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[July 2016]

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REGULATING THE INFERENTIAL PROCESS IN ALLEGED ART 101 TFEU INFRINGEMENTS

Khoo Chian Yian Kenneth*

Abstract

EU Competition Law has various evidentiary rules and presumptions relating to the *existence* of collusive activity. We consider the effect of these rules and presumptions on economic efficiency, and highlight two forms of inefficiency associated with existing adjectival law. Firstly, sub-optimal regulation of the inferential process increases the risk of "false positives", a type of erroneous inference that is particularly problematic in the setting of collusion. We show that where existing adjectival law allows the inference of collusive activity from the parallel conduct of firms, there is a risk that the trier of fact may infer anti-competitive conduct from factually neutral or pro-competitive conduct. Secondly, we illustrate a different type of inefficiency that arises in Competition Law cases. Since evidential rules and presumptions have the potential to influence the behaviour of firms in a collusive setting, over-regulation of the inferential process has the potential to ameliorate the sustainability of a collusive equilibrium, undermining a key rationale of substantive Competition Law. We set out three specific areas of adjectival law which exhibit these forms of inefficiencies, and argue for appropriate reformation of the law.

Key words: Competition Law, Law and Economics, Evidence, Procedure

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I: Introduction

In European Union ("EU") Competition Law, Art 101 in the Treaty on the Functioning of the European Union ("TFEU") [1] prohibits "agreements between undertakings [2], decisions by associations of undertakings[3], and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the common market". Therefore, an infringement of Art 101 TFEU must necessarily entail the existence of an "agreement, decision, or concerted practice" between two or more undertakings[4]. While the wording of Art 101 TFEU ostensibly distinguishes between the distinct concepts of agreements, decisions, and concerted practices; collectively, the three concepts merely aim to capture different forms of coordination and collusion[5] between undertakings[6]. As Jones and Surfin (2011) [7] have pointed out, "the different forms of collusion are distinguishable from each other only by their intensity".

Collusion between undertakings is seen as a central touchstone of liability in EU Competition Law because of its adverse effects on consumer welfare and allocative efficiency[8]. Therefore, a primary objective of substantive Competition Law is the deterrence of conduct that would lead to the aforementioned effects[9]. However, a finding of fact that there was indeed collusive activity between two or more undertakings does not arise *eo ipso*. A mere allegation by an undertaking or the

[1] The equivalent section in the United States is s 1 of the Sherman Act, which states that "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal…".

[2] The notion of an undertaking focuses on the nature of the activity carried out by the undertaking involved. See Case T-155/04 *SELEX Sistemi Integrati SpA v Commission* [2006] ECR II-4797. However, as the particular definition of an undertaking is immaterial for our purposes, we will use the term "firm" and "undertaking" as synonyms throughout the article.

[3] To simplify our analysis, this Article does not consider collusive activity relating to "decisions by associations of undertakings". Instead, we focus on "agreements" and "concerted practices" as modes of prohibited conduct.

[4] Alongside other elements that must be proved for the prohibition to be established. For example, the agreement, decision or concerted practice must have as its object the prevention, restriction or distortion or competition, and have an appreciable effect on trade between Member States of the EU. See Jones, A., & Surfin, B. (2011). EC Competition Law–text, cases and materials, fourth. ed. pp. 121.

[5] Here, we define "collusion", "collusive activity" and "coordination" in the legal sense, as a synonym for an illegal concertation that should be prohibited. We also use the terms "anti-competitive cartel" and "anti-competitive initiative" as synonyms for these illegal concertations. As we will elaborate in Part III, this conception of "collusion" is quite different from how economists term "collusion", where it refers to the situation where firms in a given industry have prices that are higher than some competitive benchmark. When possible, we define "collusion" in the latter sense as "economic collusion" or as a "collusive equilibrium", although it should be clear which conception is used from the context.

[6] Case C-49/92P *Commission v Anic Partecipazioni* [1999] ECR I-4125.

[7] Jones, A., & Surfin, B. (2011). EC Competition Law–text, cases and materials, fourth. ed. pp. 141

[8] Collusive practices allow firms to exert market power they would not otherwise have, and artificially restrict competition and increase prices, thereby reducing welfare. See Motta, M. (2009). Competition policy: theory and practice. Cambridge University Press. pp. 137.

[9] In this Article, we grant this objective (of promoting efficiency and consumer welfare) primacy, in accordance with the "Modernization" of EU Competition Law towards a "more economic approach". See Commission Guidelines on Vertical Restraints [2000] OJ C291/1 at [7], stating that "the protection of competition is the primary objective of EC Competition policy, as this enhances consumer welfare and creates an efficient allocation of resources".

European Commission ("EC")[10] that collusion has occurred will not suffice – the party asserting this must persuade the trier of fact, to the requisite legal standard, regarding the *existence* of prior collusive activity between two or more undertakings. The body of rules and principles that regulate this process of proof, and what inferences may be drawn, form what we know as the "evidence rules", or "rules that govern rules" in EU Competition Law[11].

Historically, Competition Law specialists have focused their research on issues relating to substantive Competition Law[12]. Issues relating to the adjectival law on competition matters draw far less scrutiny. Mel Marquis laments this with academic flourish, noting that issues of evidence and proof have "for decades been exemplars of benign neglect"[13]. There has also been tacit acknowledgement that these matters have been under-researched by competition specialists not only in Europe but in the US as well. In recent years, however, we have observed growing awareness that Competition Law is shaped not only by the interpretation of its substantive rules, but also by its enforcement regime[14]. Indeed, the adjectival law may prescribe certain rules or principles that may not give effect to, or even conflict with the objectives that the substantive law aims to achieve.

This article is a contribution to a growing body of research on how adjectival law may be optimally structured so that the objectives of the underlying substantive law are not subverted. Furthermore, it illustrates the importance of *context-specificity* in adjectival law, and how the formulation of adjectival principles must consider the objectives underlying the specific area of substantive law[15]. In the context of EU Competition Law, we show that the numerous evidentiary rules and presumptions[16] relating to the *existence* of collusive activity[17] have implications on economic efficiency, which the substantive law aims to maximise. We set out three areas unique to EU Competition Law where the adjectival law has such implications – (1) Where the trier of fact is allowed to infer the existence of collusive activity when the "effects" of an anti-competitive agreement continue to be felt; (2) Where the trier of fact is allowed to rely on a presumption in the doctrine of "public distancing" to infer the existence of collusive activity; and (3) Where the trier of fact is allowed to rely on a "presumption of continuance" to infer the continued existence of a concerted practice. Two forms of inefficiency arise from this sub-optimal structuring of the adjectival law. Firstly, sub-optimal regulation of the inferential process increases the risk of "false positives", a type of erroneous inference that is particularly problematic in the setting of collusion.

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[10] The institutions of the European Union have conferred power on the EC to enforce the competition rules through various Regulations.

[11] See Claus-Dieter Ehlermann and Mel Marquis (eds), European Competition Law Annual 2009 : The Evaluation of Evidence and its Judicial Review in Competition Cases, Oxford ; Portland, Hart Publishing, 2011, pp. xvi. By "evidentiary principles", we refer to the legal principles that determine (i) the incidence and sufficiency of proof required (ii) the inferences that the trier of fact is permitted to draw from the evidence before it (partly guided by presumptions of fact and law), and (iii) the admissibility of evidence before the trier of fact.

[12] As noted by Heike Schweitzer, "Competition Law scholarship typically focuses on the interpretation of the substantive rules". Supra Marquis, pp. 79.

[13] Supra 11, pp. xviii.

[14] Supra 11, pp. 79.

[15] We focus on the objective of maximising consumer welfare and efficiency in this Article. Supra EU Objectives.

[16] Set out by the caselaw of the General Court (formerly known as the Court of First Instance ("CFI")) and the Court of Justice ("ECJ").

[17] As stated later in Part II, these principles are also applicable when the trier of fact has to determine the *duration* of the anti-competitive activity. Infra 38.

These erroneous inferences introduce negative welfare costs, the disadvantageous consequences flowing from such incorrect inferences[18]. Secondly, as evidential rules and presumptions have the potential to influence the behaviour of firms in a collusive setting; we show that these rules ameliorate the sustainability of a collusive equilibrium, undermining a key rationale of substantive Competition Law[19].

This article proceeds as follows. Part II reviews the default evidentiary rules on how a competition authority may establish the existence of collusive conduct. Viewed from a Law & Economics perspective, Part III examines some of the difficulties that a trier of fact might face in inferring the existence of collusive activity from observable market outcomes. Part IV will set out three specific doctrines in EU Competition Law which deviate from the default principles set out in Part II. Part V examines the efficiency implications of the aforementioned doctrines, and argues for the reformation of these doctrines. Part VI concludes.

II: Proving the Existence of Collusive Activity

A. An Overview of the Relevant Evidentiary Principles

The evidentiary rules that set out (1) the obligations of parties to prove the existence of collusive activity and (2) the sufficiency of proof required to establish the same are relatively uncontroversial. Article 2 of Regulation 1/2003[20] provides that the burden of proving the existence of an infringement of Article 101 (1) is on the person or competition authority[21] alleging the infringement, while the burden of showing that Article 101 (3) is satisfied is on the undertaking making the claim. As to the sufficiency of proof required, the EC must adduce sufficiently "precise and consistent evidence" to support the conclusion that the alleged agreement or concerted practice took place[22] in order to discharge its burden of proof. The standard of proof required is that of the "balance of probabilities" and the EC does not have to prove the existence of the element in question beyond all reasonable doubt[23].

The EU Courts have also provided extensive guidance on the *nature* of the collusive activity to be proven[24]. Although "a precise characterisation of the nature of the cooperation at issue in the main proceedings is not liable to alter the legal analysis to be

[18] As we will argue in Part III, the error costs associated with false positives (Type I errors) are particularly large in the setting of collusion, and typically outweigh the error costs associated with false negatives (Type II errors). As for a general conception of error costs, see Posner, R. A. (1973). An economic approach to legal procedure and judicial administration. The Journal of Legal Studies, 2(2), 399-458.

[19] The Article's scope is limited to raising novel efficiency considerations brought about by these adjectival principles. It does not make the judgement call of whether the inefficiencies introduced by these principles are nevertheless justified by other extraneous principles like that of "fairness to the defendant/accused" – e.g. whether these principles are nevertheless required for a fair trial/respect for due process. Such an inquiry would be difficult as the resulting "balancing" process would involve a comparison of relatively incommensurable values, like that of "fairness" vs "efficiency". Nevertheless, we incorporate arguments relating to culpability and deterrence within the Article insofar as they relate to efficiency considerations.

[20] Implemented pursuant to Art 103 TFEU, replacing Regulation 17 of 1962 on 1 May 2004.

[21] In EU Competition Law, this would be the EC.

[22] Case T-450/05 *Automobiles Peugeot v Commission* [2009] ECR II-2533.

[23] Case T-53/03 *British Plasterboard v. Commission* [2008] ECR II-1333.

[24] Supra 5. As mentioned earlier, we characterise "collusive activity" as the "different forms of coordination and collusion" forming an element of any given Art 101 TFEU infringement.

carried out under Art 101 TFEU"[25], both the General Court and the ECJ have nevertheless elucidated working definitions of the terms "agreement", "concerted practices" and "decisions by associations of undertakings" in Art 101 TFEU. In *Bayer AG v Commission*[26], the General Court (then the CFI) set out the *locus classicus* on the definition of an "agreement", holding that proof of an agreement should be established on[27]:

> "the existence of the subjective element that characterises the very concept of the agreement, that is to say a concurrence of wills between economic operators on the implementation of a policy, the pursuit of an objective, or the adoption of a given line of conduct on the market".

Thus, proof of an anti-competitive agreement would be established if there was a direct or indirect finding of a "concurrence of wills" between undertakings. The Courts have adopted a "substance over form" approach, so the form in which the agreement was manifested is irrelevant – morally binding commitments which are not legally enforceable amount to "agreements" under Art 101 TFEU[28]. "Gentlemen's agreements"[29], standard conditions of sale[30], trade association rules[31], and agreements entered into to settle disputes[32] have all been caught under the concept.

Similarly, in *ICI v. Commission* ("*Dyestuffs*")[33] the Court of Justice has defined a concerted practice as a form of[34]:

> "co-ordination *between* undertakings which, without having reached the stage where an agreement, properly so called, has been concluded, knowingly substitutes practical co-operation between them for the risks of competition".

To provide additional direction on this vague conception of "co-ordination that knowingly substitutes practical co-operation for the risks of competition", the ECJ has, in *Sunker Unie v. Commission*[35], confirmed that the notion of a concerted practice in Art 101 TFEU aims to preclude[36]:

> "any direct or indirect contact between such operators, the object or effect whereof is either to influence the conduct on the market of an actual or potential competitor or to disclose such a competitor the course of conduct which they themselves have decided to adopt or contemplate adopting on the market"

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[25] Case C-238/05, *Asnef-Equifax, Servicios de Informacion sobre Solvencia y Credito, SL v Asoiacion de Usuarios de Servicios Bancarios (Ausbanc)* [2006] ECR I-11125.
[26] Case T-41/96, *Bayer AG v. Commission* [2000] ECR II-3383.
[27] Ibid, at [62].
[28] Case T-62/98, *Volkswagen AG v. Commission* [2000] ECR II-2707.
[29] Case 41/69 *ACF Chemiefarma NV v. Commission* [1970] ECR 661.
[30] Case C-277/87, *Sandoz Prodotti Farmaceutici Spa v Commission* [1990] ECR I-45.
[31] *Nuovo Cegam* [1984] OJ L99/29.
[32] Case 209-15 *Van Landewyck v. Commission* [1980] ECR 3125.
[33] Cases 48, 49 and 51-7/69, *ICI v. Commission* [1972] ECR 619.
[34] Ibid, at [64].
[35] Case 40/73 *Suiker Unie v. Commission* [1975] ECR 1663.
[36] Ibid, at [174].

While not meant to be exhaustive of all forms of concerted practices, proof of reciprocal cooperation or contact, designed to influence the conduct of an actual or potential competitor, or to disclose to them the course of conduct that would be adopted on the market would amount to a finding of fact that there was a "concerted practice" under Art 101 TFEU. This definition of a concerted practice encompasses not just the illegal maintenance of a collusive equilibrium *per se*, but also other "facilitating practices", such as the exchange of information that enables undertakings to sustain a collusive equilibrium[37].

Proof of collusive activity is intrinsically linked to proof of its temporal duration. As a logical corollary, even if the EC manages to prove the existence of collusive activity between two undertakings at some point in time, it will not be able to hold the relevant undertakings responsible for subsequent events arising from that collusion unless it also proves the existence of the same collusive activity over a period of time when these events occurred. The principle that the EC has to establish the duration of the collusive activity is well-established in the EU case-law. In *Dunlop Slazenger v Commission*[38], the General Court (then the CFI) noted that[39]:

> As a preliminary point, the requirement of legal certainty, on which economic operators are entitled to rely, entails that when there is a dispute concerning the existence of an infringement of competition law the Commission, which bears the burden of proving infringements which it finds, must adduce evidence which will sufficiently establish the existence of the facts constituting the infringement. ***With specific regard to the alleged duration of an infringement, the same principle of legal certainty requires that, if there is no evidence directly establishing the duration of an infringement, the Commission should adduce at least evidence of facts sufficiently proximate in time for it to be reasonable to accept that that infringement continued uninterruptedly between two specific dates***.

The extensive EU case-law on the *conclusions* that must ultimately be drawn by the trier of fact[40] stands in stark contrast to the regulation of the *inferential process* that a trier of fact may undertake to arrive at the necessary conclusions. As a general rule, insofar as inferential processes are concerned, the EU Courts have held that inferences may be validly drawn from *all* of the evidence at hand. For example, an inference that

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[37] A "facilitating practice" is "an activity that makes it easier for parties to coordinate price or other behaviour in an anti-competitive way"; they make it more likely that tacit collusion will occur, and make tacit collusion more effective. The term was first coined by Judge Posner in Posner, R. A. (1978). Information and Antitrust: Reflections on the Gypsum and Engineers Decisions. Geo. Lj, 67, 1187 and subsequently enjoyed extensive use by US Antitrust scholars, lawyers and judges. See also Hovenkamp, H. J., & Areeda, P. E. (2000). Antitrust Law: An Analysis of Antitrust Principles and Their Application. The fundamentally different nature of conduct that amounts to a facilitating practice induces problems when the trier of fact has to assess a concerted practice's duration. We will elaborate on facilitating practices in Part III of the Article. Infra 58.

[38] Case T-43/92 *Dunlop Slazenger v Commission* [1994] ECRII-44.

[39] Ibid, at [79].

[40] A valid conclusion would be a finding of fact that a "concurrence of wills" or that a "co-ordination which knowingly substitutes practical co-operation between them for the risks of competition" had occurred.

an "agreement" exists may be drawn from the conduct of the parties in question, or from the clauses of an existing written or oral contract between the parties[41].

The EU Courts are thus given an extremely broad discretion to draw any inferences that the trier of fact deems fit, based on the circumstances of the case. This broad ambit stems from a principle that prevails in EU Law – that of the "unfettered evaluation of evidence"[42]. Similar to that of the Benthamite principle of free proof[43], it prescribes that there should be no interference with free inquiry and natural or common-sense reasoning.
Following the principle, provided that the evidence has not been unlawfully obtained, only the reliability of the evidence will be decisive when it comes to its evaluation.

The general lack of regulation with regard to the inferential process that the trier of fact may undertake is subject to certain exceptions[44]. A trier of fact may be bound to apply certain presumptions of law. Such presumptions *mandate* the trier of fact to assume, upon proof of the primary fact to the relevant standard, that the secondary fact is true; unless the counterparty facing the presumption can prove otherwise. The nature, kind, and type of evidence that the counterparty may adduce to rebut the presumption is a controversial matter drawing significant debate[45]. Furthermore, adjectival law may preclude the trier of fact from drawing certain inferences under specific circumstances. In other words, there may be restrictions on particular chains of inferential reasoning.

It is sapient to note that an unregulated, *laissez-faire* regime of free proof may not be optimal in maximising economic efficiency. If an intuitive line of reasoning leads to an erroneous outcome, it may be optimal for adjectival law to step in by precluding that line of reasoning[46]. However, excessive regulation of the trier of fact's inferential process can be equally harmful to the same objective. Unfortunately, existing adjectival law in the EU competition regime is both under and over inclusive in regulating the inferences that the trier of fact may draw. It is under-inclusive in allowing the trier of fact to draw, in certain circumstances, intuitive but erroneous inferences of collusive activity from the parallel conduct of firms. As mentioned above, this increases the risk of "false positives" and introduces potential error costs flowing from such incorrect inferences[47]. Existing adjectival law is also over-inclusive in two ways. Firstly, by possibly mandating the inference that a firm has subscribed to an anti-competitive initiative even if it did not actually do so in the factual matrix at hand, adjectival law similarly increases the risk of "false positives" and its attendant error costs. Secondly, existing adjectival law over-regulates the inferential process by improving the sustainability of a collusive equilibrium. This "unexpected" connection between procedure and substantive outcomes forms the main theme of our Article[48].

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[41] Case 28/77 *Tepea v Commission* [1978] ECR 1391, [1978] 3 CMLR 392. In other words, the trier of fact may draw inferences from all the circumstances of the case presented before him/her.
[42] Case T-348/08 *Aragonesas Industrias y Energia v. Commission*, judgement of 25 October 2011 and Case C-411/04P *Salzgitter Mannesmann* v Commission [2007] ECR I-959
[43] See Jackson, J. D., & Summers, S. J. (2012). The internationalisation of criminal evidence: beyond the common law and civil law traditions. Cambridge University Press.
[44] These exceptions will form the bulk of discussion in Part IV of the Article.
[45] As David Bailey points, "the ease with which a presumption may be rebutted is controversial and frequently contested". See Bailey, D. Presumptions in EU Competition Law',(2010). European Competition Law Review, 31, 362-362.
[46] Many rules of admissibility in criminal evidence are based on this principle. See Dennis, I. H. (2007). The law of evidence (Vol. 604). London: Sweet & Maxwell.
[47] Supra 18.
[48] We will elaborate on these concepts in Parts III, IV and V of the Article.

B. Consequences Following the EC's Failure to Prove the Existence of Collusion

As the EC bears the burden of proving collusive activity as an element of Art 101 TFEU, any alleged infringement of Art 101 TFEU will fall apart following the EC's failure to prove the existence of collusive activity at a given point in time. The EC also bears the burden of proving the duration of the collusive activity, and two key implications follow the EC's failure to prove the temporal dimension of the collusive activity. Firstly, the level of financial penalty imposed reflects the duration of the infringement, so a failure to prove that the collusive activity extended beyond a certain point in time will reduce the relevant penalty[49]. Secondly, there is a five-year limitation period for the imposition of a financial penalty from the end of an established infringement. If the collusive activity was commenced a long time ago, the EC may be time-barred from penalising the collusive conduct unless it is able to prove that the collusive activity continued to operate within the limitation period[50].

III: The Law & Economics of Inferring Illegal Collusive Activity

A. The Economist's Definition of "Collusion" and how it may be Sustained without Legal Intervention

Thus far, we have defined "collusion/collusive activity"[51] as a requisite element of an anti-competitive infringement of Art 101 TFEU. Used in this sense by the legal profession, the term is a synonym for a "collusive agreement or practice that should be outlawed". Economists, however, have a very different way of defining "collusion" – here, "collusion" refers to the situation where firms in a given industry have prices that are higher than some competitive benchmark[52]. The distinction between the two is important, because economic collusion does not necessarily involve any communication between firms; it simply refers to a state of affairs where firms are able to maintain supra competitive prices[53]. Additionally, while technically inefficient, economic collusion does not necessarily justify the intervention of Competition Law[54].

Contemporary industrial economics informs the scope of Competition Law by highlighting the inherent instability of economic collusion even in the absence of laws forbidding anti-competitive practices. Based on game-theoretic oligopoly theory, economists view market play between competitors as a game where competing firms are rational players in the market, attempting to maximise their profits[55]. An

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[49] See Art 23 (2) of Regulation 1/2003 and Case T-68/04 *SGL Carbon v. Commission* [2008] ECR II-2511.

[50] See Art 25 (2) of Regulation 1/2003 and Case T-101/05 *BASF v Commission* [2007] ECR II-4949.

[51] Supra 5.

[52] Supra 8 at 138. Where firms are competing in price, the competitive benchmark would be the equilibrium price of a game where firms meet only once in the marketplace, a situation where a collusive equilibrium would not be sustainable. In such a setting, any given firm will play a non-cooperative action.

[53] Provided that price regulation is absent.

[54] Infra 72.

[55] See generally Fudenberg, D., & Tirole, J. (1991). Game theory. 1991. Cambridge, Massachusetts, 393. The theory of collusive equilibria across repeated games was built across several seminal papers in game theory. See Nash Jr, J. F. (1950). The bargaining problem. Econometrica: Journal of the Econometric Society, 155-162. , Friedman, J. W. (1971). A non-cooperative equilibrium for supergames. The Review of Economic Studies, 38(1), 1-12.and Abreu, D. (1988). On the theory of

equilibrium of the game is a state of affairs where each player plays its best strategy, and where no player has an incentive to deviate from its existing strategy. In the context of this market play, each firm (player) decides on the particular price that the firm will adopt in the market. Economists have shown that when firms interact with each other in a static (one-shot) setting, each firm will choose to set the competitive price as its dominant strategy. Although the entire industry is better-off if all the firms set the supra-competitive monopoly price, each firm has an incentive to deviate by reducing its price below this supra-competitive price to capture the market shares of its competitors. This incentivises all the firms to reduce their prices accordingly until the market price reaches the competitive price level.

However, when firms interact with each other repeatedly, firms have an opportunity to retaliate to a reduction in price by other firms in subsequent games. For example, they may reduce their prices to the competitive level in subsequent games if any firm reduces its price in the current game to increase its short term profits. The short term profits from an individual price reduction may not compensate for all the future losses produced by retaliation. Following this, all firms will be reluctant to deviate, and supra competitive prices will be maintained as a result. This coordinated maintenance of supra competitive prices is the essence of economic collusion. An examination of the sustainability of economic collusion is thus based on the so-called "incentive compatibility constraint" – each firm compares the short term profits it makes from a deviation with the profits it gives up in future when its rivals retaliate. A collusive equilibrium will only arise if the former is lower than the latter.

In light of the aforementioned analysis, to successfully collude, competing firms must overcome three obstacles. Firstly, they have to reach a common understanding of the terms of coordination; secondly, they should be able to monitor adherence to those terms of coordination[56]; and thirdly, they should be able to effectively punish firms that deviate from the terms of coordination[57]. The first factor relates to the ability of competing firms to reach a collusive equilibrium, while the latter two factors relate to the ability of the competing firms to sustain that collusive equilibrium. As we will discuss in Part B, this distinction is extremely important – the nature of firm conduct that amounts to the active maintenance of a collusive equilibrium may be quite different from the nature of conduct that aids firms in reaching a collusive equilibrium.

B. Facilitating Practices

As previously indicated in Part II, the working definition of a concerted practice encompasses not just the illegal maintenance of a collusive equilibrium *per se*, but also *communication* between competing firms that aids them in reaching a collusive equilibrium[58]. The ambit of Art 101 TFEU extends not only to communication that directly aids the formation of a collusive equilibrium, but also to various forms of communication that indirectly do so[59]. These forms of communication are commonly

infinitely repeated games with discounting. Econometrica: Journal of the Econometric Society, 383-396.

[56] In other words, they should be able to detect deviations from the terms of coordination.

[57] We adopt this conceptual distinction from Gonzalez A. O. (2012). Object analysis in information exchange among competitors. European Competition Journal, 311, 314-320.

[58] Supra 37.

[59] Clearly, an explicit agreement between firms to set prices at a certain level would amount to communication that directly aids the formation of a collusive equilibrium. But a concerted practice also covers indirect contact between undertakings that discloses information on the course of conduct which an undertaking has decided to adopt on the market. Supra 35.

known as "facilitating practices" – future price and/or quantity announcements and exchanges of disaggregate price-sensitive information are just some of the facilitating practices that have been identified by the EU Courts[60]. As opposed to an *ex post* policy against existing collusive activity, the prohibition of facilitating practices amounts to an *ex ante* policy that aims to deter *future* economic collusion.

The *ex ante* nature of facilitating practices raises important evidentiary implications for the trier of fact. A rule prohibiting facilitating practices is *prophylactic* – it aims to prevent, or to reduce the probability of *future* economic collusion from arising[61]. Even if the rule is infringed, it does not necessarily suggest the existence of any present economic collusion. Nor does infringement of the rule suggest the confirmation of future economic collusion; it merely conveys the fact that the firms in question have chosen a course of conduct that would provide them with strategic advantages if they were to choose to collude in the future. This explains why the failure to use information acquired from price-sensitive exchanges of information does not amount to a substantive defence – the mere exchange of such information would be objectionable *per se*. Thus, market outcomes such as high prices in a given industry, or parallel conduct amongst firms in the industry that ostensibly evidence the existence of a collusive equilibrium, have little to no probative value in establishing a facilitating practice. Instead, a facilitating practice should be inferred from proven conduct, evidenced by e-mail messages, memos or other recorded evidence exhibiting the alleged communications.

The trier of fact faces a further evidentiary issue in determining the quantum of liability that a given firm faces after establishing that the firm had previously engaged in a facilitating practice. While the level of financial penalty imposed is supposed to reflect the duration of the infringement, it is difficult to equate the culpability, or legal responsibility of the firm with the "duration" of a facilitating practice. Culpability in the maintenance of a collusive equilibrium is intrinsically tied to its duration for a good reason – the inefficiency associated with the supra competitive outcomes flowing from that maintenance is directly associated with the *extent* of welfare loss. A cartel spanning over several decades is likely to have more severe effects on consumer welfare and allocative efficiency than one lasting for a month. Unlike the maintenance of a collusive equilibrium, however, culpability attaching to conduct that amounts to a facilitating practice pertains more to the *nature* of the facilitating practice than to its temporal length. As there is no direct welfare loss associated with a facilitating practice, the severity of the consequences following a facilitating practice depends on the degree to which it aids the formation of a collusive equilibrium. For example, it would hardly matter whether information exchanges between firms in a given industry lasted for a day or a year – the key concern would be whether those exchanges incorporated

[60] Supra 37.

[61] *C.f.* the view by Ghezzi and Maggiolino (2014) that market parallelism "still forms the second building block of any concerted practice in the form of "firms' planned use of the strategic data acquired through an exchange", contrasting this to the earlier view in the 1970s that market parallelism was once "the crucial element of the notion of concerted practices." In our view, market parallelism was never *required* as an element in establishing a concerted practice. In fact, they take on an even more diminished role for facilitating practices due to the prophylactic nature of the rule. This further suggests that the "parallelism plus" rule (which entails the finding illegal behaviour whenever price parallelism is accompanied by a facilitating practice) adopted by U.S Antitrust Law is difficult to justify since it is the facilitating practice that renders the firm culpable, and not the parallel behaviour *per se*. See Ghezzi, F., & Maggiolino, M. (2014). Bridging EU Concerted Practices with US Concerted Actions. Journal of Competition Law and Economics, nhu010.

information of a price-sensitive nature[62] so as to facilitate the formation of a collusive equilibrium[63].

C. Market Outcomes: "High Prices"

In Part II, we noted that the EU Courts have stipulated a default rule where inferences may be validly drawn from *all* of the evidence at hand. This immediately raises the question of whether the trier of fact should be permitted to draw an inference of illegal collusive activity from "high" prices, or the levels of other market outcomes that reflect the possibility of collusive behaviour. Given the literal definition of economic collusion as a situation where "firms have prices that are higher than some competitive benchmark", the *prima facie* answer is ostensibly a "yes" – "high" prices reflect possible collusive behaviour, and should therefore be probative in establishing the latter.

Motta (2009)[64] provides a good summary of why contemporary industrial economics points to the opposite conclusion. Firstly, "high prices" have to be established from price data, which might not be available[65]. Importantly, available price data may refer to list prices and not effective prices, which refer to the actual prices paid by buyers to sellers after negotiation. Discounts may also differ across customers – firms may even engage in price competition via hidden "discounts". Secondly, even if detailed price data for a given industry were available, experts would probably disagree on estimates of both the "monopoly price" of the industry and the competitive benchmark relative to it[66]. Econometric techniques to estimate these parameters would not guarantee consensus either. Even with study of the same dataset, different econometric specifications may lead to polar conclusions. Estimates of costs that have no paper value may also differ widely, even within the management of the same firm. Thirdly, even if experts could agree on an estimate of the theoretical "monopoly price" and the competitive benchmark, the trier of fact would still have to engage in a value-judgement in determining whether the magnitude of difference between the actual industry "market price" and the theoretical "monopoly price" would be sufficient to infer the existence of collusion[67]. Fourthly, and on a more fundamental level, it is normatively undesirable to punish a firm merely because it has obtained market power. The very existence of some market power aids the competitive process – it is the prospect of market power that incentivizes firms to innovate new products, to develop new manufacturing technologies and to expand their product portfolio; all of which are desirable for consumer welfare. For all of these reasons, without additional evidence to

[62] See also *JJB Sports and Allsports v Office of Fair Trading* [2004] CAT 17 and *Argos and Littlewoods v Office of Fair Trading* [2004] CAT 24.

[63] Henceforth, to circumscribe the scope of this Article, we will limit our discussion to the enforcement of *ex post* policies against existing collusive activity.

[64] Supra 8 at pp. 185. Motta views the issue as one concerning standards of proof, but we submit that it should be correctly viewed as an issue concerning optimal regulation of the trier of fact's inferential process instead. If the issue concerns the relevant standard of proof, observable market outcomes would be sufficient in establishing liability as long as the evidence were cogent and coherent enough to persuade the trier of fact regarding the existence of collusion. However, the objection raised here lies in the fact that market outcomes should not be a *type* of evidence that allows the trier of fact to infer collusion.

[65] Supra Motta at pp. 186.

[66] Ibid.

[67] Ibid.

support a finding of collusion, inferring collusive activity from "high" prices in a given industry is particularly problematic[68].

D. Market Outcomes: "Price Evolution"

If it is not safe for the trier of fact to draw an inference of collusive activity from the *level* of prices in a given industry, one might be tempted to infer the existence of collusion by analysing the *evolution* of industry prices over time[69]. The *prima facie* argument is that firms in a collusive setting charge similar prices over time, a phenomenon known as "price parallelism"[70].

Again, contemporary industrial economics provides cogent reasons for why this inference is equally unsafe. Firstly, common exogenous shocks such as the increase in input prices of all the suppliers, or an increase in inflation, or an increase in regulatory fees would likely lead to all the sellers increasing their prices proportionally[71]. With such events, the phenomena of price parallelism would arise even where markets are perfectly competitive.

More importantly, price parallelism may arise from the concept of "tacit collusion"[72], where a collusive equilibrium arises without any form of communication between firms in the industry. Recall that in deciding whether to set a supra competitive price at a point in time, each firm compares the short term profits it makes from a deviation with the profits it gives up in future when its rivals retaliate. Suppose that a firm increases its prices by 5%, and a rival firm has to decide whether to follow its pricing. Even without any form of communication between the two firms, a collusive equilibrium may still arise if the rival firm expects that a failure to do so would trigger a costly price war that would reduce profits, or if it expects that it can increase its profits with the new industry price.

Short of imposing structural remedies, it is difficult to justify the imposition of behavioural remedies to address tacit collusion. Rendering mere price parallelism as a prohibited outcome is inappropriate – it would be absurd to prohibit such behaviour if firms engage in tacit collusion as a rational response to the structure of the market, or if firms increase their prices simultaneously due to a common exogenous shock[73]. Competition Law should not mandate that firms behave "irrationally" to avoid an infringement of the law. Hence, although price parallelism is consistent with explicit, illegal collusion where inter-firm communication takes place, any inference of collusive activity from the mere presence of price parallelism would risk the prohibition of otherwise unobjectionable conduct[74].

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[68] Supra 8 at pp. 187. A wrongful inference of collusive activity from market outcomes leads to a "false positive", or Type I error. This concept will be elaborated upon in Section F below.

[69] Or the evolution of other parameters of competition (other than price) over time.

[70] A similar argument applies to other forms of parallel market conduct, commonly termed as "market parallelism", "parallel conduct", and "oligopolistic interdependence". We will use these terms interchangeably as synonyms throughout the Article.

[71] Supra 8 at pp. 187.

[72] Supra 8 at pp. 187, Supra 55. "Tacit collusion" is also known as "tacit coordination"

[73] Whish, R., & Bailey, D. (2015). Competition law. Oxford University Press, USA. at pp. 647

[74] C.f. the views expressed by Judge Posner that oligopolistic prices follow voluntary business choices, and that antitrust is therefore justified in discouraging supra-competitive equilibria by sanctioning the setting of oligopolistic prices, and Turner's view that Antitrust enforcement should be process oriented. See Posner, R. A. (1969). Oligopoly and the antitrust laws: A suggested approach. Stanford Law Review, 1562-1606. and Turner, D. F. (1962). The definition of agreement

E. One (or many) Instance(s) of Collusion?

In establishing the duration of the collusive activity from evidence adduced by the EC, the trier of fact faces a related problem. Even if the trier of fact is able to safely draw the inference of illegal collusion from the observation of supra competitive prices, it is not uncommon to observe markets where supra competitive prices are only sustained for a period of time – thereafter, firms may engage in "price wars" where competitive prices are observed for some duration, before market prices eventually rise back to supra competitive levels [75] . The cycle may repeat itself several times until commencement of the EC's investigations. Pursuant to such observed conduct, the question then arises as to whether the trier of fact is to draw an inference of several discrete instances of collusive activity[76], or a single infringement over a sustained period. This distinction is important because of the difference in the potential quantum of liability. Each infringement by an undertaking can only draw one financial penalty, and since each financial penalty is subject to a ceiling of ten percent of the undertaking's worldwide turnover, a finding of a series of infringements may result in a lower overall penalty as compared to a finding that the infringement continued over a sustained period of time[77].

Though attractive, the ostensible inference that collusion has broken down for periods with competitive prices[78] may be incorrect. Green and Porter (1984)[79] have shown that periods of competitive prices may arise in a collusive equilibrium as part of a firm's optimal strategy in a setting where actual prices are not observable[80]. In a setting where any given seller cannot observe the prices charged by its rival firm and where market demand levels are also unobservable, a seller would not know if the lower demand that he observes is attributable to a negative shock in demand, or to a price cut by a rival which has acquired some or all of his sales. Green and Porter show that firms may adopt a set of strategies that nevertheless support such an equilibrium – each firm sets a collusive price as long as every firm faces a high level of demand. When a firm observes low (or zero) demand, a punishment phase is triggered and each firm sets the competitive price[81] for a finite number of periods. All firms revert to the collusive price after this finite "punishment" phase. As price wars are simply the indispensable element of a collusive strategy when rival prices and market demand levels are unobservable, periods of fluctuating prices alternating between supra competitive and competitive prices may simply reflect different phases of the *same* collusive activity.

The alternative inference that collusion might have broken down due to secret price cuts or other exogenous shocks and that the reversion to supra competitive prices reflects a new collusive agreement is not implausible either. For example, an unusually large and

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under the Sherman Act: Conscious parallelism and refusals to deal. Harvard Law Review, 655-706. These views form what is now known as the "Posner-Turner" debate.

[75] See Levenstein, M. C., & Suslow, V. Y. (2006). What determines cartel success?. Journal of Economic Literature, 44(1), 43-95. at 50

[76] Where a finding of collusion is made out only when supra competitive prices are observed.

[77] Such a finding would also include periods when competitive prices (or prices below competitive levels) were observed. See also Art 23 (2) of Regulation 1/2003

[78] Thereby leading to a finding of several discrete instances of collusion.

[79] Green, E. J., & Porter, R. H. (1984). Noncooperative collusion under imperfect price information. Econometrica: Journal of the Econometric Society, 87-100.

[80] We adopt this intuition from Motta's (2009) eloquent summary of Green and Porter's results. Supra 8 at 150.

[81] The competitive price being the static, one-shot equilibrium price. Supra 55.

unexpected order would provide the benefiting firm a very strong temptation to deviate from an existing collusive equilibrium – by deviating, the firm would make unusually large profits, and the perspective of losing collusive profits obtained under the typically small expected demand would not be sufficient to deter the deviation[82]. Following such a break-down of collusive activity, subsequent renegotiation of the terms of collusion could bring the industry back to a "new" collusive equilibrium[83]. Like the inferences expounded in Sections C and D, it would be difficult for a trier of fact to properly infer the duration of collusive activity based on such market outcomes *per se*.

F. Market Outcomes: Corroborative Evidence?

Clearly, the trier of fact faces the risk of an erroneous inference following an inference of collusive activity from market outcomes. But that is not the end of the story – adverse market outcomes are also consistent with illegal collusive conduct. Precluding an inference of collusive activity from adverse market outcomes has its attendant costs as well – where the only available evidence in an alleged infringement stems from market outcomes, some firms that were in fact engaging in illegal collusive conduct would be entitled to full exoneration[84]. How then should Competition Law treat the use of such market outcomes?

The answer to this question lies in the analysis of *error costs*. If pro-competitive or neutral conduct is wrongly characterised and punished as anti-competitive conduct, the trier of fact commits a "Type I" error, often known as a "false positive"[85]. On the other hand, if anti-competitive conduct is wrongly characterised as neutral or pro-competitive conduct, the trier of fact commits a "Type II" error, known as a "false negative"[86]. Optimally, an adjectival rule should minimise the sum of the welfare costs caused by Type I errors and Type II errors, as well as the costs of the application of the rules[87]. But in structuring a rule that leads to potential erroneous inferences, a hypothetical lawmaker immediately runs into several problems. Are the consequences following a Type I error more severe than the consequences following a Type II error, or vice versa? Would Type I errors be more common than Type II errors when the rule is applied to different factual matrices?

These problems have plagued Competition Law for decades. Historically, U.S. Antitrust Law[88] has erred on the side of under-enforcement, or the prevention of Type I errors. The main reason, as espoused succinctly by Judge Easterbrook[89] in his seminal work, is that anti-competitive effects that escape condemnation will usually be eroded

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[82] See Stigler, G. J. (1964). A theory of oligopoly. The Journal of Political Economy, 44-61.Furthermore, following the analysis in Section D, the alternance of "high" and "low" price levels is no proof of a collusive outcome, since an industry at a non-collusive equilibrium may face low prices under exogenous shocks or increased capacities.
[83] Supra 75.
[84] The problem of distinguishing illegal collusive conduct from competitive behaviour or legal tacit collusion (adopting Turner and Whish's arguments) has been termed the "indistinguishability theorem" by Harstad and Phlips (1990). See Phlips, L., & Harstad, R. M. (1990). Oligopolistic manipulation of spot markets and the timing of futures market speculation.
[85] Supra 7 at pp. 59
[86] Ibid.
[87] See Rubinfeld, D. L. (1985). Econometrics in the Courtroom. Columbia Law Review, 85(5), 1048-1097. and Polinsky, A. M., & Shavell, S. (1989). Legal error, litigation, and the incentive to obey the law. Journal of Law, Economics, & Organization, 5(1), 99-108.
[88] In the U.S, Competition Law is known as Antitrust Law.
[89] Easterbrook, F. H. (1984). Limits of Antitrust. Tex. L. Rev., 63, 1.

by the market, but the pro-competitive benefits of an incorrectly prohibited action will be lost forever[90]. He also argues that as most forms of collaborative behaviour are efficient, a judge who refuses to condemn alleged conduct of that kind is more likely to be right than wrong[91]. Such views, stemming from the Chicago School of Economics have been remarkably influential in the development of Antitrust Law in the U.S. Many U.S Courts[92], Antitrust Enforcement Agencies, and academics have all adopted a bias in favour of tolerating Type II errors.

However, Judge Easterbrook's arguments depend on various underlying assumptions that are both context and fact specific[93]. For example, Judge Easterbrook argues that collusive industries have mostly short lives and that markets are self-correcting, so Antitrust intervention is often unnecessary in returning the market to an efficient equilibrium[94]. But these features may not hold true for certain jurisdictions, nor may they hold true for certain industries[95]. Christiansen and Kerber (2006)[96] show that it is not sufficient to justify a rule of reason approach (which leads to relatively more Type II errors) over a *per se* approach (which leads to relatively more Type I errors) merely where a certain category of business conduct has both positive and negative economic effects[97]. Rather, the optimal rule to be adopted depends on the relative incidence of cases where business conduct has more positive than negative effects, and the relative magnitude of the consequences following an erroneous inference of prohibiting conduct with positive effects vis-à-vis similar consequences following an erroneous inference of permitting conduct with negative effects. As highlighted earlier, these are empirical facts that would depend on the context in which the rule is to be applied.

In contrast to the U.S. Antitrust regime's concern with Type I errors, contemporary EU Competition Law seems to be more ambivalent[98]. This approach may be a reflection of how EU Competition Law has developed over the years. Traditionally, EU Competition Law has been greatly influenced by the school of Ordoliberalism, an economic philosophy that prizes economic freedom as a value in itself[99]. Ordoliberalism is thus hostile to monopolies not because of their effects on efficiency, but because they

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[90] In other words, Judge Easterbrook argues that the social/welfare costs that follow false positives are likely to be more severe than similar costs following false negatives. This follows the typical presumption of innocence in Anglo-American jurisprudence, although the presumption of innocence may be justified by moral reasons as well. See Stith, K. (1990). The Risk of Legal Error in Criminal Cases: Some Consequences of the Asymmetry in the Right to Appeal. The University of Chicago Law Review, 57(1), 1-61.
[91] Supra 89.
[92] See the recent US Supreme Court cases of *Verizon Communications Inc v. Trinko LLP* 540 US 398, 124 Sct 872 (2004) and *Pacific Bell Telephone Company v. linkLine Communications Inc.* 129 S.Ct.1109 (2009).
[93] See Devlin, A. J., & Jacobs, M. S. (2010). Antitrust Error. William & Mary Law Review, 52, 75.
[94] Supra 89.
[95] Lewis has argued that the historical performance of dominant firms and monopolised markets in South Africa do not reflect the self-correcting nature of markets in the U.S. See Lewis, D. (2008). Chilling competition. International Antitrust Law & Policy: Fordham Competition Law.
[96] See Christiansen, A., & Kerber, W. (2006). Competition Policy with Optimally Differentiated Rules Instead of "per se rules vs rule of reason". Journal of Competition Law and Economics, 2(2), 215-244.
[97] Ibid. See also Waelbroeck, D. (2006). Vertical Agreements: 4 Years of Liberalisation by Regulation N. 2790/99 After 40 Years of Legal (Block) Regulation. In The evolution of European competition law: whose regulation, which competition? (pp. 85-110). Edward Elgar.
[98] Supra 7 at pp. 59.
[99] See Möschel, W. (1989). Competition policy from an Ordo point of view. In German neo-liberals and the social market economy (pp. 142-159). Palgrave Macmillan UK.

embody private power, which threatens the economic freedom of other stakeholders in markets. An ordoliberal approach to Competition Law focuses on constraining private power to promote competition as an expression of economic freedom. As competition is seen as a desirable end in itself and not merely a means by which economic objectives such as efficiency are to be achieved, an ordoliberal regime would err on the side of preventing Type II errors as opposed to Type I errors – the prohibition of conduct that potentially harms the competitive process is countenanced even if it leads to positive welfare efficiencies[100]. This ordoliberal stance has been rightly critiqued by numerous scholars who justify the existence of Competition Law on the basis of consumer welfare and efficiency[101], and is antithetical to the EC's "Modernization" reforms bringing the goals of Competition Law in line with contemporary industrial economics[102].

But even without empirical evidence to support the argument militating towards the prevention of Type I errors, we can suggest an important reason for why Type I errors should be preferentially precluded in the optimal structuring of an adjectival rule relating to collusive activity. Recall that the empirical question at hand relates to both the relative *incidence* and *magnitude* of Type I errors vis-à-vis Type II errors in a particular context [103]. Consider the frequency of firms that sustain a collusive equilibrium where the sole evidence available relates to observable, adverse market outcomes. Consider also the frequency of firms that sustain a collusive equilibrium where there is not only evidence of observable, adverse market outcomes, but also evidence of explicit communications that coordinate their conduct. Structuring an adjectival rule that only requires the former condition favours the prevention of Type II errors, but structuring a rule that requires evidence of communication militates towards preventing Type I errors instead. *A priori*, can we say anything regarding the relative incidence of the former situation over the latter? Contemporary economic theory provides some clues. While it is true that a small number of firms might be able to sustain tacit collusion in some cases, there are compelling reasons for why most firms would nevertheless wish to coordinate their conduct. Indirect signalling between firms to coordinate the selection of a common equilibrium is often extremely costly.[104] Communications between firms also aid in improving the observability of prices between firms, which in turn ameliorates the sustainability of a collusive equilibrium. These arguments suggest that the incidence of the former situation over the latter[105] would be significantly lower.

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[100] See Case 6/72, *Europemballage & Continental Can v. EV Commission* [1973] ECR 215 where the ECJ held that Art 102 was not only aimed at practices which may cause damage to consumers directly, but also those practices which may impact the functioning of an "effective competition structure".

[101] See for instance, Bork, R. H. (1979). The Antitrust Paradox (1978). Harvard Law Review, 92, 1376-1390.

[102] Supra 9.

[103] Supra 89. Judge Easterbrook's arguments are apposite insofar as they relate to the relative magnitude of Type I errors vis-à-vis Type II Errors. The following argument relates to the relative incidence of Type I errors vis-à-vis Type II Errors.

[104] Supra 79. In Green and Porter's model, a firm is forced to trigger the punishment phase whenever it observes low (or zero) demand, even if the low demand did not result from a rival's deviation. This is an unavoidable cost facing the firm in a setting of information asymmetry. Inter-firm communications will ameliorate information flows, allowing firms to avoid costly price wars.

[105] Supra 8 at 190. As Motta also explains, "firms have known for a long time that they will be found guilty if there is any written proof of their coordination, and yet anti-trust authorities keep on uncovering such hard evidence in cartel cases".

One final point may be raised. In structuring the optimal adjectival rule relating to collusive activity, one has to consider the welfare costs associated with the application of that rule. Enforcing an adjectival rule where liability is inferred from observable, "adverse" market outcomes opens the proverbial "can of worms" insofar as costs are concerned. In establishing whether a given market outcome is "adverse", for example, costly expert evidence on both sides will usually be adduced; and disagreements between these experts will rarely be resolved[106]. On the other hand, enforcing an adjectival rule where the touchstone of liability is that of explicit communication between firms is usually straightforward, as illegal collusion is directly inferred from relevant conduct. Enforcement of any rule in Competition Law is obviously costly, but the costs of enforcing the latter rule seem to be much lower than that of the former.

In light of the aforementioned reasons, we argue that the optimal adjectival rule relating to collusive activity should aim to reduce the risk of Type I errors. Thus, liability should only be established if there is "hard evidence" as proof of collusion[107]. This requires explicit proof of mutual communication to sustain a finding of collusion. Of course, the form in which such communication takes place should not matter – minutes of meetings, e-mail messages, memos and other written or recorded evidence should all be relevant and admissible in proving collusive activity[108]. If there is evidence that firms have exchanged detailed price and quantity information via their trade association, or if there is evidence that firms have set up a forum where they can announce future prices to each other, these firms should be found to have satisfied the requisite element of "collusive activity" pursuant to Art 101 TFEU.

Further to the question of how Competition Law should treat the use of market outcomes as evidence, an elegant solution to the problem would be to allow market outcomes to *corroborate* existing "hard evidence" of collusive conduct, but to disallow an inference of collusive conduct from the mere evidence of market outcomes. The corroborative usage of such evidence must be circumscribed carefully – the EC should be required to demonstrate a necessary link between the market outcome and the "hard evidence" of collusive conduct[109]. As we will explain in Part V, the EU Courts have often attributed certain market outcomes to the conduct of undertakings without establishing any form of causation between the two.

IV: Three Areas of Adjectival Law with Implications on Economic Efficiency

A. Where the trier of fact is allowed to infer the existence of collusive activity when the "effects" of an anti-competitive agreement continue to be felt

Perhaps as an informed response to contemporary economic theory that price parallelism is a poor indicator in establishing the existence of collusion, the EU Courts have placed restrictions on the inferences that the trier of fact may draw from such a market outcome. In particular, collusive activity may only be inferred from evidence of parallel conduct[110] if it constitutes the *sole* plausible explanation for such conduct[111]. In

[106] Supra 7 at pp. 60.
[107] Supra 8 at pp. 189.
[108] Notably, plausible inferences from "hard evidence" extend beyond that of such inferences from market outcomes by encompassing practices that facilitate collusion.
[109] Without this causal link, adjectival law would allow a *de facto* inference of collusive activity from a free-standing (independent) instance of observable market outcomes.
[110] Supra 69. As mentioned earlier, evidence of parallel conduct encompasses parallel movements in any parameter of competition, and not just prices.

other words, where a finding of collusive activity rests exclusively on observed conduct, parallel conduct cannot be regarded as furnishing proof of collusion where there is another plausible explanation. It is for the undertakings in question to provide an alternative explanation of their conduct in light of the relevant factual matrix[112]. If they fail to do so, the trier of fact may draw an inference that the parallel conduct can only be credibly explained by coordination between firms.

Two cases aptly illustrate the application of these principles. In *Dyestuffs*[113], several aniline dyestuffs producers in Italy and Benelux were alleged to have engaged in various concerted practices, thereby infringing Art 101 (then Art 85) of the TFEU. The evidence adduced by the EC established that the undertakings had made a series of nearly simultaneous and uniform price increases. On appeal to the ECJ, the parties argued that the price increases merely reflected parallel behaviour in an oligopolistic market where each producer followed the price leader which initiated the increase. Dismissing the appeal, the ECJ held that although parallel conduct *per se* did not constitute a concerted practice, it may amount to strong evidence of such a concerted practice if it lead to "conditions of competition which do not correspond to the normal conditions of the market". In order to decide whether market conditions diverge from the norm, it would be necessary to examine the nature of the market for the products in question. Upon closer examination of the market for dyestuffs, the ECJ found that the price increases were so simultaneous and uniform[114] that it would be impossible for them to have not been previously agreed upon, noting that:

> "Although a general, spontaneous increase on each of the national markets is just conceivable, these increases might be expected to differ according to the particular characteristics of the different national markets… Therefore, although parallel conduct in respect of prices may well have been an attractive and risk free objective for the undertakings concerned, it is hardly conceivable that the same action could be taken spontaneously at the same time, on the same national markets and for the same range of products".

It is sapient to note that the *features* of the market in question are critical in establishing whether an alternative explanation of undertakings' conduct is plausible or not. In *Ahlstrom Osakeyhtio v Commission*[115] ("*Wood Pulp II*"), forty wood pulp producers and three of their trade associations were alleged to have infringed Art 101 (then Art 85) of the TFEU by concerting on prices. Although there was explicit "hard evidence" of concertation in relation to firms belonging to two of the trade associations, the EC went beyond that, and found that various undertakings not involved in the two trade associations had also infringed Art 101 TFEU as an inference from their parallel conduct. In particular, the EC argued that the identical and quasi-simultaneous price announcements made by the undertakings amounted to parallel conduct that could be explained only by a concerted practice. On appeal, the ECJ annulled this portion of the EC's decision. The Court of Justice accepted the expert reports tendered by the

[111] See Cases C-89/85, *Ahlstrom Osakeyhtio v Commission* [1993] ECR I-1307 and Cases 48, 49 and 51-7/69, *ICI v. Commission* [1972] ECR 619.
[112] Cases T-67/00, *JFE Engineering v Commission* [2004] ECR II-2501.
[113] Supra 33 at [108].
[114] Supra 8 at pp. 188. As Motta notes, "firms were found sending similar price instructions to their agents and subsidiaries basically at the same hour and day – the probability that this could happen without firms having previously talked to each other was nil".
[115] Cases C-89/85, *Ahlstrom Osakeyhtio v Commission* [1993] ECR I-1307.

undertakings that the close succession of price announcements could be explained by the natural operation of the market. The market for wood pulp had various market features which made it extensively transparent. For instance, the rapid information transfer amongst the wood pulp producers could be attributed to the fact that each buyer was in contact with several producers, and would have an incentive to reveal prices set by other producers when they were reduced. Furthermore, most wood pulp producers also had downstream operations which purchased some of their input from upstream rivals, and thus would be immediately informed of any price changes by upstream rivals. Common agents who facilitated transactions between buyers and producers worked for numerous producers and expedited the process of price discovery.

An inference of collusive activity from parallel conduct is usually set in the context of one or more concerted practice(s) between the undertakings in question[116]. As a concerted practice is a form of coordination that is "short of the conclusion of an agreement properly so-called", it encompasses a broader ambit of communication between undertakings that does not amount to a "concurrence of wills"[117]. In *Wood Pulp II*, the EC characterised conduct in the form of simultaneous and uniform price announcements as a type of concerted practice. Such conduct that merely facilitates the ability of competing firms to reach a collusive equilibrium cannot be properly construed to entail a common understanding as to "the implementation of a policy, the pursuit of an objective, or the adoption of a given line of conduct on the market"[118]. Indeed, in situations where the EC is attempting to establish the existence of an agreement, it tends to rely on "hard evidence" of documentation establishing the agreement between the undertakings, or on conduct that allows an agreement to be directly inferred from that conduct[119].

Notwithstanding these common practices, an inference of collusive activity from parallel conduct may still be applicable even if the EC is attempting to establish an agreement between two or more undertakings[120]. In Part II, we noted that the EC bears the burden of proving the duration of any collusive activity[121]. As an ode to the notion of "substance over form", in proving the duration of collusive activity, however, the EU Courts have held that the EC may lawfully adduce evidence showing that the effects of an anti-competitive agreement continue to be felt in establishing a continuation of the agreement[122]. In particular, parallel conduct arising from an anti-competitive agreement is probative towards showing that the effects of an anti-competitive agreement continue to be felt[123]. This applies even where there is no "hard" evidence of further communication to suggest the continuation of an existing anti-competitive agreement beyond a certain point in time.

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[116] Supra 61. Ghezzi and Maggiolino point out that the prosecution of concerted practices was historically linked with evidence of parallel conduct – "In the 1970s, market parallelism was the starting point of any prosecuting strategy that did not focus on agreements. Market parallelism was also the crucial element of the notion of concerted practices—the element that distinguished the concept of concerted practices from that of agreements."

[117] Supra 26.

[118] Supra 26.

[119] For example, in Case C-277/87 *Sandoz prodotti farmaceutici v. Commission* [1990] ECR I-45, the ECJ held that the tacit acceptance of a term that prohibited exports by a number of customers could be inferred from renewed orders placed without protest on the same terms.

[120] We discuss its reconciliation below.

[121] Supra 38.

[122] In other words, the trier of fact is permitted to infer a continuation of an anti-competitive agreement from the "effects" of that agreement. See Case 51/75 *EMI Records* [1976] ECR 811.

[123] Joined Cases T-45/98 and T-47/98 *Krupp Thyssen Stainless v Commission* [2001] ECR II-3757.

The aforementioned principle applies even after the undertakings involved purport to have formally ceased the anti-competitive agreement, as the continuing existence of the anti-competitive agreement is inferred from evidence of these effects. In *EMI Records* ("*EMI*")[124], the ECJ opined that[125]:

> For Article 85 to apply to a case, such as the present one, ***of agreements which are no longer in force it is sufficient that such agreements continue to produce their effects after they have formally ceased to be in force.***
>
> An agreement is only regarded as continuing to produce its effects ***if from the behaviour of the persons concerned there may be inferred the existence of elements of concerted practice and of coordination peculiar to the agreement and producing the same result as that envisaged by the agreement.***

It is sapient to note that any subsequent "effects" must stem from the agreement; they are only relevant insofar as they are "peculiar to the agreement" and if they produced the same results that are "envisaged by the agreement". Thus, any "effects" that deviate from the purported terms of the agreement may not be used to infer the existence of that agreement.

While the ECJ in *EMI* did not discuss whether the "effects" of an agreement may come in the form of observable market outcomes, this was taken up by the General Court (then the Court of First Instance) in *Krupp Thyssen Stainless v Commission*[126]. In that case, a group of stainless steel producers were alleged to have engaged in an agreement to jointly fix "reference" values for alloy surcharges, with a view to securing an increase in the price of stainless steel flat products. The alloy surcharge was a price supplement added to the basic price for stainless steel. It was calculated based on current prices of alloying materials (chrome, nickel and molybdenum) and "reference values", which were in turn based on historical prices of alloying materials. To compute the alloy surcharge, the stainless steel producers compared the average current prices of alloying materials with the "reference values". If the difference between the average prices and the reference values was positive, the difference in prices would be added to the basic price of the steel concerned in the form of an alloy surcharge. However, if this difference was negative, no surcharge would be imposed.

At a meeting held in Madrid on 16 December 1993, the stainless steel producers agreed to take the September 1993 prices as reference values, when the price of nickel had reached its historical low. The EC determined this to be an infringement of Art 101 (then Art 85) TFEU (then the EC Treaty), holding that the infringement commenced at the Madrid meeting on 16 December 1993 and continued until the day when the infringement decision was adopted.

The applicants appealed against this finding, claiming that after that meeting, there were no further discussions concerning the maintenance of the reference values. On the other hand, the EC argued that after the Madrid meeting, the alloy surcharge reference values were not changed by the applicants up to the adoption of the infringement

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[124] Case 51/75 *EMI Records* [1976] ECR 811.
[125] Ibid. at [14]-[17].
[126] Joined Cases T-45/98 and T-47/98 *Krupp Thyssen Stainless v Commission* [2001] ECR II-3757.

decision; [127] and thus the only plausible explanation for the maintenance of those values must be that the parties to the agreement continued to agree that they would not change them again. Agreeing with the EC, the General Court noted that[128]:

> It is important, first, to bear in mind that the purpose of the agreement was to ensure that, in the method for calculating the alloy surcharge, the producers of stainless steel flat products ***used identical reference values with a view to raising the final price***, of which the alloy surcharge constitutes a significant part.
>
> ***It must be observed that the applicants do not deny, and did not deny during the administrative procedure, that the reference values for the alloy surcharge, as agreed at the Madrid meeting, were not changed before the adoption of the Decision. Since the undertakings in question continued actually to apply the reference values on which they had agreed at that meeting, the fact that no express decision was then taken regarding the period for which the agreement would be applied cannot prove that the agreement was sporadic rather than continuous.***

If no express decision was made by the undertakings in question to maintain the alloy surcharges to the day when the infringement decision was adopted, how could the trier of fact infer that the agreement had continued in time? The General Court answered this question by permitting the inference of collusive activity from parallel conduct[129]:

> AST's argument that maintenance of the reference values agreed at the Madrid meeting is a result of price transparency and parallel conduct on the part of the undertakings concerned must also be rejected. Whilst it is true that, according to the case-law, ***parallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct*** (Joined Cases C-89/85, C-104/85, C-114/85, C-116/85, C-117/85 and C-125/85 to C-129/85 Ahlström Osakeyhtiö and Others v Commission [1993] ECR I-1307, paragraph 71), ***the fact remains that, in this case, the maintenance by the undertakings in question of the same reference values in the calculation formula for the alloy surcharge is accounted for by concertation since those values were determined jointly in the course of discussions between producers in December 1993.***

The General Court attempted to reconcile the ostensibly contrary "only plausible explanation" principle[130] with this doctrine by formulating a *sui generis* category of cases where market outcomes formed by concertation would amount to "the only plausible explanation" for the undertakings' conduct. Essentially, parallel conduct that surfaces after the commencement of an anti-competitive agreement is presumptively attributed to the terms of that agreement itself.

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[127] There was evidence that the reference values for the alloy surcharge were not changed before the adoption of the infringement decision.
[128] Supra 126 at [176] and [178].
[129] Supra 126 at [180].
[130] Supra 111.

B. Where the trier of fact is allowed to rely on a presumption in the doctrine of "public distancing" to infer the existence of collusive activity

A presumption of law places a different form of restriction on the inferences that the trier of fact may draw. Such presumptions *mandate* the trier of fact to assume, upon proof of the primary fact to the requisite standard of proof, that the secondary fact is true; unless the counterparty facing the presumption can prove otherwise[131]. In light of this, presumptions of law have two implications. Firstly, a presumption of law may enable the trier of fact to draw an inference that he would not otherwise be permitted to do so. Secondly, because of its mandatory nature, upon proof of the primary fact to the relevant standard, the trier of fact is not allowed to depart from the necessary inference of the secondary fact unless the counterparty is able to prove otherwise. This holds even if the trier of fact would ordinarily make an inference that the secondary fact does not exist.

Such a presumption is operative when an undertaking participates in an anti-competitive meeting. Once the EC has established that an undertaking has attended a meeting at which an anti-competitive agreement is concluded[132], it will be presumed to have subscribed to the anti-competitive initiative unless it is able to adduce evidence that it had publicly distanced itself from the said initiative[133]. The presumption covers two scenarios – (1) where an undertaking is attempting to avoid liability from an alleged anti-competitive infringement by denying responsibility from the outset, and (2) where an undertaking is attempting to reduce the quantum of its liability by terminating its involvement in a continuing anti-competitive agreement[134].

As to what constitutes effective "public distancing" in EU Competition Law, the EU Courts have required the undertaking in question to alert the other participants that it had no intention to participate in the anti-competitive initiative at the meeting. Importantly, the communication of this intention must be firm and unambiguous. As stated by the General Court in *Comap v Commission*[135],

> "the communication that is intended to constitute a public distancing from an anti-competitive practice must be expressed firmly and unambiguously, so that the other participants in the cartel fully understand the intention of the undertaking concerned".

Furthermore, the EU Courts have narrowly circumscribed the threshold of what amounts to "firm and unambiguous" communication. For example, in *Westfalen v Commission*[136], the General Court noted that "silence by an operator in a meeting during which the parties colluded unlawfully on a precise question of pricing policy is not tantamount to an expression of firm and unambiguous disapproval".

[131] Supra 45.

[132] Thus, the fact that "an undertaking has attended a meeting at which an anti-competitive agreement is concluded" is the primary fact in the operative presumption.

[133] Case C-199/92P *Huls v Commission* [1999] ECR I-4287, Case C-510/06, *P Archer Daniels Midland Co v. Commission* [2009] ECR I-1843 and other cases discussed below.

[134] See Bailey, D. (2008). "Publicly Distancing" Oneself from a Cartel. World Competition, 31(2), 177-203.

[135] Case T-377/06 *Comap v. Commission* [2011] 4 CMLR 1576 at [76]. An overt denunciation on the part of the undertaking is required.

[136] Case T-303/02 *Westfalen Gassen Nederland v. Commission* [2006] ECR II-4567 at [103]

The doctrine of "public distancing" is a unique feature of EU Competition Law[137]. Properly characterised, it goes even further than the usual presumption of law by prescribing only *one* mode of rebuttal for the undertaking in question once the EC has proved the primary fact to the relevant standard. Jones and Surfin[138] have hence opined that an undertaking's failure to publicly distance itself from an anti-competitive initiative is taken to be a tacit acceptance of an offer to collude. It is insufficient for the undertaking to show that it did not put the initiatives into effect or that it had left the meeting in question. In *Aalborg Portland AS v. Commission*[139], the ECJ held that:

> "… Nor is the fact that an undertaking does not act on the outcome of a meeting having an anti-competitive purpose such as to relieve it of responsibility for the fact of its participation in a cartel, unless it has publicly distanced itself from what was agreed in the meeting… Neither is the fact that an undertaking has not taken part in all aspects of an anti-competitive scheme or that it played only a minor role in the aspects in which it did participate material to the establishment of the existence of an infringement on its part. Those factors must be taken into consideration only when the gravity of the infringement is assessed and if and when it comes to determining the fine."

The traditional rationale for the doctrine of public distancing is that the undertaking's failure to publicly distance itself from an anti-competitive initiative encourages the continuation of the said initiative and compromises its discovery. In other words, "the likelihood of a cartel is seriously undermined when competitors do not give their rivals reasons to believe that they intend to subscribe to the invitation and comply by it"[140]. In *Fuji Electric*[141], the General Court noted that:

> "It would be too easy for undertakings to reduce the risk of being required to pay a heavy fine if they were able to take advantage of an unlawful agreement and then benefit from a reduction in the fine on the ground that they had played only a limited role in implementing the infringement, when their attitude encouraged other undertakings to act in a way that was more harmful to competition".

Like the substantive rules prohibiting facilitating practices[142], the doctrine of public distancing presents itself as an *ex ante* policy that aims to deter future economic collusion. But the traditional rationale seems to rely on the assumption that firms which have no intention of engaging in anti-competitive conduct have nothing to lose by publicly distancing themselves from an anti-competitive initiative. In Part V, we illustrate various problems with this line of reasoning.

C. Where the trier of fact is allowed to rely on a "presumption of continuance" to infer the continued existence of a concerted practice

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[137] In U.S. Antitrust Law, but for proactive behaviour on the part of undertakings, firms receiving a solicitation to collude would not be liable of any infringement. See *United States v. FMC Corp.*, 306 F. Supp. 1106, 1129, 1141 (E.D. Pa. 1969).
[138] Supra 7 at pp. 158
[139] Cases C-204, 205, 211, 213, 217 and 219/00 P, *Aalborg Portland AS v. Commission* [2004] ECR I-123 at [85].
[140] Supra 61.
[141] Case T-132/07 *Fuji v. Commission*, judgement of 12 July 2011 at [100].
[142] Supra 37.

A third branch of adjectival law draws from Section B. This is the presumption of fact that in particular circumstances, an anti-competitive concerted practice continues to be in operation until the contrary is shown. As explained in Part II, as a general rule, the EC has to adduce evidence of facts sufficiently in time for it to be reasonable to accept that the infringement continued uninterruptedly between two specific dates[143]. With this procedural device, however, the trier of fact is permitted to proceed with a different inferential process. Once the trier of fact has determined that the factual matrix falls within a certain category of "particular circumstances"[144], the EU Courts have suggested that he is entitled to presume that a concerted practice, once commenced, continues in time until the undertaking in question adduces evidence that the concerted practice has come to an end[145]. Without this presumption of fact, the trier of fact would ordinarily not be allowed to make such an inference. In essence, unless the undertaking in question is able to prove otherwise, the trier of fact is allowed to infer the continuation of the concerted practice even in the absence of "hard evidence" of communication to suggest such a continuation.

The origins of this presumption of fact stem from *Musique Diffusion Francaise v Commission* ("*Musique*")[146]. In *Musique*, three firms (MDF, Melchers and Shriro) acted as sole distributors for Pioneer Hi-Fi equipment in Western Europe. MDF was the sole distributor for France, while Melchers was the sole distributor for Germany and Shriro was the same for the UK. The prices charged by MDF for the sale of Pioneer Hi-Fi equipment were significantly higher than those charged by Melchers and Shriro, so parallel importing was an attractive proposition. MDF pressured Shriro to stop its UK customers from exporting Pioneer equipment to France. The applicants sought to argue that a concerted practice continues only as long as the parties take steps to implement it. In his opinion accompanying the judgement, then Advocate General ("AG") Sir Gordon Slynn disagreed, opining that[147]:

> "I accept that the Commission is correct (at least as a matter of general principle) in stating (at page 40 of its defence in Pioneer) that when the parties to a concerted practice have put an end to exports from particular suppliers, it is for them to prove, if they can, that they later delivered them to the supplier without imposing restrictions.
>
> ..A concerted practice ***is capable of continuing in existence, even in the absence of active steps to implement it. Indeed if the practice is sufficiently effective and widely known, it may require no action to secure its implementation.*** Cases may arise in which the absence of any evidence of measures taken to implement a concerted practice may suggest that the practice has come to an end. That, however, is a matter of evidence, which must depend upon the circumstances of the case… It is perhaps of interest to observe the decision of the United States Court of Appeals in US v Stromberg and Others, 268 F 2d. 256, in which it held that a conspiracy, once established, is presumed to continue until the contrary is shown."

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[143] Supra 38.
[144] This being the "primary fact" in question.
[145] Cases 100/80 to 103/80 *Musique Diffusion française and Others v Commission* [1983] ECR 1825
[146] Cases 100/80 to 103/80 *Musique Diffusion française and Others v Commission* [1983] ECR 1825
[147] See the Opinion of Advocate General Slynn in Joined Cases 100/80 to 103/80 *Musique Diffusion française and Others v Commission* [1983] ECR 1825, at 1941.

Doubts remain as to whether then AG Sir Gordon Slynn intended his opinion to imply that the trier of fact is entitled to rely on the aforementioned presumption of fact. On one reading of the paragraphs in question, one could construe Sir Gordon Slynn's words to be merely descriptive of an ordinary "common-sense" type of inference, insofar as he raises the possibility of inferring a type of concerted practice that requires no further action on the part of the undertakings to secure its implementation. However, it is difficult to reconcile such a reading of the opinion with the ostensibly contrary rule in *Dunlop* that the EC has to adduce "evidence of facts sufficiently in time for it to be reasonable to accept that the infringement continued uninterruptedly between two specific dates"[148]. Indeed, in *Hasselblad v Commission* ("*Hasselblad*")[149], then AG Sir Gordon Slynn implicitly endorsed his earlier opinion in *Musique*, expounding that[150]:

> ***Although the Commission is entitled, once a concerted practice has been established, to rely on a presumption of continuance until the concerted practice is shown to have been terminated,*** I would accept HGB's evidence that, once it had taken legal advice and whilst the Commission was undertaking its investigation and Camera Care seeking interim relief, any concerted practice stopped at the end of 1979.

Hasselblad had a similar factual matrix to that of *Musique*. In that case, several firms were appointed as sole distributors to Victor Hasselblad, a firm which manufactures and supplies photographic equipment in the European Union. The sole distributor in the UK, HGB, signed a dealer agreement with one of its customers called "Camera Care". After termination of the dealer agreement, HGB took steps to prevent Camera Care from being supplied with Hasselblad photographic equipment. To do so, it received cooperation from Victor Hasselblad and other sole distributors in the European Union, who agreed not to supply Camera Care with the Hasselblad photographic equipment. This was established to be an infringement of Art 101 TFEU (then Art 81 EC). While then AG Sir Gordon Slynn agreed that the Commission would be able to rely on the presumption on the facts of this case, he accepted that HGB had adduced evidence that was sufficient to determine the end date of the infringement[151].

The EC subsequently attempted to use Sir Gordon Slynn's opinion in *Musique* as persuasive authority to support the existence of the aforementioned presumption. In *Cimenteries CBR v Commission* ("*Cimenteries*") [152], the General Court (then the Court of First Instance) clarified that the presumption of continuance is not an automatic one that holds regardless of the factual matrix, but only arises in particular circumstances. In that case, several cement producers were alleged to have infringed Article 101 TFEU (then Art 81 EC Treaty) by setting up an organisation, the ETF. The ETF was formed to implement several dissuasive and persuasive measures aimed at discouraging the import of Greek Cement into Western Europe. Such dissuasive measures would include the imposition of administrative obstacles, the imposition of quality standards, seeking the assistance of international banks to 'convince' the Greek exporters to cooperate, and the penalization of customers purchasing imported cement; while persuasive measures would include the joint purchase of Greek Cement with a view to re-sell that Cement in

[148] Supra 38.
[149] Case 86/82 *Hasselblad v. Commission* [1984] ECR 883
[150] See the Opinion of Advocate General Slynn in Case 86/82 *Hasselblad v. Commission* [1984] ECR 883, at 928
[151] Ibid, at 928.
[152] Case T-25/95 *Cimenteries CBR v Commission* [2000] ECRII-491

the United States. The Commission attempted to rely on Sir Gordon Slynn's opinion in *Musique*, arguing that "a conspiracy, once established, is presumed to continue until the contrary is shown". In rejecting this argument on the facts, the General Court distinguished *Cimenteries CBR v Commission*[153] from *Musique*[154], holding that the effective reversal of the burden of proof was only possible when the case in question possessed particular features[155]:

> Sir Gordon Slynn's approach ***does not therefore amount to an assertion that, once the Commission has proved the existence of an agreement, decision, or concerted practice contrary to Article 85(1) of the Treaty, it is automatically for the parties involved in that agreement, decision or concerted practice to prove that it has come to an end. Such a reversal of the burden of proof is possible only where the case in question possesses particular features.*** In any event, it is clear from the case-law that it is for the Commission to prove not only the existence of the agreement or concerted practice but also its duration (Dunlop Slazenger v Commission, cited in paragraph 270, paragraph 79).

Unfortunately, the question of what "particular features" are required before the trier of fact would be allowed to rely on the presumption has not been addressed by the EU Courts. Where the presumption has been operative, the factual matrixes involved concerted practices attempting to restrict exports from suppliers to Member States within the EU. But the argument that *Musique* and *Hasselblad* should be confined to their facts does not stand on a principled basis. Fernando Castillo[156] has proposed that the number, frequency and form of meetings required to establish a successful cartel in a particular case could also determine the amount of evidence required to prove that an infringement had continued in time beyond a given point. Castillo draws these principles from *T-Mobile Netherlands*[157], where the ECJ held that[158]:

> "the number, frequency, and form of meetings between competitors needed to concert their market conduct depend on both the subject-matter of that concerted action and the particular market conditions. ***If the undertakings concerned establish a cartel with a complex system of concerted actions in relation to a multiplicity of aspects of their market conduct, regular meetings over a long period may be necessary. If, on the other hand, as in the main proceedings, the objective of the exercise is only to concert action on a selective basis in relation to a one-off alteration in market conduct with reference***

[153] See also *JJB Sports Plc v Office of Fair Trading* [2006] EWCA Civ 1318, where the UK Competition Appeals Tribunal ("CAT") endorsed in dicta the then AG Sir Gordon Slynn's opinion accompanying *Musique*. It acknowledged that although the general rule was that the burden of proof rests with the Office of Fair Trading ("OFT"), in certain particular circumstances a concerted practice may be found to have continued even in the absence of active steps to implement it beyond a certain date.

[154] It is sapient to note that the General Court in *Cimenteries* did not explicitly reject the existence of the presumption raised by Sir Gordon Slynn's opinion in *Musique* – it merely distinguished the case in question from the facts that arose in Musique.

[155] Supra *Cimenteries* at [2800].

[156] See Castillo de la Torre, F. (2009). Evidence, proof and judicial review in cartel cases. World Competition, 32(4), 505-578.

[157] Case C-8/08, *T-Mobile Netherlands* [2009] ECR I-4529

[158] Ibid. at [60]

> ***simply to one parameter of competition, a single meeting between competitors may constitute a sufficient basis on which to implement the anti-competitive object which the participating undertakings aim to achieve[159]"***

This judicial approach allows an inference of a continuing concerted practice from the *nature* of the anti-competitive activity in question. In *Cimenteries* itself[160], the General Court referred to the "nature of the agreement" in distinguishing it from *Musique*:

> In this case, the Commission was right to find that there was an agreement setting up the ETF. ***The nature of that agreement is fundamentally different from that of the concerted practice analysed by Sir Gordon Slynn in the abovementioned opinion.*** Whereas the pursuit of that concerted practice did not require any special positive measures, the agreement in question concerned the setting-up of a working group to examine dissuasive and persuasive measures capable of eliminating imports into Western Europe.
>
> In such circumstances, the Commission cannot now assume that that agreement had not ended, ***when it has not been able to prove that after the end of May 1987 the ETF met again to consider those dissuasive and persuasive measures.***

Pursuant to this line of reasoning, in a situation where regular meetings over a long period are quintessential for the successful establishment of a cartel, the trier of fact would only be able to infer the continuation of an existing infringement from additional evidence of further meetings. Contrast this to the situation where a single meeting is sufficient to implement the anti-competitive object which the participating undertakings aim to achieve. In such a case, the trier of fact would be allowed to rely on the aforementioned presumption that an anti-competitive agreement continues to be in operation until the contrary is shown.

Indeed, the cases that have been considered here are consistent with this approach. The factual matrices in *Musique* and *Hasselblad* suggest that the implementation of the anti-competitive object in both cases was quickly established when the parties to the concerted practices managed to restrict exports from particular suppliers. On the contrary, the factual matrix of *Cimenteries* suggests that regular meetings were required to successfully implement the dissuasive and persuasive measures suggested by the ETF. Unlike the measures in *Musique* and *Hasselblad*, the anti-competitive measures were relatively complex and involved many aspects of the undertakings' market conduct.

V: Efficiency Implications

A. Where the trier of fact is allowed to infer the existence of collusive activity when the "effects" of an anti-competitive agreement continue to be felt

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[159] Note that *T-Mobile Netherlands* relates to the issue of whether certain types of firm conduct may lead to the inference of a concerted practice. Castillo extends the reasoning in *T-Mobile Netherlands* to the closely related issue of duration.

[160] Supra 89 at [2803]

In Part III, we argued that the optimal adjectival rule relating to collusive activity should aim to reduce the risk of Type I errors – liability should only be established if there is "hard evidence" of inter firm communications as proof of collusion[161]. To that end, the EU Courts have placed restrictions on the inferences that the trier of fact may draw from such a market outcome. As a general rule, collusive activity may only be inferred from evidence of parallel conduct if it constitutes the *sole* plausible explanation for such conduct[162]. However, where the "effects" of an anti-competitive agreement exhibit themselves in the form of observable parallel conduct, the trier of fact is allowed to infer the existence of collusive activity from evidence of that parallel conduct[163].

This exception to the general rule seems to be justified on the premise that these observable market outcomes would have stemmed from the prior anti-competitive conduct of the undertakings. Market outcomes are only relevant if they are "peculiar to the agreement", or if they produce the same results that were "envisaged by the agreement"[164]. Would that support the departure from the general rule in allowing such an inference? At first blush, the requirement seems to reduce the probability that an erroneous outcome will occur – parallel conduct in setting a certain common price level that came about through explicit coordination is more likely than not to have stemmed from a prior concertation.

This line of argumentation faces several cogent objections. The first is one of culpability, or in other words, a firm's legal responsibility[165]. The key issue at hand in these scenarios is the collusive activity's duration, not the liability of the undertaking in question. The firm in question is already held responsible for its prior concertation in achieving a collusive equilibrium, and is punished for it. To hold the firm responsible for sustaining or maintaining that collusive equilibrium, Competition Law should require further "hard evidence" of explicit communication between the undertakings in question showing that they have engaged in the maintenance of that collusive equilibrium. In that respect, there is no reason why parallel conduct following a prior anti-agreement should be any more probative than ordinary parallel conduct in establishing the maintenance of a collusive equilibrium.

A second objection invokes contemporary economic theory. In Part II, we discussed the notion of "tacit collusion", where a collusive equilibrium may arise without any form of communication between firms in the industry[166]. "Tacit collusion" is generally viewed to be unobjectionable as there is little basis to punish firms that are engaging in a rational response to the structure of the market[167]. But by allowing an inference of collusive activity from parallel conduct merely because such conduct stems from a prior concertation, Competition Law punishes undertakings which eventually lapse into tacit collusion after an initial phase of "explicit" collusion[168].

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[161] Supra 107.
[162] Supra 111.
[163] Supra 122
[164] Supra 124.
[165] This argument is similar to one made in Part III, Section B where we discussed the culpability of a firm engaging in a facilitating practice. There, the firm is responsible for conduct that creates conditions that are conducive for the formation of a collusive equilibrium. This is quite different from holding the firm responsible for conduct that maintains an existing collusive equilibrium.
[166] Supra 72.
[167] Supra 74.
[168] Supra 165. Note that the firm in question is already punished for its role in achieving a collusive equilibrium. The question is whether the firm should be further punished for its subsequent tacit collusion after the initial phase of "explicit" collusion.

Such scenarios may not be uncommon. A collusive equilibrium is sustainable for any price level between marginal cost and the fully collusive (monopoly) price, but the price that is likely to arise as the actual market outcome is determined by what Schelling (1960)[169] terms a "focal point". A focal point is a price level on which firms would coordinate based on habit, history, or particular events. For example, the status quo of existing market structures or price regulation levels may provide focal points on which firms may engage in tacit collusion. Of course, the more obvious focal point pertinent to our discussion is that of a price level determined by a previous concertation. As Motta rightly points out, if firms have "coordinated in the past on a certain collusive price or divided markets in a certain way, it might be too risky for them to experiment to change it"[170]. A group of undertakings may engage in a one-off discussion to achieve a collusive equilibrium, but subsequently take no further action in relation to the maintenance of this equilibrium. Any parallel conduct attributable to the terms of the initial conduct would be solely due to the tacit collusion amongst the undertakings involved. The premise that any observable parallel conduct must have stemmed from the prior anti-competitive conduct of the undertakings is untenable.

In cases where the collusive activity is in relation to price, the issue is exacerbated by the fact that "price-fixing" is not limited to setting the price itself. Setting the components of prices, setting minimum prices, establishing percentages for increases or a range within which the price may be set, and factors which add to or subtract elements from the price are various forms of "price-fixing" which are caught by Art 101 TFEU[171]. In such situations, firms may have little need to take any action whatsoever to maintain an existing collusive equilibrium, as exogenous shocks to supply would only affect some price components and not others.

The argument that the firm in question has opportunities to limit the extent of its liability is not convincing either. A *de facto* reversal of the burden of proof[172] may be justified on the premise that the great majority of firms would change their competitive position upon the breakdown of economic collusion, or the premise that firms would be deterred from entering into an anti-competitive agreement if they knew that liability would be inferred from subsequent parallel conduct following the agreement. But there is no empirical support for any of these premises[173]. To compound the problem, a formal cessation of the agreement by the undertakings in question does not evidence that the agreement has concluded. Bellamy & Child[174] aptly note that in practice, it "may be difficult to show that an agreement has ceased to have an effect, particularly if the parties' behaviour continues to be convergent". As per the scenario above, if a firm engages in a one-off discussion to achieve a collusive equilibrium[175], short of changing

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[169] Schelling, T. C. (1960). The strategy of conflict. Cambridge, Mass.

[170] Supra 8 at pp. 152

[171] For example, see *Vimpoltu*, OJ 1983 L200/44, [1983] 3 CMLR 610 and *Italian Flat Glass*, OJ 1989 L33/44, [1990] 4 CMLR 535

[172] i.e. an adjectival rule that requires the firms in question to prove the *non-existence* of collusion.

[173] Supra 96. A reversal of the burden of proof increases the risk of Type I errors relative to Type II errors if the defendant finds it difficult to discharge his burden of proof in absolving himself from liability. Such a reversal may be justified if there is an empirical basis that the incidence of guilt given the usual factual matrix is higher than that of the incidence of innocence given the same factual matrix, or if it can be shown that the magnitude of error costs following a wrongful conviction is greater than that of a wrongful acquittal.

[174] Bellamy, C., & Child, G. D. (2013). Bellamy & Child European Union Law of Competition. P. M. Roth, & V. Rose (Eds.). Oxford University Press. at pp. 109

[175] And subsequently has no further participation in the anti-competitive agreement

its position with regard to the prior equilibrium, it is not clear how the firm may prove that the agreement has ceased to have the alleged effects. In *Soda-ash-Solvay, ICI*[176], the EC held that a concerted practice continued to exist between two suppliers even though there was evidence of a formal termination of the market-sharing agreement upon the accession of the United Kingdom. The formal termination did not result in any alteration in the practice of strict market separation between the two suppliers.

The aforementioned objections raise genuine concerns even on the facts of *Krupp Thyssen Stainless v Commission*[177]. Two comments are in order. Firstly, for any given firm in the stainless steel industry, price adjustments in response to changes in input costs or other exogenous shocks could be reflected in any one of the components forming the final price of stainless steel. Even if the firms were to compete in prices after the meeting in December 1993, there would be little reason to rationally "compete" by amending a mere component in the final price of stainless steel – the reference values of alloy surcharges. Competition could very well take place on other parameters, even if the reference values were set at a historical low.

Secondly, the fact that the stainless steel producers did not change the alloy surcharge reference values until the infringement decision did not preclude the possibility that the common adoption of the reference values was a result of each firm's rational response to the structure of the market. In the unlikely scenario where the producers had considered competing on the basis of the reference values after 1993, each firm could very well have maintained the *status quo* in setting the appropriate reference value, without any form of communication between firms in the industry.

B. Where the trier of fact is allowed to rely on a presumption in the doctrine of "public distancing" to infer the existence of collusive activity

As elaborated upon in Part II, a presumption of law mandates the trier of fact to infer, upon proof of the primary fact to the relevant standard, that the secondary fact is true, unless the counterparty is able to prove otherwise. Recall that the doctrine of "public distancing" goes even further than the usual presumption of law by prescribing only *one* mode of rebuttal for the undertaking in question once the EC has proved the primary fact to the relevant standard[178]. Evidently, if a firm fails to adduce evidence of its public distancing, the trier of fact is entitled to infer that the firm had subscribed to the anti-competitive initiative even if it did not actually do so in the factual matrix at hand. The trier of fact would have committed a Type I error in his inferential process. For a presumption of law to be economically efficient[179], it should capture *id quod plerumque accidit*—that is, a presumption should capture what actually occurs in the great majority of cases[180]. Does the presumption in the doctrine of "public distancing" satisfy this requirement? While this is an empirical question that remains to be answered[181], there is no *a priori* reason why a firm that has attended an anti-competitive meeting should be taken to have subscribed to the anti-competitive initiative discussed there. A firm may rationally wish to attend an anti-competitive meeting to gather more information so that it is able to engage in a swift and profitable deviation once collusion commences.

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[176] *Soda-ash-Solvay*, ICI, OJ 1991 L152/1. See also COMP/38698 *CISAC*, [2009] 4 CMLR 577
[177] Supra 126.
[178] Supra 138.
[179] Supra 96.
[180] It should also take into account the relative magnitude of Type I and Type II error costs
[181] Supra 96.

The traditional rationale expounded by the courts reflects the doctrine of public distancing as an *ex ante* policy that aims to deter future economic collusion[182]. It relies on the assumption that firms which have no intention of engaging in anti-competitive conduct have nothing to lose by publicly distancing themselves from an anti-competitive initiative. But this ignores a cogent reason for why a firm may not wish to publicly distance itself from an anti-competitive agreement *even if it has no intention* to implement that agreement. In a collusive setting where there is imperfect price observability[183], a firm faces a tradeoff between two countervailing factors that influence its incentive to collude. The crux lies in the fact that an act of "public distancing" signals a given firm's unequivocal intention to deviate from a collusive equilibrium. Consider a firm's decision whether to publicly distance itself following a profitable deviation[184]. Once the firm engages in public distancing, it triggers the punishment phase immediately and receives non-cooperative equilibrium profits for the rest of the punishment phase. On the other hand, if the firm chooses not to engage in public distancing, it receives supra-normal profits for a certain number of period(s) until the rest of the firms detect and punish that deviation. But that is not the end of the story. Pursuant to the presumption in the doctrine of "public distancing", if the firm chooses not to engage in public distancing, it will increase its expected quantum of liability[185] for the period(s) in which it chooses to deviate without publicly distancing itself from the anti-competitive initiative. This tradeoff between expected liability and the extra profits gained from one or more periods of supra-normal profits is *a priori* ambiguous. It suggests that a firm may, in certain circumstances, rationally choose to not publicly distance itself from an anti-competitive agreement even if it has full knowledge of the consequences following a failure to do so[186].

A comparison of the aforementioned tradeoffs reflects a more serious concern that leads to a different form of economic inefficiency. Under a rule of public distancing, the firm faces a difficult conundrum. The intuition is simple – if a firm intends to pursue a profitable deviation, it is effectively punished regardless of whether it publicly distances itself or not. If the firm chooses to engage in public distancing, it reduces its possible payoff from deviation by revealing its deviation to other firms. However, if it chooses not to do so, it reduces its possible payoff from deviation by increasing its expected liability for the periods in which it enjoys supra-normal profits.

To examine the welfare effects of the rule of public distancing, we compare two legal regimes – one where the associated "rule of public distancing" exists, and one where it does not. We begin by examining the firm's incentives to collude under a rule of public distancing, by modelling the firm's "incentive compatibility constraint" introduced earlier in Part III[187]. Under a rule of public distancing, the firm's payoff from colluding remains the same regardless of whether it chooses to publicly distance itself or not. This payoff amounts to the sum of expected profits from collusion and the expected liability for the duration of its collusion. However, the decision to engage in public distancing

[182] Supra 138.
[183] The analysis is also applicable to situations where the deviating firm's rivals know of the deviation (i.e. they have no issues with detecting the deviation), but where they are not able to commence the punishment phase immediately.
[184] In other words, given that the firm has decided to deviate.
[185] As the level of financial penalty imposed reflects the duration of the infringement, the firm increases its expected quantum of liability for the periods in which it does not publicly distance itself from the anti-competitive initiative. Supra 49.
[186] A more rigorous analysis of the firm's relevant tradeoffs and incentives is provided in the attached Appendix, and draws on the economic literature on collusion in repeated games. Supra 55
[187] Supra 55.

changes its payoff from deviation. As highlighted above, if the firm chooses to engage in public distancing, it triggers the punishment phase immediately and receives non-cooperative equilibrium profits for the rest of the punishment phase. The contrary decision that entails not engaging in public distancing provides extra profits from one or more periods of supra-normal profits, but increases the firm's expected liability for those periods[188]. Contrast this with a regime where a rule of "public distancing" does not exist. Under this rule, a firm's payoff from collusion remains the same. But its payoff from deviation is different – it receives extra profits from one or more periods of supra-normal profits before its rivals are able to commence the punishment phase, but without incurring any expected liability for those periods. Crucially, the trier of fact would be able to infer the firm's reduced duration of collusive activity from evidence of its earlier deviation or evidence of its non-implementation of the agreement[189].

Comparing the payoffs from the two different regimes, we immediately observe that the firm's plausible payoffs from deviation under a regime with the rule of "public distancing" are lower than the firm's payoffs under a regime without such a rule[190]. As mentioned above, by imposing a rule of "public distancing", Competition Law improves the sustainability of a collusive equilibrium by reducing the payoff from a natural deviation. The core of this argument lies in the fact that an act of public distancing *precludes secret price cutting*. When a firm chooses to publicly distance itself, it signals to its rivals an unequivocal intention to deviate from a collusive equilibrium, so rivals are able to retaliate by implementing swift and immediate punishment. Ultimately, improving the sustainability of a collusive equilibrium subverts the goals of substantive Competition Law.

Although limited to anti-competitive agreements where an undertaking has not participated in anti-competitive meetings, the case of *Total Marketing Services v Commission*[191] is thus a welcome development for adjectival law. In that case, the ECJ noted that the General Court had erred in law in considering that the public distancing by an undertaking from a cartel is the only way to prove that the undertaking had ceased participation in the cartel[192]. Therefore, in cases where an undertaking's participation in an anti-competitive meeting has not been established, "the absence of public distancing forms only one factor amongst others to take into consideration with a view to establishing whether an undertaking has actually continued to participate in an infringement or has, on the contrary, ceased to do so"[193].

C. Where the trier of fact is allowed to rely on a "presumption of continuance" to infer the continued existence of a concerted practice

Like in Section B, we know that if a presumed secondary fact is in fact untrue for the factual matrix at hand, then the trier of fact would have committed a Type I error in his

[188] See the attached Appendix for a formal exposition of these tradeoffs.
[189] Under the rule of public distancing, evidence of unilateral deviation from the anti-competitive initiative, or evidence of non-implementation of the anti-competitive initiative agreed upon at a prior meeting would be insufficient to rebut the operative presumption. Supra 139.
[190] This improves the sustainability of a collusive equilibrium by "loosening" the incentive compatibility constraint, making collusion a more attractive option relative to deviation.
[191] Case 634/13 P *Total Marketing Services v Commission* [2015], judgement of 17 September 2015.
[192] However, this error did not justify the annulment of the General Court's judgment.
[193] Supra 191 at [15].

inferential process[194]. The question then arises as to whether the presumption is economically efficient, insofar as it captures what actually occurs in the great majority of cases[195]. Again, we find several problems with existing adjectival law. Any inference of a continuing concerted practice from the *nature* of the anti-competitive initiative that was commenced must rely on the underlying assumption that the collusive equilibrium in question has been stable across time. If this were not the case, the trier of fact would wrongly infer collusive activity from subsequent pro-competitive or neutral conduct[196], committing a Type I error.

This assumption would not be unwarranted if there were a meaningful way to determine whether a collusive equilibrium would be sustainable merely from the factual setting leading to its formation. But often, contemporary industrial economics does not provide a determinative answer on how factors in a given industry may unambiguously lead to a more sustainable equilibrium. A given industry may have different characteristics that promote or disincentivise a collusive equilibrium in various ways. To compound the problem, interactions between these factors may not unambiguously point to a greater or smaller risk of collusion[197]. For example, *ceterus paribus*, economic collusion is more sustainable the smaller the number of firms in the industry. But if firms are asymmetric, the more firms are asymmetric (in capacities, market shares, costs, or product range), the less likely collusion will be. So if a measure of concentration rises with the asymmetric distribution of assets among firms[198], then one should expect an ambiguous relationship between concentration and collusion. The two countervailing factors affect collusion in opposite ways. Factors themselves may be ambiguous on how they affect the sustainability of a collusive equilibrium. Product homogeneity encourages collusion by reducing the effect of punishments upon deviation, but also discourages collusion by reducing the supra-normal profits upon deviation. Without further data to support an inference, any attempt to examine these factors in light of a factual matrix would quickly end up as a subjective judgement call.

The related argument made earlier in Section A is apposite as well. As stated in that section, the firm in question is already held responsible for its prior concertation in achieving a collusive equilibrium, and is punished for it. In light of the aforementioned reasons, to contingent an additional quantum of liability on the mere existence of "particular circumstances", or the *nature* of the anti-competitive initiative that was commenced would be extremely onerous on the firm in question.

A further objection arises if we consider the possibility that a truly "innocent" firm is unable to adduce evidence to rebut the presumption of fact to the requisite legal standard[199]. Like in Section B, we model the firm's "incentive compatibility constraint"

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[194] Although we know that it is not mandatory for the trier of fact to make that inference upon satisfactory proof of the primary fact; the primary fact being the existence of "particular circumstances", perhaps where the factual matrix suggests that a single meeting is sufficient to implement the anti-competitive object which the participating undertakings aim to achieve.

[195] Supra 181.

[196] Even if collusive activity did happen earlier in time.

[197] Supra 8 at 142.

[198] Supra 8 at pp. 143. An example of a measure of concentration that rises with the asymmetric distribution of assets among the firms is the Herfindahl-Hirschman Index.

[199] Unlike the doctrine of public distancing, even if the trier of fact decides to apply the presumption of fact, the firm is able to adduce evidence to disprove the allegation that it has continued to engage in collusive activity. However, there are reasons to suggest that rebutting such a presumption may be difficult. For example, in the context of concerted practices involving information exchange, EU Competition Law is generally wary of claims that the initial concertation was not implemented (see,

and examine its payoffs upon collusion and deviation[200]. Under a rule where the presumption of fact exists, the firm's payoff from colluding remains the same as in Section B[201]. However, the inability of the firm to adduce evidence to rebut the presumption has stark consequences. Upon deviation, the firm receives extra profits from one or more periods of supra-normal profits, but faces the full brunt of its expected liability not only for those periods, but for all periods thereafter until the adoption of the decision. Such a firm would have a clear incentive to engage in collusive activity. We can contrast this with a regime where the presumption of fact does not exist. Under this rule, a firm's payoff from collusion remains the same. But, as already touched on in Section B[202], its payoff from deviation is different – it receives extra profits from one or more periods of supra-normal profits before its rivals are able to commence the punishment phase, but without incurring any expected liability for those periods. Similar to the discussion in Section B, the firm's plausible payoffs from deviating under a regime with the rule containing the presumption of fact are lower than the firm's payoffs under a regime without such a rule[203]. Again, Competition Law improves the sustainability of a collusive equilibrium by reducing the payoff from a natural deviation.

VI: Conclusion

Regulation of the trier of fact's inferential process is a dicey affair. In areas of law where expert opinion is critical in establishing issues of fact, the regulation of this process plays an even greater role given the increased risk of an erroneous decision. We have shown that a sub-optimal regulation of the inferential process leads to two forms of inefficiency. Firstly, sub-optimal regulation of the inferential process increases the risk of "false positives", a type of erroneous inference that is particularly problematic in the setting of collusion. We show that where existing adjectival law allows the inference of collusive activity from the parallel conduct of firms, there is a risk that the trier of fact may infer anti-competitive conduct from factually neutral or pro-competitive conduct. Secondly, we illustrate a different type of inefficiency that arises in Competition Law cases. Since evidential rules and presumptions have the potential to influence the behaviour of firms in a collusive setting, over-regulation of the inferential process has the potential to ameliorate the sustainability of a collusive equilibrium, undermining a key rationale of substantive Competition Law.

Optimal structuring of the adjectival process in EU Competition Law draws from existing literature of contemporary industrial economics, and is an area for further research. Market outcomes should only be used to corroborate existing "hard evidence"

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for example Case T-334/94, *Sarrió v. Commission*, 1998 E.C.R. II-1439) because of the presumption that any practices subsequent to the initial concertation were planned and decided on the basis of that concertation. Of course, Ghezzi and Maggiolino point out two ways in which firms could rebut a presumption against them: (1) "by firms showing that those in charge of business decisions do not hear anything of the exchanged information", or (2) by firms demonstrating that the strategies endorsed were already planned in accordance with an algorithm independent of the information exchanged". But disputing the assumption that "firms are rational agents that behave according to the information that they acquire" may be an uphill task that not all innocent firms will be able to overcome.

[200] See the attached Appendix for a formal exposition.

[201] This payoff amounts to the sum of expected profits from collusion and the expected liability for the duration of its collusion.

[202] The payoff facing such a firm would be the same as the payoff facing a firm in a legal regime where the presumption of law does not exist (see Part V, Section B).

[203] Supra 190.

of collusive conduct; and when used in this way, a necessary causal link between the market outcome and “hard evidence” of collusive conduct must be drawn. Insofar as the incentives of firms are concerned, we note that firms already have the natural incentive to deviate from an existing collusive equilibrium, so adjectival law should incentivize firms to pursue that course of action. Therefore, undertakings should be able to adduce evidence of non-implementation of the agreement as a substantive defence against an allegation of collusive activity[204]. On a final note, although we have argued that the existing adjectival process is deficient with regard to these economic principles, we are confident that the “modernization” of EU Competition Law will eventually bring adjectival principles in line with the goals of substantive Competition Law.[205]

[204] Or in the case of unilateral deviations, a substantive defence against an allegation that collusive activity extended or continued to a latter date.
[205] Supra 9.

Appendix

We adopt the following model specification from Motta (2009). Consider an industry where n firms play an infinite horizon game, or a game with an uncertain horizon[206]. We term π_i^c and V_i^c respectively the current expected profits and the present discounted value of expected profits that firm i receives if it chooses a certain collusive action given that all firms also collude. We term π_i^d the current expected profits of firm i if it deviates when all other firms take the collusive action, π_i^p the current expected profits of firm i when all firms (including firm i) take the non-cooperative action and V_i^p the present discounted value of firm i's expected profits in the punishment phase. In this "punishment" phase following the deviation period, all firms (including firm i) take the non-cooperative action.

To incorporate the possibility of the intervention of a competition authority, we term L_i^c the expected liability facing firm i if it chooses a certain collusive action given that all firms also collude. As the expected liability is tied to the duration for which the collusive activity takes place, we define L_i^c to be the expected liability facing the firm if it continues collusion until the adoption of a competition authority's decision. If a firm chooses not to "publicly distance" itself from its rivals, it will continue to face expected liability until its rivals commence the punishment phase. We determine l_i^c to be the expected liability facing such a firm for one or more periods until the punishment phase commences. We assume that firm i faces no expected liability if it chooses to "publicly distance" itself from its rivals.

By definition, $\pi_i^d \geq \pi_i^c \geq \pi_i^p$, $V_i^c \geq V_i^p$, and $L_i^c \geq l_i^c$. Usually, the discount factor $= 1/(1+r)$, $\delta \in (0,1)$ as the value of one dollar in today's terms that one receives in the following period is modelled into the incentive compatibility constraint; but as it is not important for our purposes, we simplify our model specification by setting $\delta = 1$. In other words, one dollar earned in any future period has the same value as one dollar earned today. In our stylised model, firm i considers its incentive compatibility constraint at each stage of the repeated game[207].

Under a legal regime with the rule of "public distancing", we can write firm i's incentive constraint if it always chooses to publicly distance itself following a deviation as follows:

$$\pi_i^c + V_i^c - L_i^c \geq \pi_i^p + V_i^p \quad (1)$$

On the other hand, if firm i always chooses not to publicly distance itself following a deviation, the incentive constraint changes to:

$$\pi_i^c + V_i^c - L_i^c \geq \pi_i^d + V_i^p - l_i^c \quad (2)$$

[206] Supra 8 at pp.160. If firms played a repeated game with a finite and certain horizon, the collusive outcome would never be attained at equilibrium – at the last stage of the game, all firms would play the non-cooperative equilibrium action. By backward induction, the non-cooperative equilibrium would thus be played in each period.

[207] Note that we do not model firm i's decision to publicly distance itself in a sequential game (whereby the firm first decides whether to deviate or not, before deciding whether to engage in public distancing) as the decision to engage in public distancing is *endogenous* to the firm's payoffs from deviation.

Thus, for firm i to optimally engage in public distancing each time it rationally deviates, the condition of $\pi_i^d - \pi_i^p \leq l_i^c$ must hold. Depending on the magnitudes of π_i^d, π_i^p and l_i^c , we observe that the tradeoff between expected liability and the extra profits gained from one or more periods of supra-normal profits is *a priori* ambiguous.

Under a legal regime without the rule of "public distancing", we can write the incentive constraint facing firm i as:

$$\pi_i^c + V_i^c - L_i^c \geq \pi_i^d + V_i^p \tag{3}$$

Comparing (3) with (1) and (2), we immediately see that $\pi_i^d + V_i^p \geq \pi_i^p + V_i^p$ and $\pi_i^d + V_i^p \geq \pi_i^d + V_i^p - l_i^c$. Following deviation, the firm's plausible payoffs from deviation under a regime with the rule of "public distancing" are lower than the firm's payoffs under a regime without such a rule.

If a truly "innocent" firm is unable to adduce evidence to rebut the presumption of fact, under a rule where the presumption of fact exists, the incentive constraint facing the firm changes to:

$$\pi_i^c + V_i^c - L_i^c \geq \pi_i^d + V_i^p - L_i^c \tag{4}$$

Such a firm would have a clear incentive to engage in collusive activity. Contrast this to a legal regime without the presumption of fact, where the incentive constraint facing the firm would be identical to that of (3). Comparing (4) with (3), we observe that $\pi_i^d + V_i^p \geq \pi_i^d + V_i^p - L_i^c$. Again, following deviation, the firm's plausible payoffs from deviation under a regime with the presumption of fact are lower than the firm's payoffs under a regime without such a rule.