Efficiency arguments for vertical chain class action suits in private antitrust damage claims

Preliminary Draft Version

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Introduction

The modernisation package in form of Council Regulation 1/2003, adopted in December 2002 and in force since 1 May 2004 installed a new enforcement regime of EC competition law. Especially in light of the enlargement of the European Union, but also because of immanent shortcomings, the old system of Council Regulation 17/62, based on an administrative control of agreements became infeasible. Former Commissioner MONTI regarded Regulation 1/2003 as the most radical competition policy reform since the 1950s.[1] It effectively creates private enforcement of competition law in the EU.

There is shared hope among scholars for an upsurge in private enforcement. On several occasions, former Commissioner MONTI actively encouraged private actions before national Courts.[2] The modernisation package has been defended against early criticism in general, and concerning the danger of inconsistency and uncertainty in particular by contrasting the potential for future inconsistency in the European system as being far less than the inconsistencies in current US American system already are.[3] Similar convictions led VAN GERVEN – upon pointing out that the incentives to bring damages case in the EU are substantially smaller than those is the US, due to the EU lack of class action suits, contingency fees and multiple damages – to recommend the further promotion of a private enforcement culture by supporting young specialised law firms to consult small and medium sized enterprises (SMEs) in litigation with legal and economic expertise.[4] With qualifications requiring the Commission to provide the crucial guidance to national courts so as to simplify implementation of Article 81(3) in the future, EHLERMANN generally supports the EC modernisation initiative as well.[5]

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1 See Interview with Commissioner Mario MONTI (2004), in *The EU gets new competition powers for the 21st century, Competition Policy Newsletter* - Special Edition. May 2004, at 1: "[T]he date 1 May will usher in a mature system in which law-abiding companies that do business in Europe will be freed from decade old legal straightjackets and will benefit from less bureaucracy and a more level playing field in the European single market."

2 *Id.*

3 PIJETLOVIC, K., *Reform of EC Antitrust Enforcement: Criticism of the New System is Highly Exaggerated*, [2004] 6 European Competition Law Review, 6 at 368.

4 See VAN GERVEN, W., *Substantive Remedies for the Private Enforcement EC Antitrust Rules Before National Courts,* in [2001] *European Competition Law Annual 2001: Effective Private Enforcement of EC Antitrust Law*, Ehlermann, Claus D. and Atanasiu, Isabela (eds.), Oxford/Portland Oregon, Hart Publishing, in preparation.

5 See EHLERMANN, C. D. (2000), *Reform Of European Competition Law – Coherent Application of EC*

The economic advantages of private enforcement for the functioning of the internal market and the competitiveness of the European economy are straightforward. Firstly, the threat of private litigation boosts the deterrent effect and raises the level of compliance with the competition rules.[6] Stronger deterrence and stricter compliance is a crucial step to achieving the goals of the 2000 Lisbon agenda.[7] Secondly, increased private action would foster a „culture of competition amongst market participants, including consumers, and raise awareness of the competition rules."[8] Lastly, on a practical scale private litigants may „take action against infringements which the Commission and the NCAs would not pursue, or do not have sufficient resources to deal with."[9]

There is generally no clear restriction on standing to sue in EC law. *Courage v. Crehan* set the precedent for any legal or natural person to claim private damages for injuries incurred because of competition law violations and infringement of the rights derived from the EC Treaty.[10] In general, standing to sue is granted, if the plaintiff pleads that a violation of Article 81 or 82 on behalf of the defendant has occurred and a legitimate interest of the plaintiff was or will be damaged because of the infringement.[11] The main obstacle is the plaintiff's evidence of causation.[12] Thus rules on standing to sue are much wider in the EU compared to the US.

Due to the lack of treble damages it has often been argued that the incentives to initiate suit are not sufficient to spur enough private actions to establish a kind of private litigation culture and tradition as present in the US.[13] From the direct effect of EC competition law a right to compensation in real terms is derived when these rights are infringed upon.[14] Prejudgement interest, where

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Competition Law in a System of Parallel Competences, at 1 and 4.
Available at *http://europa.eu.int/comm/competition/conferences/2000/freiburg/speeches/ehlermann.pdf*

6 See speech by former Commissioner MONTI, M., *Private litigation as a key complement to public enforcement of competition rules and the first conclusions on the implementation of the new Merger Regulation,* [2004] Speech/04/403, IBA – 8th Annual Competition Conference, Fiesole, 17 September 2004, at 2.

7 See Commission of the European Communities, *Communication from the Commission – A pro-active Competition Policy for a Competitive Europe*, [2004] at 3: "The EU's system of economic governance and indeed the EC Treaty is based on the "*principle of an open market economy with free competition*". In 2000 in Lisbon, the Member States signed up to a programme of economic reforms designed to make the EU "*the world's most competitive and dynamic knowledge-based economy*" by 2010. Strong competition, encouraged and protected by EU competition policy, is rightly regarded as instrumental for achieving the competitiveness objective of the European Union and the Lisbon Strategy."

8 Cf. MONTI, op. cit., (fn 6) at 2.

9 *Ibid.*

10 Case C-453/99 *Courage Ltd v. Bernhard Crehan* and *Bernhard Crehan v. Courage Ltd.*, [2001] E.C.R. I-6297, at 26; see also e.g.: JONES, A. and BEARD, D., *Co-contractors, Damages and Article 81: The ECJ finally speaks*, [2002] 23 European Competition Law Review 5.; CUMMING, G. A., *Courage Ltd. v. Crehan*, [2002] European Competition Law Review 4.

11 Cf. JONES, C.A., *Private Enforcement of Competition Law in the EU, UK and USA,* [1999] Oxford University Press, at 186.

12 *Ibid*., at 187. See also STIROH, L., *Proving Causation in Damage Analyses*, [2004] Antitrust Insights, published in HOW MARKETS WORK, National Economic Research Associates NERA, Editor: WU, L.

13 Today, abut 90% of cases in the US are brought privately. See HOLMES, K., *Public Enforcement or Private Enforcement? Enforcement of Competition Law in the EC and UK*, [2004] 1 European Competition Law Review 25, at 25; JONES, op. cit., at 213.

14 Case C-453/99 *Courage Ltd v. Bernhard Crehan* and *Bernhard Crehan v. Courage Ltd.*, [2001] E.C.R. I-6297, at 26.: „the full effectiveness of Article 81 would be put at risk if it were not open to individuals to claim damages for loss caused by infringement of this provision."

obtainable[15], will secure real and possibly twice or treble the nominal compensation so that monetary incentives exist, albeit latently. By the same token, US treble damages are arguably only double or even single damages in real terms, so that the active litigation culture in the US can thrive despite real incentives being smaller than on face value.[16] In most Member States, „with regards to the current state of law, the principally restitutionary-compensatory nature of damage claims conflicted with the idea of exemplary or punitive damages."[17] Only Cyprus, Ireland and the UK have passed laws to allow for punitive or exemplary damages and they are rarely awarded.[18] The implied damage multiple of compensatory damages is equal to one for compensation in real terms and even lower for compensation of nominal damages.[19]

One of the problems in private damage claims is the passing on of anticompetitive overcharges.[20] The extent of pass on varies. Some firms are able to pass on all of what had been passed on to them, others may have to retain some of the injury and reduce the (individual) injury for parties further down the vertical production chain. An characteristic of these chains is that they typically tend to widen towards the bottom. Hence, the number of injured parties increases with the length of the chain in a non-linear way. This leads to the undesirable outcome that many more parties are injured than would be the case without pass on or even with complete pass on. If all these parties sue, it unduly inflates aggregate litigation and transaction costs, while depleting the administrative budget.[21] For a textbook model of a vertical chain, the injury incurred by the last in line – the consumer - tends to be rather small in relative terms to the "but-for" price. These small and distant injuries automatically lead to lower deterrence because of the decreased incentive to sue. In the US, these scattered damages can be pooled into a class action, to ensure compensation of injured consumers. However, deterrence is the predominant goal of antitrust policy, and the 'direct purchaser rule' was adopted in *Illinois Brick*, restricting standing to sue to the more efficient private enforcers.

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15 See the comparative report, commissioned by the European Commission, prepared by Ashurst (2004), *Study on the conditions of claims for damages in case of infringements of EC competition rules*, Open Procedure COMP/2003/A1/22, at 1-86.: Interest on the damage can be awarded from (a) the date of injury, (b) a later stage before a claim is filed, (c) when a claim is filed or (d) the date of judgement. To summarise briefly, some Member States allow for choosing either one of the above rules. Belgium, France, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain and the UK provide for method (a) and (d), whereas Austria, Cyprus, Czech Repulic, Denmark, Estonia, Finland, France, Germany, Greece, Latvia, Lithuania, Malta, Slovakia and Sweden allow for either (b) or (c). The report is available at the website of DG Comp. http://www.europa.eu.int/comm/competition/antitrust/others/private_enforcement/comparative_report_clean_en.pdf.

16 See for example LANDE, R. H. (1993), *Are Antitrust „Treble" Damages Really Single Damages?*, 54 Ohio State L.J. 115.

17 *Study on the conditions of claims for damages in case of infringements of EC competition rules*, op. cit., at 1-85.

18 *Id*.

19 A damage multiple of one means that authorities will have to discover all violations of competition law and all victims will have to sue for all the damages incurred (before and during investigation).

20 See e.g. DUBOW, B., *The Passing On Defence: An Economist's Perspective*, [2003] 6 European Competition Law Review, 238-240.

21 In the US further concerns are the multiple liablility problem caused by pass on. There it was feared that the defendants may have to pay several times treble damages for one an the same damage. See for example HOVENKAMP, H., *Treble damages reform,* [1988] The Antitrust Bulletin, Summer 1988, Federal Legal Publications, Inc.

In EC competition policy, deterrence has been given priority over compensation too.[22] However, the lack of class action suits is a missing policy alternative to remedy suboptimal deterrence on a European scale.[23] In addition, with unrestricted standing to sue and only compensatory damages, the European dual enforcement regime is bound to suffer from under-deterrence if it neglects the economic costs inflicted upon the system by a wave of cases triggered by passing on of anticompetitive overcharges.

Additional lessons the EU can learn from the US

Surprisingly, private enforcement of antitrust law in the US - envisaged as early as 1890 in the Sherman Act - did not unfold until the late 1930s.[24] At the time of the first successful private damage claim, there was no restriction on standing to sue.[25] As a consequence, the treble damage provision acted as a catalyst for a wave of private damage claims that hit the defendant.[26] Lin (2000) reports that the number of private cases over the period of 1942 to 1960, was on average 154 a year, with a strong upward trend. After 1960 though, the average over the same period of 19 years more than tripled to 540 a year on average.[27]

To reduce the enormous costs that such a wave of cases inflicts on the economy, standing to sue was limited in two later Supreme Court decisions. The Supreme Court created legal certainty in denying standing to sue to indirect purchasers in its rulings in *Hanover Shoe*[28] and *Illinois Brick*[29]. In the former, the defendant reasoned that if a customer or plaintiff was able to pass-on the injury incurred by anti-competitive contracts to its own customers or the consumer it should not have standing to sue. This argument came to be known as the *defensive pass-on argument.* The Supreme Court held that such defence is illegal in order to prevent both to unduly lengthen and complicate antitrust cases and to disperse private incentives to seek antitrust injury recovery. The decision in

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22 Cf. Article 3.1.g EC.

23 Compare *supra*, (fn 15); *Study on the conditions of claims for damages in case of infringements of EC competition rules*, op. cit., at 1-46: Sweden has express statutes for class action suits as they are known in the US. Other Member States have allowed cases led by consumer associations.

24 See POSNER, R. A., *Antitrust Law*, 2nd ed., [2001] The University of Chicago Press, at 35.

25 For the early history of US private antitrust enforcement, see POSNER, op. cit., fn 24, at chapter 2; SALOP, S.C. and WHITE, L. J., *Economic Analysis of Private Antitrust Litigation*, [1986] 74 Georgetown L. J. 1001, at 15: report private to public ratios of 6:1 after 1941, 20:1 after 1965 and 10:1 after 1980. The latter ratio is found from the data on private and public cases presented and remains for the nineties, POSNER, loc. cit.

26 See JONES, op. cit., at 84: Between 1961 and 1964, 2,233 separate antitrust actions were filed against the electrical equipment manufacturers in 36 federal judicial districts.

27 For the complete study see LIN et al., *The US Antitrust And Recent Trends In Antitrust Enforcement*, [2000] Journal of Economic Surveys, 14(3), Blackwell Publishers, at 261, Table 2.
The reported numbers in LIN et al. are intimately linked with the case law of *Hanover Shoe* and *Illinois Brick*. *Hanover Shoe* disarmed defendants by disallowing the defensive use of the pass on argument, and hence private cases thrived. They peak in 1977, the year in which standing to sue was restricted to direct purchaser. The momentum that drives private enforcement becomes visible when considering that even after standing to sue had been limited, private damage suits have persistently outnumbered public cases, ever since filing private suits started in the late 1930's. Even after *Illinois Brick* the level of private enforcement activity remained high. This is attributable to increasing number of violations but also to the increased incentive to sue allocated to direct purchasers in *Illinois Brick*. What's more is that of all private cases, still today roughly a quarter follows up on public cases brought by the DoJ and the FTC. POSNER, op. cit. at 47.

28 *Hanover Shoe Co. v. United Shoe Machinery Corp.* , 392 U.S. 481 (1968).

29 *Illinois Brick Co. v. State of Illinois*, 431 U.S. 720 (1977).

Hanover Shoe was motivated by efficiency reasons – efforts to simplify antitrust cases. Treble the defendant's overcharge multiplied by the quantity bought were obtainable in any antitrust matter – irrespective of the question whether or to what extent the customers did pass-on the overcharge. Hence, although *Hanover Shoe* improved efficiency and protected potential victims there was a flaw in the logic, which could be manipulated in spurious and extortive claims.[30] The shortcomings were remedied a decade later, in 1977 when *Hanover Shoe* was coupled with the ruling in *Illinois Brick Co. v. State of Illinois*. The plaintiffs claimed that they were injured by anti-competitive practices caused by Illinois Brick Co, and passed-on to them through a complex vertical chain. Although the injury was widely recognised, the Court denied compensation. Referring to *Hanover Shoe*, it ruled out this *offensive use of the pass-on argument*. It decided to limit the standing to sue to the first customer in-line descending the vertical chain. By doing so it stuck to the logic of *Hanover Shoe* and sought efficiency by simplifying the antitrust system. The Court finished what was begun in *Hanover Shoe* and installed the system of exclusive direct purchaser litigation with the twin decisions. The two decisions were convincing displays of how an antitrust system can strive for efficiency. They sought to abandon the multiple liability problem inevitably imposed when numerous firms and individuals from all levels of the production chain make competing and overlapping damage claims. Simultaneously, the decisions prevented complicated damage calculation.[31]

Landes and Posner concluded that the rule of *Illinois Brick* is second to none in maximising antitrust enforcement efficiency.[32] Denying indirect purchasers the standing to sue reduces inefficiency as they are mistrusted to always ensure significant compensation.[33] Efficiency gains of limiting private enforcement remedy even the windfalls of damages to direct purchasers that pass on the overcharge to indirect purchasers. The reason is that direct purchasers are held to be the more efficient enforcers being closer to the violation and quicker at detecting them.[34] Direct purchaser antitrust enforcement procures efficiency because the fewer claimants economise on court and litigation costs and curtail the incentive effect.

Although, Congressional attempts to overrule the US Supreme Court faded soon after the initial commotion around *Illinois Brick* had vanished, the battle for adequate compensation of indirect purchasers however was fought on different soil. After *Illinois Brick*, indirect purchasers and

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[30] See e.g. MARTIN, S., *Industrial Economics: Economic Analysis and Public Policy*, 2nd ed., [1994] Prentice Hall, chapter 18, on the risk of treble damages forcing an innocent defendant to settle out of court, wasting legal resources and discouraging vigorous competition in order not to become a target.

[31] For further analyses on *Illinois Brick* consult for example: LARUE, P. H. and NEWTON, J. M., *Legislative Progress in Responding to the Illinois Brick Decision*, [1978] Antitrust Bulletin, 23, pp. 263-276; JOYCE, J.M. and R.H. MCGUCKIN, *Assignment of Rights to Sue under Illinois Brick: An Empirical Assessment*, [1986] Antitrust Bulletin, 31(1), 235-259; SNEEDEN, E. M., *Illinois Brick–Do We Look to the Courts or Congress*, [1979] Antitrust Bulletin, 24, pp. 205-231; SNYDER, E. A., *Efficient Assignment of rights to Sue for Antitrust Damages*, [1986] Journal of Law & Economics, 28, pp. 469-482.

[32] Compare also HARRIS, R. G. and SULLIVAN, L. A., *Passing on the Monopoly Overcharge: A Comprehensive Policy Analysis*, [1979] University of Pennsylvania L. R., Vol. 128 (2), Pennsylvania, challenging this by saying only overruling them yields the best balance between compensatory justice and deterrence, provided defensive pass-on argument is allowed to avoid multiple liability and offensive use is barred if claims of pass-on is speculative. That concession to fairness however, would only increase legal uncertainty.

[33] LANDES, W. M. and POSNER, R. A., *Should Indirect Purchasers have Standing to Sue under the Antitrust Laws? An Economic Analysis of the Rule of Illinois Brick*, [1979] University of Chicago L. R., 46, 602-635, at 608-9.

[34] *Ibid*. at 609; and p. 611 on the search cost differential between direct and indirect purchaser litigation.

consumers have sought compensation through private damage claims invoking rights from their respective state competition statutes. About a dozen states have allowed these actions and repealed the Supreme Court decision. Twelve years after *Illinois Brick*, the legality of state level indirect purchaser suits was on the Supreme Courts agenda once again. The Supreme Court decision in *California v. ARC America Corp*.[35] legitimised indirect purchaser suits to the discretion of the individual states. Correspondingly, a significant number of states have enacted '*Illinois Brick* repealer' statutes[36].

> "[A]s a result, it is not uncommon for defendants that are the subject of government enforcement efforts to now face between 50 and 100 separate lawsuits comprising litigation on behalf of a class of direct purchasers and its 'opt-outs' pursuing a federal antitrust remedy, as well as litigation with indirect purchasers and/or states attorney generals acting on behalf of those purchasers under a variety of state laws."[37]

The decision in *California v. ARC America Corp*. runs contrary to the logic of *Illinois Brick* and *Hanover Shoe.* The limitation of standing to sue that *Illinois Brick* installed has been supplanted by a decentralised, dispersed and fragmented antitrust system. If one believes that *Hanover Shoe* and *Illinois Brick* produce the most efficient antitrust system, then the fact that *California v. ARC America Corp.* undermined those early efforts should be observable in the present working of the US antitrust system in terms of the complexity of the damage calculation and the number of (follow-on) cases etc. Forty years after the first wave of private damage claims of mixed direct and indirect purchasers the tide is rising again. Today, in about half of the states indirect purchasers are able to bypass *Illinois Brick* and sue for treble damages.[38]

Ten years after the *ARC America* decision, in 2001 the federal antitrust agencies were analysed by a task force of the American Bar Association's antitrust section. Its proposal goes far in trying to remedy the overlapping responsibilities of the agencies and courts. In particular, it targeted the provision of state action immunity as the culprit for the proliferation of legislatures contradicting with each other and with the federal laws. It proposed a review of the constitutionality of the state action immunity when as present it undermines the efficient and effective workings of federalism. If they are constitutional and a reform is not achievable, the task force proposed the antitrust enforcement system should intensify cooperation between the many federal and state competition authorities and courts but second, also to reach out to the private parties that file their suit and/or join class actions. It proposed to

> "consolidate all federal and state court actions relating to a cartel - the criminal proceeding, direct and indirect purchaser class actions, and state attorneys general claims in the federal district court in which the original criminal or civil action was filed."[39]

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35 *California v. ARC America Corp* 490 U.S. 93 [1989].

36 For further reference see for example DAVIS, R. W., *Indirect Purchaser Litigation: ARC America's Chickens Come Home to Roost on the Illinois Brick Wall*., [1997] Antitrust L. J., 65, 1997, pp. 375-406.

37 KRESS, J. G. and SCHWARTZ, E. B., *Trends in private antitrust litigation: navigating the rising tide of follow-on claims*, [2002] The Antitrust Review of the Americas 2002, A Global Competition Review - special report, by Howrey Simon Arnold & White LLP, at 17.
Available at *http://www.howrey.com/practices/antitrust/docs/TrendsinPrivateAntitrust.pdf*.

38 Even in states that did not repeal *Illinois Brick* at the time, the consumers have at their avail the *parens patriae* provisions whereby the district attorney general can instigate a law suit on behalf of that state's consumers.

39 See American Bar Association - Section of Antitrust Law, *The state of federal antitrust enforcement (2001), Report of the task force on the federal antitrust agencies*, at 24.
Available at *http://www.abanet.org/antitrust/antitrustenforcement.pdf*.

Any criminal trial should then be followed by a necessary civil trial. Once criminal and civil liability are determined, the court would assess aggregate damages at the direct purchaser level and then allocate the damages amount among direct and indirect purchasers and any other claimants.

Private enforcement in the EU

The need to modernise EC competition law was first expressed officially in the White Paper[40] that the Commission published in 1999. The ideal is, in a nutshell, to achieve

> "the increase in deterrence, resulting from encouraging private litigation, as well as, the relief of bureaucratic burden that rested on the European system since its inception and the strive for fairer compensation of injured firms and individuals."[41]

Indeed, the old *ex ante* control mechanism amplified legal uncertainty to the extent that the Commission was unable to close all the cases in a formal way.[42] In addition *ex post* monitoring dominates the notification system when the authority's quality of evaluation is high enough, and e*x post* control leads to less restrictive violations of the law.[43]

Enforcement reform

The modernisation process has led to Council Regulation 1/2003, (hereafter "Regulation 1/2003") which is in force since May 1st 2004. Regulation 1/2003 abolishes the system of exemption, under which undertakings notified the European Commission or their respective National Competition Authoritiy (NCA) of any agreements potentially falling under the provisions of Article 81 EC, by making Article 81 and 82 EC directly applicable in the Member States.[44] Rather, it is now the companies' own responsibility to discern the effect on competition of their agreements and refrain from those actions that are violating EC competition law.[45] Otherwise, they will have to face investigations by either the NCA or the Commission, as well as private antitrust suits in national or Community Courts. Decentralisiation bears shared competence of the Commission, the NCAs and the national courts – the socalled European Competition Network (ECN) – to apply Articles 81 and 82 EC in their entirety.[46] The Commission retains its investigatory powers.[47] Regulation 1/2003 installs the automatic parallel application of Articles 81 and 82 EC to agreements affecting trade between Member States when national courts or NCAs apply national competition laws to challenge those agreements.[48] The Commission and/or the NCA may assist the national courts in applying EC competition law when necessary. In addition, the national courts can demand comments or

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40 European Commission, *White Paper on the modernisation of the rules implementing Articles 81 and 82 of the EC Treaty*, Commission Programme No 99/027.

41 See *White Paper on the modernisation of the rules implementing Articles 81 and 82 of the EC Treaty*, (Commission Programme No 99/027), at 45.

42 *Ibid*., at 20: "In the period of 1988-1998, the Commission formally closed only 6% of cases."

43 BARROS, P. P., *Looking behind the curtain - the effects from modernisation of European Competition Policy*, [2001] E.E.R., 47, at

44 See *COUNCIL REGULATION (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty*, at Article 1.1., 1.2.

45 *Ibid*., at Article 2.

46 *Ibid*., at Articles 5 and 6.

47 *Ibid*., at Article 17.1.

48 *Ibid*., at Article 3.1.

'observations' on specific issues arising during the application of EC law.[49] National courts will have to give decision that do not conflict with previous decisions given by the Commission or future of decisions in pending investigations. To do so, national courts may stay proceedings to await the Commission's final decision.[50] NCAs must inform the Commission of any investiation or proceedings commenced, and provide and exchange information about the case to the Commission and other NCAs upon request.[51]

The instantaneous debate on the reform

Some scholars have noted that since the Commission will retain the right to shape the policy and pick high profile cases, the NCAs will not be on equal footing in the European competition network (ECN). Any Commission initiation still relieves the NCAs of their jurisdiction. Hence, KINGSTON doubts the credibility of the vows to make enforcement feasible within the network.[52] Further, abolishing the exemption system and the comfort letters may lead to uncertainty about the enforceability of agreements, predominantly leading to private follow on actions to public investigations and decisions.[53] It has been noted that the national Courts are being asked to perform tasks, for which they are ill suited.[54] The costs of initiating a suit are substantially higher when the courts do not have the appropriate experience in EC law. This fear was expressed by EHLERMANN, when warning of the inexperience of the national judges and the implied reluctance to apply EC law.[55] KESERAUSKAS pointed out that the lawyers and judges in the new Member States are even less experienced with EC law.[56] The NCAs dispose of the necessary specialists and have already been applying the respective national competition law. Plaintiffs may thus either systematically involve the NCAs instead of the Courts[57], or they will await decisions of the NCAs and the Commission to use the

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[49] *Ibid*., at Article 15.3.

[50] *Ibid*., at Article 16.1.

[51] *Ibid*., at Article 11.3.

[52] KINGSTON, S., *A "new division of responsibilities" in the proposed regulation to modernise the rules implementing Articles 81 and 82 E.C.? A warning call*, [2001] 8 European Competition Law Review.

[53] See HOLMES, op. cit. (fn 13), at 30.

[54] See VAN OOSTERWIJCK, op. cit. at 4: „Private enforcement is a complex issue, [...] also for the Courts. There is not a great deal of knowledge and experience available vet in this area."
However, compare Mario MONTI (2004c) page 4, „[...] the Commission has already begun to tackle two of the identified obstacles to private litigation, namely the complexity of competition actions and transparency. As to the first one, the Commission has put in place programmes to improve the training of judges in EC competition law, which are being well attended."

[55] See EHLERMANN, C.D. and ATANASIU, I., *The Modernisation of E.C. Antitrust Law: Consequences for the future Role and Function of the EC Courts*, [2002] 23 European Competition Law Review 1, at 76.

[56] See KESERAUSKAS, Š., *Practical Implications of the EC antitrust enforcement revolution*, [2003]*The business Environment: What can the Law Do?* in Streeter, P.A. and Zarnauskaite, R. ,Eds., Lietuvos teises universitetas, Lithuanian-American bar Association, Inc.
Available at *http://www.lpvp.lt/en/docs.download/341.php*

[57] Compare EHLERMANN and ATANASIU (2002), p.76: "It is however quite likely that, in reviewing a greater number of NCA decisions applying Articles 81 and 82, national courts will feel more often the need to request preliminary rulings from the ECJ. Requests for preliminary rulings are particularly likely to occur with respect of the interpretation of Article 81(3). National courts have little experience with this provision, as they are not allowed to apply it under the current system. At least in the beginning, national courts will face an additional difficulty deriving from the application of Article 81(3), because its application is largely unknown territory." [original footnotes omitted]

findings of fact as a base for so-called follow on litigation.[58] In doing so, plaintiffs can rely on the more ample investigative powers to uncover and secure otherwise unattainable evidence and tap the public legal budget for their interests.[59] The advantages of private compared to public enforcement, which businesses and consumers alike will be enjoying are manifold. First and foremost, victims of illegal anticompetitive behaviour are compensated.[60] The decision of the ECJ in *Courage v. Crehan* in 2001 explains, that "the full effectiveness of Article 81 would be put at risk, if it were not open to individuals to claim damages for loss caused by infringement of this provision."[61] Secondly, national Courts may apply civil sanctions of nullity in contractual relationships.[62] Thirdly, national Courts can order the loser to pay the legal costs (as opposed to NCA which cannot recompense plaintiffs' legal costs).[63] Lastly, the national Courts are obliged to hear case, whereas an NCA has the discretion to refuse to take up investigation of „unimportant" cases or when its financial and/or personnel resources are limited.[64]

Standing to sue

Any legal or natural person has the right to be compensated for injuries caused by violations of Articles 81 and 82 EC. They confer individual rights that are directly enforceable before the national courts. The ECJ held in *Factortame III*, that „the right to reparation is the necessary corollary of the direct effect of the Community provision whose breach caused the damage sustained".[65] And further, „the only solution which complies in all respects with the obligations of Member States under Community law is to recognise a right of action founded directly on the provisions of Article 81 and 82, [...] and affording a damages remedy also founded directly upon Community law".[66]

There are however several reasons for why private enforcement is not getting off the ground properly. The above mentioned study on damage claims that was commissioned to research into potential obstacles to private enforcement conceded that there is a total „underdevelopment of actions for damages".[67] The reliance on the complaint system has at least partly been responsible for the scarcity of private damage actions in Europe prior to Regulation 1/2003.[68] To be precise, there have so far been twelve successful damage awards for breach of EC competition law since 1962[69] . Also, there have

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[58] See BUCH, M., [2004] *Private Antitrust Litigation in Germany*, at 2. Available at http://www.globalcompetitionreview.com/ear/germany_pal.cfm .

[59] See also VAN GERVEN, op. cit. (fn 4), at 16: about the difficulties for third-party plaintiffs to prove infringement, „unless the competent authorities have already established the anticompetitive behaviour by action under public law." (footnotes omitted).

[60] MONTI, op. cit. (fn 6), at 3.

[61] Case C-453/99 *Courage Ltd v. Bernhard Crehan* and *Bernhard Crehan v. Courage Ltd.*, [2001] E.C.R. I-6297, at 26.

[62] MONTI, op. cit. (fn 6), at 3.

[63] *Ibid*.

[64] *Ibid*.

[65] Joined cases C- 46/93 and C-48/93, *Brasserie du Pêcheur SA v. Federal Republic of Germany (Factortame III)*, [1996] ECR I-1029, at paragraph 22. Cf. JONES (1999), at 76 *(footnotes omitted).*

[66] Cf. JONES (1999), op. cit., at 148.

[67] *Study on the conditions of claims for damages in case of infringements of EC competition rules*, op. cit., at 1-1.

[68] See GOYDER (1992) at 426, on the history of private action in-between EC and national law.

[69] *Study on the conditions of claims for damages in case of infringements of EC competition rules,* part II: *Analysis of economic models for the calculation of damages",* at 1-1; 2-42.

only been a limited number of damage awards under national competition law.[70] The reasons are *inter alia* the substantial costs, and lengthy court procedures[71] possibly leading to considerable uncertainty for companies trying to seek compensation through the national Courts.[72] A more thourough analysis of private damage claims will demonstrate that during litigation even more serious obstacles arise such as difficulties to prove causation, i.e. to show the causal link between the infringement of the defendant and the damages incurred by the plaintiff, while proving that the damage was not caused by other factors such as demand swings or other factors.[73] Lastly, the quantification of damages incurred by plaintiffs can be a very cumbersome task and may thus discourage private actions.[74] Regulation 1/2003 is the firsts step into the right direction. Eventhough the above obstacles lie on the way ahead, eventually they will be overcome. From an economic perspective, other problems are weighing heavier in EC competition law enforcement.

A vertical chain model of antitrust damages

Typically many different parties are injured by anticompetitive actions. Injuries vary to a great extent. They depend on different variables. Taking a price fixing cartel as an example, the injury depends first and foremost on the quantity consumed by the customers and consumers. Secondly, the injury depends on location in the production distribution chain and the relative distance to the cartel. The market structures of the various horizontal layers of the chain influence the injuries of the respective firms within a horizontal layer and determine the degree of passing on of anticompetitive overcharges to lower layers in the chain. In addition to the parties buying from the cartel, there may also be injuries in related input or output markets with substitute or complementary goods.[75] Per definition, competition law enforcement seeks to deter anticompetitive actions and compensate victims for their injuries caused by the undeterred violations. Theoretically, it is straightforward to prove that if deterrence fails, the phenomenon of pass on of anticompetitive overcharges quickly leads to numerous victims and many overlapping damage claims. This in turn would lead to multiple liability, multiple recovery and substantial litigation expenditures. This section seeks to theoretically identify relative gains for the violators and the respective losses for customers and consumers as a function of the horizontal market size i.e. structure. In addition an attempt is made to estimate pass on rates as a function of the market structures.

An economic approach to antitrust policy leads to restricted standing to sue. Faced with the dilemma between economic efficiency and societal fairness, the US Supreme Court opted for the former and left many observers outraged for being deprived of their right to compensation. Not surprisingly, over the past one and a half decades, the indirect purchasers have tried to strike back. The "*post-ARC America*" heterogeneity of state statutes on standing to sue – which was the consequence – in turn prompted the consolidation proposal of the ABA report to once again control for the inherent cost.

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70 MONTI, op. cit. (fn 6), at 4.

71 SALOP and WHITE, op. cit. at 1016: „In the US the average private damageclaim last about 18 months."

72 VAN OOSTERWIJCK, op. cit. at 4.

73 See for example HOLMES, M. and LENNON, P., *Causation – The Route to Damages,* [2004] 8 European Competition Law Review, 475-478.

74 VAN OOSTERWIJCK, op. cit., at 5.

75 A helpful graphical representation of the possible extent of damages spilling over into related markets is given in the *Study on the conditions of claims for damages in case of infringements of EC competition rules* in part II: *Analysis of economic models for the calculation of damages, o*p. cit., at 2-13.

This can be seen as a recent indicator for a return to an economic attitude to antitrust. The rivalry between efficiency and fairness has thus not been ended. Accordingly, the proposal made in the report can be compared to the decision in *Hanover Shoe*, because it too is a reaction to the incentives that motivated the compensation movement that resulted in the *pre-Hanover Shoe* case wave. That wave of cases was further facilitated by the follow on suit strategy and accelerated by the treble damage remedy. The main idea of the following section is to show that the injuries that occur downstream are substantial and increase with the size of both the up- and downstream industry. In light of the issue of standing and the *Hanover Shoe* and *Illinois Brick*-rule, it is evident that it is already complicated to determine the actual damage suffered by various parties at their respective locations in the chain to establish their right to compensation. Sophisticated general equilibrium analysis and the use of econometrics are crucial to make sense of damages being partially passed on in the production chain and on to the consumer. As a tentative attempt to approach the problem, a simple setup is chosen.

FIGURE I THREE TIERED PRODUCTION DISTRIBUTION CHAIN

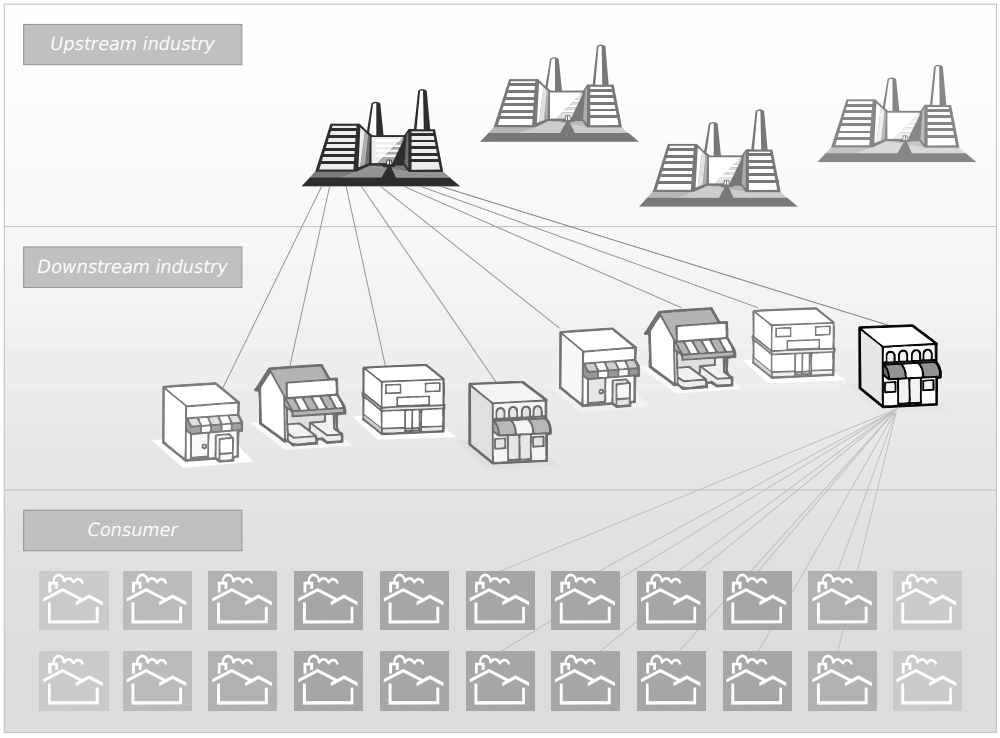


Figure 1 illustrates a vertical production chain of a certain good consisting of its producers located upstream and the downstream firms who sell it to the final consumer. For simplicity only the interconnections for one up- and downstream firm are indicated. It should be clear that the model in the following section assumes that whatever the number of up- and downstream firms, all of the latter buy from all of the former and sell to the consumer. The aim of this chapter is to show the effects of an infringement of antitrust law. If the upstream firms are able to build a cartel and fix prices their profits will increase. However, what happens to the downstream firms' profits and how will their changed prices affect the consumers. As will be shown below, one can show the gains and losses of the producers, downstream firms and the consumer, which stem from an anticompetitive action upstream as a function of the industry sizes upstream and downstream. Furthermore, one can depict the relative pass on rate as an estimate for the complexity especially for longer and wider chains. If

one considers a vertical production distribution chain as the one depicted in figure 1 it is easy to imagine longer and more complicated chains. In addition production chains span several countries and jurisdictions and are often connected i.e. interrelated with production chains of other products. In order to safeguard competition and protect consumer interests, the Commission hopes for more private enforcement after the modernisation. Ironically, this presupposes actual antitrust injury on behalf of downstream firms and consumers. In addition it shows that the European antitrust system enters the private enforcement era with an insufficiently deterring public enforcement support structure.

The competitive equilibrium

Consider a market in which $m \geq 2$ identical firm, indexed $j = 1,2,\ldots,m,$ produce a certain good with zero transaction costs, used as an input in the downstream industry, with marginal costs constant, normalised to zero and without fixed costs. The sole purchasers of this input are $n \geq 1$ downstream firms, indexed $i = 1,2,\ldots,n$ each of which buys the input from the upstream firm at a price *p* per unit and uses it in linear relation in their production process to obtain their final product, which is subsequently sold to the consumers. By choosing appropriately the units to measure the volume of in- and output, the linear production technology can be modelled as one-to-one relationship. There are neither alternative ways of obtaining the input, nor can the downstream firms substitute away from it. For simplicity assume that the downstream production involves no cost but those of the single input. Consumer demand of the final good is given by linear inverse demand curve $P(Q_d) = 1 - Q_d$,

where $Q_d = \sum_{i=1}^{n} q_{i,d}$, the sum of quantities produced by the downstream firms. Suppose that the market exists indefinitely, with neither technological progress changing its supply structure nor demographic or other changes shifting demand. As a result, the up- and downstream firms are engaged in a long-term relationship. In their production planning, they all take an infinite time horizon as a basis, in which they discount future profits at a rate $\delta \in \{0,1\}$, so that the interplay between the firms can be understood as Cournot competition in a repeated game framework. When both industries act non-cooperatively, the one shot Cournot equilibrium is played in each period. Since the upstream firms control the inputs of the downstream industry, this is a sequential game - the sub-game perfect Nash equilibrium of which is found by the backward induction below.

Given the input price p, downstream firms engage in quantity competition and each downstream firm *i* optimises

$$\max_{q_i}(1 - Q_d - p)q_{i,d}, \qquad \textit{[1]}$$

As a result, downstream individual supply in the symmetric Cournot equilibrium is

$$q_{i,d}(p) = \frac{(1-p)}{n+1}$$

and aggregate market supply is

$$Q_d(p) = \frac{n}{(n+1)}(1-p). \qquad \textit{[2]}$$

The upstream industry exploits this best reply behaviour of the downstream firms, so that the

upstream inverse demand is given by total downstream sales as a function of Q.

$$p(Q_u) = 1 - \frac{(n+1)}{n} Q_u \ , \qquad [3]$$

where $Q_u = \sum_{j=1}^{m} q_{j,u}$ is the supply of the m upstream firms. This upstream demand yields an individual profit for firm j of

$$\pi_u^c = p(Q_u) q_{j,u} = \left(1 - \frac{(n+1)}{n} Q_u \right) q_{j,u} ,$$

which it maximises with respect to $q_{j,u}$, given the choices of the other upstream firms. With both the up- and downstream industry in Cournot competition, where the superscript '*c*' stands for competition, the equilibrium is given by

$$Q_u^c = Q_d^c = \left(\frac{m}{m+1} \frac{n}{n+1} \right)$$

and

$$P^c = \left(\frac{m+n+1}{(m+1)(n+1)} \right).$$

Individual profits in the up- and downstream industry are respectively

$$\pi_u^c = \frac{1}{(m+1)^2} \frac{n}{n+1}$$

and

$$\pi_d^c = \left(\frac{m}{m+1} \frac{1}{n+1} \right)^2 .$$

Note that when the number of upstream firms m becomes very large, the input price p will approach marginal costs and individual profits will approach zero. The same is true for market price P and profits for each downstream firm when the number of downstream firms n goes to infinity. The present set-up – albeit simple – thus captures all possible vertical combinations of market forms between the extremes of perfect competition and monopoly.

The effects of upstream price fixing

Suppose, the upstream industry entertains the idea to conspire in collusion and fix the input prices charged to the downstream firms. Suppose it is able to do so, yet not without leaving some traces. That is, the upstream firms consider engaging in overt collusion. Let the downstream industry remain perfectly competitive. The upstream industry as a whole will then act as a monopolist on its (inverse) demand function and produce $Q_u^a = \frac{1}{2} \frac{n}{n+1}$, which it sells at a price $p^a = \frac{1}{2}$, generating aggregate cartel profits of: $m\pi_u^a = \frac{1}{4} \frac{n}{n+1} \geq m\pi_u^c$.[76]

[76] Let the superscript "*a*" denote the price, quantities and profits obtained under the "*anticompetitive*"

A one-to-one technological relationship of inputs and outputs remains valid after the emergence of a cartel is assumed. Accordingly, the downstream firms would be compelled under the cartel arrangement to use all the inputs that are supplied to them by the cartel. *Ceteris paribus*, the cartelisation has three direct effects, higher upstream prices, higher downstream input prices and higher consumer prices. This leads to the following upstream profits, downstream losses and a consumer surplus decrease.

First, the gain to each of the cartel members is $\left(m\pi_u^a - m\pi_u^c\right) > 0$, which is given by equation 4 below.

$$\Delta\pi_u^a = \left(\frac{(m-1)^2}{4m(m+1)^2}\left(\frac{n}{n+1}\right)\right) \qquad [4]$$

Second, the accompanying loss to each of the downstream firms suffering from the violation is given in equation 5 below:

$$\Delta\pi_d^a = \left(m\pi_d^a - m\pi_d^c\right) = \left(\tfrac{1}{4} - \left(\frac{m}{m+1}\right)^2\right)\left(\frac{1}{n+1}\right)^2 \qquad [5]$$

Finally, the loss to consumers, $CS^a - CS^c < 0$ is given by:

$$\Delta CS = \tfrac{1}{8}\left(\frac{n(n+2)}{(n+1)^2}\right) - \tfrac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2 \qquad [6]$$

Aggregate welfare loss

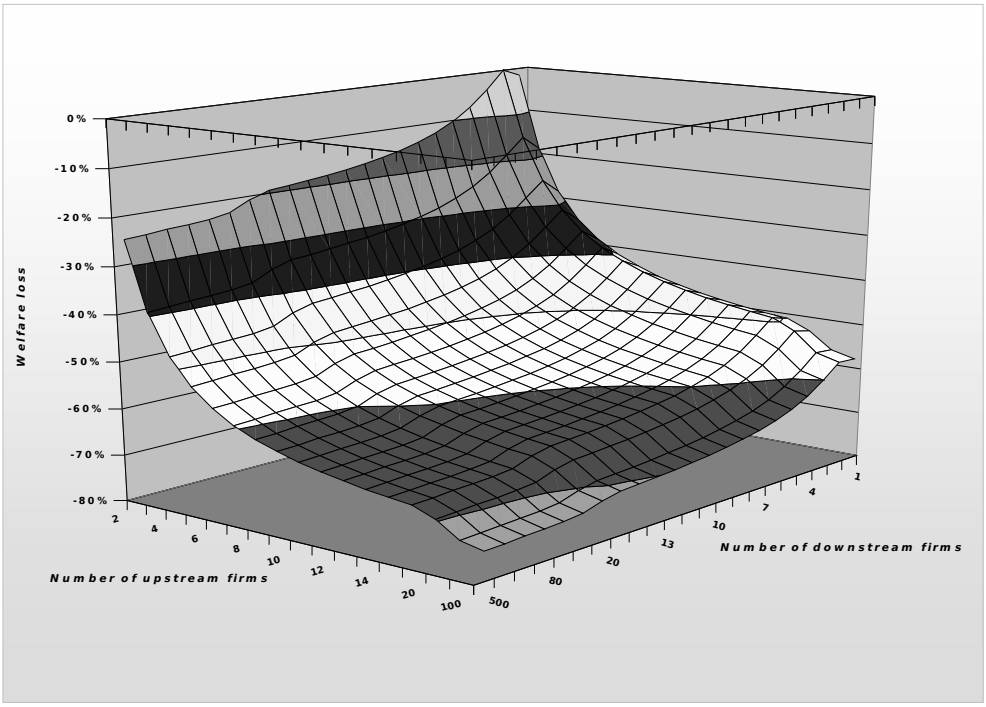
The change of the respective gains and losses to different market structures up- and downstream prompts the question, whether and if so under which condition i.e. for which values of *m* and *n* the upstream benefit could be equal to the total downstream loss consisting of the downstream firms' loss and consumer surplus loss. The welfare change – computed as the sum of the upstream gain, the downstream loss and consumer surplus – is given by $\Delta W = \Delta\pi^u + \Delta\pi^d + \Delta CS$. After plugging in, one obtains equation 6.10.

$$\Delta W = \left(\frac{(m-1)^2}{4m(m+1)^2}\left(\frac{n}{n+1}\right)\right) + \left(\tfrac{1}{4} - \left(\frac{m}{m+1}\right)^2\right)\left(\frac{1}{n+1}\right)^2 + \tfrac{1}{8}\left(\frac{n(n+2)}{(n+1)^2}\right) - \tfrac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2 \qquad [7]$$

In order to visualise the welfare change that is induced by the anticompetitive action as a function of the size of up- and downstream industry, the welfare change is divided by the initial competitive level of welfare.

agreement.

FIGURE II RELATIVE AGGREGATE WELFARE LOSSES



Social welfare is reduced when cartels are formed in the upstream industry. When there are four upstream firms forming a cartel, the social welfare is reduced by 25% for *n=2* and by 50 % for *n=20*.[77]

$$\frac{\Delta W}{\left(\pi_c^u+\pi_c^d+CS_c\right)}=\frac{\left(\frac{(m-1)^2}{4m(m+1)^2}\left(\frac{n}{n+1}\right)\right)+\left(\frac{1}{4}-\left(\frac{m}{m+1}\right)^2\right)\left(\frac{1}{n+1}\right)^2+\frac{1}{8}\left(\frac{n(n+2)}{(n+1)^2}\right)-\frac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2}{\left[\left(\frac{1}{(m+1)^2}\frac{n}{n+1}\right)+\left(\frac{m}{m+1}\frac{1}{n+1}\right)^2+\left(\frac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2\right)\right]} \qquad \textit{[8]}$$

To conclude, the simple model of a two-stage production chain and consumers shows how the downstream firms and consumers are hurt by upstream violation of antitrust law relative to a competitive market structure. It remains to be found out whether models of longer chains would predict higher or lower injuries. By extending the model i.e. lengthening the chain by one or more layers, the numbers of victims suffering from the violation will inevitably rise.

Pass on rate

Using the results of the above model, one can express the in- and output prices in terms of *m* and *n*. Given the input prices

[77] See Appendix I for the corresponding values and the construction of Figure 2 above.

$$p^a = \tfrac{1}{2}$$

charged by the cartel and

$$p^c = \frac{1}{m+1}$$

charged under competition and the pair of downstream output prices

$$P^a = P^a(Q^d) = 1 - Q^d(p^a) = 1 - \frac{n}{n+1}\left(1 - p^a\right) = 1 - \tfrac{1}{2}\frac{n}{n+1} = \frac{n+2}{2(n+1)}$$

under the cartel and under competition

$$P^c = \frac{m+n+1}{(m+1)(n+1)}$$

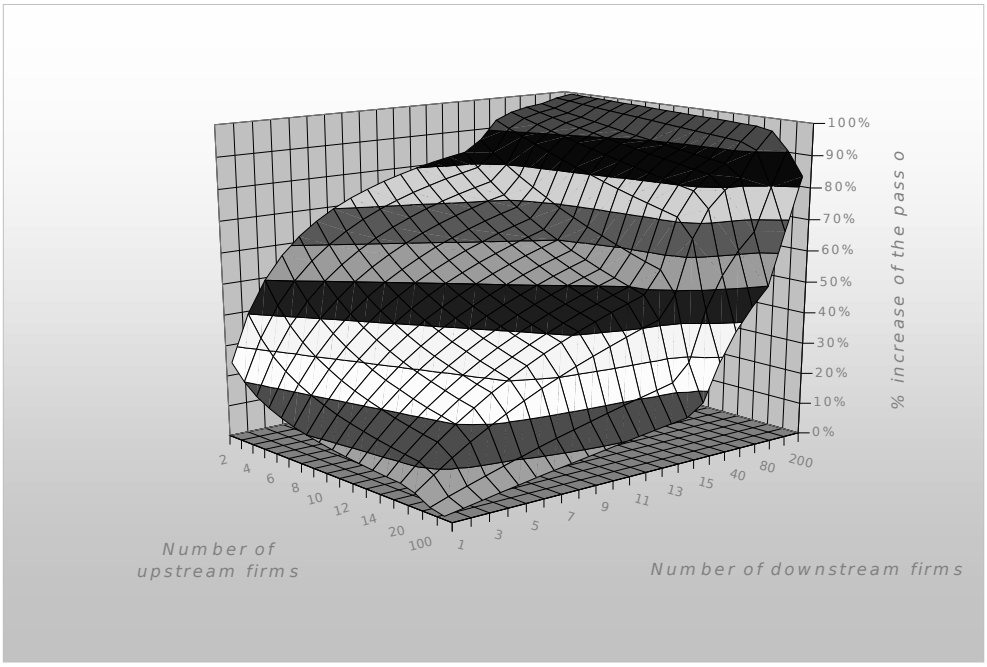
respectively, one can compute the relative pass on rate, defined as the change in the output price relative to the competitive output price, divided by the change in the input price relative to the competitive input price.

$$\rho^{Pp} \equiv \frac{\dfrac{\left(P^a - P^c\right)}{P^c}}{\dfrac{\left(p^a - p^c\right)}{p^c}} \qquad [9]$$

Figure 3 shows the values for equation 9.[78] The larger the number of downstream firms the more complete is the passing on. Perfectly competitive downstream firms have no market power and act as a conveyor of the cartel price to the consumer. Imperfectly competitive downstream firms are able to raise their price as well so the pass on is not (close to) one hundred percent. As regards figure 3, it becomes obvious that even in a two stage chain, in practice the downstream firms are rarely perfectly competitive hardly ever homogeneous. That means that the pass on rate can differ from firm to firm. This in turn leads to antitrust injuries on behalf of the downstream firms let alone the consumers, which are difficult to determine. Violations upstream lead to substantial downstream profit losses and a reduction of consumer surplus, adding up to substantial social welfare losses. The issue is complicated by the phenomenon of passing on , which varies with the size of up- and downstream industries.

[78] See Appendix II for the corresponding values and the construction of Figure 3 below.

FIGURE III RELATIVE PASS ON RATE



A gap between private and social cost benefit analysis

It is the intention of the Commission to facilitate the filing of private lawsuits to bring private damage claims. Note that the plaintiff's individual expected value of bringing a private suit is always positive. The payoff for not suing is negative i.e. the injury incurred. The compensatory effort of the Commission is laudable. Yet, the efficiency gains are at best questionable. The individual does not take into account the costs that his suit produces for society. These include the administrative expenses, court and personnel costs. The private cost-benefit analysis of bringing a suit underestimates the (social) costs of filing that suit. Hence there is a discrepancy between the costs taken into account in the respective private and the aggregate social cost-benefit analysis. From a social perspective, the private incentives to file suit are too high. The proliferation of private incentives stemming from ubiquitous damages will lead to a sub-optimal amount of fragmented individual claims scattered across the chain. Judging from the fact that everybody has standing to sue there is reason to expect an autarkic decision to sue. When all cases are brought independently legal transaction costs are inevitably produced, which may outweigh the efficiency gains stemming from private damage claims. Of these cases, the bulk originates within the ranks of those purchasers relatively close to the violation. The direct purchasers and/or first or second indirect purchasers are believed to dispose of superior information about the violation e.g. an overcharge on their input prices. As a result however, the defendant faces multiple liability for the same offence. Some measure would be needed to contain the dynamic social costs.[79]

To the extent that this fragmentation of the overcharge leads to a dispersal of incentives, they turn out to be too small at the relatively remote layers of the chain. Hence, there may also be too few damage claims originating downstream. Above all, if the ill-gotten profit of the defendant is larger than the

[79] If there are too many cases, the class action provision economises on the transaction costs.

aggregated damage in the chain and assuming that the propensity to sue decreases when descending the chain, single damages that are claimed independently of one another are prone to provide an insufficient deterrent. This is also clearly a sub-optimal result. It lacks in terms of both the compensation and deterrence principle. The former would be violated, as indirect purchasers among them consumers would be left damaged. The latter would not be achieved not simply because there are too few cases but because the prospect of recovering simply the actual damages i.e. a one-to-one compensation might not suffice in light of the minute injuries. Some measure would be needed to channel and thus reinforce those scattered incentives.[80] On the one hand, an antitrust violation like a price fix for example typically has the habit of trickling down through the respective layers of the production and supply chain in the form of an overcharge. In other words the intermediaries may be able to pass on a certain percentage of the injury to their own purchasers. A direct purchaser may on the one hand be able to pass on the overcharge that he is charged to the consumer. On the other hand he may not always be able to pass on everything and thus is also injured.

Revenue v. cost

The revenue side of antitrust enforcement embodied by the treble damage provision has provoked many analyses. Economists though seem to have a split relationship to treble damages. Treble damages are criticised for being too rigid i.e. not appropriate for rule of reason cases. In addition, treble damages are criticised for inviting spurious claims as well as rent seeking behaviour by victims.[81] Treble damages have equally often been defended, in BAKER, the deterrent effect of treble damages led to the insight that only with private information on the part of the violator, is there one optimal damage multiple, which deters all violations so that there is need for compensation.[82] The optimal multiple need not necessarily be three. BESANKO and SPULBER also defended treble damages. By means of a sequential equilibrium model, they are able to show that private enforcement with a multiple damages can indeed increase social welfare.[83] Conversely, it was put forward that treble damages may only amount to double the actual social welfare loss inflicted upon consumers by the anticompetitive behaviour.[84] It is an early plea for a more careful, precise and extensive damage calculation in order to guarantee fair compensation. Such an attempt to raise the damage award by means of full-fletched economic analyses would simultaneously increase deterrence by increasing the incentive to sue and thus the expected financial exposure of the potential violators. Indeed, antitrust damage awards must be higher than actual damages to offset detection problems, proof problems, risk aversion.[85]

The revenue side to antitrust enforcement has been extensively analysed. The revenue side is however not the most promising issue on which to compare the US and European system as there is

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[80] If there are too few cases, the class action provision increases the incentive to sue and deterrence.

[81] See BAUMOL, W. J. and Ordover, J. A., *Use of Antitrust to Subvert Competition*, [1985] Journal of Law & Economics Vol. 28, pp. 247-270, for a complete study of antitrust law abuse.

[82] See BAKER, J., *Private Information and the Deterrent Effect of Antitrust Damage Remedies*, [1988] Journal of Law and Economics, and Organization, Vol. 4 (2).

[83] BESANKO, D. and SPULBER, D. F., *Are Treble Damages Neutral? Sequential Equilibrium and Private Antitrust Enforcement*, [1990] 80 American Economic Review 4.

[84] LOVELL, M. C., *Are Treble Damages Double Damages?* [1982] Journal of Economics and Business 34, 263-268, Temple University.

[85] LANDE, R. H., *Are treble damages really single damages?* [1993] 54 Ohio St. L. J., 115, Westlaw.

no and probably will not be any trebling of damages in Europe.[86] The section above showed that even in a simple model the damages incurred downstream and by the consumer are substantial. The average damage incurred for any combination of up- and downstream industry size up to ten and fifteen firms amounts to 63% for the downstream firms and 46% for the consumers respectively. To shed light on these injuries is thus *per se* not necessarily more relevant in light of the modernisation. The injuries caused by anticompetitive actions occurred irrespective of the enforcement system being exclusively public or private as well. What should be of particular concern – if one keeps in mind the fining practice of the European Commission in the past and the severity of the distortions it had to punish – is that in addition to the downstream damages, societal harm and the associated costs the court cases provoke additional cost. Multiplying and potentially overlapping court cases however unduly inflate aggregate, i.e. both public and private legal expenditures both in the US and the EU. Some studies, which have been conducted after those on optimality of treble damages, have implicitly alluded to the cost side. LANDE (1993) included the legal expenditures in the damage that was caused by the anticompetitive practice, arguing that it should hence not be borne by the taxpayer. However, this argument was used as evidence for fallible calculus and compensatory deficiency of treble damages.[87] In BRIGGS et al. (1996), public and private enforcement is modelled as a signalling game between litigating agents and authorities. A defendant can signal that he has a strong case by not offering to settle. If the victims find the signal credible, their expected value of litigation may not be positive.[88] They will refrain from suing – there is no case. In such an event, the public authorities should investigate it instead.[89] If the government drops investigations, it is found that fewer private cases are tried and of those litigated in turn fewer are dropped, whereas however, with unchanged plaintiff win rates more cases are settled after public proceedings are discontinued.[90] It may thus less frequently be the treble damages that spark the case, but the expenditures, the plaintiffs believe are necessary for winning the case that frustrate the filing of a private damage suit. As to the private cost benefit analysis of filing a private damage suits in Europe, the policy makers cannot rely on the incentive effect of treble damages to make plaintiffs more inclined to sue over questionable conduct compared to single damages. Indeed, the plaintiffs will be awarded real actual damages in most of the Member States. Even if that may be discouraging to some potential plaintiffs and although there may be more obstacles to private enforcement in Europe today, in due time it will complement public enforcement and increase deterrence.

Lessons for the EU

The legislation as it stands today, neglects problems of unlimited standing to sue and pass-on. Exclusive direct purchaser enforcement would deprive the indirect purchaser of his right to compensation when he is injured, whilst the wrong people can sue and get windfall damages. The right to compensation would be infringed upon were it not possible for any individual or legal person

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86 See e.g. JONES, op. cit., at 198: "Community law permits the ECJ may adopt the rule of *Hanover Shoe*, but not that of *Illinois Brick*."

87 LANDE, R. H., *Are treble damages really single damages?* [1993] 54 Ohio State L. J., 115.

88 BRIGGS, H. C., HURYN, K. D. and McBRIDE, M. E., *Treble Damages and the Incentive to Sue and Settle*, [1996] RAND Journal of Economics, 27(4), pp. 770-786, at 781.

89 *Ibid*., at 782.

90 *Id*.

to file a suit and have its but-for situation be re-established.[91] If thus, modernisation and decentralisation of EC law in Regulation 1/2003 is, in addition to ensuring efficient enforcement in the future, partly motivated by arming indirect purchasers to achieve its objective of greater fairness, then importing a *Hanover Shoe* and *Illinois Brick* analogue will conflict with that EU objective.[92]

On the one hand, Europe could settle for first allowing the defensive pass on argument, i.e. not introducing the *Hanover Shoe* rule and second allowing the offensive pass on argument and therefore allowing indirect purchaser litigation, refusing *Illinois Brick*.[93] This situation, is currently for lack of statutory rules observed in case law in Germany, where „price fixers frequently use the so-called 'passing-on' defence against actions" and „in the Vitamin case the Court accepted the passing on defence put forward by the vitamin producer".[94] By the same token, the passing on defence has been accepted by National Courts in every Member State in which it had been raised.[95] It is submitted that allowing the passing on defence obstructs the attainment of damages, first by complicating the damage actions as regards the calculation of damages and the extent of pass on, and second by potentially reducing the financial exposure of the defendant and thus the deterrent effect of private damages, if the defendant is able to prove pass on on behalf of the plaintiffs.[96]

On the other hand, Europe could settle for disallowing the defensive pass on arguement as in *Hanover Shoe*, but not opting for *Illinois Brick*. A prediction of the performance of this system can be inferred by inverting the logic of the US Supreme Court to decide against indirect purchasers in *Illinois Brick*. What LANDES and POSNER have warnded about would burden EC competition law enforcement. Because there is no scope of a remedying twin decision à la *Illinois Brick*. Compensatory considerations of redressing all injuries irrespective of how small they are, irrespective of how remote the victim's position in the vertical chain is, and awarding treble damages in potentially spurious and extortive cases with illegitimate claims for (passed-on) damages were outweighed by the efficiency considerations. To be precise, *Hanover Shoe* created the "multiple liability problem", which was solved by *Illinois Brick*. The concern is that by failing to restrict standing to sue to the direct purchasers the deterrence would be deteriorated. The logic of this conclusion builds on three pillars.

First, the direct purchasers are viewed to be the more efficient enforcers. Since they are closer to the violation it is easier for them to detect violations. If they face higher prices, they have to determine whether it is an illegal overcharge stemming from anticompetitive behaviour or whether the supplier faces higher costs because of a legitimate input price increase. The logic is that the direct purchasers would only have to investigate the one stage in the production distribution chain above him to find an answer to that question. Landes and Posner compute in a simple set-up that the

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91 See *supra*, fn 10.

92 Compare e.g. JONES, op. cit., at 198: "Community law permits the ECJ may adopt the rule of Hanover Shoe, but not that of Illinois Brick."; Possible negative efficiency effects stemming from *Illinois Brick* - in the form a cartel being protected from direct purchaser suits (and thus from litigation) by an "Illinois Wall" constructed with cartel profit flows to the direct purchasers (by means of an input rationing scheme), which exceed the gains from a treble damage suits – are shown in SCHINKEL, M.P., TUINSTRA, J. & RÜGGEBERG, J., *Illinois Walls* , working paper, Universiteit van Amsterdam [2004].

93 The period in-between HS and IB was marked by increasing numbers of private cases. See LIN et al., op. cit. (fn 28).

94 See BUCH, M., op. cit., (fn 59) , at 3.

95 Ashurst Study, op.cit., at 1-111.

96 *Id.*

maximum number of searches increases from n, the number of stages in the chain to n^2 when indirect purchasers are given the right to sue.[97] The aggregate search costs are inflated and these added costs are socially wasteful expenditures. Landes and Posner concede that there is scope for avoiding duplicative expenditures by sharing search costs and pooling information. Further, the litigants may agree to concentrate their search on the direct supplier. Nevertheless, LANDES and POSNER conclude that this implies coordination costs and other issues like pass-on could prevent full agreement. Hence, the costs of indirect-purchaser rule will always exceed that of exclusive direct purchaser litigation. Because the indirect purchasers are less efficient enforcers, their increase in the incentive to sue cannot outweigh the decrease in the incentive to sue for the direct purchasers. Therefore, in defence of the *Illinois Brick* rule, the maximal incentive should be allocated to the direct purchasers to guarantee maximal deterrence.

Secondly, LANDES and POSNER argue that the incentive to sue is decreased by disaggregating the damages among the direct and indirect purchasers. On the side of the indirect purchasers this is caused by the fact that the injuries of the indirect purchasers are relatively small compared to the direct purchasers. This makes the violation difficult to detect. The direct purchasers will have less incentive to sue because they have a substantially smaller stake in the damage award. On the one hand, the disaggregation of damages reduces deterrence. On the other hand, the apportioning of the damage award obviously entails costs. Obligation to engage in complicated supply and demand elasticity calculations further reduce any party's incentive to bring a suit. Even if direct and indirect purchasers were equally efficient enforcers, the reduction of the incentive of the direct purchaser is not offset by an increase in the incentive of the indirect purchasers. The enforcement expenditures decrease because of the smaller expected damage recovery. In sum, the European prospects of *Hanover Shoe* without *Illinois Brick* constitute a serious impediment to private damage actions, if it is fairly easy for the defendant to prove pass on by plaintiffs and fairly difficult for indirect purchasers to establish a causal link between the infringement further up the chain and their sustained damages.[98]

It is fairly clear that a system of restricted standing to sue, can only yield effective deterrence if the damage are a multiple of one, e.g. treble. In light of this US experience, there should however be control of the negative effects inherent in private damage suits. Trying to avoid that conflict will mean having to put up with multiple liability and excessive damage calculations. The dilemma that surfaces here, lies in the combination of the wider rules on standing and merely compensatory damages that are common in the majority of Member States. Punitive or exemplary damages conflict with the basic principles of national tort law. In France, damages are not intended to have a "separate deterrent or punitive objective" over and above that of compensatory damages.[99] In Sweden, the introduction of treble damage was conflicting with the fundaments of national tort law, especially as regards overlapping claims.[100] The implied damage multiple of compensatory damages however, is equal to one. Such one to one compensation however cannot yield the desired deterrence. Even if the immanent problems of uncertainty, causation and damage calculation could be overcome and estimates were very close to being exact, and even if each victim from every possible position in the

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97 *Ibid*.

98 Ashurst study, op. cit., at 1-112.

99 Ashurst study, op. cit., at 1-131.

100 *Id*.

vertial chain and related chains would sue for private damages, the expected aggregate financial punishment of the violator would not necessarily equal the illegal supracompetitive gains. The violator might estimate that he is deteced late, or not at all or that the authorities or plaintiffs make mistakes during the case or maybe the violation has had strategic effects not noticed by the victims, effects that may materialise not until well into the future. even if there are many cases, compensatory damages lead to a deterrence gap, which will cause even greater costs.[101] Unless however a damage multiplier is used to inflate the damages faced and paid by the defendant, the EU will continue to suffer from an under-deterring antitrust enforcement system.

Vertical Chain Class Actions and Public Follow On Fines

To safely steer the private antitrust enforcement between the *Scylla* and *Charibdis* of the Community remedy principle[102] and compensatory damages the adoption of class actions in private enforcement of European competition law is proposed.[103] For such private damage suits effectively deter anticompetitive actions, the individual claims should be vertically aggregated, because pass on is inevitable and the installing the direct purchaser rule is not possible in the EU.[104]

Vertical chain class action suits

In order to have such chain class action suits in place; it is necessary to protect the right to compensation. Individuals must thus retain their right to an own individual suit. The proposal does not conflict with the EC Treaty or the modernisation package. On the contrary it strengthens private enforcement with the possibility to bring chain class action suits. No right is taken away. Conversely, an individual cannot be forced to initiate legal proceedings. But since the plaintiffs who are member to the chain class action must not receive the remaining damages of those who are not member to the chain class because it might constitute unjust enrichment the damage award is an incentive for all injured to join the chain class. It is thus assumed that a chain class action suit will be filed by any party injures by the infringement. In the framework of this proposal victims will not have to join the chain class action, compensation will be guaranteed upon proof of individual injury even after the defendant has paid the damages. I assume that refusal to join the class action may occur, refusal to be compensated will most likely not. Effective compensation should not fail because of insufficient communication with the victims. In the unwanted event of victims not claiming their damages the may have to expire after a certain deadline, with any remaining amount falling to the Commission or NCA for example. After the chain class action suit has been filed, the parties will litigate just as envisaged. If however the plaintiffs lose, then there remains the right to either file suit again or reopen the case in light of new evidence etc. The same holds for appeals at higher instances. If the plaintiffs win, technically, there can no longer be the right to bring an individual case after the chain class action suit is closed. The US experience teaches us that it is a rather rare phenomenon for parties to a class action suit to opt out of the class action suit and file an individual suit. Ideally, there should be no more

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[101] See BEHR, op. cit., at 147.

[102] The right to reparation is a Community principle, because the „criteria to be applied to determine its existence are seet by Community law, not national law“, and further it exists when no similar national law exists, and overwrites national law that would prevent the right to reparation. Cf. Jones op. cit., at 151.

[103] Compare PAGE, W. H. (1999), *The Limits of State Indirect Purchaser Suits: Class Certification in the Shadow of Illinois Brick*. Antitrust Law Journal, 67, 1-40.

[104] See s*upra*, fn 94.

standing to sue after all, because the injury has been effectively compensated. To ensure this is of course the goal of the chain class action suit. Then there would also be no opting outs for the duration of the chain class action. After a successful chain class action, the plaintiffs' representative(s) for example may collect the damage award and organise the compensation i.e. distribution among their respective clients. It is submitted that compensation would be accomplished solely by requiring the victims to produce not necessarily more than a proof of purchase indicating the quantity consumed and possibly a date of purchase that falls into the period of the violation. The overcharge and pass on calculus would determine the individual amount, which is to be handed out. *Et voilà*, competition with a money-back-guarantee. A potential problem that this aspect of the class action suit in the European context could pose is the question of where the class is joined and the suit filed. Probably, there would have to be a chain class action suit for every national jurisdiction. It depends on the type of organisational structure of the defendant where the suit would have to be filed. A defendant that sells its product via independent retailers in another country would have to be sued in his country of origin. A defendant that sells through wholly owned subsidiaries could also be sued in the country in which the subsidiaries are located. Since it is impossible for a court in one jurisdiction of one Member state to rule over citizens and legal persons of another Member state, it would be impossible to, say, join all the purchasers of a defendant throughout the Community into one chain class action and sue the defendant before the court in his country of origin. A chain class action that is commenced in any one Member state would thus have to be coupled by parallel cases in those Member States where there have also been injured parties. The competition authorities and courts will be supported in the execution of these tasks by their joint efforts in the framework of the European competition network.

The European twist to class actions would be the inflation of the damage award to the whole damage incurred throughout the chain. Economically such a proposal makes sense, because firstly, it does not reduce the incentive effect. Combining the insights of the above model of a production chain with the goals of the modernisation package, it is evident that parties with damages and sufficient information will bring a private damage suit.[105] Note, that it does not matter at what layer of the chain the first or second or simultaneous claims originate. Hence all the victims have the incentive to sue.[106] Secondly, the proposal of chain class actions, leads to substantial reduction in transaction costs of both the administrative and the private type. The number of cases is dramatically reduced so that the public expenditures of both the EU and the Member States is reduced. Neither the Courts nor the NCAs would have to cope with a wave of scattered individual private damage claims from various level of the production distribution chains.[107] Thirdly, at the same time, no two or more plaintiffs incur parallel expenditures for proceedings on one and the same violation. There may even be prospects of economies of scale in terms of litigation expenditures when it comes to e.g. finding evidence. The vertically aggregated damage claims raise the litigation expenditures per case while reducing the number of cases making private enforcement thus more cost effective, compared to small, individual and autarkic claims. Fourthly, synergies that warrant special attention are the information effects that

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[105] Not least, the prominent advocates of the privatisation of antitrust and the fining record of the Commission support such a prognosis.

[106] Following the logic of *Illinois Brick*, the incentives for indirect purchasers may still be smaller than those of the direct purchasers. However, the success probability of the former increases if they can reason to believe that the direct purchasers join their damage claim in a chain class action. Hence the expected damage award (for both) is higher.

[107] Compare *supra*, (fn 38, 40).

could possibly stem from joining victims from the different stages of the chain. Whereas under an autarkic claims system the goal is to prove individual damages, there are incentives to overstate them. Where the proof of pass on is not as difficult as generally assumed, direct purchasers might attempt to hide passing on of damages and thus increase their own damage award. In chain class actions the checks and balances are more extensive. Not only is the direct purchaser plaintiff obliged to prove injury in fact to the defendant, but the direct purchaser has to justify his claim against the damage claims of the indirect purchasers further down the chain. They will typically be very vigilant about pass on because it determines their damage award just as much as the initial price increase of the cartel.

Public follow-on fines

These compensatory advantages of chain class action suits play a prominent in the short run, where the European enforcement regime is developing. In the long rung, the prime goal is deterrence of anticompetitive actions. There must be punitive elements to damage actions, as otherwise the number of violations cannot be reduced. In reality, exactly this conviction can be observed even where there are no punitive damages let alone treble damages. In Germany, "it is apparent that under modern German law, damages are awarded that are by their nature at least partially punitive."[108] Whereas this is a reaction of courts to non-existent statutes of punitive damage, it is uncertain whether this can become common practice in Community competition litigation. In Europe there are reservations about installing an incentive system that could foster the general litigiousness known from American private enforcement arguably caused by the treble damage rule as statutory provisions for punitive damages are only existent in three of the Member States.[109]

In a system capable of awarding merely compensatory damages, it is questionable whether the aggregate damages in the chain can even equal the supra-competitive profit. Suppose they are. Then, if the chain class action is brought and won the victims are reimbursed their individual share of the aggregated chain damage including interest and excluding lawyer's fees. If the profits are larger, it remains profitable to engage in the anticompetitive conduct even with a hundred per cent chance of being detected. However, suppose damage caused exceeds the ill-gotten profits. Even then it may still be profitable to violate the law because the damages amount at most to the "nominal" anticompetitive profit. The estimated damage payments may be much lower, if for example the violator expects that not the all of the damage will be discovered. It may also be that strategic considerations to secure advantages or market shares for future periods make the "real" anticompetitive profit larger than the single, albeit aggregated damages. The latter would hence fail to provide adequate deterrence. Although the financial exposure of the defendant is automatically larger with chain class actions than with autarkic private damage suits, there remains the upper bound of real compensation. Hence, the private enforcers under-deter even if claims are aggregated. What they cannot achieve is that the total

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[108] BEHR,V., *Punitive Damages in American and German Law – Tendencies towards Approximation of pparently Irreconcilable Concepts* [2003] Chicago-Kent Law Review, 78, (105) pp. 105-61, at 146. *Id.*: „In intellectual property infringemen cases, German law maintains the guise that damage calculations are strictly compensatory. But in reality, damage awards are not proportional to the actual loss incurred. [...] This approach is openly justified as necessary to create a substantial deterrent effect, beyond the insubstantial deterrent effect of mere compensatory damage awards." *(emphasis added).*

[109] See *supra*, (fn 17-18); BEHR, op. cit., at 149: „[i]t is noteworthy, that both systems [American and European] accept the theoretical need for some level of restrictions on punitive damages."

financial exposure of the defendant be in excess of the total anticompetitive profit.
Technically, the class action aggregate damage would need to be inflated by a multiple to achieve optimal deterrence. A solution would be to decouple compensatory and deterrent elements of enforcement and allocate them to the the most efficient provider. Law firms or the privately governed market and not a government institution should be entrusted with the administering of the case and the calculation of the damages to endure compensation. The deterrent element of enforcement could be supplied by a punitive public follow-on fine. The deterrence gap that is needs to be filled is given by an implicit damage multiple greater than one determined by the extent to which the illegal anticompetitive profits exceed the aggregated compensatory damage award.

FIGURE IV RELATIVE AGGREGATE WELFARE LOSSES

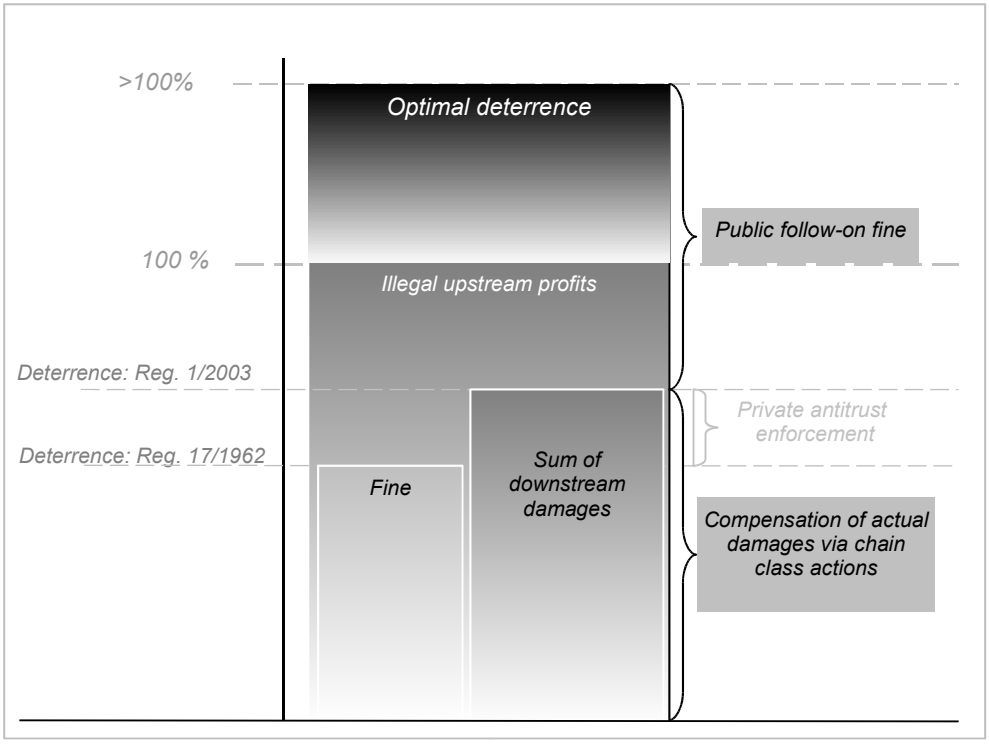

Figure 4 illustrates how deterrence will be stronger with the private damage suits in form of the chain class action suit. Assuming that the deterrence level of the old enforcement system is below the sum of damages and thus failed to prevent many violations, the introduction of chain class action suits reduces the gains of violation for the defendant. The undeterred gains for the defendant stemming from detection problems etc. have to be matched by a public follow-on fine, trying to approximate the total of damage and fine corresponding to the optimal damage multiple. The 100% + *x* would fluctuate but could well amount to real treble damages for example, bearing in mind that real compensation is already achieved via the damage claim. The public enforcement agencies, the Commission and the NCAs assume the role of providing competition law enforcement with the necessary the deterrent element. This division of responsibilities will be especially effective when it is practised in a sequential order. The defendant in a chain class action, who – for the sake of the argument – is assumed to have been found guilty by a National Court, will have already compensated the plaintiffs and paid their legal expenditures. The plaintiffs in turn will have produced evidence as

to the infringement of Articles 81 or 82 EC, and quantified the damages including full disclosure of pass on. And since Regulation 1/2003 requires the decisions at national level to yield the same outcome as a Commission investigation, the Commission or NCA can process a closed case and fine the culprit at low administrative and hardly any additional costs of investigation. Such a combination of vertical chain class actions suits and public follow on fine effectively compensating the victims and yields efficient deterrence at bargain.

Conclusion

What an antitrust enforcement system that is enhanced by private actions faces on top of the treble damages and incentive issue is that of the standing to sue. Due to the fact that anticompetitive overcharges that are extracted at one level may be passed-on to another, the injury tends to be spread over numerous remote parties. If parties of any level of the vertical (production) chain have standing to sue for damages, a wave of cases rolls on to the national courts. Moreover, as one includes more layers further down the vertical chain, it typically tends to widen horizontally. This multiplication of cases unduly inflates aggregate litigation costs and depletes the public legal budget. In addition, it artificially raises coordination costs between the vertical levels and also among the individuals or firms of lower horizontal levels. Irrespective of the case being settled or won, difficulties will arise in disaggregating damages among the many individuals corresponding to the (alleged) injury incurred. This prolongs negotiations for a settlement, exhausts more heavily judicial and legal resources and may induce rent-seeking behaviour of the plaintiffs.[110]

In Europe, it seems as if direct purchasers, who are able to hide passing on from the defendant can obtain windfall damages, whereas indirect purchasers will have to face a tough challenge in overcoming hurdles such as causation. In addition, their prospects are even bleaker as regards the quasi lack of class action. Beyond the at best arguable compensatory prospects, is the inherent under-deterrence of single damages with neither scope for punitive damages, nor a statutory restriction of standing. This dilemma can however be avoided, with chain class action suits; admittedly a daring proposal, when one considers the relative scarcity of class action provisions or the like. However, the need for a harmonised solution to standing, pass-on and the commitment of the Commission to introduce more economic analysis into competition policy suggest that there may be some scope for sophisticated and exhaustive damage calculation availing itself of as much data from as many victims or passers-on as possible. Such a development would be borne by both the consumer approach and the competitor approach to competition policy, as competitors and customers as well as consumers and taxpayers would benefit from finding the best – for the sake avoiding largest –approximation of the aggregated chain damage to share. The public follow-on fine is technically just a reversal of the common or expected practice of public fines and private follow-on cases. Apart from different investigation powers that would make the Commission or NCA better fitted to discover the violation, an inverse sequence should lead to the same result. In the end, why should not the assessment of the effective fine in accordance with the desired deterrence be easier to compute if compensatory concerns could safely be excluded?

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[110] BREIT, W. and ELZINGA, K. G., *Antitrust Penalty Reform – An Economic Analysis*, [1986] American Enterprise Institute – Studies in Economic Policy, at 36.

Appendix I Relative aggregate welfare loss

Dividing the absolute welfare loss by the initial i.e. pre-cartel welfare level under competition yields the percentage decreases given in table I below (corresponding to *equation 8 and figure 2 above).*

$$\frac{\Delta W}{\left(\pi_c^u+\pi_c^d+CS_c\right)}=\frac{\left(\frac{(m-1)^2}{4m(m+1)^2}\left(\frac{n}{n+1}\right)\right)+\left(\frac{1}{4}-\left(\frac{m}{m+1}\right)^2\right)\left(\frac{1}{n+1}\right)^2+\frac{1}{8}\left(\frac{n(n+2)}{(n+1)^2}\right)-\frac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2}{\left[\left(\frac{1}{(m+1)^2}\frac{n}{n+1}\right)+\left(\frac{m}{m+1}\frac{1}{n+1}\right)^2+\left(\frac{1}{2}\left(\frac{mn}{(m+1)(n+1)}\right)^2\right)\right]} \quad \textbf{[8]}$$

TABLE I RELATIVE AGGREGATE WELFARE LOSSES

I		*Number of upstream firms (m)*																
		2	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*20*	*50*	*100*
Nnumber of downstream firms (n)	*1*	-2%	-18%	-28%	-34%	-38%	-41%	-43%	-45%	-46%	-47%	-48%	-49%	-50%	-50%	-52%	-56%	-57%
	2	0%	-15%	-25%	-31%	-36%	-39%	-41%	-43%	-45%	-46%	-47%	-48%	-49%	-49%	-52%	-56%	-57%
	3	-4%	-19%	-28%	-34%	-39%	-42%	-44%	-46%	-48%	-49%	-50%	-51%	-52%	-52%	-55%	-59%	-60%
	4	-8%	-22%	-31%	-38%	-42%	-45%	-47%	-49%	-51%	-52%	-53%	-54%	-55%	-55%	-57%	-61%	-63%
	5	-10%	-25%	-34%	-40%	-44%	-47%	-50%	-51%	-53%	-54%	-55%	-56%	-57%	-57%	-59%	-63%	-64%
	6	-12%	-27%	-36%	-42%	-46%	-49%	-51%	-53%	-55%	-56%	-57%	-57%	-58%	-59%	-61%	-65%	-66%
	7	-14%	-28%	-37%	-43%	-47%	-50%	-53%	-54%	-56%	-57%	-58%	-59%	-59%	-60%	-62%	-66%	-67%
	8	-15%	-30%	-39%	-44%	-48%	-51%	-54%	-55%	-57%	-58%	-59%	-60%	-60%	-61%	-63%	-67%	-68%
	9	-16%	-31%	-39%	-45%	-49%	-52%	-54%	-56%	-58%	-59%	-60%	-60%	-61%	-62%	-64%	-67%	-68%
	10	-17%	-31%	-40%	-46%	-50%	-53%	-55%	-57%	-58%	-59%	-60%	-61%	-62%	-62%	-64%	-68%	-69%
	11	-18%	-32%	-41%	-47%	-51%	-54%	-56%	-57%	-59%	-60%	-61%	-62%	-62%	-63%	-65%	-68%	-69%
	12	-18%	-33%	-41%	-47%	-51%	-54%	-56%	-58%	-59%	-60%	-61%	-62%	-63%	-63%	-65%	-69%	-70%
	13	-19%	-33%	-42%	-48%	-52%	-54%	-57%	-58%	-60%	-61%	-62%	-62%	-63%	-64%	-65%	-69%	-70%
	14	-19%	-34%	-42%	-48%	-52%	-55%	-57%	-59%	-60%	-61%	-62%	-63%	-63%	-64%	-66%	-69%	-70%
	15	-19%	-34%	-43%	-48%	-52%	-55%	-57%	-59%	-60%	-61%	-62%	-63%	-64%	-64%	-66%	-69%	-71%
	20	-21%	-35%	-44%	-50%	-53%	-56%	-58%	-60%	-61%	-62%	-63%	-64%	-65%	-65%	-67%	-70%	-71%
	40	-23%	-37%	-46%	-51%	-55%	-58%	-60%	-62%	-63%	-64%	-65%	-65%	-66%	-67%	-68%	-72%	-73%
	60	-24%	-38%	-47%	-52%	-56%	-59%	-61%	-62%	-63%	-64%	-65%	-66%	-67%	-67%	-69%	-72%	-73%
	80	-24%	-38%	-47%	-52%	-56%	-59%	-61%	-62%	-64%	-65%	-65%	-66%	-67%	-67%	-69%	-72%	-73%
	100	-24%	-39%	-47%	-53%	-56%	-59%	-61%	-63%	-64%	-65%	-66%	-66%	-67%	-67%	-69%	-72%	-73%
	200	-25%	-39%	-48%	-53%	-57%	-59%	-61%	-63%	-64%	-65%	-66%	-67%	-67%	-68%	-70%	-73%	-74%
	500	-25%	-39%	-48%	-53%	-57%	-60%	-62%	-63%	-64%	-62%	-66%	-67%	-67%	-68%	-70%	-73%	-74%

Appendix II Relative pass on rate

Table II shows the values, from which Figure 3 is plotted, the elasticity of the pass on rate as a function of the output and input prices, was given by

$$\rho^{Pp} \equiv \frac{\left(P^a - P^c\right)/P^c}{\left(p^a - p^c\right)/p^c} \qquad \textbf{[9]}$$

which, after plugging in the values of P^a; P^c; p^a and p^c in depending on the size of both the up- and downstream industry again approximated by the number of firms, is equal to:

$$\rho^{Pp} = \frac{\left(\frac{n+2}{2(n+1)} - \frac{m+n+1}{(m+1)(n+1)}\right)\Big/\frac{n+2}{2(n+1)}}{\left(\frac{1}{2} - \frac{1}{m+1}\right)\Big/\frac{1}{m+1}} \qquad \textbf{[9.1]}$$

Analogue to the calculations in the preceding tables, the pass on rate is estimated to rise to 50% for $m = 3; n = 4$ when the upstream firms engage e.g. in a cartel to fix prices. The pass on rate approaches one hundred percent for perfectly competitive downstream industries. It approaches zero for imperfectly competitive downstream industries and competitive upstream industries. For small industries both up-and downstream the pass on rate will increase by around 50% in the presence of upstream price fixing.

TABLE II PASS ON RATE INCREASE AFTER PRICE INCREASE (IN PERCENTAGE TERMS)

II		*Number of upstream firms (m)*																
		2	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*20*	*50*	*100*
Nnumber of downstream firms (n)	*1*	25	20	17	14	13	11	10	9	8	8	7	7	6	6	5	2	1
	2	40	33	29	25	22	20	18	17	15	14	13	13	12	11	9	4	2
	3	50	43	38	33	30	27	25	23	21	20	19	18	17	16	13	6	3
	4	57	50	44	40	36	33	31	29	27	25	24	22	21	20	16	7	4
	5	63	56	50	45	42	38	36	33	31	29	28	26	25	24	19	9	5
	6	67	60	55	50	46	43	40	38	35	33	32	30	29	27	22	11	6
	7	70	64	58	54	50	47	44	41	39	37	35	33	32	30	25	12	6
	8	73	67	62	57	53	50	47	44	42	40	38	36	35	33	28	14	7
	9	75	69	64	60	56	53	50	47	45	43	41	39	38	30	30	15	8
	10	77	71	67	63	59	56	53	50	48	45	43	42	40	38	32	16	9
	11	79	73	69	65	61	58	55	52	50	48	46	44	42	41	34	18	10
	12	80	75	71	67	63	60	57	55	52	50	48	46	44	43	36	19	11
	13	81	76	72	68	65	62	59	57	54	52	50	48	46	45	38	20	11
	14	82	78	74	70	67	64	61	58	56	54	52	50	48	47	40	22	12
	15	83	79	75	71	68	65	63	60	58	56	54	52	50	48	42	23	13
	20	87	83	80	77	74	71	69	67	65	63	61	59	57	56	49	28	17
	40	93	91	89	87	85	83	82	80	78	77	75	74	73	71	66	44	28
	60	95	94	92	91	90	88	87	86	85	83	82	81	80	79	74	54	37
	80	96	95	94	93	92	91	90	89	88	87	86	85	84	83	79	61	44
	100	97	96	95	94	93	93	92	91	90	89	88	88	87	86	83	66	50
	200	99	98	98	97	97	96	96	95	95	94	94	93	93	93	90	80	66
	500	99	99	99	99	98	98	98	98	98	98	97	97	97	97	96	91	83