined by the restitutionary purpose (valorism²³³) or whether they are fixed in currency units (nominalism²³⁴). In continental jurisdictions (Germany, France), nominalism applies if losses are denominated in currency units right from their occurrence, which is the case with cartel overcharges.²³⁵ The defendant is then simply required to repay the overcharge nominally, so that compensation for inflation hinges on the level of interest.

In fact, the preceding subsections have already made clear that, in the jurisdictions surveyed here, inflation plays at most a very limited role in the assessment of cartel damages.

In the United States, there does not seem to be a clear general case law as to whether damage awards may or even should account for inflation between the loss and the judgment, e.g., by calculating damages as present values. As described above, some courts have taken inflation into account, while others reject this approach.²³⁶ In any case, it is considered rather unlikely that the devaluation of money will be taken into account in cartel cases.²³⁷

²³² Because of direct losses from exploitation and the “subreption” of clients the two claimants received €295.000 and €1.042.304, respectively; damages due to consequential effects on their liquidity positions amounted to another €108.000 and €401.280, respectively.

²³³ For an explanation of the term, see *supra* text accompanying notes 159–160.

²³⁴ For an explanation of the term, see *supra* text accompanying notes 39–40.

²³⁵ In contrast, valorism would apply, for instance, if the victim is a former maverick firm that has been driven out of the market by a cartel. Then, according to German law, the damage suffered is the difference between the actual value of the victim’s business at the end of the civil proceedings and its hypothetical value if the damaging event had not occurred, including inflationary price increases.

²³⁶ See *supra* text accompanying notes 203–207.

²³⁷ Lande, *Are Antitrust “Treble” Damages Really Single Damages?*, *supra* note 12, at 130 n.57.

In England and Wales, inflation is not an explicit determinant of the legal interest rate. Furthermore, the approach of the English courts does not seem to make sure that the interest rate exceeds the inflation rate. The judge has, however, a wide discretion that in principle makes it possible to account for inflation implicitly if this is deemed suitable in a particular case.²³⁸ In addition, the possibility to obtain additional interest as damages might occasionally enable a claimant to make up for inflation.

In Germany, as in England, inflation is not an explicit determinant of the legal interest rate. So far, however, German law has always specified a level of interest considerably above the inflation rate.²³⁹ Should this at some point not be the case, the right to claim further damages exceeding the legal interest rate (Section 288(4) BGB) will again come into play. According to the dominant view, the plaintiff can rely on this provision if the debtor's performance has been devalued by inflation.²⁴⁰ The interest already due pursuant to Section 288(1), (2) BGB is offset from the devaluation because these provisions, too, aim at compensating for inflation.²⁴¹ In normal times, it will therefore not be possible to claim additional compensation for inflation. Indeed, until now, an award on such a claim has not occurred.²⁴²

In France, the legal situation at first looks similar in that inflation is not an explicit factor in the interest calculation. However, inflation is taken into account indirectly via the formula for setting the statutory interest rate.²⁴³ In addition, it may come into play when assessing consequential damages caused by the deprivation of funds from the loss until compensation. Insofar as such damages refer to forgone business opportunities, inflation is in principle automatically compensated for by determining damages at the time of the judgment.²⁴⁴ But again, it must be kept in mind that nominalism applies to claims

²³⁸ See *supra* text accompanying note 87; PROCTOR, *supra* note 24, ¶¶ 10.18–10.21, 10.24.

²³⁹ See LOGEMANN, *supra* note 23, at 267. In view of the currently low level of interest, the statutory interest rate is very advantageous for the creditor.

²⁴⁰ Johannes Hager, in *BÜRGERLICHES GESETZBUCH*, § 288 BGB ¶ 16 (Walter Erman ed., 14th ed. 2014); Ernst, *supra* note 151, § 286 ¶ 151; Löwisch & Feldmann, *supra* note 138, § 286 ¶ 212.

²⁴¹ Hager, *supra* note 240, § 288 BGB ¶ 16; Löwisch & Feldmann, *supra* note 138, § 286 ¶ 212.

²⁴² Hager, *supra* note 240, § 288 BGB ¶ 16.

²⁴³ Until the end of 2014, it could be argued that the rate of return of state bonds was, at least in principle, influenced by the inflation rate. Since January 1, 2015, the statutory rate is derived from the European Central Bank's key rate for the main refinancing operations and rates practiced by credit institutions and financing companies, which are again influenced by the inflation rate.

²⁴⁴ Cf. VINEY & JOURDAIN, *supra* note 157, ¶¶ 69–70, at 192–96; LE TOURNEAU, *supra* note 155, at n° 2652, 832; WOLFGANG WURMNEST, *GRUNDZÜGE EINES EUROPÄISCHEN HAFTUNGSRECHTS* 247 (2003); HERBERT GIESE, *DOMMAGES-INTÉRÊTS* 105 et seq. (1967).

for excess payments, i.e., losses that are already initially denominated in currency units.

III. STYLIZED SIMULATIONS

The comparative legal study in the previous part has identified substantial differences in the way four major competition law jurisdictions deal with interest and inflation in calculating damages in cartel cases. The following Part simulates, based on a real-world dataset from the U.S. lysine cartel, how the divergences can influence damage awards if victims of a cartel with identical economic characteristics claim damages pursuant to English, German, French, and U.S. federal law as surveyed above. We thereby illustrate the practical implications of the different legal techniques empirically and explain which elements drive the results. The insights are directly helpful for victims of international cartels when considering litigation strategies and for evaluating proposals for legislative reform. At the same time, our approach is a first step towards a quantitative comparative law and economics analysis of the law on interest in the field of tort law.

A. REFERENCE CASE: THE U.S. LYSINE CARTEL (1992–1995)²⁴⁵

Lysine is an essential amino acid that helps to speed the development of muscle tissue in humans and animals. From the beginning of lysine production in the 1960s until the early 1980s, the world supply of lysine was produced almost entirely by two Japanese firms “acting as one.” In 1980, a South Korean firm successfully entered the market on a smaller scale, followed in the early 1990s by Archer-Daniels-Midland (ADM) in the United States and Cheil Sugar Co. in South Korea. The large-scale entry of ADM, in particular, intensified industry competition substantially,²⁴⁶ causing lysine prices to fall by 45 percent in the first 18 months after ADM had started to operate in the market.

The two Asian incumbents and ADM then set up a lysine trade association which, according to the subsequent public prosecution, implemented and managed a cartel starting in August 1992, joined later by two other major lysine producers. Figure 1 illustrates the subsequent substantial market price increase to \$0.98 per lb. in the November 1992 to January 1993 time frame. In

²⁴⁵ For detailed descriptions of the lysine cartel in the United States, see JOHN M. CONNOR, *GLOBAL PRICE FIXING* 167–237 (2d ed. 2007); John M. Connor, “*Our Customers Are Our Enemies*”: *The Lysine Cartel of 1992–1995*, 18 *REV. INDUS. ORG.* 5–21 (2001); John M. Connor, *Global Cartel Redux: The Amino Acid Lysine Antitrust Litigation (1996)*, in *THE ANTITRUST REVOLUTION* 252–76 (John E. Kwoka & Lawrence J. White eds., 4th ed. 2004); Lawrence J. White, *Lysine and Price Fixing: How Long? How Severe?*, 18 *REV. INDUS. ORG.* 23–31 (2001).

²⁴⁶ Connor, *Global Cartel Redux*, *supra* note 245, at 259. By 1993, ADM accounted for one-third of global capacity (780 million pounds).

early 1993, a price war broke out, causing price to decline to \$0.62 in June 1993 because the cartel members were temporarily unable to agree on global market shares. However, after a couple of months they managed to reinstate cartel prices at around \$1.20, which were maintained until June 1995, when the cartel broke down due to FBI dawn raids and other evidence obtained mostly by an informant.

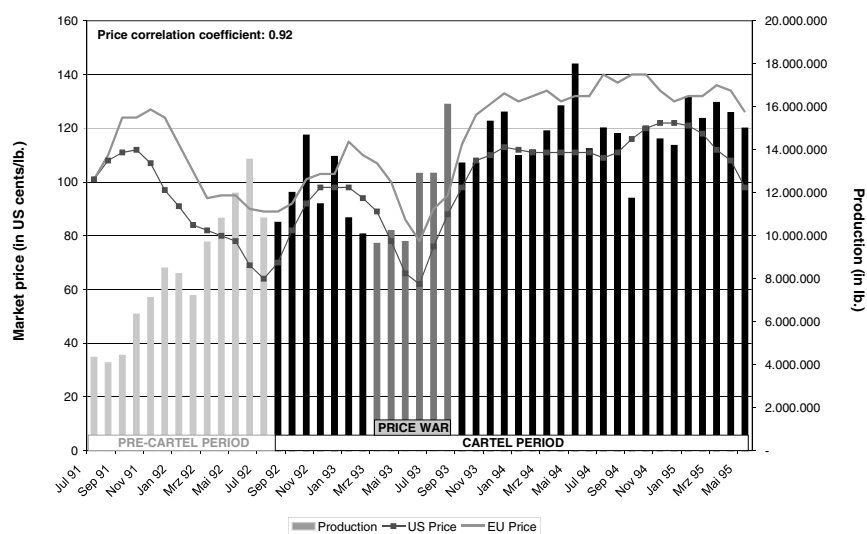


FIGURE 1: AVERAGE MONTHLY LYSINE PRICES AND ADM'S LYSINE PRODUCTION BETWEEN JULY 1991 AND JUNE 1995²⁴⁷

In the aftermath of the cartel's detection, antitrust actions were filed in the United States. Most were settled quickly in July 1996, with three cartel members agreeing to pay damages of (in sum) about \$45 million to the plaintiffs.²⁴⁸ The criminal prosecution in the United States resulted in corporate fines of \$92.5 million in August 1998 and prison terms totaling 99 months.

²⁴⁷ KAI HÜSCHEL RATH, *COMPETITION POLICY ANALYSIS—AN INTEGRATED APPROACH* (2009) (based on raw data from Connor, *Global Cartel Redux*, *supra* note 245, at 261).

²⁴⁸ Connor, *Global Cartel Redux*, *supra* note 245, at 301; CONNOR, *GLOBAL PRICE FIXING*, *supra* note 245, at 395–98. Plaintiffs who had opted out or otherwise were not included in the class settled subsequently. Further particulars on these settlements are unknown. See John M. Connor, *ADM—Price Fixer to the World* 70, 132–36 (Purdue Univ. Agric. Econ. Staff Paper 00-11, 4th ed. 2000), ageconsearch.umn.edu/handle/28664.

1. *Cartel Duration and Overcharge*

Theoretically, the finding that the cartel operated from August 1992 to June 1995, with a price war between March and August 1993, can be construed in two ways. A temporary price war can either put an end to a first anticompetitive agreement, which is later followed by a distinct second cartel, or it can merely suspend a single continuous violation. According to the public prosecution, the lysine cartel falls into the latter category.²⁴⁹ We therefore assume a single conspiracy during the entire period. For simplicity, we assume that the beginning and the end of the cartel's operation also mark the beginning and the end of its effect on the market price, ignoring a possible transition period.²⁵⁰

Based on Connor's analysis,²⁵¹ we calculate a monthly cost-based "but-for" price by adding to monthly estimates of ADM's average total cost (ATC) of lysine production an average return on investment of 6 percent of sales. This yields a but-for price of about \$0.80 on average over the entire cartel period. This cost-plus approach has been criticized for producing unreasonably low but-for price estimates.²⁵² Our overcharge calculation may therefore be considered as an upper bound. However, because our analysis is focused on the relative effects of various legal regimes' treatment of interest and inflation, the analysis does not depend in any meaningful way on the level of the overcharge.

2. *Overcharge Damages Amount*

Building on the estimates derived above, the overcharge damages caused by the lysine cartel in the United States should ideally be calculated by subtracting the monthly but-for prices from actual prices and multiplying the re-

²⁴⁹ According to the European Courts, a single and continuous infringement exists if all actions in question are inspired by one and the same anticompetitive purpose, i.e., if they are part of a series of efforts made by the undertakings in question in pursuit of a single anticompetitive aim. *Joined Cases T-25/95 et al., Cimenteries CBR*, 2000 E.C.R. II-491, ¶¶ 2426, 4674; *Case T-7/89, Hercules Chemicals*, 1991 E.C.R. II-1711, 262–63. This was obviously the case with the lysine cartel. Accordingly, the cartel members were prosecuted and sentenced for one continuous infringement in Europe as well as in the United States. *See Case C-397/03 P, Archer Daniels Midland*, 2006 E.C.R. I-4429, ¶¶ 8–17.

²⁵⁰ As mentioned by White, a confidential report by Connor argued that lysine prices remained at an elevated level in the months after the detection by the FBI, partly due to lags in raising production post-cartel. He therefore extended the cartel period to December 1995. White, *supra* note 245, at 27.

²⁵¹ Connor, *Global Cartel Redux*, *supra* note 245, at 269 et seq.

²⁵² White argues that the lysine industry "had virtually all of the characteristics of an industry in which implicit oligopolistic coordination of some kind would likely have arisen in the absence of the explicit conspiracy." White, *supra* note 245, at 28. In his view, the true but-for price is therefore likely to be significantly higher than the estimates resulting from either the cost-based or the before-and-after approaches applied by Connor.

sult (the overcharge per unit) by monthly sales. However, sufficiently detailed sales data needed to perform this calculation are unavailable. We must therefore fall back on an approximation in which we assume that the whole monthly production is sold in the same month at the U.S. market price.

Conceiving of the lysine cartel as a single continuous violation implies that, insofar as prices fell below the (hypothetical) competitive level during the price war, the cartel temporarily turned out to be advantageous for the customers. From a legal as well as an economic point of view, these advantages have to be offset against the disadvantages.²⁵³ For this reason, in our simula-

²⁵³ From a legal perspective, this holds for all legal systems considered in this article. U.S. law requires the value of a benefit specially conferred on the plaintiff as a result of the defendant's tortious conduct to be considered in mitigation of damages, provided that the benefit is to the same interest of the plaintiff as that which has been injured, and only to the extent that this is equitable. 4 HARPER, JAMES AND GRAY ON TORTS § 25.4, 613, 616 (3d ed. 2007); 4 RESTATEMENT OF THE LAW 2ND, TORTS § 920 and comments (a–f) (AM. LAW INST. 1979). With a cartel price war, one might object that the subcompetitive prices benefit every buyer during the price war, irrespective of whether this buyer has previously been damaged by the cartel. Based on this, the respective benefit might seem common to the community, i.e., not specially conferred on the plaintiff, which would exclude mitigation. See RESTATEMENT OF THE LAW 2ND, TORTS, *supra*, § 920 comment (c). However, this argument presupposes a rather low intersection between the set of customers during the cartel period and the set of customers during the price war. Therefore it is not a convincing argument for cartels in product markets with stable supplier-customer relationships. Such relationships are common in industries like lysine, where intermediate products are produced by an oligopoly.

The legal position in English law is similar to that of U.S. law, albeit less clearly articulated. Again, benefits received by the claimant as a result of the tort may reduce recoverable damages. See PERCY H. WINFIELD & JOHN A. JOLOWICZ, TORT ¶ 23-085 (19th ed. 2014); CLERK & LINDSELL, *supra* note 218, ¶¶ 28-44–28-53 (with respect to personal injury), besides ¶ 28-124 (betterment). The guiding criterion is whether the benefit received is sufficiently causally connected with the defendant's wrongdoing to require it to be taken into account. The issue is of general application in contract law as well as in tort law. Most of the authorities relate to the first field, but the broad principles are considered equally applicable to torts. WINFIELD & JOLOWICZ, *supra*, ¶ 23-085.

In German law, the question whether benefits that flow from the tortious act have to be offset from recoverable damages is governed by the legal institution of *Vorteilsausgleichung*. It implies, according to the relevant case law, that benefits reduce damages if—first—there is a sufficient causal link between the damaging event and the benefit (*adäquater Kausalzusammenhang*), and—second—deducting the benefit from recoverable damages is compatible with the purpose of the right to damages, i.e., it neither places an unreasonable burden on the injured party nor favors the infringing party unfairly. These broad criteria are fleshed out with groups of cases with distinct features. See generally Frank Ebert, in BÜRGERLICHES GESETZBUCH, *supra* note 240, Vor §§ 249–253, ¶¶ 82-117; Grüneberg, *supra* note 138, Vorb. v. § 249 ¶¶ 67–101.

In contrast to the aforementioned jurisdictions, there is no clearly defined legal institution in French law that deals with the consideration of benefits conferred on the plaintiff in the wake of the tortious conduct. Nevertheless, if the tortious conduct itself causes damages as well as benefits, the legal assessment is ultimately broadly in line with the other jurisdictions analyzed here. In principle, it is well-accepted in French law that an award of damages shall not enrich the plaintiff. See LE TOURNEAU, *supra* note 155, n° 2523, 797, n° 2525, 798, n° 2545, 805; CHARTIER, *supra* note 155, ¶ 456, at 568; CÉCILE LE GALLOU, LA NATION D'INDEMNITÉ EN DROIT PRIVÉE ¶ 370, at 292–93 (2007); GIESE, *supra* note 244, at 75. For this reason, benefits that are due to the tortious conduct, i.e., that did not arise independent of the damaging event, may reduce the damage sustained. See GIESE, *supra*, at 75; VINEY, JOURDAIN & CARVAL, *supra* note 33,

tion, the resulting negative damage amounts (“undercharge”) reduce overall overcharge damages. This yields the (non-inflated) monthly overcharge damages reported in Table 1. They add up to a total of about \$109.32 million.

TABLE 1: MONTHLY OVERCHARGE DAMAGES CAUSED BY THE
LYSINE CARTEL (IN US\$, NON-INFLATED)

	January	February	March	April	May	June
1992	-	-	-	-	-	-
1993	1,949.703	1,411.454	867.785	-204.809	-1,362.044	-2,322.302
1994	4,393.143	4,337.214	4,611.960	4,974.523	5,576.651	4,354.549
1995	6,751.525	5,872.666	5,186.046	4,405.454	2,700.765	2,360.791
	July	August	September	October	November	December
1992	-	-1,062.380	240.304	1,762.119	2,068.038	2,463.935
1993	-516.436	1,289.656	2,409.577	3,749.698	4,599.603	5,198.980
1994	4,355.385	4,573.985	4,228.594	6,035.748	6,091.029	5,963.727
1995	-	-	-	-	-	-

Source: Authors’ calculations based on data from Connor, *Global Cartel Redux*, *supra* note 245, at 261.

We use these values as the starting point to calculate the final damage amounts including interest and inflation.

B. SIMPLIFICATIONS AND ASSUMPTIONS

1. Simplified Accounts of National Legal Systems

As shown in Part II above and summarized in Table 3 in the Appendix, national legal systems differ significantly in the way they take interest and inflation into account. To compare the corresponding effects of these different rules and regulations, we hold the occurrence and the magnitude of the dam-

¶ 249, at 26–27. Such a deduction requires more than mere causality between the damage and the benefit. See GIESE, *supra*, at 75; see, e.g., LE TOURNEAU, *supra*, n° 2543, 804 (death benefit from the employer after a fatal accident does not affect damages, as they do not have a compensatory purpose; no reduction of damages if injured victim develops an activity from which it earns considerable revenues because that is not a necessary consequence of the damaging act). Furthermore, benefits common to a wider community that are not specially conferred on the plaintiff are not considered as mitigating. See GREGOR THÜSING, WERTENDE SCHADENSBERECHNUNG, 2001, 223; Conseil d’État, 16.4.1913, Rec. CE 1913, 418 et seq.; Conseil d’État, 22.11.1971, JCP 1973, II, 17301. All in all, French courts tend to be more restrictive than their common-law counterparts in accepting benefits as mitigating. See VINEY & JOURDAIN, *supra* note 157, ¶ 100, at 248–53. Apart from these broad guidelines, generally applicable criteria have not been developed. GIESE, *supra*, at 75. This is probably explained by the fact that French judges enjoy a wide discretion when determining the amount of damages, without being obliged to state precisely the elements that led them to come to a certain award. See VINEY & JOURDAIN, *supra* note 157, ¶¶ 61–62 (first instance), 63–66 (control on appeal), 177–81, 181–90; LE TOURNEAU, *supra*, n° 2515, 794; Hans Jürgen Sonnenberger, in Festschrift für Reinhold Trinkner 723, 730 (1995).

ages constant by always starting with the overcharge damages from the U.S. lysine cartel, and then apply the different laws on interest.²⁵⁴ In a nutshell, we subject an identical violation (the U.S. lysine cartel) to different legal treatments of interest as found in different legal systems.

Naturally, a comparative simulation must concentrate on a standardized scenario that abstracts from aspects that are specific for a given cartel victim. In particular, a simulation, if it is to be based on real-world data on cartel damages, cannot account for consequential damages for lost profits and for interest on damages on a plaintiff-by-plaintiff basis. This reflects the typical situation of cartel victims who did not incur or are not able to prove a respective damages position, which seems most likely for end consumers. Consequently, we focus on the first of the three instruments in the legal toolbox described above by discussing the following simplified accounts of national legal systems and their approaches to interest and inflation:

- **U.S. federal law:** Insofar as claims for damages are based on federal anti-trust law, pre-judgment interest is generally not available. However, an antitrust plaintiff may at least obtain an award of post-judgment interest pursuant to 28 U.S.C. § 1961 from the date the judgment is entered.
- **English law:** Cartel damages (the overcharges collected) bear simple interest as soon as they occur based on the LIBOR or the Bank of England base rate plus one to three percentage points. We assume the Bank of England base rate plus an add-on of two percentage points. We abstract from the possibility of claiming compound interest as damages. From the time of entering the judgment, the damages awarded carry interest at the rate on judgment debts of 8 percent.
- **German law until June 2005:** According to the conventional view, German law that was in force until 2005 provided for simple interest only after the service of the claim for damages.²⁵⁵ As the exact date of service of the claim is not publicly available, we assume this date to correspond to the date of the first civil judgment. We abstract from the rather recent view, which we support, that interest should be awarded from the time of the loss at a 4 percent annual rate pursuant to § 849 BGB, to give a more realistic picture of practice and case law as it existed. We also abstract from the possibility of claiming compound interest, which seems to be a reasonable approximation, in particular for the situation of consumer plaintiffs.
- **German law since July 2005:** To illustrate the current legal situation, we also simulate damages pursuant to current German law, hypothetically bringing the reform forward to cover the time of the cartel. While the re-

²⁵⁴ We refrain from a discussion of inflation in the following as neither the legal systems analyzed above nor the economic approach demand an explicit consideration of inflation.

²⁵⁵ If the defendant did not come into default earlier, e.g., because the claimant demanded damages before filing a claim by sending a reminder.

form left interest rate provisions unchanged, it introduced accrual of simple interest from the time of the loss. For our simulations, we “backcast” the situation before 2005 by applying the respective German national interest rates valid at the time, including their subsequent changes.²⁵⁶

- **French law:** Simple interest accrues by default from the date of the civil judgment. We abstract from the possibility that a cartel victim puts the cartel members in default earlier with a request for payment, triggering “*intérêt moratoire*.” Such a request is implied in the service of the claim, the exact date of which is however not publicly available. We assume that the judge does not award interest from an earlier point in time, as, so far, this is often not done and in any case seems rather unlikely for a period before the filing of the claim. A rational plaintiff will know that compound interest is available on request, but, based on the assumption that interest accrues only from the time of the judgment, cannot obtain compound interest from an earlier point in time.²⁵⁷ Furthermore, we assume that the judge does not make an order for provisional enforcement of the judgment that would increase the statutory interest rate.²⁵⁸ This seems likely if the case at hand raises complex and/or unresolved questions of law and/or if there is no reason to think that the claimant might not be able to obtain payment after litigation has been concluded. In addition, we abstract from the fact that French courts have occasionally awarded generous consequential damages which may de facto inflate losses to the date of the legal decision. Again, this scenario seems realistic, in particular, for consumers.²⁵⁹

Given the differences among the national systems in both substance of the law and in the interest rates applied, the interpretation of our simulation results must consider the development of the respective interest and inflation rates over time. Figure 2 plots monthly nominal pre-judgment interest and inflation rates from 1992 to 2011; German and French law use the same statutory rates for pre-judgment and post-judgment interest. National inflation is represented by consumer price indices taken from Inflation.eu data.²⁶⁰

²⁵⁶ This means that, when hypothetically backcasting the reform, we abstract from the provisions of German intertemporal law that would prevent the application of subsequent changes of the statutory interest rate. *See supra* note 148. This assumption yields a scenario that is a more accurate equivalent to the current legal situation with a flexible interest rate.

²⁵⁷ *Cf. supra* note 198 and accompanying text.

²⁵⁸ *See supra* text accompanying notes 186–193.

²⁵⁹ Besides, the publicly available data we use for our simulation do not include specific features for particular claimants, which would however be necessary for a simulation of consequential damages.

²⁶⁰ www.inflation.eu/inflation-rates/cpi-inflation-1990.aspx.

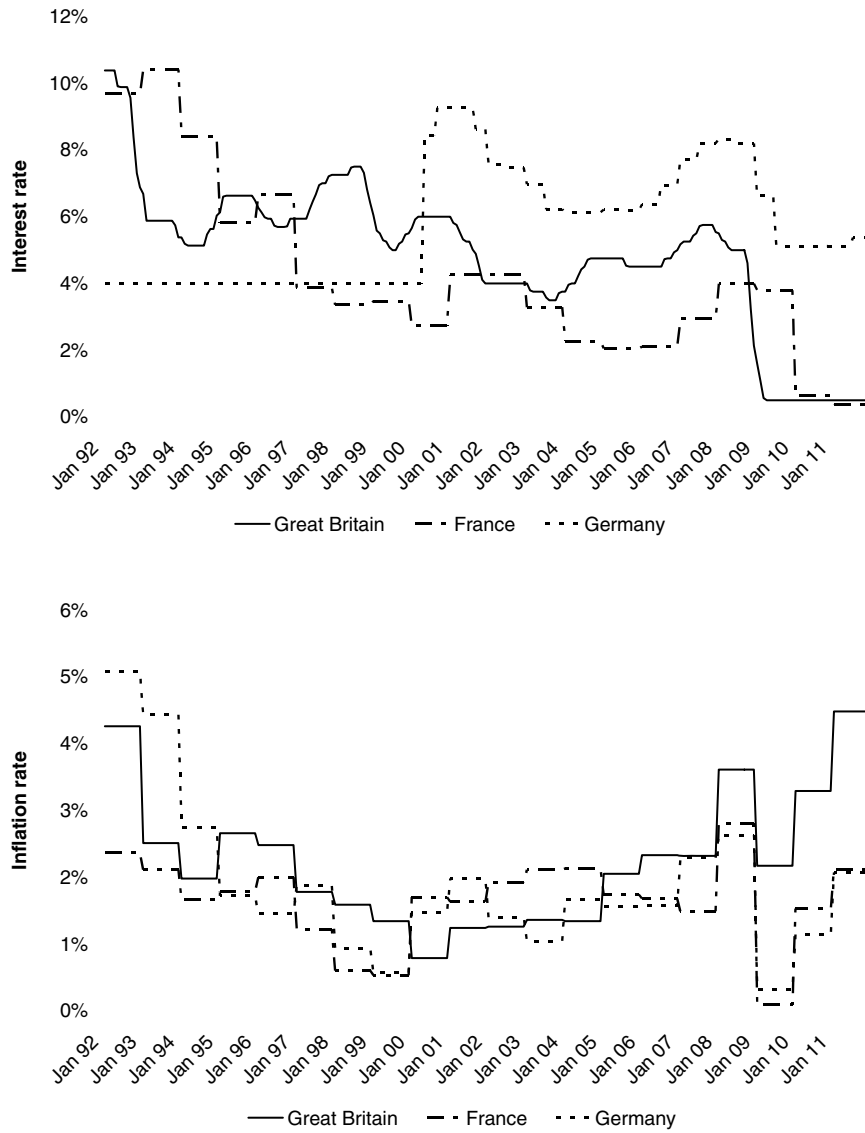


FIGURE 2: NATIONAL INTEREST RATES (UPPER CHART) AND INFLATION RATES (LOWER CHART) (1992–2011)

The French and English interest rates move in a roughly similar way—both following a general downward trend. By contrast, the German statutory interest rate was set by law at 4 percent before 2000 and subsequently (at least)

five percentage points above the relevant (central bank) base rate.²⁶¹ The recent macroeconomic developments led to a substantial spread between the very low interest rates in England and Wales and France and the still relatively high German interest rate due to the markup of (at least) 5 percent. After the reform of the French statutory interest rate in 2015 (not depicted in the chart), the French rates for private individuals come rather close to the German ones, whereas those for other persons are still substantially lower, though a bit less than before. In addition, Figure 2 shows that, compared to interest rates, inflation rates move much more closely together, exhibiting substantial differences only in the last few years.

2. *Scenarios of Private Enforcement*

The speed with which the class action against the participants in the U.S. lysine cartel settled has been considered unusual.²⁶² With cartel victims receiving settlement payments only 13 months after the discovery of the cartel, the additional losses related to the time value of money were limited. Further settlements reportedly were concluded between 1996 and 1998,²⁶³ i.e., up to three years after the cartel breakdown. But even these settlements occurred more quickly than the average delay between damages and judgment in a litigated case, which is estimated at eight to nine years.²⁶⁴ Especially for large cases that affect several Member States, the period might be much longer. In the United States and in the European Union, respectively, there have even been cases with cartel victims waiting 14 and more than 17 and even 20 years, respectively, until compensation.²⁶⁵ While these are upper-bound values, there

²⁶¹ Note, however, that it follows from German intertemporal law that the rate of 4% remains applicable for claims that have matured until 2000. *See supra* note 148. As explained, *supra*, in note 256, we abstract from this limitation when we hypothetically backcast the German reform of 2005 in a second simulation for Germany.

²⁶² John C. Coffee, *Securities Class Auctions*, NAT'L L.J., Sept. 14, 1998, at B:6, argues that the fact that the case settled "almost immediately" for a US\$25 million recovery was due to the fact that the district court had awarded the lead counsel position after conducting an auction which left the winning bidder with little incentive to maximize the recovery of the class. *See CONNOR, GLOBAL PRICE FIXING, supra* note 245, at 398 (concurring with Coffee's argument).

²⁶³ *See supra* note 248.

²⁶⁴ *See supra* note 13.

²⁶⁵ A first and recent illustrative example is the self-copying paper cartel case that has received much attention in Germany. The defendant had participated in a cartel from 1992 to 1995, for which it was fined by the European Commission in 2001. The decision was finally endorsed by the Court of Justice in 2009. Relying on the Commission decision, an indirect cartel customer instituted a follow-on claim for damages concerning the years 1994 to 1996. A judgment in first instance was handed down by the lower regional court of Mannheim in 2005 (LG Mannheim, judgment of 29.4.2005, case 22 O 74/04 Kart.) followed by a judgment on appeal (Berufung) by the higher regional court of Karlsruhe in 2010 (OLG Karlsruhe, judgment of 11.06.2010, case 6 U 118/05 (Kart.) (08), BeckRS 2011, 26582) and a further judgment on appeal in legal matters (Revision) by the German Federal Court in 2011, BGH, judgment of 28.06.2011, case KZR 75/01, WuW/E DE-R 3431-3446 = 65 NJW 928 (2012) = BGHZ 190, 145, which has remanded the case for further proceedings, 17 years after the start of the violation period. It is currently un-

is arguably a considerable percentage of cases where the private litigation alone lasts more than six years, to which the time elapsed between the occurrence of the damages and the start of the litigation must still be added.²⁶⁶ It is these cases where the law on interest plays a crucial role. In the light of the foregoing, two different scenarios suggest themselves for a simulation:

- **Scenario A**—Quick resolution scenario: A first simulation approach is based on the course of the lysine case in the United States, i.e., a very short period from the end of the cartel (in June 1995) to the filing of the private lawsuit (in September 1995) and the signing of a settlement agreement as a proxy for a final court decision (in July 1996). The actual specifics of the *Lysine* case are suitable to illustrate the effects of the different rules on post-judgment interest, but mask important characteristics of the national legal systems, which can affect the results substantially in long proceedings. This limitation motivates the second simulation scenario.
- **Scenario B**—Hypothetical follow-on *Lysine* case: The second simulation is a thought experiment concerning the consequences if the civil proceedings following the detection of the lysine cartel had been an (“EU type”) follow-on scenario in which, first, (putative) victims file a suit only after a (final) public decision, and second, the parties of the civil suit litigate through all

known to us how (or whether) the case has been concluded at the time of writing, in particular, whether it has settled.

A second recent and even more telling example is the related cartels in the chemical industry that received much attention in Germany and the Netherlands. Several chemical companies formed a cartel with respect to hydrogen peroxide and perborate from (at the latest) January 1994 to December 2000 and another cartel with respect to sodium chlorate from October 1994 to February 2000. The former cartel was fined by the European Commission in May 2006; the latter in June 2008.

CDC, a company established for the purpose of pursuing claims for cartel damages, sued members of both cartels in Germany and the Netherlands, respectively. As to the German suit, the European Court of Justice handed down a preliminary ruling in May 2015 only on the competence of the German courts—more than 20 years after the violation began. Case C-352/13, *Cartel Damage Claims (CDC) Hydrogen Peroxide SA v. Akzo Nobel NV*, ECLI:EU:C:2015:335 (ECJ May 21, 2015). With respect to the Dutch suit, the Court of Amsterdam finally decided only on the competence of the Dutch courts in July 2015. *Kemira Chems. OY v. CDC Project 13 SA*, No. 200 156 295/01, ECLI:NL:GHAMS:2015:3006 (Court of Amsterdam July 21, 2015).

A third example is the auto glass cartel. The cartel lasted from March 1998 to March 2003, was fined by the European Commission in 2008, and the higher regional court of Düsseldorf decided on the follow-on action for damages as recently as November 19, 2015—17 years after the cartel started.

There are similar, though a bit dated, examples from the United States. In *Hanover Shoe, Inc. v. United Shoe Machinery Corp.*, 392 U.S. 481 (1968), the time lag between the court decision convicting United Shoe of monopolization and the Supreme Court decision affirming an award to Hanover Shoe of treble damages reportedly was 14 years. JONES, *supra* note 23, at 230. In addition, *Fishman v. Estate of Wirtz*, which involved Sherman Act Section 1 and 2 claims, lasted 14 years. *Fishman v. Estate of Wirtz*, 807 F.2d 520, 583–84 (7th Cir 1986) (Easterbrook, J., dissenting).

²⁶⁶ See references *supra* notes 13 and 265.

instances.²⁶⁷ As representative cross-jurisdictional data on such cases is missing, this simulation requires assuming a fictitious scenario of a follow-on action based on illustrative realistic values. While these are naturally ad hoc, the simulation provides a useful demonstration of the significance that the law on interest has in protracted cartel cases. Moreover, the results are important even for quick settlements, as the consequences of lengthy proceedings determine the parties' outside options when bargaining. In our simulations below, we assume a period of eight years from the detection of the cartel to a civil judgment in first instance, followed by another eight years until the damages award becomes final on appeal—a time frame that is probably above average but still below the recent German self-copying paper cartel case, the German cases of the auto glass cartel and the hydrogen peroxide and perborate cartel, as well as the case of the sodium chlorate cartel brought in the Netherlands.²⁶⁸

C. RESULTS

In the framework just developed, national interest rates on the one hand and national approaches to interest and inflation as part of the damages assessment on the other are the two dimensions that may cause diverging awards. We first simulate the differences in the national legal systems as they stand in Scenario A (“quick resolution”) and Scenario B (“hypothetical follow on”), and then contrast the results with damages based on an economic approach where we assume interest rates of national 10-year government bonds of the respective state as a proxy for the risk-free rate.

1. *Simulation 1: National Legal Systems and National Interest Rates*

Simulated damages for existing national systems and national interest rates yield the compensation that would have been available for the Lysine cartel victims pursuant to the law of England and Wales, France, or Germany (pre- and post-amendment). As discussed above, forum shopping is actually possible to a certain extent with international cartels. The insights of the comparative simulations are therefore of immediate practical relevance.

²⁶⁷ This is likely, in particular, if many fundamental legal questions regarding cartel damage claims are still open, as is the case in most EU Member States, if the courts are less experienced in handling competition law actions for damages, or if the case is factually very complex and therefore conducive to conflicting economic expert opinions. In addition, corporate defendants might decide to go through all instances for commercial reasons (e.g., to reduce reputational damage and/or postpone or avoid exclusion from tenders).

²⁶⁸ See *supra* note 265.

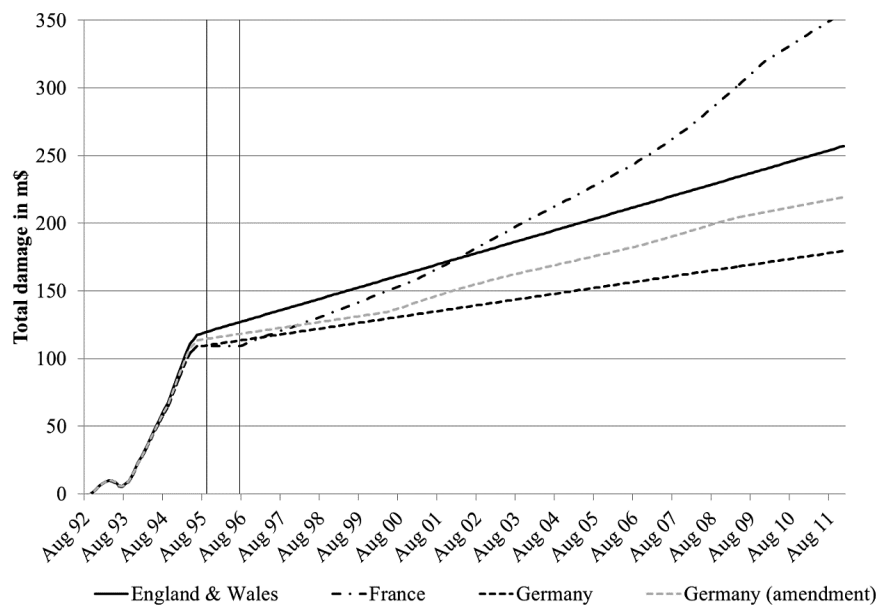


FIGURE 3: TOTAL DAMAGE AMOUNTS (INCLUDING INTEREST) FOR EXISTING NATIONAL SYSTEMS AND NATIONAL INTEREST RATES (SCENARIO A—EUROPE)

a. Scenario A

For illustrative purposes and as starting point for further discussion, Figure 3 plots the total damage amounts (including interest) in millions U.S.\$ for the four countries for Scenario A.

The starting points for the interest calculations depend on the jurisdiction under investigation. In England and Wales, interest accrues from the time of loss. By contrast, German law before 2005 provided for interest only from the filing of the lawsuit (in September 1995, marked by the first vertical line in Figures 3 and 4), and in France, interest on damage claims is granted as a rule only after the civil judgment (in July 1996, marked by the second vertical line in Figures 3 and 4 below). Technically, the damage amounts for Germany (before 2005) and France stay flat at \$109.32 million until September 1995 and July 1996, respectively. Had current German law, actually in force since 2005, already been introduced at the time of the cartel, interest would, like in England, have started to accrue from the time of the loss.

Figure 3 shows that damage amounts increased after the start of the cartel agreement in 1992, experienced a temporary downturn during the price war in 1993 (that reduced the cumulative damage amounts), and increased sharply until the cartel broke down in June 1995. As explained above—and reflected

in the graph—at that time, the overall overcharge damages caused by the cartel can be estimated at about \$109.32 million. Due to the quick resolution that is assumed in Scenario A, the time gaps between the different starting points for accrual of interest are relatively short.

Tracing—for illustrative purposes²⁶⁹—the development of damages post-judgment until August 2011, the French system would lead to the highest figure of \$350.01 million, followed by England and Wales with \$254.14 million (27 percent lower than France) and Germany with \$217.52 million (post-amendment) (38 percent lower than France) and \$178.0 million (pre-amendment) (49 percent lower than France). Although there are at least three potential causes for these substantial differences—compounding, the starting point for calculating interest, and the interest rate (which itself may change over time)—a large fraction of the differences is explained by the fact that the French system is the only jurisdiction to allow for compound interest after a first court decision.²⁷⁰ In the specific scenario considered here, the compound interest effect is stronger over time, leading to a higher French damages figure from the year 2002 onwards, although the relevant interest rates in England and Wales and Germany were mostly higher than the French interest rate and although England and Wales grant simple interest on damages from the time of the loss. This result forcefully illustrates the usually neglected and often underestimated effect of compound interest.

The change in the German interest rate (which applies to damage claims) in the year 2000 is reflected in the graph by an increase in the slope of the German damages line post-amendment.²⁷¹ The recent substantial drop in French interest rates manifests itself in a flattening of the French damages line. No such changes occur in the England and Wales damages line because post-judgment interest is fixed at 8 percent after the judgment in July 1996.

Figure 4 compares the European total damage amounts with the corresponding (hypothetical) U.S. values. The mandatory trebling of damages leads to a damages figure of \$327.96 million at the time of the cartel breakdown. As post-judgment interest is available in the United States, the sum increases due

²⁶⁹ We are fully aware that the long time period from the end of the final court decision to the end of the interest-relevant period is rather unrealistic in practice. However, to illustrate the effect of granting compound interest, which is available only in France and the U.S. post-judgment, as well as for reasons of comparability with the results of our “more realistic” Scenario B, we decided to use August 2011 as the end of the interest-relevant period for Scenario A as well.

²⁷⁰ For the case of Scenario B below, this effect will also be demonstrated (in Figure 7) as part of an application of the “Economic Approach” that, *inter alia*, introduces compounding from the date when the losses occurred.

²⁷¹ On the hypothetical character of this scenario, abstracting from provisions of German intertemporal law. *See supra* note 256 and accompanying text.

to the addition of post-judgment interest starting in July 1996 and reaches a final value of \$770.10 million in August 2011.

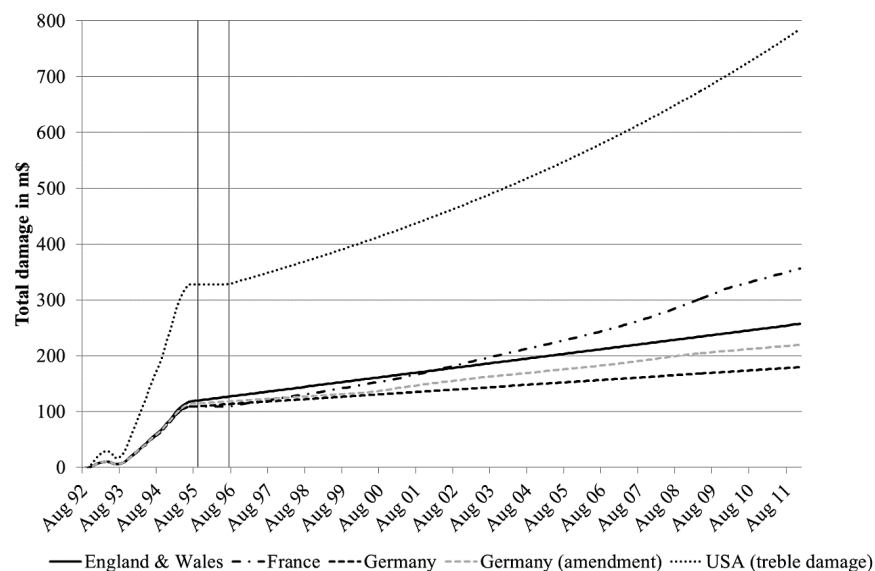


FIGURE 4: TOTAL DAMAGE AMOUNTS (INCLUDING INTEREST) FOR EXISTING NATIONAL SYSTEMS AND NATIONAL INTEREST RATES (SCENARIO A—EUROPE AND THE UNITED STATES)

U.S. damages would have been about 2.2 times French damages, the largest among the three European countries analyzed.²⁷² However, the effectiveness of trebling of damages as a crude method for compensating for the time value of money hinges on judgment following quickly after the incidence of the damages.

b. Scenario B

The assumed time frames in Scenario A result in a longer period for post-judgment interest and a shorter period for pre-judgment interest than is typically observed in Europe and the United States. The typical situation is better captured by Scenario B, which assumes a period of eight years from the detection of the cartel to a civil judgment in the first instance (the first vertical line in Figures 5 and 6), followed by another eight years until the damages award

²⁷² If, however, only simple interest were available in the United States, the U.S. value would reduce to \$256.82 million, i.e., almost equal to the UK value in August 2011.

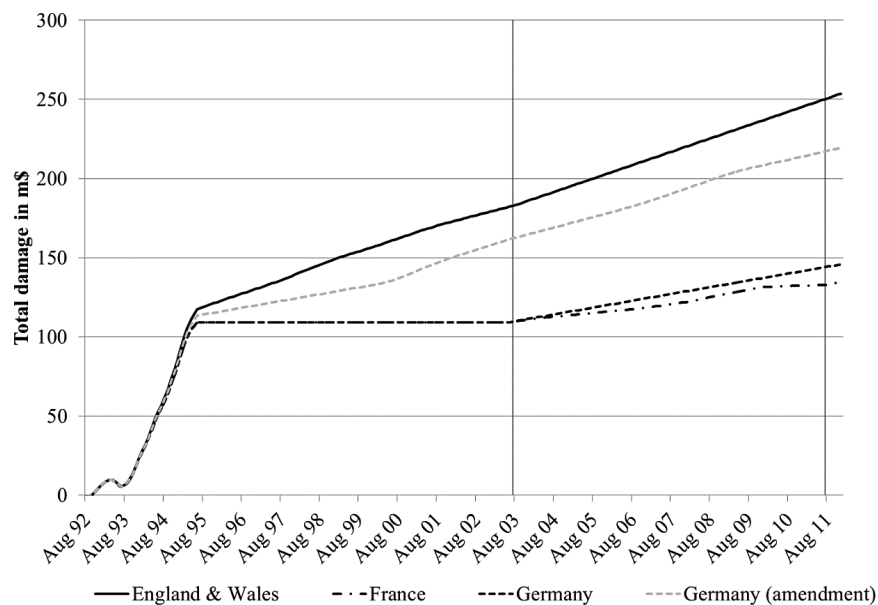


FIGURE 5: TOTAL DAMAGE AMOUNTS (INCLUDING INTEREST) FOR EXISTING NATIONAL SYSTEMS AND NATIONAL INTEREST RATES (SCENARIO B—EUROPE)

becomes final on appeal(s) (second vertical line in Figures 5 and 6). Figure 5 plots the total damage figures (including interest) for the three EU countries.

The total damage values for Germany (post-amendment) are at \$217.52 million, the same figure as in Scenario A, because in Germany (post-amendment) interest on damages is paid starting from the occurrence of the loss.

For France and Germany (pre-amendment), however, results differ quite substantially between the two scenarios. Due to the considerably longer time span in Scenario B between the detection of the cartel and the filing of/end of the civil suit,²⁷³ when pre-judgment interest is not available (as in France and Germany (pre-amendment)), the final damage values are \$132.75 million for France (as compared to \$350.01 million in Scenario A) and \$144.39 million for Germany (pre-amendment) (as compared to \$178.03 million in Scenario A). This demonstrates the substantial impact that the timing of the civil action can have on final damage awards given different legal frameworks for the treatment of interest. Furthermore, the amendment of German law in 2005 has

²⁷³ Technically, the relevant point in time pursuant to French law is the first civil judgment and pursuant to German law (pre-amendment) the filing of the claim for damages. However, for simplicity, we do not differentiate between these two points in time as part of our simulations.

a much more significant effect in Scenario B than it did in Scenario A. While the simulation arrived at a post- versus pre-amendment difference of about \$39.5 million in Scenario A, the impact increases to about \$73.1 million in Scenario B—for exactly the same competition law violation and identical overcharge damages.

For England and Wales, comparing Scenarios A and B shows a rather modest difference of \$3.29 million (\$254.14 million versus \$250.85 million). While pre-judgment interest rates were comparably high before the hypothetical first court decision in July 2003 with current rates much lower, see Figure 2, the post-judgment interest rate is fixed at 8 percent. Unlike in Scenario A, the French compound interest rule is not strong enough to overtake the English damages figure, partly because the relevant time period for post-judgment interest is much shorter in Scenario B and partly because interest rates in France dropped substantially.

Figure 6 adds the corresponding hypothetical U.S. values to the simulation of the various European rules.

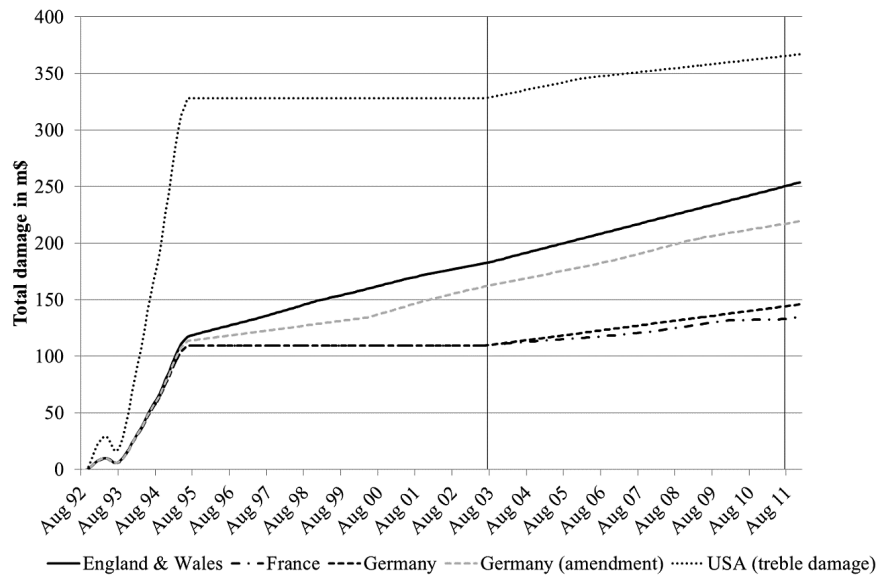


FIGURE 6: TOTAL DAMAGE AMOUNTS (INCLUDING INTEREST) FOR EXISTING NATIONAL SYSTEMS AND NATIONAL INTEREST RATES (SCENARIO B—EUROPE AND THE UNITED STATES)

The trebling of damages again increases the damage awards dramatically at the time of the cartel breakdown. However, due to the comparably longer time

period from the end of the cartel until the first court decision in Scenario B, the resulting damages figure remains constant until the first judgment on damages which hypothetically is handed down in August 2003. Subsequently, the damages award rises to the final value of \$365.68 million after assumed appeals are decided in August 2011.²⁷⁴ In this scenario of a hypothetical follow-on type case, the U.S. damages award is thus only 46 percent higher than the award in England and Wales, 68 percent higher than the German figure (post amendment, 153 percent pre-amendment), and 175 percent higher than the French figure. This implies that, in case of long proceedings, pre-judgment interest combined with post-judgment interest as available in England and Germany (post amendment) may itself more than double the overcharge damages figure. In such a scenario, it can therefore be said that the U.S. system offers treble (overcharge) damages, while Germany as well as England and Wales offer at least double (overcharge) damages.

Together with the results in Scenario A, the simulation of Scenario B forcefully illustrates that the effect of trebling of overcharge damages in the United States dissipates over the time elapsed between the occurrence of damages and the judgment. U.S. law therefore pressures claimants to settle quickly, because, as Judge Easterbrook put it, “The time value of money works in defendants’ favor.”²⁷⁵ While the trebling itself strengthens the plaintiffs’ position in settlement negotiations, the absence of pre-judgment weakens it.

2. *Simulation 2: Economic Approach and National Risk-Free Rates*

The national legal systems depart from an economic approach to accounting for the “cost of time” in two ways. First, they apply formulaic methods of setting the interest rate that often diverge from the rates economists would consider as the most suitable ones (see Part I above). This can be explained by ethical, historical, and public policy reasons. In our specific case, data on plaintiffs’ cost of capital, cost of equity, or defendant’s borrowing costs are not available. As these potential variables for calculating interest are very difficult to measure and/or beg the question of how to aggregate across different plaintiffs, we refrain from substituting them by imperfect and arguably problematic proxies. Instead, we adopt the fourth solution suggested by economists and use the national risk-free interest rates as approximated by returns from 10 year government bonds of the respective countries.

²⁷⁴ If only simple interest were available and damages were not trebled, the final value would be \$121.89 million, the lowest value of all countries included in the comparison. This is largely due to the relatively low post-judgment interest rate of 1.02%, which is by law applied for the entire interest-relevant period.

²⁷⁵ *Fishman v. Estate of Wirtz*, 807 F.2d 520, 583–84 (7th Cir. 1986) (Easterbrook, J., dissenting).

Second, the national legal systems also differ from an economic approach with respect to the point in time from which interest accrues and the issue of compounding. From an economic point of view, interest on the loss should be taken into account from the date when the loss occurred. Absent the cartel, a customer would have had to pay less for the required quantity of lysine. Assuming that the customer seeks to maximize his profits, he would have invested the overcharge such that he receives an adequate return which is at least the public interest rate. In the following period, the customer could then have reinvested this return and, at the end, would have received the invested money plus compound interest. Economically, damages should therefore comprise simple and compound (pre-judgment) interest from the time of the loss, which implies that the compensatory amount is independent of the timing of an action for damages. Consequently, it is not necessary to differentiate between Scenarios A and B.

Figure 7 shows the resulting final damage figures based on interest rates for national 10 year government bonds (as a proxy for the risk-free rate) and an economic approach to calculating damages. Figure 7 shows that—despite the similar economic development in the different countries—national damage amounts still differ noticeably because of the diverging risk-free rates.

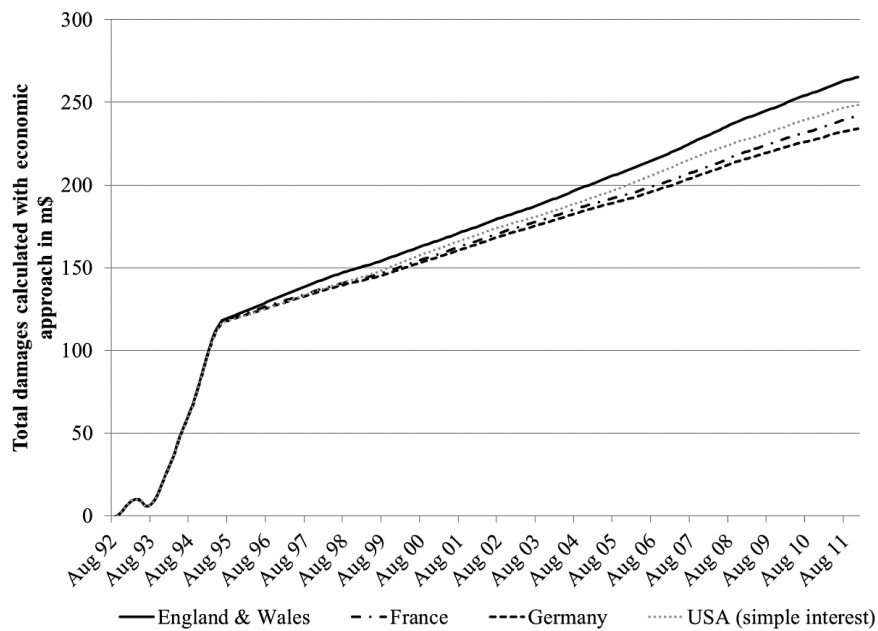


FIGURE 7: TOTAL DAMAGE AMOUNTS FOR ECONOMIC APPROACH AND NATIONAL INTEREST RATES

Comparing the final damage amounts of the economic approach with the results of an application of current legal rules in Scenario A (Figure 3) reveals moderate increases for England and Wales (from \$254.14 million to \$263.10 million) and for Germany (from \$217.52 million (post-amendment) to \$232.62 million), but a substantial reduction from \$350.01 million to \$239.55 million for France. The latter effect is largely driven by the substantially lower risk-free rates in France compared to the national legal interest rates (shown in Figure 2 and applied in Figure 3). Contrasting the amounts of the economic approach with the figures based on current legal rules in Scenario B (Figure 5) reveals differences of \$12.25 million for England and Wales (\$263.10 million–\$250.85 million), \$15.10 million for Germany (post-amendment) (\$232.62 million–\$217.52 million), and \$106.80 million for France (\$239.55 million–\$132.75 million).

IV. DISCUSSION OF RESULTS

A. MAIN INSIGHTS

Table 2 summarizes the final damage amounts of the two simulations for Scenarios A (quick resolution) and B (hypothetical follow-on action).

TABLE 2: TOTAL DAMAGE AMOUNTS (INCLUDING INTEREST)
FOR THE DIFFERENT SIMULATIONS (IN \$M)

	1. National systems and national interest rates	2. Economic approach and national risk-free rates
<i>A. Total damage amounts following information on the U.S. lysine case</i>		
England and Wales	254.14	263.10
France	350.01	239.55
Germany	-	232.62
<i>Post-amendment</i>	217.52	-
<i>Pre-amendment</i>	178.03	-
United States	-	-
<i>Single damages</i>	256.82	246.82
<i>Treble damages</i>	770.10	-
<i>B. Total damage amounts following hypothetical lengthy follow on lysine case</i>		
England and Wales	250.85	263.10
France	132.75	239.55
Germany	-	232.62
<i>Post-amendment</i>	217.52	-
<i>Pre-amendment</i>	144.39	-
United States	-	-
<i>Single damages</i>	121.89	246.82
<i>Treble damages</i>	365.68	-

First, taken together, the figures confirm that the different approaches to the “cost of time” in the legal systems considered here are far from equivalent.

They lead to enormous divergences in the damages cartel victims can obtain for an identical competition law violation. The discrepancies are mainly due to diverging legal interest rates that fluctuate considerably over time. On the one hand, this is a direct consequence of different regulatory techniques to determine the relevant legal interest rate—based on national bonds in France and the United States and certain central bank rates adjusted by mark-ups in Germany and in England and Wales.

On the other hand, national inflation and legal interest rates are influenced by the overall economic situation in the respective country and the monetary policy of the ECB. The economic situation can lead to variations between the Member States' interest rates on damages, whereas the ECB policy influences the (pre-judgment) interest rates in all Member States in the same direction, though not necessarily to the same extent.

Changes would certainly alter interest rates, but not necessarily the relative differences between France and Germany, as both countries are part of the European Monetary Union (EMU). For England, however, the relative differences to EMU countries could change, as England operates its own central bank. Apart from different interest rates, the availability or non-availability of pre-judgment interest has a considerable effect on damage awards. By contrast, compound interest, while having the potential to increase damage awards greatly, plays a minor role because it is available only to a limited extent under the existing legal frameworks. This means that the associated losses are currently compensated only if a victim can set out and prove them on a case by case basis.

Second, the figures show that, with long-lived proceedings, the discrepancy between trebled (initial) damages in the United States and single (initial) damages in the EU Member States is much smaller than commonly perceived. The reason for this surprising result is that favorable EU legal systems effectively provide for more than double damages via pre- and post-judgment interest, while U.S. law pursues an exceptionally restrictive approach in this regard.

Third, however, the overview reveals that current damage amounts in the European Union fall below the amounts of the economic approach that includes interest on damages from the occurrence of the loss plus compound interest. Based on the respective national interest rates and focusing on Scenario B, damages currently awarded in England and Wales would be 5 percent too low, followed by Germany (post-amendment, 7 percent too low) and France (81 percent too low). Notwithstanding that result, compared to the initial damages amount of \$109.32 million at the time of the cartel breakdown, it is obvious that even in the current frameworks, interest on damages is highly important for cartel victims claiming compensation. While

in the United Kingdom and Germany (post-amendment) cartel victims would receive (in August 2011) roughly 2.3/1.9 times the amount originally lost, the factor is a mere 1.2 for France. For the United States, the table shows that damages awarded under the current framework would be roughly 1.4 times higher than the amount derived under the economic approach. This is largely due to the compulsory trebling of the overcharge damages estimate. The U.S. approach to interest as such (i.e., without trebling) would yield the lowest damages figure in our simulation (only about 47 percent of the damages derived under the economic approach).

B. POLICY IMPLICATIONS

1. *European Union*

For legal policy, our findings first clearly support introducing the economic approach to calculating interest in all EU Member States with actions for damages for EU competition law violations.

As a further step, policymakers may want to consider introducing a uniform interest rate across Member States. The consequences can be studied based on Table 2. For instance, choosing the economic approach and the English risk-free rate as the “European” interest rate would change the status quo substantially. A European-wide harmonization of the interest rate would, on the one hand, have important benefits. It would make it possible to bring the legal damages assessment more in line with an economic approach and would strengthen the effectiveness of private enforcement. Moreover, it would contribute to an equal treatment of victims of international cartels across Europe, which might be considered valuable for normative reasons and would diminish plaintiffs’ incentives to engage in forum shopping. On the other hand, however, despite the European integration process having achieved great advances, the general economic developments in the Member States are still very different in certain respects for both the general state of the economy and economic policies, e.g., fiscal or tax policies. The persisting economic differences across Member States suggest substantial differences in capital costs. Therefore, different national (statutory) interest rates rather than one “European” interest rate are arguably still the economically preferred option.

From a legal perspective, it should be taken into account that altering the statutory interest rate only for cartel victims may cause frictions and thereby unintended costs as well as normative discrepancies in national legal systems. We thus support initiatives to prescribe mandatory pre-judgment interest and compound interest for all Member States, but think that, insofar as interest rates are concerned, it is sensible to accept that total damage amounts for the “cost of time” will continue to differ across Europe, even though this preserves the situation where the incentives to bring a civil suit may differ across cartel victims. In this respect, forum shopping, though open mainly to sophis-

ticated cartel victims, will stimulate competition between national legal systems and may thereby contribute to a convergence towards an optimal approach.

2. *The United States*

Second, our results suggest that introducing pre-judgment interest is also worth considering in the United States. Punitive trebled damages do not conflict with the introduction of pre-judgment interest from the time of the loss. The solution to avoiding an unintended increase of the punitive element, currently to be found in English case law, is to grant pre-judgment interest only on single damages, not on the punitive/exemplary part. This may seem warranted to make up for the restrictive case law on standing, a probability of prosecution less than one, and/or to prevent a situation in which time works in a defendant's favor as cartel victims' opportunity costs are not considered in the cartel period. Relying on trebling (initial) damages alone will probably fall short of compensating for all these effects without losing a great deal of the deterrent purpose ascribed to private enforcement in the United States. Furthermore, the status quo implies that victims are compensated unevenly depending on the timing of investigation and prosecution even if these events are beyond their control.

3. *Pre-judgment Interest Versus Further Compensation Mechanisms?*

Critics of pre-judgment interest from the occurrence of the loss have pointed out that such interest may conflict with further compensation mechanisms that courts have occasionally used as substitutes where pre-judgment interest is unavailable or not granted, e.g., in France and the United States. Indeed, these case-specific substitutes, in particular, generous consequential damages for the deprivation of funds and lost investment opportunities, cannot readily be combined with standardized pre-judgment interest. Otherwise, there would be double compensation. In our view, however, an unproblematic and preferable middle course, currently applied in German and English law, is to grant the substitutes only insofar as the "cost of time" exceeds a standardized pre-judgment interest rate. Such an approach offers three decisive advantages: (1) it assures a reasonable level of compensation for the "cost of time" for all cartel victims, including consumers, (2) it introduces cost-saving standardization and legal certainty into the calculation of damages, and, at the same time, (3) it allows for further refinements in a particular case, if necessary. French practice can easily be adapted in this regard—arguably, it will also have to be adapted because of the EU Damages Directive—and there seems to be no reason to draw a different conclusion for the United States, where "time is money" is a proverb currently unknown to antitrust law.

APPENDIX

TABLE 3: NATIONAL DIFFERENCES IN THE TREATMENT OF INTEREST AND INFLATION IN DAMAGE CALCULATIONS

	Pre-judgment interest	Post-judgment interest	Further compensation mechanisms	Inflation
<i>United States</i>	None (statutory default rule in federal law; regular legal position pursuant to state laws); treble damages awarded on compulsory basis	(<i>Simple</i>) interest from the date the judgment at a rate equal to the weekly average 1-year constant maturity Treasury yield for the calendar week preceding the date of the judgment computed daily to the date of payment; <i>compounded annually</i>	Occasionally indirect compensation for the effluxion of time until the judgment by including associated economic disadvantages into the damages calculation, esp. for corporate claimants; treble damages	No explicit consideration of inflation; [indirect consideration possible via consequential damages, esp. for corporate claimants]
<i>England and Wales</i>	Simple interest on damages (Bank of England base rate plus ca. two percentage points) from the time of the loss	<i>Simple</i> interest: 8 % (since 1993)	(Partial) interim payment; punitive/exemplary damages; interest as damages (higher rate, compound interest) upon proof on case by case basis	Inflation disregarded (nominalism)
<i>Germany</i>	Before 2005: Accrual of <i>simple</i> interest at statutory rate from the filing of the claim for damages (traditional view) Since 2005: Accrual of <i>simple</i> interest at statutory rate from the time of the loss	<i>Simple</i> interest at statutory rate (pre-judgment interest rate = post-judgment interest rate)	Interest at a rate above the statutory upon proof on case by case basis, with certain presumptions for businessmen	Inflation disregarded if loss as such already denominated in currency units (nominalism); [theoretically damages for extreme devaluation upon proof on a case by case basis]
<i>France</i>	Simple interest by default at statutory rate from the civil judgement awarding damages (earlier point in time up to judicial discretion; usually not before filing of the claim); <i>Compound</i> interest on claimant's request	<i>Simple</i> interest at statutory rate; <i>Compound</i> interest on claimant's request (from the time of the judgment)	Compensation for effluxion of time possible via generous awards of consequential damages upon proof on case by case basis	Inflation as such disregarded (nominalism); [indirect consideration possible via consequential damages]