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PRECAUTIONARY ANTITRUST: THE CHANGING NATURE OF COMPETITION LAW

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INTRODUCTION

An underlying craze over the last few years surfaced abruptly. In a matter of months, the United States techlash has come to the fore with great vigor. On October 6th of, 2020, David Cicilline (D-RI), chairman of the House Judiciary antitrust subcommittee, issued a 450-page report aiming at big tech companies vilipending their market power and calling for corporate breakups.[2] A few days later, on the 20th of October 2020, the Department of Justice (DoJ) launched a lawsuit against Google[3] for allegedly violating antitrust laws, which appears to be the most crucial antitrust lawsuit in a generation since the Microsoft case in 2000. In December 2020, the Federal Trade Commission sued Facebook.[4] Since then, several antitrust bills have been introduced,[5] and key political appointments have revealed a dramatic

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[1] Director, The Schumpeter Project on Competition Policy, Information Technology and Innovation Foundation; Adjunct Professor, Global Antitrust Institute, George Mason University.

[2] *See* Majority Staff of H. Subcomm. on Antitrust, Com. & Admin. Law of the Comm. on the Judiciary, 116th Cong., Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations, 320, 378 (2020), https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf ("the Subcommittee recommends that Congress consider legislation that draws on two mainstay tools of the antimonopoly toolkit: structural separation and line of business restrictions."). The European decisional practice highly influences the Report. It calls for anti-monopoly actions beyond sheer antitrust laws. It embraces a prohibition of abuses of dominant positions in a language mimicking Article 102 of the Treaty on the Functioning of the European Union (TFEU). Thus, the Report foreshadows the coming to the fore of the precautionary antitrust in Europe, as evidenced in this Article.

[3] *See* Press Release, U.S. Dep't of Just., Justice Department Sues Monopolist Google for Violating Antitrust Law, (Oct. 20, 2020), https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws.

[4] FTC v. Facebook Inc., 560 F. Supp. 3d 1 (D.C. Cir. 2021). This case was refiled after the District Court, James E. Boasberg, J., dismissed the initial complaint. *See* FTC, LEGAL LIBRARY CASES AND PROCEEDINGS FACEBOOK, INC. V. FTC (Nov. 17, 2021), https://www.ftc.gov/legal-library/browse/cases-proceedings/191-0134-facebook-inc-ftc-v.

[5] *See* Aurelien Portuese, *The House's Antitrust Legislative Package: An Innovation Perspective*, INFO. TECH. & INNOVATION FOUND. (Aug. 2, 2021), https://itif.org/publications/2021/08/02/houses-antitrust-legislative-package-innovation-perspective; Aurelien Portuese, *Five False Claims Underscore the Case Against the Senate's Leading Antitrust Bills*, INFO. TECH. & INNOVATION FOUND. (Apr. 4, 2022), https://itif.org/publications/2022/04/04/five-false-claims-underscore-case-against-senate-antitrust-bills; Aurelien Portuese, *How Congress Got It Wrong on Tech Industry Competition*, INSIDESOURCES (Feb. 16, 2022), https://insidesources.com/how-congress-got-it-wrong-on-tech-industry-competition/; Aurelien

shift in antitrust policy toward a more aggressive enforcement, especially regarding markets characterized by innovation and disruptions.[6] More critically, the new Federal Trade Commission has announced rulemaking activity on unfair methods of competition, thereby signaling "a shift from ex -post judicial enforcement toward ex-ante rules of competition."[7] Such a shift illustrates a precautionary approach to competition matters.[8]

The sudden antitrust activism in the United States follows an aggressive stance in the European Union. Europeans have pioneered the techlash with numerous lawsuits.[9] Announced in December 2020, the E.U. will soon adopt the Digital Markets Act (DMA).[10] This new regulation inherently endorses the precautionary logic: With the reversed burden of proof and a shift from ex-post to ex -ante rules of competition aimed at prohibiting potentially pro-innovation conduct, the DMA prioritizes regulation over innovation.[11] In other words, it ensures precaution on disruption, hence inhibiting innovation incentives and capabilities at the expense of consumers and progress and the benefit of more incremental competition and of the preservation of an idealized market structure.

As we discuss and evidence in this article, the underlying logic for this transatlantic approach for a more aggressive antitrust enforcement and

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Portuese, *Is Congress Committed to Making American Consumers' Lives Costlier?*, WASH. LEGAL FOUND. (Jan. 12, 2022), https://www.wlf.org/2022/01/12/wlf-legal-pulse/is-congress-committed-to-making-american-consumers-lives-costlier/.

6 *See* Tara L. Reinhart & David P. Wales, *Biden's Broad Mandate Has Altered Antitrust' Landscape, Making Merger Clearance Process Less Predictable*, SKADDEN (Jan. 19 2022), https://www.skadden.com/insights/publications/2022/01/2022-insights/regulation-enforcement-and-investigations/bidens-broad-mandate-has-altered-the-antitrust-landscape.

7 *See* Duane C. Pozza et al., *'An Avalanche of Rulemakings' – The FTC Gears Up for an Active 2022*, WILEY (Jan. 2022), https://www.wiley.law/newsletter-Jan-2022-PIF-An-Avalanche-of-Rulemakings-The-FTC-Gears-Up-for-an-Active-2022.

8 *See* Aurelien Portuese, *American Precautionary Antitrust: Unrestrained FTC Rulemaking Authority*, INFO. TECH. & INNOVATION FOUND (Jan. 31, 2022), https://itif.org/publications/2022/01/31/american-precautionary-antitrust-unrestrained-ftc-rulemaking-authority.

9 *See* Mark Scott, *Margrethe Vestager's second chance*, POLITICO (Sept. 18, 2019, 7:19 PM), https://www.politico.eu/article/margrethe-vestager-competition-digital-europe-tax-privacy-data-european-commision/ (referring to European Competition Commissioner Margrethe Vestager as the "Silicon Valley's tormentor-in-chief").

10 Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector, COM (2020) 842 final (Dec. 15, 2020).

11 *See* Aurelien Portuese, *The Digital Markets Act: European Precautionary Antitrust*, INFO. TECH. & INNOVATION FOUND. (May 24, 2021), https://itif.org/publications/2021/05/24/digital-markets-act-european-precautionary-antitrust/; Aurelian Portuese, *The Digital Markets Act: Precaution Over Innovation*, EPICENTER (June 9, 2021), https://www.epicenternetwork.eu/research/briefings/the-digital-markets-act-precaution-over-innovation/; Aurelian Portuese, *Precautionary Antitrust: A Precautionary Tale in European Competition Policy*, 11 L. AND ECON. OF REGUL. 203 (2021); Aurelien Portuese, *European Competition Enforcement, and the Digital Economy: The Birthplace of Precautionary Antitrust*, in REPORT ON THE DIGITAL ECONOMY 597 (Glob. Antitrust Inst. Ed., 2020), https://gaidigitalreport.com/2020/08/25/antitrust-enforcementactivity-in-digital-markets-europe/.

reforms signal a precautionary approach to competition: the risk-averse precautionary principle takes hold on antitrust enforcement. Indeed, the precautionary principle is core to Europe's regulatory philosophy.[12] When regulating innovative companies, Europe has adopted a precautionary approach toward disruptions in the name of competition.[13] One example among many others: the creation of new markets through disruptive innovations is systematically labeled as "market tipping," although such "tipping" is the very motive for innovating and creating niche markets by entrepreneurs.[14] A veil of fears prevents entrepreneurs from disrupting markets due to the regulators' preference toward incremental changes, if not the status quo.

Precautionary antitrust as a paradigmatic change of antitrust has Europe as its birthplace.[15] But, given the Brussels' effect and the attraction that European regulations generate, especially for the so-called "Neo-Brandeisians," European precautionary antitrust has now enabled American precautionary antitrust to emerge autonomously.[16] While European precautionary antitrust has mainly materialized in Europe with a shift from ex-post to ex-ante rules of competition with the Digital Markets Act, American precautionary antitrust has mainly materialized through some antitrust bills, but most importantly through the use of Section 5 of the Federal Trade Commission Act which may be weaponized to adopt ex-ante rules of competition.

With the precautionary approach to antitrust, the relationship between antitrust and innovation is dramatically changed. Traditionally, innovation is antitrust's problem: while antitrust laws aim at fostering both the competitiveness and the innovativeness of our economies, the enforcement of antitrust laws regularly clashes with innovation processes and their inherently fragile and hardly decipherable environments. More competition

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[12] *See* Joined Cases T-429/13 & T-451/13, Bayer CropScience AG v. Comm'n, ECLI:EU:T:2018:280 ¶ 109 (May 17, 2018) ("The precautionary principle is a general principle of E.U. law requiring the authorities in question, in the particular context of the exercise of the powers conferred on them by the relevant rules, to take appropriate measures to prevent specific potential risks to public health, safety and the environment, by giving precedence to the requirements related to the protection of those interests over economic interests."). *See also* DIRECTORATE-GENERAL FOR ENV'T, EUROPEAN COMM'N, ISSUE 18, FUTURE BRIEF: THE PRECAUTIONARY PRINCIPLE: DECISION-MAKING UNDER UNCERTAINTY (2017), https://ec.europa.eu/environment/integration/research/newsalert/pdf/precautionary_principle_decision_making_under_uncertainty_FB18_en.pdf.

[13] *See* Aurelien Portuese, *Precautionary Antitrust: A Precautionary Tale in European Competition Policy*, 11 L. AND ECON. OF REGUL. 203 (2021).

[14] See Aurelien Portuese, Antitrust and the Internet of Things: Addressing the Market Tipping Fallacy, 3 CONCURRENCES 28 (2021).

[15] *See* Aurelien Portuese, European Competition Enforcement and the Digital Economy: *The Birthplace of Precautionary Antitrust*, *in* Report on the Digital Economy 597–651 (Glob. Antitrust Inst. ed., 2020), https://gaidigitalreport.com/2020/08/25/antitrust-enforcement-activity-in-digital-markets-europe/.

[16] *See* Portuese, *supra* note 8.

may not automatically bring about more innovation since some profitability levels must recoup the necessary innovative investments. After outlining the enduring tension between innovation and antitrust (I), we shall outline the prevalent framework's pitfalls and the need for an alternative explanatory framework (II). Thus, we shall sketch out the fundamental premises upon which our *Precautionary Antitrust* explanatory hypothesis rests upon (III) before concluding (IV).

I. THE NATURE OF THE PROBLEM

A. Innovation and Antitrust – A Revived Tension

Inherently, antitrust embroils tension with innovation. Antitrust pursues efficiency in the marketplace so that a competitive and innovative environment can be fostered and preserved. To that extent, antitrust partakes to an innovation objective. However, innovation cannot arise in the perfect competition model, according to which prices are set at a marginal cost with no profit.[17] Innovation entails risky and costly investments rendered possible only when some profits, hence savings, are made.[18] Innovation arises from risky investments made by firms following a rationally minded calculus: the expected returns post-innovation are weighed out with the probability of achieving innovative outcomes together with the cost of capital (human, material, and financial capital).[19] Because the cost of capital is necessarily

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[17] The perfect competition theoretical model holds that firms do not have power over price. They will not find it profitable to raise prices above the prevailing price–they are price-takers rather than the price-makers monopolists are. For firms in perfectly competitive markets choose their profit-maximizing output by finding the quantity at which their marginal costs equal the market price. Absent entry barriers, the perfect competition model as a theory provides guidance on how firms face extreme competitive constraints make little to no profits and thereby are inapt to provide investments for innovation. *See, e.g.*, Alan J. Daskin & Lawrence Wu, *Observations on the Multiple Dimensions of Market Power* (2005), *reprinted in* ECONOMICS OF ANTITRUST: COMPLEX ISSUES IN A DYNAMIC ECONOMY 137–54 (Lawrence Wu ed., 2007).

[18] These are resources, or "capabilities," which are the prerequisite for firms to innovate through risky investments. *See* J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. & ECON. 581 (2009).

[19] *See* Mario Amendola, Jean-Luc Gaffard & Patrick Musso, *Innovation and Competition: The role of Finance Constraints in a Duopoly Case*, 16 REV. AUSTRIAN ECON. 183, 187 (2003), for a discussion of the necessary sunk costs incurred by risky investments for innovation objectives. The authors argue "[t]he characteristic of the sunk costs of the investment in a process which implies a structural change is that they will only be recovered when (and if) the process itself is actually established. This means not only to take into account the whole period of construction of the new productive capacity—which is likely to have a considerable length as, before construction in a proper sense, it implies experimenting, pilot plans, and so forth—but to go further beyond that point, until the stream of receipts from the new output has reached a certain size and the change has thus proved viable."

more significant for smaller firms, their ability to innovate is reduced.[20] Their increased capital cost lowers the probability of expecting innovative outputs, diminishing the expected returns from risky investments.[21] In other words, the smaller firms' costlier access to capital prevents them from engaging in risky investments and thus deter them from innovating.[22]

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[20] *See* Daniel Shefer & Amnon Frenkel, *R&D, Firm Size and Innovation: An Empirical Analysis*, 25 TECHNOVATION 25 (2005) (demonstrating the rate of R&D expenditures are greater in large firms than in small firms due to the large firms' export orientation); Reddi Kotha, Yangfeng Zheng & Gerard George, *Entry into New Niches: The Effects of Firm Age and the Expansion of Technological Capabilities on Innovative Output and Impact*, 32 STRATEGIC MGMT. J. 1011 (2011) (finding firm age and size positively impact the quantity of innovative output from entering niche markets); Wesley M. Cohen & Daniel A. Levinthal, *Absorptive Capacity : A New Perspective on Learning and Innovation*, 35 ADMIN. SCI. Q. 128 (1990) (arguing the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities which are a function of firm size); Don Jyh-Fu Jeng & Artur Pak, *The Variable Effects of Dynamic Capability by Firm Size: The Interaction of Innovation and Marketing Capabilities in Competitive Industries*, 12 INT'L ENTREPRENEURSHIP & MGMT. J. 115 (2016) (demonstrating large firms prosper from dynamic capabilities deployment in highly competitive sectors of the economy while small firms' innovativeness are hampered by limited resource endowments). *But see* Tengjan Zou, Gokhan Ertug & Gerard George, *The Capacity to Innovate: A Meta-analysis of Absorptive Capacity*, 20 INNOVATION: ORG. & MGMT. 87 (2018) (concluding that, although capacity to innovate increases together with the increase of firm size, the Schumpeterian view is challenged since large firms may face coordination difficulties dampening their capacity to innovate. Nevertheless, in times of enormous capital needs for high tech firms, these results discount the resources endowment's advantage of large firm over small firms to materialize innovations).

[21] For discussions of the financial constraints small firms face and their impacts on firms' innovative performance, *see* Hanna Hottenrott & Bettina Peters, *Innovative Capability and Financing Constraints for Innovation: More Money, More Innovation?*, 94 REV. ECON. & STAT. 1126 (2012); Frédérique Savignac, *Impact of Financial Constraints on Innovation: What Can be Learned from a Direct Measure?*, 17 ECON. INNOVATION & NEW TECH. 553 (2008); Bronwyn H. Hall, *The Financing of Research and Development*, 18 OXFORD REVIEW OF ECONOMIC POLICY 35 (2002); Fabio Bertoni & Tereza Tykvová, *Does Governmental Venture Capital Spur Invention and Innovation? Evidence from Young European Biotech Companies*, 44 RSCH. POL'Y 925 (2015).

[22] This does not imply that smaller firms may not be innovative. *See* Zoltan J. Acs & David B. Audretsch, *Innovation in Large and Small Firms: An Empirical Analysis*, 78 AM. ECON. REV. 678 (1988) (finding the number of innovations increases with increased industry R&D expenditures but at a decreasing rate and that industry innovation tends to decrease as the level of concentration rises); Tengjan Zou, Gokhan Ertug & Gerard George, *The Capacity to Innovate: A Meta-analysis of Absorptive Capacity*, 20 INNOVATION: ORG. & MGMT. 87 (2018); Marlon F.R. Alves, Jessamine T.S. Salvini, Ana C. Bansi, Elio G. Neto & Simone V.R. Galina, *Does the Size Matter for Dynamics Capabilities? A Study on Absorptive Capacity*, 11 J. TECH. MGMT. & INNOVATION 84 (2016) (finding that, although large firms can improve innovation performance from potential absorptive capacity, small firms can more effectively convert realized absorptive capacity into innovation performance. Our point only suggests that smaller firms' limited access to capital prevent them from reaping off the benefits of innovation especially in highly capital-intensive industries); COMMITTEE OF INQUIRY ON SMALL FIRMS, THE ROLE OF SMALL FIRMS IN INNOVATION IN THE UNITED KINGDOM SINCE 1945, 1971, H.M. Stationery Off. (UK) (evidencing small firms have only marginally contributed to innovations in highly capital intensive industries); Roy Rothwell, *Small Firms, Innovations and Industrial Change*, 1 SMALL BUS. ECON. 51 (1989) (finding a "new large/small firm dynamic in which small firms provide state-of-the-art technical expertise to large firms which in turn have the resources for development, manufacturing and marketing

Consequently, innovation is empirically fostered through a market structure that may not represent the perfectly competitive market model. Instead, Schumpeter has classically hinted, some market power enjoyed by larger firms is necessary to advance economic and technological progress through innovations.[23] According to the Schumpeterian view, large firms and imperfectly competitive market structures promote innovation more strongly than small firms and unstable market structures. Schumpeter indeed argued:

> What we have got to accept is that [the large-scale enterprise] has come to be the most powerful engine of [economic] progress and in particular of the long-run expansion of total output not only in spite of but to a considerable extent through, the strategy that looks so restrictive when viewed in the individual case and from the individual point in time. In this respect, perfect competition is not only impossible but inferior and has no title to being set up as a model of ideal efficiency.[24]

To that extent, antitrust comes at tension with innovation: antitrust tackles market power while innovation can arise through the enjoyment of market power.[25] Economies of scale are inherent to innovation but conducive to market power, which is the antitrust policy target.[26] For, capital

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and the know-how and resources to handle stringent and costly regulatory requirements." More specifically, the nature of the digital industry, as a highly capital-intensive industry with strong network effects, encourages big firms with scalability capacities with respect to innovations); Alessandra Capena & Paul Stoneman, *Financial Constraints to Innovation in the UK: Evidence from CIS2 and CIS3*, 60 OXFORD ECON. PAPERS 711 (2008) (demonstrating that financial constraints faced by small firms impede their digital innovation). *See generally* ROBERT D. ATKINSON & MICHAEL LIND, BIG IS BEAUTIFUL: DEBUNKING THE MYTH OF SMALL BUSINESS (2018).

23 The neo-Schumpeterian view of economic change has been magisterially elaborated within the dynamic capabilities framework developed notably by David Teece. This framework argues that the firm's competitive advantages in fast-paced environments, such as digital markets, consist not so much in possessing specific assets but in the firm's evolutionary capacity to seize new market opportunities through its knowledge, experience, and skills. The integration process of these intangible assets, i.e., dynamic capabilities, is essential in adapting to changing business environments. *See* David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RSCH. POL'Y 285 (1986); David J. Teece, Gary Pisano & Amy Shuen, *Dynamic Capabilities and Strategic Management*, 18 STRATEGIC MGMT. J. 509 (1997) (defining "dynamic capabilities" as "new forms of competitive advantage" through timely responsiveness and swift redeployment of internal and external competences); David J. Teece, *Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance*, 28 STRATEGIC MGMT. J. 1319 (2007); David J. Teece, *The Foundations of Enterprise Performance: Dynamic and Ordinary Capabilities in an (Economic) Theory of Firms*, 28 ACAD. MGMT. PERSP. 328 (2004).

24 Joseph A. Schumpeter, Capitalism, Socialism, and Democracy 106 (3rd ed. 1950).

25 On the notion of market power as inimical to consumer welfare, *see* William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937 (1981); John Vickers, *Abuse of Market Power*, 115 ECON. J. 244 (2005); John Vickers, *Market Power in Competition Cases*, 2 EUR. COMPETITION J. 3 (2006).

26 *See* DON E. WALDMAN, THE ECONOMICS OF ANTITRUST: CASES AND ANALYSIS 14–15 (1986). Economies of scale result in market power only if two conditions hold: i) a firm of minimum optimal scale produces a large percentage of total market demand; ii) suboptimal-scale firms face significantly higher average costs of production compared to optimal-scale firms.

accumulation is the prerequisite for innovation by firms. But capital accumulation only arises if profits and savings are effectively made. Therefore, innovation requires some mark-up effects by firms that evolve in an imperfectly competitive environment.[27] The objective of antitrust laws of minimizing the mark-up effects and associated market power firms can enjoy can come at the expense of the firms' ability to innovate.[28] A lessening of competition can affect R&D inputs – thereby innovation outputs – both directly (by reducing the number of firms performing R&D) and indirectly (by changing the product market's profits): such lessening can usher in an increase in the industry's pace of innovation,[29] thereby confirming the Schumpeterian intuition.

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[27] On the incongruity of perfect competition model, *see* FRIEDRICH HAYEK, *Meaning of Competition*, *in* INDIVIDUALISM AND ECONOMIC ORDER 92 (1958) ("It appears to be generally held that the so-called theory of 'perfect competition' provides the appropriate model for judging the effectiveness of competition in real life and that, to the extent that real competition differs from that model, it is undesirable and even harmful").

[28] *See* SCM Corp. v. Xerox Corp., 645 F.2d 1195, 1203 (2d Cir. 1981) (stating "the conflict between the antitrust and patent laws arises in the methods they embrace that were designed to achieve reciprocal goals. While the antitrust laws proscribe unreasonable restraints of competition, the patent laws reward the inventor with a temporary monopoly that insulates him from competitive exploitation of his patented art"). The very existence of intellectual property rights, including patents, is to limit competition so that the inventor having generated the innovation can exclusively exploit the potential of her discovery for a certain period. Here, competition is being temporarily shut down for incentives to innovate. Nevertheless, Arrow demonstrates that with exclusive intellectual property rights, firms in a competitive market are better incentivized to innovate than are monopolists. *See* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources to Invention*, *in*, THE RATE AND DIRECTION OF ECONOMIC ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609 (R.R. Nelson ed.1962); Herbert Hovenkamp, *Restraints on Innovation*, 27 CARDOZO L. Rev. 248 (2007). The tension can nevertheless be overcome by restating that both IP laws and antitrust laws share the same objectives—namely consumer welfare and innovation—as Tim Muris argued: "the tensions between the doctrines tend to obscure the fact that, properly understood, IP law and antitrust law both seek to promote innovation and enhance consumer welfare." Timothy Muris, Chairman, Fed. Trade Comm'n, Competition and Intellectual Property Policy: The Way Ahead, Remarks Before the American Bar Association Antitrust Section Fall Forum (Nov. 15, 2001), https://www.ftc.gov/news-events/news/speeches/competition-intellectual-property-policy-way-ahead. *See also* U.S. DEP'T OF JUST. & U.S. FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION, (2007), www.usdoj.gov/atr/public/hearings/ip/222655.pdf ("[T]he goals of antitrust and intellectual property law were viewed incompatible: intellectual property law's grant of exclusivity was seen as creating monopolies that were in tension with antitrust law's attack on monopoly power. Such generalization is relegated to the past. Modern understanding of these two disciplines is that intellectual property and antitrust laws work in tandem to bring new and better technologies, products, and services to consumers at lower prices"). Remarks from the FTC and DOJ are neatly echoed in in the European practice: "Indeed, both bodies of law share the same basic objective of promoting consumer welfare and efficient allocation of resources. Innovation constitutes an essential and dynamic component of an open and competitive market economy." Commission Notice (2004/C), Guidelines on the Application of Article 81 of the EC Treaty to Technology Transfer Agreements, 2004 O.J. (C 101) 2, 7.

[29] Guillermo Marshall & Álvaro Parra, *Innovation and Competition: The Role of The Product Market*, 65 INT'L J. INDUS. ORG. 221 (2019).

On the other hand, competition policy fosters innovation since antitrust laws combat monopolistic rents that are rarely conducive to innovative initiatives.[30] Without competition, no innovation is being incentivized due to the replacement effect[31] since the innovative process requires the divesture of resources for risky projects.[32] These investments for innovation depart the profit-maximizing monopoly from its ability to reap off monopolistic rents without guaranteed short-term benefits currently[33]—this ambivalent relationship between innovation and antitrust places the "competition-innovation debate"[34] in an open-ended discussion.[35] The relationship between antitrust enforcement and innovation has never been straightforward and settled: many academics' and practitioners' debates questioned the level of innovation allowed by antitrust enforcement.[36] Empirical evidence stays inconclusive as Gilbert rightly recaps:

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30 *See* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources to Invention*, *in* THE RATE AND DIRECTION OF ECONOMIC ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609 (1962). Classically, Arrow's perspective is said to be opposite to the one adopted by Schumpeter, although this taxonomy may be exaggerated, and a "middle ground" can be attained. *See* Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull's Eye?*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED 361 (Josh Lerner & Scott Stern eds., 2012); MASSIMO MOTTA, COMPETITION POLICY: THEORY AND PRACTICE 54 (2004); Michael Peneder & Martin Woerter, *Competition, R&D and Innovation: Testing the Inverted-U in a Simultaneous System*, 24 J. EVOLUTIONARY ECON. 653 (2014).

31 Jean Tirole, The Theory of Industrial Organization (John Bonin & Hélène Bonin trans., 1988).

32 Id.

33 *See* F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 426 (Edward Jaffe, Theresa M. Ludwig & Trisha Nealon eds., 2d ed. 1980) ("[B]ecause the competitor has an incentive to expand output further following a cost reduction, its quasi-rent increment exceeds that of the monopolistic firm . . . This extra margin might just tip the balance between innovating and not innovating, and so we should expect competitive producers to adopt new cost-reducing processes somewhat more readily than firms with monopoly powers, other things being equal.").

34 *See* Richard J. Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition--Innovation Debate?*, *in* 6 INNOVATION POLICY AND THE ECONOMY 159 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2006).

35 *See* Douglas H. Ginsburg & Joshua D. Wright, *Dynamic Analysis and the Limits of Antitrust Institutions*, 78 ANTITRUST L. J. 1, 4 n.14 (2012) (quoting Richard J. Gilbert, *Competition and Innovation*, *in* 1 ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW AND POLICY 577, 583 (W. Dale Collins ed. 2008) ("[E]conomic theory does not provide unambiguous support either for the view that market power generally threatens innovation by lowering the return to innovative efforts nor the Schumpeterian view that concentrated markets generally promote innovation."). Gilbert, *supra* note 34 ("[E]conomic theory does not offer a prediction about the effects of competition on innovation that is robust to all of these different market and technological conditions"). *See also* Morton I. Kamien & Nancy L. Schwartz, *Market Structure and Innovation: A Survey*, 13 J. ECON. LITERATURE 1 (1975); SCHERER, *supra* note 33, at 414–15.

36 *See*. Geoffrey A. Manne and Joshua D. Wright, *Innovation and the Limits of Antitrust*, 6 J. COMPETITION L. & ECON. 153, 166 (2010). One direct implication of such ambivalent relationship is the bias toward false positive within the error-cost framework, as discussed below, since "this bias toward Type 1 error is skewed further only by the fact that, as a general rule, economists know much less about the relationship between competition and innovation, and in turn, consumer welfare, than they do about standard price competition." *Id.*

> The empirical literature does not support a conclusion that large firms promote innovation because they provide large and stable cash flows, economies of scale (above some threshold), or risk diversification. This is contrary to Schumpeter's argument that monopoly can promote innovation by providing a "more stable platform" for R&D. At the same time, neither theory nor empirical evidence supports a strong conclusion that competition is uniformly a stimulus to innovation. There is little evidence that there is an optimal degree of competition to promote R&D. Empirical studies that use market concentration as a proxy for competition fail to reach a robust conclusion about the relationship between market concentration and R&D when differences in industry characteristics, technological opportunities, and appropriability are taken into account.[37]

The inconclusiveness of the empirical literature is further jumbled with the recent rise of digital platforms and algorithm-driven companies,[38] the adjustments of competition policies to multi-sided markets where innovation, disruptive business models where zero-priced products and services question the fundamental principles of antitrust enforcement, the relationship between antitrust and innovation has further strengthened this tension.[39] Market concentration, including firms' consolidation, is conducive to greater innovative outputs[40] as innovation incentives bear a nonlinear relationship to industry characteristics.[41] Clearer details of this nonlinear relationship have been provided seminally by Aghion.[42]

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37 *See* Gilbert, *supra* note 34, at 205–206 (2006). Gilbert developed these arguments in Innovation Matters: Competition Policy for the High-Technology Economy. Richard J. Gilbert, Innovation Matters: Competition Policy for the High-Technology Economy (2020).

38 *See* FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT (1921) (explaining a changing environment increases the "true" uncertainties surrounding antitrust enforcement).

39 *See* Ginsburg, *supra* note 35, at 12 ("Economic science has not provided a way to make reliable and accurate predictions of this nature, nor even more general predictions concerning changes in market structure and levels of innovation. As with static-versus-dynamic welfare tradeoffs, in the absence of reliable knowledge or generally accepted theory, antitrust institutions wisely refrain from making predictions about the evolutionary path or competitive significance of innovations or new products generally or in any particular relevant market.").

40 *See* Richard Levin & Peter C. Reiss, *Tests of a Schumpeterian Model of R&D and Market Structure*, *in* R&D, PATENTS, AND PRODUCTIVITY 175 (Zvi Griliches ed., 1984) (evidencing returns to process R&D are increased with market concentration); John Lunn & Stephen Martin, *Market Structure, Firm Structure, and Research and Development*, 26 Q. REV. ECON. & BUS. 31 (1986) (arguing R&D expenditures are increased when market shares increase); EDWIN MANSFIELD ET AL., THE PRODUCTION AND APPLICATION OF NEW INDUSTRIAL TECHNOLOGY (1977) (finding some evidence of positive correlation of R&D expenditures at low levels of market concentration, but no significant effect of concentration otherwise).

41 Gilbert, *supra* note 34, at 195.

42 Philippe Aghion et al., *Competition, Imitation and Growth with Step-by-Step Innovation*, 68 REV. ECON. STUD. 467 (2001); Philippe Aghion et al., *Competition and Innovation: An Inverted-U Relationship*, 120 Q. J. ECON 701 (2005); Philippe Aghion et al., *The Causal Effect of Competition on Innovation: Experimental Evidence*, 34 J. L. ECON. & ORG. 162 (2018). *See also* Jan Boone, *Competitive Pressure: The Effects on Investments in Product and Process Innovation*, 31 RAND J. ECON. 549 (2000); Jan Boone, *Intensity of Competition and the Incentive to Innovate*, 19 INT'L J. INDUS. ORG. 705 (2001); Giulio Federico, Gregor Langus, Tommaso Valletti, *A Simple Model of Mergers and Innovation*, 157 ECON. LETTERS 136 (2017) (critiquing the inverted-U relationship); Massimo Motta and Emanuele

Increased competition has three types of effects on innovation incentives. First, it should foster innovation in "neck-and-neck sectors" where firms face similar technological levels – here, incremental profits derived from innovation provide the incentives to innovate. Second, increased competition has a short-term "Schumpeterian effect"[43] – here, laggard firms are disincentivized from innovating since they will not reap off the sector's post-innovation rents' leader. Third and finally, increased competition generates an "anticipated escape-competition effect" by which laggard firms' innovation incentives expect to surpass the sector's leader through anticipated post-innovation rents. These three stages of the relationship between competition and innovation lead to sketching out an inverted-U relationship between increased competition and incentives to innovate: this relationship reflects the fact that competition first discourages laggard firms from innovating, but then, the increased competition encourages neck-and-neck firms to innovate to escape competition with their rivals (the so-called "escape-competition effect").

More generally, antitrust enforcement is concerned with the efficiency of the market – be it allocative, productive, and dynamic efficiency that is materialized by innovation.[44] Pursuing these three types of efficiencies simultaneously proves to be a herculean task entrusted to antitrust enforcement.[45] The tension between competition and innovation appears to intensify in the digital era. For instance, it may become harder to strike an optimal balance between competition and innovation, especially when a wealth of intellectual property rights (IPRs) enables innovation while excluding potential competitors from exerting the beneficial competitive constraints. Disruptive innovation, inherent to digital markets, becomes hampered when extensive IPRs prevent firms from developing their apps and

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Tarantino, *The Effect of Horizontal Mergers, When Firms Compete in Prices and Investments* (Barcelona Graduate Sch. Econ., Working Paper No. 987, 2017); Shapiro, *supra* note 30; Peneder, *supra* note 30.

43 Michael L. Katz & Howard A. Shelanski, 'Schumpeterian' Competition and Antitrust Policy in High-Tech Markets, 14 COMPETITION 47 (2005).

44 Competition is an evolutionary process, therefore requiring the dynamic efficiency criterion to be better considered. *See* HAYEK, *supra* note 27, at 94 ("[C]ompetition is by its nature a dynamic process whose essential characteristics are assumed away by the assumptions underlying static analysis."). *See also* ISRAEL M. KIRZNER, *The Market as a Discovery Process*, *in* DISCOVERY, CAPITALISM, AND DISTRIBUTIVE JUSTICE 72 (1989); Pedro Bento, *Competition as a Discovery Procedure: Schumpeter Meets Hayek in a Model of Innovation*, 6 AM. ECON. J. 124 (2014); Friedrich Hayek, Lecture to the Memory of Alfred Nobel (Dec. 11, 1974).

45 In that regard, F. M. Scherer had long confirmed this ambiguity when he stated that "Schumpeter was right in asserting that perfect competition has not title in being established as the model of dynamic efficiency . . . . What is needed for rapid technological progress is a subtle blend of competition and monopoly, with more emphasis in general on the former than the latter, and with the role of monopolistic elements diminishing when right technological opportunities exist." SCHERER, *supra* note 33, at 426. *See also* Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, 2 HANDBOOK INDUS. ORG. 1059 (Richard L. Schmalensee & Robert D. Willig eds., 1989).

platforms and competing with incumbents who enjoy IPRs.[46] As an illustration, one famous example is the Apple's touchscreen of iPhones, which have been patented by the company so much so that every time a manufacturer (say, Samsung) wants to produce a smartphone with a touchscreen, license payments from the manufacturer to Apple need to be agreed upon.[47] Is that desirable from a social point of view? Are competition and innovation optimally incentivized, or is competition lessened (due to financial payments tantamount to monopoly rents) and innovation deterred (due to a monopolistic position on touchscreen over a period)? [48]

As Gilbert advocates, antitrust enforcement "should evolve from being price-centric to innovation-centric" so that competition and innovation are maximized without overlooking the innovation dynamics inherent to some novel business practices. Intellectual property rights may not unduly prevent competition over innovations.[49] To that extent, a risk-averse, precautionary-inspired antitrust policy may further reinforce some firms' inability to compete over innovation and innovatively compete in the market, as discussed below in Part III.

Another illustration is provided with the well-known issue related to the dual role of the platform: the platform disruptively innovates concerning incumbents and thus contribute to enhanced competition at the first phase of development, but later interferes with downstream competition by out-competing downstream players thanks to its unparalleled place in the second phase of development. This latter phenomenon is oft-referred as a conflict of interest in the digital world where you have the platform acting both as umpire and player. One example is provided with the cab-lifting platform

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[46] Alexandre de Streel & Pierre Larouche, *Disruptive Innovation and Competition Policy Enforcement*, (Org. Econ. Coop. & Dev., Working Paper DAF/COMP/GF(2015)7, 2015) (using extensive IPRS to point out "established firms, when they are able to spot the threat of a disruptive innovation, may render the . . . phases of disruption more difficult.").

[47] Steven Musil, *Apple's Touch-Screen Patent Upheld by U.S. Patent Office*, CNET, https://www.cnet.com/news/apples-touch-screen-patent-upheld-by-us-patent-office/ (Oct. 17, 2013, 4:11 PM) (detailing Apple filed for the patent in April 2008 on behalf of Steve Jobs and 24 other people as patent-holder. This patented technology has not prevented "patent wars" until recent patent lawsuits). *See* Mike Peterson, *Apple Seeking to Invalidate Touchscreen Patents Used Against it in the Case*, APPLE INSIDER, https://appleinsider.com/articles/20/06/12/apple-seeking-to-invalidate-touchscreen-patents-used-against-it-in-lawsuit (June 12, 2020); Kirsten Errick, *Microsoft, Dell, Samsung, and LG Sued for Touch Screen Patent Infringement*, LAW STREET, https://lawstreetmedia.com/news/tech/intellectual-property/microsoft-dell-samsung-and-lg-sued-for-touch-screen-patent-infringement/ (2020).

[48] For a more general discussion on the way IPRs and patents can be used anti-competitively, *see* Org. Econ. Coop. & Dev. [OECD], *Competition, Patents and Innovation II*, at 16, DAF/COMP(2009)22 (Apr. 1, 2010), https://www.oecd.org/daf/competition/45019987.pdf (2009) ("Cross-licensing agreements and licensing pools are usually efficient and pro-competitive. There are a number of ways in which pending patents could be used anti-competitively in these arrangements, though. These include entry deterrence and patent flooding scenarios where a dominant firm files a large number of poor quality patent applications with the aim of either keeping a rival out of the market or forcing it to cross-license its valuable technology.").

[49] Gilbert, *supra* note 34, at 235.

Uber: initially, it disrupted the market of taxi drivers through an innovative platform. Uber drivers must possess commercial insurance, a car, and a taxi license.[50] Later, Uber introduced Uberpop (now UberX), which out-competed with the initially registered Uber drivers on cheaper prices (and perhaps the lower quality of services): Uberpop drivers do not need to have a taxi license or commercial insurance.[51] Is Uberpop both a competitive and innovative service provided by Uber? Should Uber not have interfered with downstream competition to retain a neutral role without distortion of competition and the absence of an "innovative" service? The alleged conflict of interests and associated difficulty in designing antitrust enforcement in this area are more recently and more prominently illustrated with the antitrust investigations against Amazon on both sides of the Atlantic. Reprimanded by a political leader[52] and antitrust enforcers,[53] Amazon's practices of being both a platform (enabling for downstream competition through innovative digital tools) and a seller (acting on downstream competition due to its

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50 Michele Capagnano, *The ECJ's Ruling on Uber: A New Room for Regulating Sharing Platforms?* 1 ITALIAN ANTITRUST REV. 121, 130–33 (2018) (noting the balance between regulation and prohibition "will be likely replicated in other sectors subject to 'uberalization' and/or 'amazonization' so the risk that a conservative approach will paralyze the innovation in Europe is still high.").

51 This lax framework brought rivals to sue Uber in courts in Europe, and finally win over the introduction of the new service Uberpop. *See* Michele Sinner, *Uber faces criminal charges in France for its UberPOP service following E.U. court ruling*, VENTUREBEAT (Apr. 10, 2018, 2:09 AM), https://venturebeat.com/2018/04/10/uber-faces-criminal-charges-in-france-for-its-uberpop-service-following-eu-court-ruling/.

52 Interview with Elizabeth Warren, Senator, Massachusetts (December 4, 2020) ("My view on that one is that really you can be the umpire in the baseball game or you can have a team in the baseball game, but you don't get to do both at the same time. So breaking the platform off from the competitive business, yeah, that would give a lot of small businesses a much more level playing field and ability to compete"), https://www.nytimes.com/interactive/2020/01/14/opinion/elizabeth-warren-nytimes-interview.html; Astead W. Herndon, *Elizabeth Warren Proposes Breaking Up Tech Giants Like Amazon and Facebook*, N.Y. TIMES (March 8, 2019), https://www.nytimes.com/2019/03/08/us/politics/elizabeth-warren-amazon.html.

53 European Commission Press Release IP/19/4291, Antitrust: Commission Opens Investigation into Possible Anti-competitive Conduct of Amazon (July 19, 2019) (Vice-President Vestager, in charge of the Competition at the European Commission, arguing she has "decided to take a very close look at Amazon's business practices and its dual role as marketplace and retailer . . . ."), https://ec.europa.eu/commission/presscorner/detail/en/ip_19_4291; Valentina Pop & Sam Schechner, *Amazon to Face Antitrust Charges From E.U. Over Treatment of Third-Party Sellers*, WALL ST. J. (June 11, 2020, 5:21 PM), https://www.wsj.com/articles/amazon-to-face-antitrust-charges-from-eu-over-treatment-of-third-party-sellers-11591871818; Simon Van Dorpe, *What to Look for in the European Union Charges Against Amazon*, POLITICO (June 14, 2020, 10:33 PM), https://www.politico.com/news/2020/06/14/european-union-amazon-charges-319176; Fatema Patrawala, *E.U. Commission Opens an Antitrust Case Against Amazon on Grounds of Violating E.U. Competition Rules*, PACKT (July 17, 2019, 8:22 AM), https://hub.packtpub.com/eu-commission-opens-an-antitrust-case-against-amazon-on-grounds-of-violating-eu-competition-rules/ (2019) (quoting the then Chief Economist at the E.U. Commission who tweeted "[F]ollowing Senator Warren . . . we have just opened an investigation into Amazon's businesses practices, in particular its use of data." Tommaso Valletti (@TomValletti), TWITTER (July 17, 2019, 5:54 AM), https://twitter.com/TomValletti/status/1151430006209482752).

innovativeness) illustrate the revised tension between competition and innovation in the digital era.

On the one hand, the competitive constraints are fostered by Amazon's offering lower prices than downstream rivals, thereby increasing competition in these markets. On the other hand, the insider's advantage and market dominance enjoyed by Amazon may prevent downstream sellers or entrants from innovating and entering the markets, given the sheer ability of Amazon to quickly out-compete them thanks to strong financial capacities. Is Amazon competitive by out-competing downstream rivals, or is Amazon killing innovation in the downstream market through its dual role? The digital era seems to bring the tension between innovation and competition to the next level: the level of assessing counterfactuals without benchmarks in rapidly evolving and poorly defined digital markets.[54] The multisidedness of markets may also mean that some digital businesses' conduct may decrease competition on one side of the market while incentivizing innovation on the other side of the market, increasing competition and reducing innovation simultaneously. Undoubtedly, digital markets bring intensified difficulties to weigh out competitive and innovative implications of one isolated-studied business conduct.[55]

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[54] *See, e.g.,* Lina Khan, *The Separation of Platforms and Commerce*, 119 COLUM. L. REV. 973 (2019) (citing investors to conclude that "[a]necdotal evidence suggests that both actual entry and the threat of entry by digital platforms into platform-adjacent markets is dampening investment in complementary segments, now known as a 'kill-zone.'"). On the other hand, for the perspective of leveraging theory, *see* Patrick Todd, *Digital Platforms and the Leverage Problem*, 98 NEB. L. REV. 486 (2019). Some authors describe the ambiguous relationship the platform can endure with its downstream customers/rivals as a "frenemy relationship". *See* ARIEL EZRACHI & MAURICE STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY (2016). Some authors have referred to this phenomenon as "predatory innovation.".

[55] *See* Nicolai Van Gorp & Olga Batura, *Challenges for Competition Policy in a Digitalised Economy*, at 50, Eur. Parl. Comm. on Econ. & Monetary Affairs (Pol'y Dep't A: Econ. & Sci. Pol'y, Study IP/A/ECON/2014-12, 2015) ("Digitalisation of the economy creates many challenges for policy makers . . . These challenges do not concern the basic principles of E.U. competition law but the analytical steps and instruments that are used to assess the relevant market and dominance."), https://www.europarl.europa.eu/RegData/etudes/STUD/2015/542235/IPOL_STU%282015%29542235_EN.pdf. As pointed out by the European Commission itself, it needs to be reminded that the swiftness of innovation cycles (i.e., probability of disruptive innovation to materialize) in digital markets implies that sub-optimal competitive environments may not prevent (but rather evidence) innovation: "[i]n fast-growing sectors characterised by short innovation cycles, large market shares may sometimes turn out to be ephemeral and not necessarily indicative of a dominant position." Commission Decision AT.39740, Google Search (Shopping), ¶ 267 (EC), https://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf. "Both theoretical and empirical research on the link between market structure and innovation is not conclusive, even though a 'middle ground' environment, where there exists some competition but also high enough market power coming from the innovative activities, might be the most conducive to R&D output." MOTTA, *supra* note 30, at 54. Nevertheless, the inverted-U relationship referred to above seems empirically evidenced. *See* Peneder, *supra* note 30.

Nevertheless, against the background of an inverted-U relationship between competition and innovation,[56] antitrust enforcement must ensure that it is conducive not only to consumer welfare – by minimizing consumer harm and an innovative environment, the minimization of innovation deterrence.[57] Unfortunately, the current framework within which antitrust fits in – namely the error-cost framework – provides some guidance but with little persuasiveness concerning a sought-after innovation-based antitrust enforcement.

B. *Error-Cost Framework – The Need for an Alternative Explanation*

Frank Easterbrook seminally proposed the error-cost framework to better explain and reform antitrust enforcement.[58] According to Easterbrook, antitrust decisions either fall within Type I error (false positives) or Type II errors (false negatives). False positives portray the regulatory costs of intervening excessively while the benefits (consumer and innovation benefits) derived from the alleged anti-competitive conduct are greater than its associated costs. False negatives portray the regulatory costs of non-intervention. In contrast, the alleged anti-competitive conduct costs are greater than the benefits reaped out of such conduct's regulatory redress.[59]

The error-cost framework proposed by Easterbrook has proven to be of considerable influence in shaping following antitrust rules and practices. It has been compellingly contended that Type I errors (false positives) tend to be costlier than Type II errors (false negatives) because the path-dependency

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[56] For the relative futility to try fully apprehending the exact relationship between innovation and competition, *see* Shapiro, *supra* note 30, at 363 ("[W]e do not need a universal theory of the relationship between competition and innovation . . . [because] the Arrow and Schumpeter perspectives are fully compatible and mutually reinforcing."); C. Scott Hemphill, *Disruptive Incumbents: Platform Competition in an Age of Machine Learning*, 119 COLUM. L. REV. 1973, 1989–93 ("Arrow and Schumpeter coincide in their attitude toward innovative efforts *outside the home market* of the incumbent . . . This reconciliation is illustrated by leading platforms' aggressive forays outside of their home markets. For example, . . . Amazon has built [Amazon Web Services] into an important business selling storage and computing power to other firms. . . . [Such examples] illustrate a complementarity in production, whereby a large firm's core operations create capabilities that are profitably deployed elsewhere."). Gilbert qualifies the U-inverted relationship between competition and innovation from an empirical perspective. Gilbert, *supra* note 34, at 62.

[57] Innovation deterrence can be referred to as the barriers for the necessary knowledge to spontaneously emerge from a competitive process, as explained seminally by Friedrich Hayek. FRIEDRICH A. HAYEK, *Competition as a Discovery Procedure*, *in* NEW STUDIES IN PHILOSOPHY, POLITICS, ECONOMICS AND THE HISTORY OF IDEAS 179 (1978).

[58] First referred to by Richard Posner, the error-cost framework has been detailed in antitrust by Easterbrook. Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984). *See* Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1973); Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257 (1974).

[59] *See* Howard Shelanski, Information, Innovation, and Competition Policy for the Internet, 161 UNIV. PA. L. REV. 1663 (2013).

effect of entrenched rules is stickier than the market's ability to auto-correct false negatives.[60] False positives and false negatives proposed by The error-cost framework intend to map out cases of over-deterrence (of beneficial and innovative conduct) and cases of under-deterrence (of harmful and restrictive behaviors). Antitrust enforcement reformers propose changing the antitrust policy within the error-cost framework from false negatives to more false positives but without waving off the detrimental effects of false positives.[61] Critics contend that the error-cost framework suffers pitfalls "because the deterrence consequences of legal errors depend partly on how those errors affect the marginal costs and benefits of conduct undertaken in the shadow of the law."[62]

Applied to digital markets, the error cost framework is under attack for its diminished relevance given the sector's intrinsic characteristics. Indeed, in the Crémer Report, the authors recommend that the European commission departs from the error cost framework; because these characteristics have "changed the balance of error costs and implementation costs, such that some modifications of the established tests, including the allocation of the burden of proof and the definition of the standard of proof, may be called for."[63] The authors suggest that the inadequacy of the error cost framework applied to digital markets pertains to the need for a shift from over-estimated Type I errors to under-estimated Type II errors: antitrust enforcers may exaggerate the probability of creating false positives. Simultaneously, they may excessively discard the risks of false negatives when antitrust enforcement is applied to digital markets. Indeed, the authors invite antitrust enforcers to

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60 *See* Fred S. McChesney, *Easterbrook on Errors*, 6 J. COMPETITION L. & ECON. 11, 14–16 (2010); Manne & Wright, *supra* note 36, at 157, 158–59 ("At its core, the error-cost framework is a simple but powerful analytical tool that requires inputs from state-of-the-art economic theory and empirical evidence regarding the competitive consequences of various types of business conduct and produces outputs in the form of legal rules").

61 *See, e.g.*, Kevin A. Bryan & Erik Hovenkamp, *Startup Acquisitions, Error Costs, and Antitrust Policy*, 87 UNIV. CHI. L. REV. 331, 334 & 350 (2020) (arguing for expanded antitrust interventions in startup acquisitions by dominant incumbents) ("Consequently, society may benefit from a policy that permits limited intervention based on reasonably ascertainable evidence, even if this carries some risk of false positives.") ("[H]ypothetical intervention would have to be predicated on less precise economic evidence than courts usually demand, creating some risk of false positives. But that does not mean that such a policy could not improve upon on the status quo. . . . [T]here is no good reason the maintain the traditional view that false positives are more problematic than false negatives.") Erring on false positives for the sake of no longer erring on false negatives constitutes a limited rationale in terms of convincing legal basis.

62 Jonathan B. Baker, *Taking the Error out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right*, 80 ANTITRUST L. J. 1, 37–38 (2013) (lamenting that the Chicago School's antitrust program's assumptions "systematically overstate the incidence and significance of false positives, understate the incidence and significance of false negatives, and understate the net benefits of various rules by overstating their costs."). *See also* Shelanski, *supra* note 59.

63 Jacques Crémer, Yves-Alexandre de Montjoye & Heike Schweitzer, *Competition Policy for the Digital Era*, at 4, Eur. Comm'n Directorate-General for Competition, (May 20, 2019), https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

"err on the side of disallowing potentially anti-competitive conducts and impose on the incumbent the burden of proof for showing the pro-competitiveness of its conduct."[64] The recommended shift from one error (perceived false negatives) toward a different kind of error (accepted false positives) is unsatisfactory and problematic.

Unsatisfactory because the sought-after false positives imply reneging on fundamental legal principles that constitute the rule of law and ensure legal certainty, such as the unreversed burden of proof, the one who brings accusations must show them first. Also, a lowered evidence standard may question the relevance. It may revert to gut feeling where discretionary (and politically motivated) antitrust decisions prevailed in the U.S. and the E.U. The weakening of the evidentiary standards (burden and standard of proof) associated with the advocated shift from one type of error to another is legally and economically unsatisfactory.[65] Problematic, this shift stands for the desire to enforce competition law erring on the other side without providing an ethical basis for this advocated change. Indeed, to what extent and how can a legal error be justified if adopted purportedly? The recommendation to err on false positives does not constitute a legitimate legal basis for adopting such policy; law errors still are inexcusable.[66] The case for erring on another side than the one we have allegedly erred into so far does not heighten legitimacy in the advocated reforms' ethical basis.

Instead, we argue that the error-cost framework is still an essential conceptual tool to resort to in antitrust cases. Nevertheless, the error-cost framework provides a limited solution to the earlier problem. We argue that the error-cost framework is of little help to reaching pro-innovative antitrust decisions for a simple reason: arguing that a regulator or a judge has committed a Type I error (false positives) and has thus inhibited desirable conduct and innovative endeavors is of no help to convincingly justify why one should prefer committing Type II errors (false negatives) rather than

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64 Id.

65 *See* Easterbrook, *supra* note 58. The widespread recognition that false positives are presumed to be costlier than false negatives is also disregarded in the advocated shift of errors. Indeed, because of the stickiness of legal errors as opposed to the adaptive correction of competitive forces, false positives are more damaging in terms of mistaken deterrence of beneficial conducts compared to false negatives. *But see* Andrew I. Gavil & Steven C. Salop, *Probability, Presumptions and Evidentiary Burdens in Antitrust Analysis: Revitalizing the Rule of Reason for Exclusionary Conduct*, UNIV. PA. L. REV., (forthcoming Jan. 2020) (manuscript at 45) ("The enforcement agencies and the courts also have become more knowledgeable and experienced in evaluating economic evidence. For this reason, it makes sense today to assume that the error costs from false positives and false negatives are relatively equal."), https://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=3236&context=facpub.

66 The law maxim error *juris non excusat* prevents errors to be legally ethical and thus acceptable. Furthermore, error implies a mistaken flaw, an unconsciousness. But, the legal error advocated here when suggestions to err on false positives supposes a conscious act of erring: thus, it is more precisely a legal fault, engaging enhanced legal liability, rather than an unconscious legal error. In many ways, the legal error remains problematic from a legal ethics standpoint.

Type I errors.[67] Both are errors – irrespectively of their economic costs yet. Indeed, from a legal and ethical perspective, leaving one type of error to adopt a different kind of error does not make decisions and judgments more legally attractive and desirable. We are still in the realm of errors leading to injustice for those subject to these errors. It cannot be a convincing argument to induce decision-makers to shift from one kind of error to another.

Moreover, it cannot be a convincing argument for regulators and judges to leave one error to indulge another error to market actors. Our legal orders' goal is to avoid injustices arising from mistakes, not to convince us that one error type is more appealing than another. Consequently, the error-cost framework, albeit helpful for understanding the implications of antitrust cases, becomes helpless in supplying convincing justifications for shifting the practice of antitrust towards a more innovation-based competition policy since the ethical dilemma between the two types of errors remains unresolved.

Most importantly, the error-cost framework inherently holds a fundamental flaw in its normative dimension.[68] The error-cost framework can hardly be conducive to significant changes in cases of disagreements amongst decision-makers and scholars. This holds that, for the error-cost framework to be practical, the decisionmaker (regulator or judge) needs, as a prerequisite, to acknowledge and recognize it has previously made an error. Such an unlikely event is of little help to reform a practice from one error type to another. Regulators and judges rarely, if not never, assess cases twice: either a different body (e.g., judicial review) or the same body formed differently, which may check the validity of the decision delivered. Therefore, how can a regulator or judge recognize he has made a Type I error (false positives).

Lawyers have a limited repute for admitting they have caused legal errors by their judgments. Consequently, the error-cost framework prevalent in antitrust practice provides only limited solutions for the innovation-based antitrust legitimately sought-after. For, there cannot be a shift from Type I errors (false positives) to Type II errors (false negatives), let alone the ethical issues of shifting from a legal mistake to another one, since no error shall be presumably admitted to having been generated on the first place. How can one redress an "error" if no error is confessed?

Consequently, despite the error-cost framework's usefulness as a descriptive tool, this framework is limited as a normative tool. The emergence of an innovation-based antitrust cannot arise with such a negatively connoted expression of "erring" one side or another. Therefore, there is a need to better explain, with less negatively connoted expressions such as "false positives" and "errors," that antitrust has embarked on an

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[67] Except the argument mentioned earlier that Type I errors are costlier than Type II errors because of legal entrenchments.

[68] The positive dimension of the error-cost framework, as abovementioned, is helpful nevertheless because it provides a better understanding of antitrust decisions' consequences.

insufficiently innovative approach in light of the blossoming digital economy we live in. Furthermore, there is a need to explain why some who advocate for the more interventionist changes in antitrust enforcement do not accept negatively connoted expressions such as false positives. There is a need to conceptualize the ongoing shift from the status quo towards novel, yet appealing for some, antitrust tools and thinking.

In other words, the shift of antitrust enforcement cannot be explained by a shift from false negatives to false positives. Advocates of aggressive antitrust enforcement do not recognize erring on the side of interventions. Instead, advocates of aggressive antitrust enforcement exhibit a *preference*, rather than an *error*, toward precaution over innovation. The debate no longer takes place on the economics of antitrust enforcement (i.e., the comparative costs and efficiency of Type I errors and Type II errors) but rather on the subjective preference of regulation (i.e., the relative benefits of regulation over disruption).

For, antitrust enforcement is insufficiently innovation-based, whereby dynamic efficiency can be effectively propelled through better consideration of innovation arguments.[69] The needs to be a better explanation for the prevailing discourse in antitrust. This discourse questions the lessons derived from antitrust economics developed in the second half of the 20th century. Aimed at tech companies particularly, this discourse has given rise to a so-called "tech backlash"[70] after a period of acclaim the digital companies. Antitrust authorities and the dominant discourse have embarked on a counter-revolution, undoing the "antitrust revolution" ushered by the so-called Chicago School. The current tech backlash against GAFA – Google, Amazon, Facebook, Apple, and others– has been initiated by the so-called New Brandeisian Movement,[71] which put allegiance to the early 20th century

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[69] On the criticism of antitrust being too static-oriented, *see* Rupprecht Podszun, *The Arbitrariness of Market Definition and an Evolutionary Concept of Markets*, 61 ANTITRUST BULL. 121 (2016); Tony Curzon Price & Mike Walker, *Incentives to Innovate v Short-term Price Effects in Antitrust Analysis*, 7 J. EUR. COMPETITION L. & PRAC. 475 (2016); Christopher Pleatsikas & David Teece, *The Analysis of Market Definition and Market Power in the Context of Rapid Innovation*, 19 INT'L J. INDUS. ORG. 665 (2001); Sidak, *supra* note 18; David S. Evans & Keith N. Hylton, *The Lawful Acquisition and Exercise of Monopoly Power and its Implications for the Objectives of Antitrust*, 4 COMPETITION POL'Y INT'L 203 (2008); Wolfgang Kerber, *Competition, Innovation and Maintaining Diversity Through Competition Law*, *in* ECONOMIC APPROACHES TO COMPETITION LAW: FOUNDATIONS AND LIMITATIONS 173 (Josef Drexl, Wolfgang Kerber & Rupprecht Podszun eds., 2010); de Streel, *supra* note 46. *See generally* HAYEK, *supra* note 57.

[70] *See* Aurelien Portuese, *The Trans-Atlantic Tech Backlash: Convergence on GAFA Antitrust*, OXFORD COMPETITION L. BLOG (Sept. 11, 2019), https://oxcat.ouplaw.com/page/809.

[71] Tim Wu, After Consumer Welfare, Now What? The 'Protection of Competition' Standard in PRACTICE, J. COMPETITION POL'Y INT'L (Columbia Pub. L. Research Paper, No. 14-608, 2018); Lina M. Khan, The New Brandeis Movement: America's Antimonopoly Debate, 9 J. EUR. COMPETITION L. & PRAC. 131 (2018); Lina M. Khan, Amazon's Antitrust Paradox, 126 YALE L. J. 710, 717 (2017); Marshall Steinbaum, Maurice E. Stucke, The Effective Competition Standard: A New Standard for Antitrust, 86 UNIV. CHI. L. REV. 595 (Univ. Tenn. Legal Stud. Research Paper, No. 367, 2019); Barry Lynn, The

Justice Louis D. Brandeis's legacy. In Europe, this tech backlash has materialized through the revival of the Ordoliberal tradition. The protection of the effective competitive structure, rather than consumer welfare, should be the goal of antitrust laws. This romanticizing of antitrust enforcement has paved the way for a transformational rethink of antitrust practice's goals, tools, and reasoning.[72]

Less innovation-based and more intervention-leaning, the New Brandeisian Movement revives a populist perspective on antitrust whereby false negatives are discounted in favor of false positives. This antitrust counter-revolution unearths both in the E.U. (materialized in the decisional practice) and in the U.S. (surfaced merely so far in political and academic debates, but numerous investigations flourish). This counter-revolution epitomizes a fundamental inclination towards a new antitrust approach that the superficial dichotomy of the negative expression "false positives/false negatives" of the "error-cost framework" does not grasp correctly. This novel approach does not consider itself " erring " or willing to shift from Type II errors to Type I errors for the ethical and legal reasons discussed above. Therefore, the current tech backlash we experience requires a better explanation with a less negatively connoted expression. We propose a new thesis to categorize this counter-revolution: antitrust has now embraced a precautionary approach.

C. *A New Thesis: The Precautionary Principle Has Entered Antitrust*

Recent antitrust practices and discourses have exposed the new aggressive stance on antitrust. Indeed, the traditional Chicago/economic approach to antitrust epitomized by the consumer welfare standard is progressively and forcefully rebutted in scholarship and litigation cases.[73] The rationale behind the new assertiveness in antitrust reflects the citizens' desire for greater precaution and their mounting skepticism toward

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Consumer Welfare Standard in Antitrust: Outdated or a Harbor in a Sea of Doubt?: Hearing Before Subcomm. on Antitrust, Competition Pol'y & Consumer Rts. of the S. Comm. on the Judiciary, 115th Cong. (2017) (statement of Barry Lynn, Executive Director, Open Markets Institute), https://www.judiciary.senate.gov/imo/media/doc/12-13-17%20Lynn%20Testimony.pdf.

72 On the return of the Brandeisian perspective, *see* Atkinson, *supra* note 22 (lamenting the return of Brandeis' vision described as "a small but intelligent and articulate school of neo-Brandeisians weeks to turn back the clock, if not to the era of anti-chain store laws and unit banking laws, at least to the heyday of the populist S-C-P era of the 1950s and 1960s, which treated even minor levels of concentration in markets as per se illegitimate and dangerous").

73 *See* Manne & Wright, *supra* note 36, at 153 (stating that there is "a movement away from error-cost analysis, impelled by the belief that antitrust intervention is essentially costless from a consumer-welfare perspective. This belief stands in stark contrast to Easterbrook's approach of assuming that errors are an inevitable and core feature of the antitrust enterprise. This new approach implies that over-deterrence is not a concern that should motivate either enforcement decisions or the design of liability rules").

innovation.[74] The New Brandeisian Movement is rooted in the populist approach to antitrust. At the same time, the European Ordoliberals forcefully idealize a perfectly competitive market structure, thereby privileging regulation over any innovation capable of upsetting such structure.[75] Both intellectual movements embody the current popular quest for protection and caution over progress and uncertainties.

This Article develops a new thesis to explain the recent developments in antitrust enforcement and discourse; the precautionary principle has surreptitiously entered antitrust. It is argued that the precautionary principle has already entered E.U. antitrust enforcement and is looming in U.S. antitrust enforcement. The U.S. has so far remained limited to debates. Still, rapid inspirational influences from the European decisional practice generate serious prospects of such precautionary antitrust to be soon implemented in the U.S.[76] More specifically, the precautionary logic in antitrust is present in the U.S. through the number of antitrust bills introduced and, most importantly, in the FTC's willingness to regulate competition ex-ante through rulemaking activity.[77]

The characteristics of the precautionary principle–namely risk-aversion and urgent interventionism in the absence of both certainties and harm–now prominently influence antitrust debates and enforcement on both sides of the Atlantic. The philosophical underpinnings of the precautionary principle are now prevalent in antitrust enforcement. This descriptive claim shall be discussed and evidenced at length in this Article. The more neutrally phrased explanation – precautionary antitrust – better explains recent antitrust debates and practices. Precautionary antitrust proves to be of superior explanatory power as compared to the judgmental error-cost framework. It offers a more objective, conceptually coherent paradigmatic explanation of the reasons underpinning the growing false positives tendency in antitrust enforcement, especially concerning digital markets. The debate has shifted from the dead-end over falsehood (false positives v. false negatives) in favor of a discussion over the level of "precautionism" (precaution v. innovation).

Alike the precautionary principle considered to be excessively risk-averse and detrimental to innovation (Part II), the precautionary antitrust,

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[74] This reminds us of the famous thought of Nobel Laureate Ronald Coase who once articulated seminally that: "if an economist finds something-a business practice of one sort or another-that he does not understand, he looks for a monopoly explanation. And as in this field we are very ignorant, the number of understandable practices tends to be very large, and the reliance on a monopoly explanation, frequent." Ronald Coase, *Industrial Organization: A Proposal for Research*, *in* POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION (Victor R. Fuchs ed., 1972).

[75] *See* Aurelien Portuese, Joshua Wright, *Antitrust Populism: Towards A Taxonomy*, 21 STAN. J.L. BUS. FIN. 131, 144 (2020); Aurelien Portuese, *Beyond Antitrust Populism: Robust Antitrust*, 40 J. ECON. AFF. 237, 241 (2020) at 241.

[76] *See* Sarah E. Light, *Precautionary Federalism and the Sharing Economy*, 66 EMORY L.J. 333, 333–394 (2017) (elaborating a similar extrapolation of the precautionary principle applied to digital markets but with respect to the U.S. federal system).

[77] *See* Portuese, *supra* note 8.

which comes to the fore, can be overcome with a more innovation-based antitrust (Part III). We shall then contemplate the normative claim according to which we should overcome precautionary antitrust with guiding principles to design more vigorous innovation-based antitrust enforcement (Part IV). Understanding current antitrust enforcement in digital markets will better reform antitrust enforcement in digital markets. As we live in an era of precautionary antitrust, we develop a path forward to a more innovation-based antitrust (Conclusion).

II. THE PRECAUTIONARY PRINCIPLE

Before introducing the notion of Precautionary Antitrust in the next Section, the present Section defines the Precautionary Principle (II.A), discusses the economic cost and innovation deterrence such principle incurs (II.B), and finally proposes to overcome the Precautionary Principle with a so-called Innovation Principle which addresses the excessive risk-aversion associated with the precautionary approach (II.C).

A. *The Definition of the Precautionary Principle*

The general principle of law,[78] decision-making norm when scientific uncertainties arise[79] 'a magic spell' principle[80] encouraging 'obscurantism,'[81] the precautionary principle hacks back from a shared fear amongst decision-makers of a catastrophe involving health, environmental, or social issues. 'Ill-defined,' the precautionary principle enjoys a 'philosophical reputation [which] is low.'[82] This precautionary approach towards (probable or hypothetical) risks originates with the precautionary principle[83] and is

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78 *See* Aurelien Portuese and Julien Pillot, *The Case for an Innovation Principle: A Comparative Law & Economics Analysis*, 15 MANCHESTER J. INT'L ECON. L. 214 (2018).

79 *See* David B. Resnik, *Is the Precautionary Principle Unscientific?*, 34 STUD. IN HIST. & PHIL. BIOLOGICAL & BIOMEDICAL SCI. 329, 330 (2003).

80 Philippe Kourilsky, Geneviéve Viney, *Le Principe de Précaution. Rapport au Premier Ministre*, ODILE JACOB :DOCUMENTATION FRANÇAISE, www.ladocumentationfrancaise.fr/var/storage/rapportspublics/004000402.pdf (1999); *see generally* Per Sandin, *Dimensions of the Precautionary Principle*, 5 HUM. ECOLOGICAL RISK ASSESSMENT 889 (1999).

81 Claude Birraux & Jean-Yves Le Déaut, *L'Innovation à l'Épreuve des Peurs et des Risques*, Rapport déposé à l'Assemblée Nationale et au Sénat le 24 janvier 2012, OFFICE PARLEMENTAIRE D'EVALUATION DES CHOIX SCIENTIFIQUES ET TECHNOLOGIQUES, at 183 (2012) (where the authors describe the 'fear of some innovations, and the rise of the new obscurantism').

82 Stephen M. Gardiner, *A Core Precautionary Principle*, 14 J. OF POL. PHIL. 33 (2006).

83 *See* Portuese & Pillot, *supra* note 78; Arie Trouwborst, Evolution and Status of the Precautionary Principle in International Law (2002).

informally even more ancient.[84] Nevertheless, the precautionary principle's ethical objectives[85] do not prevent the precautionary principle from being a legal principle[86] with detrimental economic consequences concerning innovation and investments. The precautionary principle has been first invoked in environmental treaties. The first textual reference to the precautionary principle hacks back to the Global Charter on Nature, in 1982, which tells that:

> Activities that are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh the potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed.[87]

Also, the word precaution is explicitly referred to in the Ministerial Declaration of 1987 following the Second Global Conference on the North Sea Protection wherein it is said that:

> Call upon the North Sea Ministers to apply the Precautionary Principle in the further development of the strategy to combat the eutrophication in the North Sea and to give impulses to the application of the source-oriented approach.[88]

The Second North Sea Conference Ministerial Declaration (London Declaration) explicitly referred to the principle three times:

> In order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence;
>
> . . . By combining . . . approaches based on emission standards and environmental quality objectives, a more precautionary approach to dangerous substances will be established;
>
> [The parties] therefore agree to . . . accept the principle of safeguarding the marine ecosystem of the North Sea by reducing polluting emissions of substances that are persistent, toxic and liable to bioaccumulate at source by the use of the best available technology and other appropriate measures. This applies especially when there is reason to assume that certain damage or harmful effects on the living resources of the sea are likely to be caused by such

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84 See Kenisha Garnett & David J. Parsons, Multi-Case Review of the Application of the Precautionary Principle, 37 EUROPEAN UNION LAW AND CASE, RISK ANALYSIS 502 (2017); S. Boehmer-Christiansen, The precautionary principle in Germany - enabling government, in INTERPRETING THE PRECAUTIONARY PRINCIPLE, 31–60 (Timothy O'Riordan & James Cameron eds., 1994).

85 Cass Sunstein, *Beyond the Precautionary Principle*, 151 UNIV. PA. L. REV. 1003, 1004–5 (2003).

86 *See* Owen McIntyre and Thomas Mosedale, *The Precautionary Principle as a Norm of Customary International Law*, 9 J ENV'T. L. 221 (1997); ARIE TROUWBORST, EVOLUTION AND STATUS OF THE PRECAUTIONARY PRINCIPLE IN INTERNATIONAL LAW (2002).

87 G.A. Res. 37/7, ¶ 11 b (Oct. 28, 1982).

88 Ministerial Declaration on the Protection of the North Sea, 14 ENVIRONMENTAL CONSERVATION 357, ¶ VII (1987).

> substances, even where there is no scientific evidence to prove a causal link between emissions and effects ('the principle of precautionary action').[89]

The famous Wingspread Declaration, from a meeting of environmentalists in 1998, details the implications of the precautionary principle concerning the shifting of the burden of proof:

> When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not established scientifically. In this context the proponent of the activity, rather than the public, should bear the burden of proof.[90]

The precautionary principle applies in the absence of certainties and actual harm and favors false positives over false negatives. This is justified in environmental treaties where the precautionary principle emerged because, as Talbot argued,[91] false positives cost money (economic cost), while false positives may cost lives (human cost). This lays at the heart of the justification for the precautionary principle despite such assertion being unevidenced. Indeed, as Cross argued,

> Given the asymmetry in the consequences of error, Page urged that we err on the side of preventing false negatives at the expense of some false positives. Yet his claimed asymmetry of consequences was essentially asserted without proof.[92]

Several international treaties gradually increased the references to the precautionary principle increased gradually in the 1990s in several international treaties. For instance, the precautionary principles will be present in environmental treaties such as the International Conference on the North Sea (1990), the Bergen Declaration following the Conference on Sustainable Development (1990), Vienna Convention on Ozone Layer, Agenda 21, Framework Convention on Climate Change, Principle 15 of Rio UN Declaration, and the Wingspread Conference (1998). In the United States, the precautionary principle appeared in the early nineties, notably with the Massachusetts Toxics Use Reduction Act of 1990 and the Clean Air Act of 1993. In Germany, the precautionary principle is a much better-entrenched principle of law as it has been referred to as early as the 1970s. The precautionary principle, remaining inherently a legal principle, had recognition in a limited number of texts in the World Trade Organization

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89 *Id.*

90 Cass R. Sunstein, The paralyzing principle: Does the Precautionary Principle point us in any helpful direction?, 25 REGULATION 32 (2005).

91 See Talbot Page, *A Generic View of Toxic Chemicals and Similar Risks*, 7 ECOLOGY L.Q. 207, 219–220 (1978).

92 Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851 (1996).

(WTO) law and European countries' national laws. Under WTO law, the precautionary principle has been received with caution by the Appellate Body.[93] However, statutory provisions have encapsulated the precautionary principle with a much welcoming approach. This is the case of the Cartagena Protocol on Biosafety of 2000, which represents a clear attempt to implicitly enshrine the precautionary principle into WTO Law as it is said that:

> Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism . . . shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism . . . in order to avoid or minimize such potential adverse effects.[94]

The Cartagena Protocol allows restrictions on imports whenever a risk assessment is carried out scientifically and considers recognized risk assessment techniques.[95] The precautionary measures to be adopted are, therefore, after a comprehensive risk assessment is conducted. To some extent, this provision avoids the adoption of protectionist measures on behalf of precaution. However, the burden of providing and paying for the risk assessments rests on the exporter.[96] Article 5(7) of the SPS Agreement allows for precautionary measures to be adopted only if:

> The situation to which safeguard measures can be applied suffers from "insufficient relevant scientific information";
>
> The adoption of safeguard measures must be based on "available pertinent information";
>
> The state imposing safeguard measures must "seek to obtain the additional information necessary for a more objective assessment of risk"; and

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93 Indeed, the Appellate Body has classically considered such recognition of the precautionary principle as a highly 'imprudent' in judicial instances since the legal valence of the precautionary principle under international law is 'less than clear'. For instance, *see* Appellate Body Report, *EC Measures Concerning Meat and Meat Products (Hormones)*, ¶ 123–124, WTO Doc. WT/DS48/AB/R (adopted Jan. 16, 1998) (where it is judged that "the status of the precautionary principle in international law continues to be the subject of debate among academics, law practitioners, regulators and judges. The precautionary principle is regarded by some as having crystallized into a general principle of customary international environmental law. Whether it has been widely accepted by Members as a principle of general or customary international law appears less than clear. We consider, however, that it is unnecessary, and probably imprudent, for the Appellate Body in this appeal to take a position on this important, but abstract, question. We note that the Panel itself did not make any definitive finding with regard to the status of the precautionary principle in international law and that the precautionary principle, at least outside the field of international environmental law, still awaits authoritative formulation.")

94 *See* Cartagena Protocol on Biosafety to the Convention on Biological Diversity art. 10(6), 11(8), Jan. 29, 2000, 2226 U.N.T.S. 208.

95 *See* Cartagena Protocol on Biosafety to the Convention on Biological Diversity art. 10(1), 15, Annex III, Jan. 29, 2000, 2226 U.N.T.S. 208.

96 *See* Cartagena Protocol on Biosafety to the Convention on Biological Diversity art. 15(2) –3), Jan. 29, 2000, 2226 U.N.T.S. 208.

> The state in question must "review the safeguard measure accordingly within a reasonable period."

Consequently, while not being written in the SPS Agreement as 'a ground for justifying SPS measures that are otherwise inconsistent with Members' obligations *to set out in particular provisions of that Agreement*, the precautionary principle 'finds reflections' in Article 5.7 of the SPS Agreement.[97]

More specifically, the European legal philosophy increasingly epitomizes a precautionary approach towards life, human actions, and corporate conduct.[98] Although considered not to "justify the adoption of arbitrary decisions,"[99] the precautionary principle remains "one of the most controversial principles in E.U. law."[100] Europeans have been eager to conceptualize the precautionary principle as a guiding principle for

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[97] *See EC Measures*, *supra* note 93, at ¶ 124.

[98] *See* Garnett & Parsons, *supra* note 84, at 502–516 (2017); Erik Persson, *What are the core ideas behind the Precautionary Principle?* 557–558 SCI. TOTAL ENV'T. 134, 134-141 (2016); K. H. Lardeur, *The Introduction of the Precautionary Principle into E.U. law: A Pyrrhic Victory for Environmental and Public Health Law? Decision-making under Conditions of Complexity in Multi-Level Political Systems*, 40 COMMON MKT. L. REV. 1455 (2003); Jonathan B. Weiner & Michael D. Rogers, *Comparing Precaution in the United States and Europe*, 5 J. RISK RSCH. 317, 317–349 (2002); David J. Vogel, Soloman P. Lee Chair Distinguished Professor Emeritus of Business Ethics, U.C. Berkeley, Risk Regulation in Contemporary Europe: an American perspective (Jan. 29, 2001); David J. Vogel, *Ships Passing in the Night: the Changing Politics of Risk Regulation in European and the United States* (EURO. UNIV. INST., ROBERT SCHUMAN CTR. ADVANCED STUD., Working Paper No. 16, 2001); Paul Slovic et. al., *Nuclear Power and the Public: a Comparative Study of Risk Perception in France and the United States*, *in* CROSS-CULTURAL RISKS PERCEPTION: A SURVEY OF EMPIRICAL STUDIES 55–102 (Ortwin Renn & Bernd Rohrmann eds., 2000); K. S. SHRADER-FRECHETTE, RISK AND RATIONALITY: PHILOSOPHICAL FOUNDATIONS FOR POPULIST REFORMS (1991).

[99] *See* Communication from the Commission on the Precautionary Principle, at 13 (COM 2000) 1 final (Feb. 2, 2000).

[100] Kai P. Purnhaghen, *The Behavioural Law and Economics of the Precautionary Principle in the E.U. and Its Impact on Internal Market Regulation*, 37 J. CONSUMER POL'Y 453, 454 (2014). On the interactions between the precautionary principle and the proportionality principle in the E.U. practice, *see* C-343/09, Afton Chemical Limited v. Secretary of State for Transport, ECLI:EU: C:2010:419, ¶ 53 (July 8, 2010); Case 54/85 Ministère Public v. Xavier Mirepoix, ECLI:EU:C:1986:123, ¶ 16 (Feb. 4, 1986); C-504/04, Agrarproduktion Staebelow GmbH v Landrat des Landkreises Bad Doberan, ECLI:EU:C:2006:30, ¶ 40 (Jan. 12, 2006). *See also* C-174/82 (1983) Sandoz BV. ECR 2445 (July 14, 1983); Elen Stokes, *The EC Court's Contribution to Refining the Parameters of Precaution*, 11(4) J. RISK RSCH. 491, 496 (2008); Giandomenico Majone, *What Price Safety? The Precautionary Principle and Its Policy Implications*, 40(1) JCMS J. COMMON MKT. STUD. 89, 89–109 (2002) (where the Netherlands wished to enforce a restriction on selling vitamin-fortified foods for human health purposes. Excessive intakes of vitamins could potentially be harmful to human beings, but uncertainties prevail as to the extent of this potential harmfulness. The Court of Justice sided with the Netherlands, which wished to protect its citizens as long as the restriction was deemed proportionate. More specifically, the case of Sandoz, while not applying the precautionary principle explicitly, nevertheless signaled the pervasiveness of this principle in the European legal thought subsumed with protectionism to some extent).

regulatory interventions in numerous sectors of societies[101] whenever there is a risk of irreversible damage.[102] The number of occurrences and the wide range of law areas where the precautionary principle is being invoked has never ceased to increase and expand.[103] The European Court of Justice recalled that the precautionary principle implied that, where there is scientific uncertainty as to the existence or extent of risks to human health or the environment,

> This principle allows the institutions to take protective measures without having to wait until the reality and seriousness of those risks become fully apparent or until adverse health effects materialize.[104]

Interestingly for antitrust purposes, the precautionary principle was formally inducted in E.U. law. It has immediately been concerning consumer-related activities, as early as the 13 April 1999 when the Council adopted a resolution urging the Commission

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101 *See, e.g.*, C-180/96 (1998) United Kingdom of Great Britain and Northern Ireland v Commission of the European Communities, ECLI:EU:C:1998:192, ¶ 63 (May 5. 1998) ("Where there is uncertainty as to the existence or extent of risks to human health, the institutions may take protective measures without having to wait until the reality and seriousness of those risks become fully apparent."); *See also* the *Green Paper on the General Principles of Food Law in the European Union*, COM ¶1 (1997) 176 final (Apr. 30, 1997) (stating that "The Treaty requires the Community to contribute to the maintenance of a high level of protection of public health, the environment and consumers. In order to ensure a high level of protection and coherence, protective measures should be based on risk assessment, taking into account all relevant risk factors, including technological aspects, the best available scientific evidence and the availability of inspection sampling and testing methods. Where a full risk assessment is not possible, measures should be based on the precautionary principle."); Marco Bocchi, *Is the E.U. really more precautionary than the US? Some thoughts in relation to TTIP negotiations*, EJIL: TALK! (Aug. 9, 2016), https://www.ejiltalk.org/is-the-eu-really-more-precautionary-than-the-us-some-thoughts-in-relation-to-ttip-negotiations/ (2016).

102 On the notion of irreversibility, *see* Neil A. Manson, *The Concept of Irreversibility: Its use in the Sustainable Development and Precautionary Principle Literatures*, 1 THE ELEC. J. SUSTAINABLE DEV. 3 (2007); Persson, *supra* note 98, at 137-38.

103 *See* Communication, *supra* note 99, at 8 (arguing that "however, when there are reasonable grounds for concern that potential hazards may affect the environment, or human, animal or plant health, and when at the same time the available data preclude a detailed risk evaluation, the precautionary principle has been politically accepted as a risk management strategy in several fields").

104 Press Release, General Court of the European Union, *Press Release No68/18* (May 17, 2018) (on file with author); *See* also Case T-13/99 Pfizer Animal Health SA v. Council of the European Union, 2002 E.C.R. II-3318, ¶ 142 (Sept. 11, 2002) (when the Court of First Instance argued that "in a situation in which the precautionary principle is applied, which by definition coincides with a situation in which there is scientific uncertainty, a risk assessment cannot be required to provide the Community institutions with conclusive scientific evidence of the reality of the risk and the seriousness of the potential adverse effects were that risk to become a reality").

> To be in the future even more determined to be guided by the precautionary principle in preparing proposals for legislation and in its other consumer-related activities and develop as a priority clear and effective guidelines for the application of this principle.[105]

The European Commission had immediately pulled the trigger for a wide-ranging application of the precautionary principle into European regulations with the Communication (2000) on the Precautionary Principle.[106] The Commission's approach to the precautionary principle was formally endorsed by the Council of Ministers' Nice Resolution, where they stated that the precautionary principle is justified

> Where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are 'reasonable grounds' for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection.[107]

While its presence in E.U. secondary law can hardly be comprehensively be counted given its wide application,[108] the E.U. precautionary principle suggests that there is a general duty to lean towards regulatory interventionism whenever there are uncertainty and threat of irreversible damage. Europeans' cautionary approach to regulations distinguishes them from, say, their American counterparts.[109] Indeed, the

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105 Communication from the Commission on the Precautionary Principle, *supra* note 99, at 24.

106 *See id.* at 7 (arguing that "whether or not to invoke the Precautionary Principle is a decision exercised where scientific information is insufficient, inconclusive, or uncertain and where there are indications that the possible effects on the environment, or human, animal or plant health may be potentially dangerous and inconsistent with the chosen level of protection").

107 *Id.*

108 *See*, for instance, Council Directive 01/18, 2001 O.J. (L. 106) (EC) (GMOs); Council Directive 09/127, 2009 O.J. (L. 310) (EC) (Pesticide Machinery); Council Regulation 1946/03, 2003 O.J. (L. 287) (GMOs); Council Directive 11/65, 2011 O.J. (L. 174) (EC) (Restriction of Hazardous substances); Council Regulation 178/02, 2002 O.J. (L. 31) (Food safety); Council Regulation 708/07, 2007 O.J. (L. 104) (Alien aquatic species); Council Directive 01/18, 2001 O.J. (L. Council Directive 13/30, 2013 O.J. (L. 178) (EC) (Offshore safety); Council Regulation 1334/08, 2008 O.J. (L. 354) (Usc of favouring's).

109 For instance, such dichotomy is illustrated at the international level, notably in the World Trade Organization (WTO). Article 5(7) of the WTO Agreement on Sanitary and Phytosanitary Agreement defines precaution. The Codex Alimentarius of the WHO are voluntary rules but WTO agreements refer to them. The E.U. constantly tries to introduce the precautionary principle in the Codex Alimentarius documents. The last attempt took place with the "Working Principles for Risk Analysis for Food Safety for Application by Governments" in 2007 does not explicitly refer to the "precautionary principle" due to resistance from the US. The final text refers to "precaution" with considerable borrowings from the definition of the precautionary principle. *See* Food and Agriculture Organization of the United Nations [FAO] & World Health Organization [WHO], *Working Principles for Risks Analysis for Food Safety for Application by Governments*, ¶ 12, CAC/GL 62-2007 (2007), https://www.fao.org/fao-who-codexalimentarius/shproxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B62 2007%252FCXG_062e.pdf; *see* MILIEU LTD, ASSER T.M.C., & PACE, CONSIDERATIONS ON THE APPLICATION OF THE PRECAUTIONARY PRINCIPLE IN THE CHEMICALS SECTOR 14 (Aug. 2011).

E.U. environmental policy is enshrined as being "based on the precautionary principle" according to Article 174 of the 1992 Maastricht Treaty on the European Union [now Article 191 of the Treaty Functioning of the European Union].[110]

In the U.S., the precautionary approach (rather than "principle") stemmed from two federal statutes as acknowledged by federal courts: the Clean Air Act[111] and the Endangered Species Act.[112] The U.S. has traditionally been reluctant to embrace a designed "precautionary principle," but this may not mean that the U.S. approach has been less precautionary than the E.U. concerning specific risks.[113] When assessing a wide range of sector-specific regulations, it is considered that "neither the E.U. nor the U.S. has been consistently more adherent to the precautionary principle, whether viewed over the last five years or the last 30 years".[114] Nevertheless, it is noticeable that European multiparty voting systems, as opposed to the American biparty voting system, have enabled third parties (such as the Green parties) to voice their concerns more effectively and directly influence the decision-making process.[115]

Because it is often better to be safe than sorry, the precautionary principle has provided regulators worldwide with a sufficiently malleable and quite powerful regulatory tool for risk minimization. The precautionary principle aims to minimize risks irrespectively of the benefits derived from the envisaged conduct or product.[116] Such a precautionary principle encapsulates the essence of the sheer reluctance to generate uncontrolled (and potentially unintended) consequences from individual and corporate behaviours.[117] In that regard, as a risk assessment tool, the precautionary principle is the opposite of a cost-benefit analysis whereby costs and benefits are weighed out to reach outcomes that yield net benefits.[118] The precautionary principle effectively focuses on charges exclusively, thereby

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110 Alan Doyle & Tom Carney, Precaution and Prevention: Giving Effect to Article 130r Without Direct Effect, 8 EUR. ENERGY & ENV'T REV 44, 45 (1999).

111 Clean Air Act of 1963, 42 U.S.C. § 7401; *See* Ethyl Corp. v. EPA, 541 F.2d 1, 13 (D.C. Cir. 1976) (concluding that "the 'will endanger' standard [stated in the legislation] is precautionary in nature and does not require proof of actual harm before regulation is appropriate").

112 Endangered Species Act 1973, 16 U.S.C. § 1531; *see* TVA v. Hill, 437 U.S. 153 (1978).

113 Jonathan B. Wiener & Michael D. Rogers, *Comparing precaution in the United States and Europe*, 5 J. RISK RSCH. 317 (2002).

114 *Id.* at 334.

115 *Id.* at 337.

116 See Kai Purnaghen, The Behavioural Law and Economics of the Precautionary Principle in the E.U. and its Impact on Internal Market Regulation, 37 J. CONSUMER POL. 453 (2014).

117 On the distinction between the precautionary logic and the precautionary principle, *see* Arie Trouwborst, *Prevention, Precaution, Logic and Law*, 2 ERASMUS L. REV. 105, 113–14 (2009) (noting the relationship between the precautionary principle and the preventative principle in international law and associated questions).

118 See Christian Gollier & Nicolas Treich, Decision-Making Under Scientific Uncertainty - The Economics of the Precautionary Principle, 27 J. RISK UNCERTAINTIES 27, 77, 99, 103 (2003).

involving an unsatisfactory alternative cost-benefit analysis[119] due to its lack of operational context[120] in dealing with merely "theoretical risks."[121]

Indeed, it can be argued that the precautionary principle rests upon the epistemological conditions which contend that in the absence of knowledge and/or of scientific certainties, one must not refrain from adopting regulatory measures.[122] Portrayed as "incoherent,"[123] it can further be induced that the precautionary principle is the legal embodiment of a legal culture where excuses for the damage caused by lack of knowledge are no longer acceptable; even in the absence of information or proven probability of future harm, regulators can be held liable for regulatory reasons rather than on a traditional liability system where the causal link needs to be demonstrated and where the lack of information functions as an exemption liability rule. In that regard, the precautionary principles function as a rule aimed at tackling the 'unknown unknowns' such as "awareness-based heuristics."[124] Nevertheless, the precautionary principle takes part in both the weakening of the causal link in engaging legal responsibility and recognizing the absence of any excuse based on lack of knowledge potentially invoked by regulators and decision-makers for any harm caused by any activities in our societies.

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119 *See e.g.,* RICHARD A. POSNER, CATASTROPHE: RISK AND RESPONSE 140 (2004) (depicting precaution as an unsatisfactory alternative to CBA).

120 *See* Fritz Allhoff & Adam Henschke, *The Internet of Things: Foundational Ethical Issues*, 1 INTERNET OF THINGS 55, 56 (2018) (arguing that the precautionary principle "invites us to consider broad targets, like risk and uncertainty, without a particular operational context" due to the inconclusiveness of this principle); *see also* Löfstedt, R.E., *A Possible Way Forward for Evidence-Based and Risk-Informed Policy-Making in Europe: A Personal View*, 17 J. RISK RSCH. 1089, 1100 (2014) (noting that "different guidelines and legal cases are being agreed upon without a clear and coherent policy as to when the Commission should be using risk assessments, let alone the precautionary principle" and considered that there is a need for "a thorough academic analysis of the present use of the precautionary principle"). Such academic endeavour has been partially carried out in Kenisha Garnett & David Parsons, *Multi-Case Review of the Application of the Precautionary Principle in European Union Law and Case*, 37 RISK ANALYSIS 502, 513 (2017) (studyingthe practice of the E.U. precautionary principle. They conclude that "the decision whether or not to apply the precautionary principle appears to be poorly defined, with ambiguities inherent in determining what level of uncertain and significance of hazard justifies invoking the precautionary principle . . . The different standards of proof for invoking the precautionary principle, established in E.U. directives and regulations, suggest that grounds for invoking the precautionary principle may be dependent on what is at stake"); *see also* Oliver Todt & Jose Luis Lujan, *Analyzing Precautionary Regulation: Do Precaution, Science, and Innovation Go Together? Analyzing Precautionary Regulation*, 34 RISK ANALYSIS 2163 (2014); Gloria Origgi, *Fear or Principles? A Cautious Definition of the Precautionary Principle*, 13 MIND & SOCIETY 1 (2014); MILIEU LTD, *supra* note 109, at 36–37.

121 The Lancet, Editorial, *Caution Required with the Precautionary Principle*, 356 THE LANCET, 265 (2000).

122 *See* J. Adam Carter & Martin Peterson *On the Epistemology of the Precautionary Principle*, 80 ERKENNTIS 1, 11 (2015).

123 Cass R. Sunstein, Laws of Fear: Beyond the Precautionary Principle (2005).

124 Simon Grant & John Quiggin, *Inductive Reasoning About Unawareness*, 54 ECON. THEORY 717, 746 (2013).

The precautionary principle as a regulatory tool can be recapped as having the following core elements:

- *Lack of certainties:* in a lack of scientific certainties and/or of full knowledge, the precautionary principle is applicable;
- *Lack of harm:* actual damage, even foreseeable damage, is no longer needed – only the potentiality of future severe damage (*i.e.*, hypothetical damage[125]) is necessary for the precautionary principle to apply;
- *The shift of the burden of proof:* the private actor must show the regulator the harmlessness of her conduct or innovation to be allowed to continue – there is an assumption of harm unless proven otherwise that private actors bear;
- *Urgent regulations:* the irreversibility of the damage envisaged, together with the inability of the private actor to prove the harmlessness of her conduction or innovation, justifies immediate regulations through interim and permanent measures.

Once these essential elements are present, the precautionary principle can successfully be invoked by the regulators for interventions or claimant damages based on the precautionary principle's breach. The precautionary principle's fundamental elements partake in its costs, and the anti-innovation aspect such principle eminently embroils.

B. *The Cost of the Precautionary Principle*

Costs associated with the precautionary principle pare down to both i) the opportunity costs (compliance costs and innovative costs) and to ii) the legal certainty costs (shifted burden of proof). We shall discuss these two types of costs commonly associated with the precautionary principle to unveil this principle's detrimental aspect and the need to overcome it with a so-called Innovation Principle.

1. Opportunity Costs of the Precautionary Principle

The precautionary principle creates opportunity costs for firms and private actors, which materialize in two different manners: the compliance costs of acting according to the precautionary principle (*i.e.*, seen costs) and the innovation costs of avoiding breaching the precautionary principle (*i.e.*, unseen costs).[126] The innovation costs of the precautionary principle were

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125 *See* generally Stephen Charest, Bayesian Approaches to the Precautionary Principle, 12 Duke Envtl. L. & Pol'y F. 265 (2002).

126 This classification of the seen/unseen costs reverts to FREDERIC BASTIAT, ECONOMIC SOPHISMS AND "WHAT IS SEEN AND WHAT IS NOT SEEN," (Jacques de Guenin ed., Jane Willems & Michel Willems trans., Liberty Fund 2018) (1850).

clearly outlined by Advocate General Bobek on the 30th of March 2017 in his Opinion for the case Giorgio Fidenato where he convincingly argued that:

> The precautionary principle justifies preventive action to avert risks that have not yet been fully identified or understood because of scientific uncertainty. Defined in such a broad way, that principle could be construed as encompassing various risks to various interests, be it the environment, health, public security, social justice, or perhaps even morality. However, suppose such a broader perception were to prevail. In that case, the difficulty then becomes determining where to draw the line so that the precautionary principle does not turn it a universal incantation to block innovation. By definition, innovation implies novelty in relation to the existent knowledge.[127]

It is noticeable that Advocate General Bobek considers the fact that the precautionary principle can stifle innovation because their associated risks are not fully "understood" by regulators. Therefore, it implies that novel products and business models might be blocked under the precautionary principle only because they fail to be fully understood by regulators – the precaution thus means banning the unknowns or the misunderstood. Zero-priced markets and ad-funded business models are potential illustrations of antitrust enforcers' difficulty in apprehending these novel business realities in the digital economy.[128] This tendency partakes to the significant innovation costs inferred by the precautionary prohibition inherent to this principle.

The absence of novelties and the excessive fears manifested towards risks may incur prohibitive costs for society since the issues or demand the innovation are expected to address will never be addressed or matched. The social problems are left unaddressed under the precautionary principle because regulators prefer a riskless society over a risk-loving society. As Bartsch puts it, for the sole instance of plant and animal breeding,

> It is time for a reformation of a dogmatic precautionary principle. Dogmatism is calling the absence of risks before any further action (and progress) might happen. However, there is no riskless activity in human life: taking no action by avoiding any change or undifferentiated application of strong law interpretation might highly likely increase the risk of food insecurity and socio-economic disasters.[129]

Precaution is thus costly. Innovation may well be beneficial – but these innovation benefits are blocked under the precautionary principle.

The compliance costs pertain to the precautionary principle's red-tape regulatory costs and which firms and citizens must adhere. The innovation

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127 Case C-111/16 ¶ 32, Criminal proceedings against Giorgio Fidenato et. al., 2017 E.C.R. 676.

128 *See* section III.A, Evidencing Precautionary Antitrust (The E.U. decision on Google Android well illustrates this case as the ad-funded business model of Google Android represents an innovative method of marketing one's operating system as opposed to Apple's IoS, which epitomized prices and traditional vertical integration business models).

129 Detlef Bartsch, *New Genome Editing Ante Portas: Precaution Meets Innovation*, 12 J. CONSUMER PROT. & FOOD SAFETY 297, 298 (2017).

costs relate to the highly risk-aversion instilled by the precautionary principle, thereby conducive to false positives (Type I errors) conducts and innovations that could have generated more benefits than costs are excessively deterred. Allhoff considers that "if the precautionary approach is meant to do something different than cost-benefit analysis, then it would be paralyzing."[130] Indeed, the precautionary principle discards the relevance of cost-benefit analyses and the error-cost framework and substitutes a new regulatory philosophy towards uncertainties and innovation; caution at (almost) all costs. Overdeterrence ushered by the precautionary principle correlates with the inherent risk-aversion this principle is conducive.

2. Legal Certainty Costs of the Precautionary Principle

The precautionary principle not only incurs direct and indirect economic costs but also contributes to weakening the rule of law due to the destruction of the causal link inherent to any liability theory and the shifting burden of proof. The precautionary principle experienced major criticisms: ill-defined and ambiguous. The precautionary principle has been designated as being legally impractical.[131] Pelkmans and Renda provide a helpful classification of E.U. rules concerning innovation. They divided E.U. legislation on innovation into four rubrics:

1. General rules: wide-ranging rules such as competition policy, procurement rules, trade regulations, bankruptcy regulation, consumer protection rules, risk management rules under the precautionary principle, etc.
2. Specific rules: rules which ensure the protection of property rights protection such as patent rules, intellectual property rights, and funding programs under Horizon 2020;
3. Sector-specific legislation: rules on chemicals, food law, biotechnology, GMOs, etc.;
4. Standardization: rules issued by the European Committee for Standardization, the European Commission for Electrotechnical Standardization, European Telecommunications Standards Institute, etc.[132]

These rules affect the innovation level, although they might not overtly address innovation objectives. Indeed, under one of the 1500 E.U.

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130 Fritz Allhoff, *Risk, Precaution, and Emerging Technologies*, 3 STUD. IN ETHICS, L., & TECH. 1, 20 (2009).

131 House of Commons Science and Technology Committee, 5th Report Advanced Genetic Techniques For Crop Improvement: Regulation, Risk and Precaution, 2014-5, HC 328, ¶ 27 (UK).

132 *See* ANDREA RENDA & JACQUES PELKMANS, HOW CAN E.U. LEGISLATION ENABLE AND/OR DISABLE INNOVATION (2014) https://ec.europa.eu/futurium/en/system/files/ged/39-how_can_eu_legislation_enable_and-or_disable_innovation.pdf.

Directives, 900 E.U. Regulations, and thousands of E.U. Decisions,[133] innovation becomes inevitably affected due to the twisted incentives generated by the E.U. regulatory environment dominated by the precautionary principle and its risk-averse culture.[134] More generally, the legal certainty costs of the precautionary principle pare down to its inherent paradigm change of bringing arguments in legal terms. Indeed, the burden of proof is shifted from the regulator to the innovator. The reversed burden of evidence mandates the regulator to regulate uncertainties and harmless situations based on potential risks preemptively. It gives the innovator the limited opportunity to block such ex-ante regulatory interventionism by assigning the responsibility for demonstrating the absence of (present and future) harm associated with the envisaged innovation. Thus, it is for the innovator to demonstrate her innovation's harmlessness and no longer for the regulator to show the (actual or likely) harm alleged to this innovation for the regulator to justify interventions.[135]

This dramatic shift of the burden of proof puts a premium on the status quo and discards changes in times of uncertainties (which is always the case with innovations). This reversed burden of proof generates legal uncertainty surrounding potential innovations since these innovations may be deemed illegal unless proven harmless. The difficulty for entrepreneurs to gather incontrovertible exogenous evidence to legitimize their innovations contributes to the uncertain legal environment into which their innovations may end up trapped.[136] Thus, the reversed burden of proof inherent in the precautionary principle generates legal certainty costs.[137] Establishing an innovation principle would effectively address most of the costs related to the precautionary principle.[138]

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133 *See* Mario Monti, Report to the President of the European Commission: A New Strategy for the Single Market, at 37 (2010) https://ec.europa.eu/docsroom/documents/15501/attachments/1/translations/en/renditions/pdf (acknowledging that " . . . in practice, multiple barriers and regulatory obstacles fragment intra-E.U. trade and hamper economic initiative and innovation", and that " the propagation of digital technology is a spontaneous process of innovation and transformation. Yet, regulatory and social conditions influence the speed and extent of the uptake of new technologies and the spread of the benefits of a digital economy. Europe is moving at a slower speed than the U.S.").

134 See Kathleen Garnett, Geert Van Calster, & Leonie Reins, Towards an Innovation Principle: An Industry Trump or Shortening the Odds on Environmental Protection?, 10 L. INNOVATION & TECH. 1 (2018).

135 *See* Portuese & Pillot, *supra* note 78, at 231.

136 *See* Suraj Malladi, *Judged in Hindsight: Regulatory Incentives in Approving Innovations*, in PROCEEDINGS OF THE 21ST ACM CONFERENCE ON ECONOMICS AND COMPUTATION (2020) https://extranet.sioe.org/uploads/sioe2020/malladi.pdf (explaining why the reversed burden of proof leads regulators to "drag their feet on approval decisions" of innovations due to the precautionary logic at the expense of the rate--and usefulness--of innovations).

137 *See id.* at 27.

138 *See* Portuese & Pillot, *supra* note 78.

C. *The Need for an Innovation Principle*

The shortcomings of the precautionary principle deter innovation and thus harm the economy significantly with the excessively risk-averse attitudes it implies. An alternative principle has emerged to address those identified shortcomings: the innovation principle. Scholars, policy advocates, and entrepreneurs suggest this innovation principle has recently been acknowledged by the highest European institutions: the European Council. Hence, this official recognition appears both promising and entails the need for further research and further scrutinization on what seems to become a serious challenger, or at least a serious balancing principle, to the damaging precautionary principle. To better grasp the proposed principle's content and implications, we shall first outline the genesis and definition of the innovation principle (1) before discussing its ramifications for policymaking (2).

1. The Emergence of the Innovation Principle

As an alternative or complement to the precautionary principle, the innovation principle appears to experience momentum.[139] The European Commission's in-house think tank, European Political Strategy Centre, published in June 2016 a note entitled "Towards an Innovation Principle Endorsed by Better Regulation," where it is acknowledged that "innovation is an essential element of the internal market" and that "by definition, innovation cannot be preordained. It takes place in response to diverse incentives."[140] Concerning the interactions between the precautionary principle and the innovation principle, the European Commission's think

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[139] *See* The Innovation Commission, *One Principle and Seven Goals for Innovation* (2019) [hereinafter the Lauvergeon Report] https://www.bpifrance.fr/content/download/16327/214181/version/1/file/One%20principle%20and%20seven%20goals%20for%20innovation.pdf; BusinessEurope, *Research and Innovation in the New European Political Cycle* (2019) https://www.businesseurope.eu/sites/buseur/files/media/position_papers/iaco/2019-09-09_position_paper_research_and_innovation_in_the_new_eu_political_cycle.pdf; Press Release, Digital Europe, Horizon Europe: Innovation should be at the core of E.U. legislation (Dec. 11, 2018) https://www.digitaleurope.org/wp/wp-content/uploads/2019/01/Press-release-Innovation-principle.pdf; *see* Portuese & Pillot, *supra* note 78; *see* Garnett, *supra* note 134 (advocating for a qualified innovation principle that balances reasonable risk-taking with a degree of responsibility); Peteris Zilgalvis, *The Need for an Innovation Principle in Regulatory Impact Assessment: The Case of Finance and Innovation in Europe*, 6 POL'Y & INTERNET 377 (2014) (advocating for an innovation principle in the FinTech sector to ensure that legislative proposals are "future proofed"); Jacob A. Hasselbalch, *Innovation Assessment: Governing Through Periods of Disruptive Technological Change*, 25 J. EUR. PUB. POL'Y 1 (2017) (outlining the need for innovation assessments); Yangguan Li, Junju Yue, & Min Wu, *Research on the Innovation Elements in the Process of Technology Innovation*, in MATEC WEB OF CONFERENCES 100 (2017) (elaborating the general process of the formation of innovation principle).

[140] European Political Strategy Centre, *Towards an Innovation Principle Endorsed by Better Regulation*, in EPSC STRATEGIC NOTES 14 at 1 (June 30, 2016).

tank appears to qualify the relevance of the precautionary principle to be given more room for an innovation principle to emerge in a balancing exercise with the precautionary principle:

> Although the precautionary principle derives from environmental law, it is – according to the jurisdiction of the ECJ – a general principle of E.U. law, that includes economic and non-economic considerations . . . Although the precautionary principle may be understood as counter principle to the innovation principle, it is of particular importance for innovation, because especially at an early stage of a new technique or approach, the possibility of a risk often cannot be ruled out. It provides procedures and criteria to assess, appraise and manage risks. As envisaged by the precautionary principle, an integral part of the risk management is the examination of the potential benefits and costs of action or lack of action.[141]

The innovation principle is said to fit within the broader Better Regulation Agenda[142] of the European Commission, whereby the regulatory burdens to innovation are addressed optimally by aiming at "smart regulations" and at "innovation deals":[143]

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141 *Id.* at 3.

142 *See* European Commission Directorate-General for Research and Innovation, *Better Regulations for Innovation-Driven Investment at E.U. Level: Commission Staff Working Document* (2016) (stating that the Better Regulation Agenda "is in line with the concept of 'innovation principle' that anticipates impacts on innovation to be assessed and addressed in policy and regulatory proposals." The European Commission adopted the Better Regulation Agenda on 19 May 2015). *Better Regulation for Better Results – An E.U. Agenda*, COM (2015) 215 final (May 19, 2015) (arguing that "Better regulation is not about "more" or "less" E.U. legislation; nor is it about deregulating or deprioritizing certain policy areas or compromising the values that we hold dear: social and environmental protection, and fundamental rights including health - to name just a few examples. Better regulation is about making sure we actually deliver on the ambitious policy goals we have set ourselves" and that "Our commitment to better regulation must apply across the board building on the progress already made with impact assessment and the Regulatory Fitness Programme (REFIT). We should not impose policies but prepare them inclusively, based on full transparency and engagement, listening to the views of those affected by legislation so that it is easy to implement ". On 13 April 2016, the European Parliament, the Council of the European Union and the European Commission signed a new Inter-Institutional Agreement on Better Law-Making as an extension tool of the Better Regulation practices to all E.U. institutions). *See also* Andrea Renda, *How can sustainable Development Goals be 'mainstreamed' in the E.U.'s Better Regulation Agenda?*, CEPS POL'Y INSIGHTS (2017) (arguing that " the current use of better regulation in the European Commission, other E.U. institutions and member states appears incapable of mainstreaming sustainable development in daily regulatory practice. The E.U. better regulation agenda is still coping with a number of existential dilemmas (for example, is it a cost-cutting agenda or a policy coherence agenda?); existing imperfections in the policy cycle (for example the missing role of the Council, the very limited implementation of better regulation in member states); and governance problems that might impair the Commission's ability to use better regulation for [Sustainable Development Goals]") ; *see* Giulia Listorti et al., *Towards an Evidence-Based and Integrated Policy Cycle in the E.U.: A Review of the Debate on the Better Regulation Agenda*, 58 J. COMMON MKT. STUD., 1 (2020) (reviewing the academic debate on Better Regulation Agenda and find it confined to academic fields of political science, public administration, and law); Inge Govaere & Sasha Garben, *The Multi-Faceted Nature of Better Regulation*, in THE E.U. BETTER REGULATION AGENDA: A CRITICAL ASSESSMENT 3 (I. Govaere & S. Garben eds. 2018).

143 "Innovation deals" are voluntary cooperation agreements between the E.U., innovators, and national and local authorities. Commissioner for Research, Science, and Innovation presented innovation

> The innovation principle will provide opportunities if it is conceived in a comprehensive manner. It should aim at improving the overall societal well-being by enhancing the effectiveness, coherence, and comprehensibility of regulation . . . Regulatory burdens are often perceived as a major obstacle to innovation. Hence, the objective of improving the legal framework is shared by the innovation and Better Regulation policy. Therefore, a close link exists between both, which has to be taken into account while implementing the innovation principle.[144]

A European Commission document already outlined the complementarity between the innovation principle and the Better Regulation Agenda. Indeed, on February 10th 2016, the European Commission issued a staff working document, "Better regulation for innovation-driven investment at E.U. level," where it is argued that the Better Regulation Agenda laid down in 2015 provided a "Research Innovation Tool" helping to assess

> The positive and negative innovation implications of options for new legislative proposals. This is in line with the concept of an "innovation principle" that anticipates impacts on innovation to be assessed and addressed in policy and regulatory proposals.[145]

A few months later, on 26 May 2016, the European Council of the European Union stressed,

> That, when considering, developing or updating E.U. policy or regulatory measures, the "Innovation Principle" should be applied, which entails taking into account the impact on research and innovation in the process of developing and reviewing regulation in all policy

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deal as "an instrument towards a more modern and responsive administration that helps innovators facing regulatory obstacles to innovation in the existing E.U. legislative framework. Implementing Innovation Deals shows that we are changing as an institution, from only setting rules to being pragmatic and pro-active in helping achieve policy objectives through innovation." *European Commission Press Release, European Commission addresses barriers to innovation: the first Innovation Deal focuses on water reuse (April 7, 2017)*. Innovation deals were introduced in 2015, where it was planned that "Commission will launch a pilot approach for "innovation deals" to identify and address potential regulatory obstacles for innovators." *Closing the loop - An EU action plan for the Circular Economy*, at 20, COM (2015) 614 final (Dec. 2, 2015). Until now, the European Commission has signed two innovation deals—one on e-vehicule batteries and one on treated water reuse. *See European Commission Press Release, supra*; *European Commission Press Release, European Commission tackles barriers to innovation: the second Innovation Deal focuses on batteries for electric vehicles (Mar. 12, 2018)*; *see also* European Commission Directorate-General for Research and Innovation, *supra* note 142, at 12 (arguing the innovation deals "address regulatory uncertainties identified by innovators, which can hinder innovation within the existing legal framework. In cases where a regulatory obstacle can only be addressed at E.U. level, the European Commission could help national, regional or local authorities to identify and make use of existing flexibility in the E.U. legislative framework or to implement specific legal provisions appropriately by providing clarification. In this way, potential barriers to innovation can be addressed, whilst fully respecting E.U. law, without any derogation from the existing regulatory framework, unless specifically foreseen in the latter instruments").

144 European Political Strategy Centre, *supra* note 140, at 4.

145 European Commission Directorate-General for Research and Innovation, *supra* note 142.

> domains, and calls on the Commission together with the Member States, to further determine its use and to evaluate its potential impact.[146]

Regulatory burdens are speculatively overcome via agile regulations such as innovation deals and/or regulatory sandboxes.

Regulatory sandboxes refer to the U.S. initiative in 2012 for FinTech regulation, and the expression was later christened in the UK in 2015. Regulatory sandboxes allow innovative companies to experiment and launch highly innovative products or business models in a specific time frame under relaxed regulatory supervision by the relevant authority. Regulatory sandboxes allow for legal certainty for innovators, while this innovation instrument enables them to exploit their innovative ideas at ease for society's benefit. Regulatory sandboxes enable potential relaxations of regulatory requirements through testing and feedback to become a secure innovation zone. Regulatory sandboxes reconcile the balance between innovation and regulation. The innovator and the regulator engage in an open dialogue within which innovation levels are optimized, whereas the regulatory burdens are minimized.

A prime illustration lies in the UK's Financial Conduct Authority 2017 Report, which detailed the knowledge acquired from a series of regulatory sandboxes:

- Regulatory sandboxes improved levels of innovation with new offerings for financial consumers, including new blockchain solutions, biometric services, and custom-automated financial advice;
- More investments in innovative technologies and improved survival rate for startups;
- Decreased misbehavior by companies thanks to standard safeguards implemented.[147]

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[146] European Council of the European Union Press Release, Better regulation to strengthen competitiveness (May 26, 2016) (focusing on the footnote at the end of the sentence which reads "the Councils recalls the Precautionary Principle.").

[147] *See* JORGE G. JIMENEZ & MARGARET HAGAN, *A Regulatory Sandbox for the Industry of Law,* STAN. L. SCH. LEGAL DESIGN LAB WHITE PAPER 5, (2019) https://law.stanford.edu/publications/a-regulatory-sandbox-for-the-industry-of-law/ (considering that "a regulatory sandbox for the legal industry . . . could be helpful in meeting the challenges of a changing market, assist new legal business to flourish, and advance access to justice"). *See also* Dirk Zetzsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 FORDHAM J. CORP. & FIN. L. 31, 98 (2017) (outlining four stages of smart regulation for FinTech where regulatory sandboxes constitutes a decisive second stage: "a reasonable regulatory approach could comprise four sequenced stages: (1) A testing and piloting environment; (2) A regulatory sandbox, which widens the scope of testing and piloting, is transparent, and removes the regulators' disincentive to grant dispensations (and depending on the ecosystem and the importance of cross-border recognition the sandbox may take the form of a sandbox umbrella); (3) A restricted licensing / special charter scheme, under which innovative firms can further develop their client base and financial and operational resources; (4) When size and income permits, the move to operating under a full license").

Regulatory sandboxes can be promising tools for innovation-driven legal environments dedicated to innovative startups and nascent companies. Indeed,

> A regulatory sandbox is an interesting regulatory innovation of its own. If used smartly, it can benefit consumers and the economy . . . Regulatory agencies should use sandboxes to keep up to date with fast-paced innovation and promote market competition without sacrificing consumer protection. Real innovation-minded regulatory agencies see sandboxes as means, not ends. Real innovation-minded regulatory agencies shun the glitz of sandboxes. Rather they take the insights gained from sandboxes to improve rulemaking, supervision, and enforcement policies so that the entire market can benefit.[148]

While regulatory sandboxes can emphasize the need for a more innovation-driven regulatory environment for innovative ideas and business models, they remain focused on the experimentation of changing or relaxing regulations before designing the permanent regulatory framework.[149] Thus, regulatory sandboxes and innovation deals provide a temporary mutual-learning period for both the innovator and the regulator before the latter can shape more innovation-driven regulations.[150] Consequently, they can only complement the view of an innovation principle that is permanent as a legal norm and paramount to other regulatory requirements. In that regard, the innovation principle further achieves the temporary objectives of regulatory sandboxes, and innovation deals more dramatically and permanently shaping the regulatory environment and culture towards more innovation-driven outcomes.

This is undoubtedly why the innovation principle has been recognized as a regulatory objective by the highest E.U. institutions and has been propelled by entrepreneurs and industry actors as a reasonable balance between precaution and regulation.[151] Introduced in October 2013 by the

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148 Dan Quan, *A Few Thoughts on Regulatory Sandboxes*, STANFORD PACS CENTER ON PHILANTHROPY & CIVILSOCIETY (2020), https://pacscenter.stanford.edu/a-few-thoughts-on-regulatory-sandboxes/.

149 *See* Harry Amstrong & Jen Rae, *A working model for anticipatory regulation* (Nesta Working Paper, Nov. 2017), https://media.nesta.org.uk/documents/working_model_for_anticipatory_regulation_0.pdf (proposing an advisory, adaptive, and anticipatory approaches in order to foster the regulators' role in the innovation process).

150 *See* JIMENEZ, *supra* note 147, at 4; Zetzsche, *supra* note 147, at 92-3.

151 *See e.g.*, Lauvergeon Report, *supra* note 139, at 13. Stating that the Commission, made of entrepreneurs and industrialists, "advises adopting an innovation principle . . . at the highest level, balancing the precautionary principle, yin and yang of societies' progress." Following the Lauvergeon Report, the innovation principle has been introduced into French law via an amendment No. 808 to the Macron Law of 2015. Amend. Titre III, Le principe d'innovation, Ch. 1, "Définition du principe d'innovation" (2015). http://www.assemblee-nationale.fr/14/amendements/2498/AN/808.pdf. *See also* BusinessEurope, *supra* note 139 at 18 (concluding that, as part of the emergence of a "fit-for-innovation" regulatory framework, regulators need to "fully implement the Innovation Principle across the whole

European Risk Forum, the innovation principle suggests that "whenever policy or regulatory decisions are under consideration the impact on innovation as a driver for jobs and growth should be assessed and addressed."[152] The European Risk Forum is a think tank founded in 2007 and dedicated to research and policy proposals on risk assessments whose members are companies and trade associations.[153] Designed to enhance risk assessment with a distinct concern for innovation implications of envisaged regulatory interventions, the innovation principle has emerged from the "deep concern over the negative effect that increasingly risk-averse legislation is having on European innovation."[154] The complementarity of the precautionary principle and the innovation has been acknowledged from the outset since the "two principles should be used alongside each other, recognizing the need to protect society and the environment while also protecting Europe's ability to innovate."[155] The innovation principle's objective is to stimulate innovation investments by fostering innovators' confidence in the applicable regulatory framework.[156]

More collegially, the European Risk Forum, together with Business Europe and the European Round of Table of Industrialists have issued, in June 2015, a Joint Statement, "Better Framework for Innovation – Fuelling E.U. policies with an Innovation Principle."[157] In this Joint Statement, these organizations consider that to:

> Build on the ideas set out in the new Better Regulation Guidelines and science-based policy making agenda and to shape a more positive and progressive innovation policy, the European business community believes that E.U. institutions now need to incorporate the Innovation Principle as an integral component of the policy-making process.[158]

The innovation principle may consist of an innovation checklist as part of an enhanced risk assessment with criteria such as i) improving

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policy-cycle, from evaluation to implementation. . . . Also, the E.U. should give guidance on the relation between the innovation and the precautionary principles, as they are too often interpreted as conflicting rather than complementary.").

152 *See* European Risk Forum, *What is the Innovation Principle?*, THE EUROPEAN REGULATION AND INNOVATION FORUM (2015), https://www.eriforum.eu/uploads/2/5/7/1/25710097/innovation_principle_one_pager_5_march_2015.pdf.

153 See *id.*

154 *Id.*

155 *Id.*

156 *See* European Risk Forum, *Innovation Principle – Q&A*, THE EUROPEAN REGULATION AND INNOVATION FORUM (2015), https://www.eriforum.eu/uploads/2/5/7/1/25710097/innovation_principle_qa_-_jan.21.pdf.

157 Joint Statement of Business Europe, the European Risk F. & the European round table of industrialists, ERT, Better Framework for Innovation: Fueling E.U. Policies with an Innovation Principle (June 2015), http://www.eriforum.eu/uploads/2/5/7/1/25710097/businesseurope-erf-ert_innovation_principle_joint_statement.pdf.

158 *Id.*

implementation of existing legislation (rather than adding extra regulatory burden); ii) keeping pace with a changing world (rather than frequently reviewed prescriptive regulations); iii) creating space for innovators to measure and manage technological risk (rather than solely risk avoidance); iv) weighing risks of alternative solutions in comparison (rather than narrowing comparisons for counterfactuals with the *status quo* only).[159] To ensure that the innovation principle is granted full consideration, the Joint Statement concludes with suggestions for providing credible and independent scientific advice to the E.U. institutions to uphold high scientific standards and evidence.[160] Indeed, scientific evidence needs to be reliably generated and used for policymaking and must not be an instrumental "tool with which to manipulate or justify the policy making process."[161]

This Joint Statement found immediate responses and backing from the E.U. institutions themselves since the European Commission's think tank wrote in 2016 that the innovation principle "could be a guiding principle" *in order* "to ensure that the regulatory process becomes more innovation-friendly."[162] It also recognized that:

> The innovation principle, understood as a positive obligation to facilitate innovation, offers guidance on the process and regulation content. It is premised on the idea that well-designed regulation ensures the appropriate framework conditions to foster entrepreneurship and a culture of innovation. The innovation principle can be implemented through the process as well as content. Both are of equal importance to achieve a qualitative change in the way that regulation can fuel innovation.[163]

Also, the European Commission itself acknowledged the benefits to be derived out of the innovation principle.[164] This principle should intervene at

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159 See *id.*

160 *Id.*

161 *Id.* On the other private sector's initiative advocating for the Innovation Principle, *see also* Press Release, Digital Europe, *supra* note 139, at 1 (where the trade association representing 35,000 digital businesses argued that "the innovation principle aims to reduce the E.U. innovation deficit . . . .This principle guarantees that E.U. policies would not dramatically affect innovation and drive us further away from this goal. . . . Digital Europe finally recalls that the innovation principle does not undermine the precautionary principle, but rather complements it.").

162 European Political Strategy Centre, *supra* note 140, at 10.

163 European Political Strategy Centre, *supra* note 140, at 7.

164 *See* European Commission, *supra* note 142, at 11. *See also* European Commission, *The Innovation Principle*, EUROPEAN COMM'N (Dec. 13, 2019), https://ec.europa.eu/info/sites/info/files/research_and_innovation/knowledge_publications_tools_and_data/documents/ec_rtd_factsheet-innovation-principle_2019.pdf (where the European Commission defines the innovation principle as following: "E.U. policy and legislation should be developed, implemented and assessed in view of encouraging innovations that help realise the E.U.'s environmental, social and economic objectives, and to anticipate and harness future technological advances." Also, the European Commission incorporated the innovation principle into its Horizon 2020 funding programme.); European Commission, *Tool #21 Research & Innovation of the European Commission*, EUROPEAN COMM'N (last visited Aug. 11, 2022) https://ec.europa.eu/info/sites/info/files/fileimport/better-regulation-toolbox-

the preparatory stage and the impact assessment stage, and the evaluation stage.[165] Furthermore, the Finnish Presidency of the Council of the European Union organized on the 3rd of December 2019 a high-level conference entitled "The Innovation Principle: Developing an innovation-friendly legislative culture," where it has notably been concluded that:

> The Innovation Principle is an important approach in addressing key socio-economic transitions such as the transition to carbon neutrality and the circular economy as well as in responding in an agile way to rapid technological advances; . . .
>
> The quality of the regulatory environment in relation to innovation is becoming an asset for competitiveness internationally. For instance, digital business models are often global and European companies need a competitive regulatory framework to grow and succeed in intense competition; . . .
>
> The E.U. needs even more agile, more dynamic ways of law making to help companies to scale up their businesses in a sustainable way.[166]

It thus appears that the innovation principle will soon be encapsulated into the E.U. legal environment at the same legal valence as the precautionary principle to balance out this latter principle effectively.[167]

2. The Implications of the Innovation Principle

The innovation principle suggests that regulators need to better grasp some business models' innovativeness by a stronger stakeholder's engagement with regulatory proposals and implementation. The innovation principle also requires a "holistic approach" with an enhanced policy toolbox whereby innovation concerns are considered at the agenda-setting, the preparatory and drafting stages, and the implementation and evaluation

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21_en_0.pdf; Croner-i, *Innovation and the Precautionary Principle – risk or opportunity?*, CRONER-I (June 18, 2019), https://app.croneri.co.uk/feature-articles/innovation-and-precautionary-principle-risk-or-opportunity#PO-DOCUMENT-ID_53727.

165 *See* European Commission, *supra* note 142.

166 Finland's Presidency of the Council of the European Union & Ministry of Econ. Aff. And Emp. of Fin., Report on the High level Conference on Innovation Principle – Developing an innovation-friendly legislative culture, at 5 (Dec. 3, 2019), https://innovationprinciple2019.fi/sites/default/files/InnovationPrincipleConferenceReport.pdf; *see also* Signe Ratso, Deputy Dir.-Gen. Rsch. & Innovation, European Commission, Speech at the High level Conference on Innovation Principle 10 (Dec. 3, 2019) ("clarity about the Innovation Principle is needed. However, the Innovation Principle in practice in Europe does not mean innovation per se, but innovation that delivers social and environmental benefits together with economic advantages,").

167 *See* Gaia Taffoni, *Regulating for Innovation? Insights from the Finnish Presidency of the Council of the European Union*, 11 EUR. J. OF RISK REGUL. 141, 146 (taking note of the fact that "innovation is a fundamental perspective endorsed by the Commission, it is not a legal principle (yet).").

stages.[168] Such a holistic approach paves the way for agile regulations such as regulatory sandboxes and innovation deals. Furthermore, the innovation principle implies that ex-post regulatory review and evaluation are preferred over ex-ante regulatory interventions when uncertainties are important in novel industries or novel products. Innovation processes in the marketplace are often fragile and unstable since massive R&D expenditures are needed for little predictability about the business outcomes. Therefore, these innovation processes must be secure in the marketplace with a risk of encouraging a culture that can also foster competition in the marketplace. Below are the elements of innovation-friendly regulatory practices with the integration of the innovation principle in all stages of regulatory design.[169]

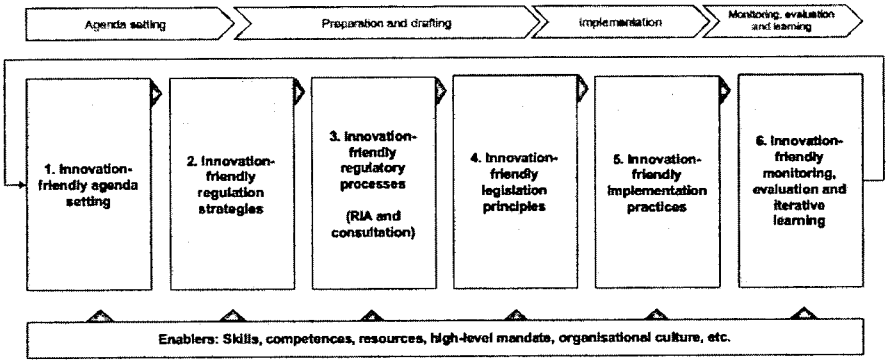

Figure 1: The Innovation Principle in Regulatory Design

Thus, one of the main policy lessons drawn out of the high-level conference entitled "The Innovation Principle: Developing an innovation-friendly legislative culture," which took place on the 3rd of December 2019, organized by the Finnish Presidency of the Council of the European Union, was that "E.U. rules, such as state aid rules, can be implemented in a way that encourages innovation without interfering with markets or competition."[170]

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168 Finland's Presidency of the Council of the European Union & Ministry of Econ. Aff. And Emp. of Fin. *supra* note 166.

169 *See* Vesa Salminen & Kimmo Halme, *Policy Brief: Towards Innovation-Friendly Regulation* (2019), https://tietokayttoon.fi/documents/1927382/2116852/22-2019-Framework+for+innovation-friendly+regulation.pdf/4d888ac9-7294-24f8-0941-47105f637da9/22-2019-Framework+for+innovation-friendly+regulation.pdf?version=1.0&t=1575270048000; Finland's Presidency of the Council of the European Union & Ministry of Econ. Aff. And Emp. of Fin., *supra* note 166.

170 Finland's Presidency of the Council of the European Union & Ministry of Econ. Aff. And Emp. of Fin. *supra* note 166.

Considered not to be "*a policy* per se, *but rather an approach,*"[171] the innovation principle requires further conceptualization to gain operationality within the regulatory frameworks. The innovation principle would improve the rate of innovation and its diffusion in Europe.[172] It would ensure more "evidence- and foresight-based policymaking" while not being automatically "anti-regulatory" contrary to common beliefs.[173] Nevertheless, the innovation principle aims at improving the overall innovation-friendliness of the E.U. regulatory framework.[174] Once the rationale for intervention has been rationally evidenced from an innovation perspective, the innovation principle suggests that the interventions may occur either under the Better Regulation Tool or under Innovation Deals, both designed by the European Commission.[175] An innovation impact assessment will be conducted both ex ante and ex post so that ongoing evaluations ensure agile and updated assessments on the technological changes and the innovation processes which endlessly occur.

Interestingly, the innovation principle is thought to provide an operational context within which innovation and competition are encouraged via innovation-friendly regulatory approaches at all policymaking stages. In other words, the innovation principle would enable greater innovation through innovators' incentivization and would thus yield fiercer competitive levels given the disruptive nature of innovation. Let's recall the words of Commissioner Moedas, who vouched for an optimal balancing exercise between the precautionary principle and the innovation principle when he asked:

> I believe we need to do more to create a regulatory environment for innovation to flourish [...] How do we make sure that regulation is based on an innovation principle as well as a precautionary principle?"[176]

Because innovation results from competitive constraints and/or predates disruptive competition, the innovation principle would help reach competition policy objectives of greater competitiveness and lower economic rents. In that regard, the innovation principle would overtly balance out the covertly instilled precautionary principle perceptible in the European antitrust enforcement. We shall further scrutinize and evidence this claim below.

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171 *See* Andrea Renda &Felice Simonelli, Study Supporting the Interim Evaluation of the Innovation Principle 11 (2019).

172 *See Id.* at 13.

173 *Id.* at 13.

174 *See id.* at 16.

175 *See* table below.

176 Carlos Moedas, Comm'r for Rsch., Innovation, and Sci., Speech: Open Innovation, Open Science, Open to the World, (June 22, 2015).

In conclusion, it appears blatant the detrimental consequences of the precautionary principle on both the innovativeness and competitiveness of the European economy requires a complementary principle to ensure adequate and reasonable regulatory outcomes. The precautionary principle's unintended effects appear unaffordable in a fast-moving innovation society fitted in a globalized economy. Consequently, the innovation principle appeared as a credible complement to the precautionary principle. In Part III, we shall prove the European antitrust enforcement experience a precautionary approach, primarily when it addresses digital markets. In a similar vein, the need to go beyond the precautionary principle with an innovation principle, this precautionary approach to antitrust enforcement needs to be complemented with a more innovation-friendly approach to E.U. antitrust enforcement Part IV.

III. PRECAUTIONARY ANTITRUST

We have demonstrated that the precautionary principle is one of the general, yet controversial, law principles–chiefly from the E.U. legal order. This precautionary principle has come to the fore and imbued all areas of the European Union's laws and regulations to become an essential element of policymaking and a general principle of E.U. law. The explanation for this European success lies in the intrinsically risk-averse philosophy, which underpins the precautionary principle. This risk-averse leaning corresponds to Europeans and the European Union's normative ethos, who ambitions risk-minimization to the greatest extent and who dislikes threats of harm and mere probabilities of damage. Associated with it, the innovative and regulatory costs of the precautionary principle are now well documented, so much, so an innovation principle has repeatedly been suggested–and is even under consideration by the European institutions themselves to countervail these increasingly enormous costs of the precautionary principle is a dynamic economy.

The precautionary principle has nevertheless made intakes into an overlooked area of law and has consequently, and is currently revolutionizing, the associated policy: antitrust enforcement (or competition policy). We shall argue and evidence in this section that the precautionary principle and its associated costs described in the previous section are present in the European antitrust enforcement, particularly concerning high-tech/digital markets. The precautionary logic has entered antitrust without noise but with considerable influence. The precautionary principle applies in antitrust enforcement without awareness but with tenseness. This is what we call "precautionary antitrust." Such precautionary antitrust in Europe is particularly noticeable in digital markets. European precautionary antitrust is so influential that it can help foresee US antitrust developments in the years to come.

After having provided a piece of evidence of the overriding precautionary antitrust enforcement which currently takes place in Europe concerning digital markets (1), we would pose a moment to conceptualize this underlying and influential trend that has shaped, shapes, and will shape European antitrust enforcement but also is expected to exert ever-increasing influence onto the US antitrust enforcement (2). Alike the precautionary principle implying an innovation principle due to the costs associated with the former principle, precautionary antitrust calls for a reflection to overcome it with a more innovation-based antitrust enforcement (3).

A. *Evidencing Precautionary Antitrust*

Precautionary antitrust comes to the fore with illustrations of the precautionary principle's fundamental elements in competition policy enforcement. Namely, in the absence of scientific knowledge, regulatory interventions may pre-emptively take place as long as the proponent of the deemed the scrutinized activities fails to demonstrate with certainty the lack of future harm. The precautionary principle's motto is "better safe than sorry." Following the precautionary principle's motto, a number of antitrust initiatives borrow heavily from the precautionary principle with a shift from an ex-post, case-by-case approach of enforcing antitrust rules toward an ex-ante, per se rules of illegality leading to preemptive blanket prohibitions in the name of the regulation of competition. In Europe, such a shift is best illustrated with the Digital Markets Act. In the United States, such a shift is best described by antitrust bills recently introduced and with the weaponization of Section 5 of the Federal Trade Commission Act to preemptively regulate the "unfair methods of competition."

While the evidence scrutinizes the E.U. antitrust enforcement, the debate over US antitrust enforcement has undergone some adjustments that correspond to a precautionary approach to antitrust and materialize in future proposals and a more precautionary decisional practice. The influence of European precautionary antitrust enforcement over the US antitrust debate is discussed in the next section. In the present section, each element evidencing the precautionary approach toward European antitrust enforcement is considered successively.

1. The Informational Uncertainties Surrounding Precautionary Antitrust

As a preliminary note, the contextual prerequisite (*i.e.,* absence of scientific knowledge) matches the environment we face when antitrust enforcement is applied to digital markets. Indeed, fraught with uncertainties

and underpinned by probabilities,[177] state of the art about antitrust enforcement for algorithm-driven platforms is still in its infancy[178]: the shape and application of these modern technologies are "unknowable," "possibly unimaginable," and "develop at uneven and unpredictable rates" as the UNCTAD Report rightly sums ups.[179] Several reports have counted for these "known unknowns." For instance, on the unique challenges presented by technology platforms, in the Stigler Report,[180] the authors note that "very often the uncertainty involved in evaluating harms to innovation will be high, especially in contrast to the analysis of price forecasts."[181] With rapid entry/exit and numerous acquisitions, digital platforms' fast-changing environment creates uncertainties for regulators and judges since retrospective knowledge about platform dynamics remains terse for these decision-makers. The uncertainties can nevertheless become a ground for quicker and fiercer antitrust interventions, especially with a dedicated and

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177 *See* FED. MINISTRY OF ECON. AFF. AND ENERGY, *A New Competition Framework for the Digital Economy*, Report by the Commission 'Competition Law 4.0' 14 (2019), https://www.bmwi.de/Redaktion/EN/Publikationen/Wirtschaft/a-new-competition-framework-for-the-digital-economy.pdf?__blob=publicationFile&v=3 (With respect to antitrust enforcement in digital markets, the German government sums up the difficulties by stating that "any substantive discussion on the various options for reforms requires an understanding of the trade-offs associated with the relevant regulatory regimes and law enforcement institutions in what is a highly dynamic area of regulation full of uncertainty.").

178 *See, e.g.*, The BRICS Competition Law and Policy Centre, *Digital Era Competition: A BRICS View* 166 (2019), http://bricscompetition.org/upload/iblock/6a1/brics%20book%20full.pdf (2019) (the BRICS Report) (stating that "an extra uncertainty appears in case of [multi-sided platforms] due to the network effect when the number of users becomes an important determinant of the platform efficiency (whatever it is measured)."). But, the platform efficiency (and viability) almost exclusively pares down to the very number of its users since network effects are crucial to any digital platform. Thus, if the essence of digital platforms (i.e. network effects generated by number of users) represents "uncertainties," it becomes blatant that the interplay of digital platforms, their internal and external functioning remain vaguely understood. On algorithms, the French and German competition authorities acknowledge that ". . . so far little is known about the actual real-world use of advanced techniques for pricing purposes. In particular, it remains to be seen if and how pricing algorithms can arrive at some kind of communication. This uncertainty is partly caused by the fact that the exact nature of potential 'algorithmic communication' cannot be anticipated." Autorité de la Concurrence & Bundeskartellamt, *Algorithms and Competition*, at 44 (Nov. 6, 2019), https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Berichte/Algorithms_and_Competition_Working-Paper.pdf;jsessionid=514F1107B70FCC46BFFFDE3FFFA8AF64.2_cid381?__blob=publicationFile&v=5.

179 United Nations Conference on Trade and Development, *The 'New' Digital Economy and Development*, U.N. Doc. ICT4D/08 (Oct. 2017).

180 University of Chicago & Stigler Center For the Study of the Economy and the State, Stigler Committee on Digital Platforms: Final Report (2019).

181 *Id.* at 91 & 94. (noting that "digital markets typically have high levels of uncertainty and move quickly. Given uncertainty, courts must determine how much weight to put on the risk of enforcement mistakes: both the likelihood of a mistake and its cost. . . . Especially in technology markets, the most important competitive threats to incumbent firms are likely to come from new entrants that might be vulnerable to exclusionary conduct or anticompetitive acquisitions when their competitive prospects are uncertain.").

newly created "digital authority" in charge of tech platforms. The Stigler Report indeed considers that "[...] the cost of false negatives is high and therefore, under conditions of uncertainty, the public interest requires the [the Digital Authority] to take a more interventionist approach."[182]

Also, the Cremer Report acknowledges that "in the digital world, where the future is more uncertain and less understood, there will be under-enforcement if we insist that the harm be identified with a high degree of probability."[183] Thus, uncertainties surrounding antitrust enforcement in digital markets should not prevent early interventions. This normative insight follows a precautionary logic. In "situations of uncertainty," antitrust agencies should "not try to work with the error cost framework cases by case" but rather "some modifications of the established tests, including the allocation of the burden of proof and the definition of the standard of proof, may be called for."[184] Again, uncertainties of the digital market justify, rather than deter, enhanced antitrust enforcement via different legal standards. These uncertainties justify a "balanced error cost analysis" with "great care and intellectual discipline."[185] Overall, the Cremer and Furman reports suggest that uncertainties inherent to digital understanding markets should not constitute obstacles for antitrust interventions only if a coherent rationale justifies the paradigm shift. We argue that this coherent rationale is the precautionary logic underpinning these normative proposals.

The digital markets' functioning is still better deciphered through research and experience with economists, data scientists, engineers, political scientists, etc. The countless ramifications of understanding disruptive business models suggest that more knowledge is needed. The knowledge resources of even highly respected antitrust authorities are severely limited. A telling illustration is provided by the European Commission, which erred in assessing the ability of Facebook not to utilize WhatsApp's data after the reviewed merger would take place.[186] The European Commission fined

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182 *Id.* at 114.

183 *See* Cremer Report *supra* note 63, at 42.

184 *Id.* at 51.

185 *Id.* at 123.

186 Commission Decision imposing fines under Article 14(1) of Council Regulation (EC) No. 139/2004 for the supply by an undertaking of incorrect or misleading information Case M.8228 Facebook/WhatsApp, at 20, COM (2017) 3193 final (May 17, 2017) (concluding that Facebook infringed E.U. competition law on the following two grounds: "i) [it has] at least negligently supplied incorrect or misleading information [in the case] Facebook/WhatsApp, and; ii) [it has] at least negligently supplied incorrect or misleading information in the Reply . . . made pursuant to Article 11(2) of the Merger Regulation [in the case] Facebook/WhatsApp."). See also the initial clearance of the merger, Commission Decision pursuant to Article 6(1)(b) of Council Regulation No 139/2004 Case M.7217 – Facebook/ WhatsApp, at 29, COM (2014) 7239 final (March 10, 2014). (concluding naively that users' integration was both technically improbable – "the Commission takes into account that there are likely to be significant technical hurdles to enable the integration of WhatsApp and Facebook. In particular, such integration would likely require involvement of users of both WhatsApp and Facebook to match/create their profiles on both platforms. Any forced transfer of WhatsApp users onto the Facebook social network

Facebook for providing "misleading information" during the merger review regarding its ability to establish reliable automated matching between Facebook users' accounts and WhatsApp users' accounts.[187] First, the European Commission's belief that linking WhatsApp users' data with Facebook users' data was not the essential aim of the merger reveals the European Commission's naivety. Second, the European Commission's belief that such linking was technically impossible, and would so remain soon, demonstrates the limited technical knowledge possessed by the European Commission. Agreed, misleading information is per se illegal, even more, when provided to public institutions and deserves sanctions. But one can legitimately wonder whether the European Commission has the *a priori* knowledge capacity to review such a merger. More generally, it raises doubts about the European Commission's ability, then to equally staffed and less staffed antitrust authorities worldwide to understand and regulate the innovation dynamics and motives underlying digital platforms.

Consequently, it can hardly be argued that antitrust enforcement's expertise towards digital platforms is fossilized: academic and policy debates, controversies, and counterfactuals contribute to the ever-improvement so that regulatory humility for antitrust enforcers and scholars is warranted. The digital ecosystems evolve with remaining mysteries, digital platforms' strengths, weaknesses, and business models unveiled. They experience regular challenges, the costs, and benefits of the innovation process, and the end-consumers progressively unfold as digital markets mature. Harm, risks, threats, potentials, benefits, and opportunities remain more speculative than evidenced and intuitive than experienced. With the feedback it produces, time appears to be the only factor enabling information improvements on antitrust enforcement for these fast-moving digital markets.[188] Overall, the unparalleled informational constraints associated with the contextual environment needed for the precautionary principle to be invoked are present. Indeed, the precautionary principle in the antitrust

(for example, by compelling WhatsApp users to register on Facebook) may alienate users and cause their outflow to competing consumer communications apps." – and was also not planned by Facebook. "The current plans of Facebook, as evidenced by its submissions to the Commission, public statements and internal documents, do not provide support for a future integration of WhatsApp with Facebook of the sort that would strengthen Facebook's position in the potential market for social networking services.").

187 Madhumita Murgia, Facebook Fined €110m by European Commission over WhatsApp Deal, FIN. TIMES, May 18, 2017; Mark Scott, E.U. Fines Facebook $122 Million Over Disclosures in WhatsApp Deal, N.Y. TIMES, May 18, 2017.

188 The innovation of digital markets should nevertheless not lead to innovation in their legal treatments. *See* Pablo I. Colomo & Gianni De Stefano, *The Challenge of Digital Markets: First, Let Us Not Forget the Lessons Learnt Over the Years*, Editorial, 9 J. EUR. COMPETITION L. & PRAC. 485, 486 (arguing wisely that "many enforcement errors would be avoided if courts and authorities, when evaluating the lawfulness of a new practice, considered where, and why, it falls in the abovementioned spectrum. . . . [T]he real threat of digital markets is that they may lead to the incorrect conclusion that innovation is also required about legal analysis. The opposite is true.").

enforcement applied to digital markets is a favorable climate prone to the prodigious uncertainties needed for the precautionary logic to nurture.

2. The Absence of Consumer Harm Inherent to Precautionary Antitrust

Once the context of uncertainties creating informational limitations and justifying the precautionary logic is present, as is the case with antitrust enforcement in digital markets, one needs to establish that the precautionary principle's core elements are also present. One of the prime aspects of the precautionary logic is the absence of actual or future harm, which does not preclude regulatory constraints on allegedly risky activities or conducts. This precautionary language is witnessed particularly in the European Commission's antitrust enforcement for digital markets in two ways.

First, precautionary antitrust indices shift from the need to evidence consumer harm to protect consumer choice. Although European antitrust enforcement has traditionally been reluctant to embrace an all-exclusive "consumer welfare standard"[189] and has historically favored the "consumer choice" objective,[190] the importance of the consumer welfare standard in

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189 Joined Cases C-501/06 et al. GlaxoSmithKline v. Comm'n, 2009 E.C.R. I-9291, ¶ 63 (stating that "it must be borne in mind that the Court has held that, like other competition rules laid down in the Treaty, Article [101 TFEU] aims to protect not only the interests of competitors or of consumers, but also the structure of the market and, in so doing, competition as such. Consequently, for a finding that an agreement has an anti-competitive object, it is not necessary that final consumers be deprived of the advantages of effective competition in terms of supply or price."). On the multiplicity of objectives of the E.U. competition policy, *see* FRANK MAEIR-RIGAUD, *On the Normative Foundations of Competition Law – Efficiency, Political Freedom and the Freedom to Compete*, *in* EDWARD ELGAR - THE GOALS OF COMPETITION LAW 132, (Daniel Zimmer ed., 2012) (discussing the opposition between the efficiency principle of the consumer welfare and the Ordoliberal idea of the freedom to compete as inherent to the preservation of the sufficient number of choices offered to consumers). *See also* IOANNIS LIANOS &VALENTINE KORAH, COMPETITION LAW. ANALYSIS, CASES, & MATERIALS 120 (2020) (concluding that "positive law still supports the view that the E.U. competition law pursues multiple goals." Also, the concept of choice has traditionally surfaced with respect to vertical restraints). *See* Commission Decision 76/642, ¶ 22, 1976 O.J. 223/27 (considering that "the conduct of Roche . . .constitutes an abuse of a dominant position, because by its nature it hampers the freedom of choice . . . and restricts competition between bulk vitamin manufacturers in the common market."). *See also* Commission Decision 76/353, ¶ 3, 1975 O.J. SPEC. ED. 95/1; Commission Decision 81/969, ¶ 37, 1981 O.J. 353.33; Comission Decision 76/353, § II ¶ 3, 1975 O.J. SPEC. ED. 95/1; ("[A] buyer must be allowed the freedom to decide"); Commission Decision 92/163, ¶ 108, 1992 /EEC, O.J. 72/1; Commission Decision 2003/707, 2003 O.J. 263/9; Case T-271/03, Deutsche Telekom v. Commission, 2008 E.C.R. II-477; Case C-280/08 P, Deutsche Telekom AG v. Commission, 2010 E.C.R. I-9555; Commission Decision 1/38.113, 2006 O.J. C219/12.

190 Peter Behrens, The Consumer Choice Paradigm in German Ordoliberalism and its Impact Upon Competition Law Discussion Paper (Europa-Kolleg Hamburg ed. 2014).

European antitrust enforcement has historically remained uncontested.[191] Nevertheless, although consumer harm has traditionally been the prerequisite for antitrust liability to be successfully invoked, the absence of consumer harm no longer prevents regulatory actions and reforms.[192] Since antitrust interventions are no longer based upon the demonstration of consumer harm, the justification for such interventions needs another legal basis: consumer choice.[193]

Paul Nihoul notes the "radical transformation" of E.U. competition law in the last few years with

> landmark decisions bringing to the foreground a concept that had so far gained limited attention – the concept of choice, that is, the possibility, and the right, for consumers to choose freely the products/services best corresponding to their needs, and the economic partners they want to deal with.[194]

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191 Case C-209/10, Post Danmark A/S v. Konkurrenceradet, ¶ 20 (Mar. 27, 2012) (arguing that "it is apparent from case-law that [Article 102 TFEU] covers not only those practices that directly cause harm to consumers but also practices that cause consumers harm through their impact on competition . . ."); C-52/09, TeliaSonera Sverige v. Konkurrensverket, ¶ 24 (Feb. 17, 2011) (stating that ". . . Article 102 TFEU must be interpreted as referring not only to practices which may cause damage to consumers directly . . . but also to those which are detrimental to them through their impact on competition. . . . Article 102 TFEU does not prohibit an undertaking from acquiring, on its own merits, the dominant position in a market, and while, a fortiori, a finding that an undertaking has a dominant position is not in itself a ground of criticism of the undertaking concerned . . . ."); Commission Guidelines 101/08, ¶ 13, 2004 O.J. C (ascertaining that "the objective of [Article 101 TFEU] is to protect competition on the market as a means of enhancing consumer welfare and of ensuring an efficient allocation of resources "); *id.* at ¶104 (noting that "the availability of new and improved products constitutes an important source of consumer welfare. As long as the increase in value stemming from such improvements exceeds any harm from a maintenance or an increase in price caused by the restrictive agreement, consumers are better off than without the agreement and the consumer pass-on requirement of [Article 101(3)] is normally fulfilled").

192 Interventions on the basis of lack of consumer choice requires utmost care on the remedies to be used. *See* Thomas J. Rosch, Commissioner, Fed. Trade Comm'n, Remarks before the *Concurrences* Conference on "Consumer Choice": An Emerging Standard for Competition Law: Can Consumer Choice Promote Trans-Atlantic Convergence of Competition Law and Policy? (June 8, 2012); PAUL NIHOUL, CHOICE - A NEW STANDARD FOR COMPETITION LAW ANALYSIS? 278 (Nicolas Charbit & Elisa Ramundo eds. 2016) (arguing that "if we are truly to expand consumer choice, however, any remedy that we fashion as antitrust enforcers should take into account how consumers actually make choices. This means that we should not ignore the recent contribution of behavioral economics (BE) to understanding how consumer decisions actually get made." The ambition to enhance consumer choice must indeed first establish that such choices are unsatisfactory and can be improved through remedies despite consumers' heuristics biases).

193 The criterion of consumer choice was already present in the Commission guidelines on Article 102 TFEU where the goal of consumer choice was justified as an illustration of the primary goal of the enhancement of consumer welfare. *See* 2009 O.J. (C 45) 7 (noting that "the aim of the Commission's enforcement activity in relation to exclusionary conduct is to ensure that dominant undertakings do not impair effective competition by foreclosing their competitors in an anti-competitive way, thus having an adverse impact on consumer welfare, whether in the form of higher price levels than would have otherwise prevailed or in some other form such as limiting quality or reducing consumer choice").

194 NIHOUL *supra* note 192, at 9.

As professor Nazzini affirms,

> when consumer choice is seen as an objective in its own right, it may become a disguised form of competitor protection: a competitor deserves to be protected solely on the basis that it offers a differentiated product.[195]

According to the Ordoliberal viewpoint, the alleged reduction of consumer choice, irrespectively of the discarded products and services' efficiency inferiority,[196] appears to legitimize interventions.[197] The presumed detrimental effects of consumers' status quo bias entail that antitrust enforcers tackle the default choice as an impairment to greater consumer

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195 Renato Nazzini, The Foundations of European Union Competition Law: The Objective and Principles of Article 102 32 (2011).

196 Alleged product superiority or inferiority loses relevance as a matter-of-fact within the consumer choice standard since the status quo bias ascribed to consumers allegedly prevent them from switching, irrespectively of the superiority/inferiority of the products they use. Thus, the lack of consumer choice justifies consumer stickiness and hinders the emergence of superior products, although such superiority needs not (and cannot) be evidenced by the antitrust authorities.

197 *See, e.g.*, Commission Decision C-3/37.990, D (2009) 3726 final (May 13, 2009) (fining Intel, the US chip manufacturer, for exclusionary practices which consisted of payments and conditional rebates in order to hinder Intel's main competitor AMD. More specifically, the European Commission concluded at ¶ 1678 that "AMD-based products for which there was a customer demand *did* not reach the market, or *did* not reach it at the time or in the way they would have in the absence of Intel's conduct. As a result, customers were deprived of a choice which they would have otherwise had" and at para.1602 that "As a result of Intel's rebates and payments, end-customers were artificially prevented from choosing other products on the merits . . . since Intel's conduct prevented the competitors' product from being offered . . ."); *see* Case C-202/07 P, France Télécom v. Commission, 2009 E.C.R. I-2369 ¶112 (arguing that "[T]he lack of any possibility of recoupment of losses is not sufficient to prevent the undertaking concerned reinforcing its dominant position, in particular, following the withdrawal from the market of one or a number of its competitors, so that the degree of competition existing on the market, already weakened precisely because of the presence of the undertaking concerned, is further reduced and customers suffer loss as a result of the limitation of the choices available to them.") On the academic literature discussion consumer choice as a new objective of competition law enforcement, *see* NIHOUL, *supra* note 192; NAZZINI, *supra* note 195, at 30-32 (considering that "when consumer choice is seen as an objective in its own right, it may become a disguised form of competitor protection: a competitor deserves to be protected solely on the basis that it offers a differentiated product"); Neil W. Averitt & Robert H. Lande, *Using the 'Consumer Choice' Approach to Antitrust Law*, 74 ANTITRUST L.J., 175, 178 (2007) (alleging that "the consumer choice model of antitrust is being used with increasing frequency because, fundamentally, it asks the right questions and identifies the right goals"); Robert H. Lande, *Consumer Choice as The Ultimate Goal of Antitrust*, 62 UNIV. OF PITT. L. REV. Vol.62, 503, 525 (2001) (endeavoring to "help shift the focus of antitrust from the current administrative and judicial emphasis on price to one that centers around the concept of consumer choice" and who considers that with the Microsoft case, "antitrust case law has already begun to move explicitly towards a consumer choice model."). For a European example, *see* Commission Decision COMP/C-3/37.792, ¶ 782 (2007) O.J. L 32/23 (noting that the notion of consumer choice emerged through interoperability obstacle: "Microsoft's refusal to supply has the consequence of stifling innovation in the impacted market and of diminishing consumers' choices by locking them into a homogeneous Microsoft solution.")

choice.[198] In the digital markets, the number of digital players and the number of products and services offered to consumers has become the norm: the default bias is believed to deplete consumer choice. In that context, consumer choice is equivalent to promoting the (Ordoliberal) objective of market participation by smaller competitors irrespectively of the incumbent's potential superior efficiency and innovativeness.[199] Consumer choice standard favors a return to an idealized market structure's objective despite both the economics of digital platforms (*i.e.*, winner-take-all phenomenon and novel business models of vertical restraints) and the historical demise of the structuralist approach to the competitive process. Nevertheless, entrenched market positions face greater antitrust scrutiny without evidenced consumer harm but merely because consumer choice is not ideally optimized due to these dominant positions associated with an alleged default bias.[200]

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198 For a discussion on the lack of clarity about the nature of those referred in the notion of "consumer choice,", *see* NIHOUL, *supra* note 192, at 27. (noteing that "the use of the words by the Commission and the European courts in these cases [on consumer choice] do not appear to result from a careful assessment of the meaning or connotation that could be conveyed. 'Consumer,' 'customers,' 'clients,' 'users,' 'buyers,' 'purchasers,' – to name a few – tend to be used interchangeably in decisions and rulings." Such a confusing pattern undeniably weaken the relevance of the consumer choice as standard of antitrust enforcement since the choice of whom to protect appears inconclusive.)

199 Joseph V. Coniglio, *Why The 'New Brandeis Movement' Gets Antitrust Wrong*, LAW360 (Apr. 24, 2018) (asking, "does market structure matter solely as a means to gauge market power and changes in economic welfare, or does it also matter for social policy – namely, to promote market participation by smaller competitors or, as in a more European approach, to facilitate consumer choice?"); Douglas A. Melamed & Nicolas Petit, *The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets*, 54 REV. INDUS. ORG., 741, 741-774 (2019) (the notion of consumer choice standard refers to the more general concept of economic freedoms in the competitive process advocated by Ordoliberals). On the Ordoliberal consumers' freedom of choice, *see* David J. Gerber, *Constitutionalizing the Economy: German Neo-liberalism, Competition Law and the 'New Europe,'* 42 AM. J. COMPAR. L. 25, 78 (1994) (discussing the goal of Ordoliberalism and its endless fight against market power when he states "in the ordoliberal view, competition law seeks to protect economic freedom, and the fact that there continue to be power positions does not necessarily mean that competition has not contributed to protecting those freedoms"); Liza Lovdahl Gormsen, *The Conflict Between Economic Freedom and Consumer Welfare in the Modernisation of Article 82 EC*, 3 EUR. COMPETITION J. 329; PINAR AKMAN THE CONCEPT OF ABUSE IN E.U. COMPETITION LAW: LAW AND ECONOMICS APPROACHES 58 (2012).; Peter Behrens, *The Ordoliberal Concept of 'Abuse' of a Dominant Position and its Impact on Article 102 TFEU*, *in* ABUSE REGULATION IN COMPETITION LAW (Paul Nihoul &Takahashi Iwakazu eds. 2015); IOANNIS LIANOS, COMPETITION LAW: ANALYSIS, CASE AND MATERIAL 107-109 (2020).

200 The default options induced by Google, Microsoft and other tech platforms have largely contributed to the sanctions these companies faced in the E.U. antitrust enforcement. Since the default options advantages incumbents and because consumers are presumed to have a status quo bias irrespective the efficiency or quality of the products they use, these default options amounted to abuse of dominant positions because it diminished consumers' range of available choices and thus constitute exclusionary abuses. *See* Commission Antitrust Procedure, Case AT.3970 Google Search (Shopping), ¶ 311, June 27, 2017 (fining Google for having leveraged its dominance on the search engine market into the comparison shopping services markets, noting that "A study of . . . confirms that more than two thirds of users d*id* not use general search services other than Google ("nearly a third of [beta] users were aware of, and used, alternative web services made available by default")); Commission Antitrust Procedure, Case AT.40099

This is illustrated by the concepts of "digital gatekeepers" or "intermediary power," where strategic market positions enable few companies to enjoy great market powers over their digital ecosystems allegedly.[201] The Digital Markets Act proposed by the European Commission in December 2020 precisely wants to regulate "digital gatekeepers" in a sheer embodiment of precautionary antitrust.[202] Amid incommensurable market uncertainties, the European Commission intends to regulate few well-identified digital platforms even without harm. Indeed, without the need to evidence harm and in the absence of any harm caused, the designated digital gatekeepers will be prevented from carrying several practices – thereby

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Google Android, ¶ 781, July 18, 2018 (where Google Andro*id.* was fined as the whole argument revolved around pre-installed apps and default settings by Google at the expense of competitors whereas the Commission considered that "the reason why pre-installation, like default setting or premium placement, can increase significantly on a lasting basis the usage of the service provided by an app is that users that find apps pre-installed and presented to them on their smart mobile devices are likely to "stick" to those apps. [Hewlett Packard] described the creation of a "status quo bias" in the form of premium placement and default setting . . . ");

Commission Antitrust Procedure, Case AT.39530 Microsoft – Tying, ¶ 27, March 6, 2013 (where Microsoft has been fined for breaching its commitments not to tie Internet Explorer as a web browser into its PC operating systems, Windows, but the Commission noted, instead, that Microsoft recognized that when Windows 7 SP was released, "changes should have been made" to ensure that users did not have "[Internet Explorer] as their default browser.").

201 *See* Commission's Proposal for a Regulation of the European Parliament and of the Council on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, COM (2018) 238 final (Apr. 26, 2018) (arguing that "this growing intermediation of transactions through online platforms, combined with strong indirect network effects that can be fuelled by data-driven advantages by the online platforms, lead to an increased dependency of businesses on online platforms as quasi "gatekeepers" to markets and consumers. The asymmetry between the relative market strength of a small number of leading online platforms – not necessarily dominant in the sense of competition law – is exacerbated by the inherently fragmented supply-side consisting of thousands of small merchants." Clearly, the digital platforms targeted here are the "GAFA" which, albeit not being "dominant" from a competition law viewpoint, are said .to have essential facilities and thus exert great market power.) *See* Cremer Report *supra* note 63, at 100 (advocating that "refusals to grant access should be subject to a more elaborate Article 102 TFEU assessment where (1) the data controller holds a gatekeeper position of some relevant kind, i.e. access to its data is essential for competing on one or more neighbouring markets; (2) data access requests for this purpose are somewhat standardised."). *See also* Nicolai Van Gorp & Dr. Olga Batura, Challenges for Competition Policy in a Digitalised Economy, at 8, IP/A/ECON/2014-12 (2015) (where it is argued that "digital platform operators aim at making themselves indispensable for both end-users as well as advertiser and place themselves in a gatekeeper position".)

202 Commission Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), at 842, COM (2020) 842 final (Dec. 15, 2020) (justifying a regulation on the basis that "a few large platforms increasingly act as gateways or gatekeepers between business users and end users and enjoy an entrenched and durable position, often as a result of the creation of conglomerate ecosystems around their core platform services, which reinforces existing entry barriers."). Together with the Digital Markets Act, the European Commission has also proposed a Digital Services Act which mostly regulate hate speech, misleading information and fraudulent products on digital platforms. See Proposal for a Regulation of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, COM (2020) 825 final (Dec. 15, 2020).

enabling their rivals to perform the very same practices. Not only harm no longer needed to be evidenced, but it is also because it is time-consuming and costly to find the harm in the blamed conducts that the European Commission suggests getting rid of this now superfluous requirement. There is no longer antitrust liability because of the harm caused; instead, there is antitrust regulation despite no harm. The Digital Markets Act, beyond the regulatory constraints imposed in the absence of harm it imposes, stunningly represents the illustration of precautionary antitrust: it provides for *ex ante* regulation in the absence of harm against a narrow range of companies who are subject to discriminatory regulations due to their size/success.

The Digital Markets Act regulates in the absence of harm for the sake of increasing "consumer choice" – forcing small companies to enter some digital markets. The reduction of consumer choice has been blamed for lessening competition and stifling innovation: consumers' inability to choose competitors' products impedes their ability to innovate. Thus, for innovation to thrive, the argument goes. Irrespective of the inherent flaw of the criterion of consumer choice as a new standard for competition policy[203] and despite the speculative nature of the claim that innovation is stifled when consumer choice is limited,[204] this paradigm shifts away from the need to show that

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[203] Consumers can process only limited amounts of information in making a choice, thereby voluntarily reducing their options available. *See* Matthew Bennett, et al., *What Does Behavioural Economics Mean for Competition Policy?* 6 COMPETITION POL'Y,111, 112 n.3 (2010) (considering that behavioural economics emphasize the difficulties antitrust authorities face in trying to correct consumer biases); Adi Ayal, *Harmful Freedom of Choice: Lessons from the Cellphone Market*, 74 L. & CONTEMP. PROBS. 91, 96 (2011) ("One of the interesting aspects of choice overload is that consumers are generally unaware that variety may work to their detriment, and may be unaware of the effects of cognitive overload-despite their actions"); David G. Mick et al., *Choose, Choose, Choose, Choose, Choose, Choose, Choose: Emerging and Prospective Research on the Deleterious Effects of Living in Consumer Hyperchoice* 52 J. BUS. ETHICS 207, 207 (2014) (noting that "consumption ideology now spans the world, including an imperative of consumer choice," leading consumers into "hyper choice," which is "initially attractive but ultimately unsatisfying" and "psychologically draining"); James C. Cooper & William E. Kovacic, *Behavioral Economics: Implications for Regulatory Behavior* 41 J. OF REGUL. ECON. 41, 58 (2012) (suggesting that "Much [behavioral economics] research prescribes increased regulatory intervention to constrain consumer choice in response to consumer biases and to expand the use of competition law to correct consumer harm that arises from biased firm behavior. If regulators, who are human after all, suffer from the same biases, our analysis suggests a greater skepticism of these calls for increased intervention.").

[204] Reduction of consumer choice can increase innovation and quality of products as companies may unleash new business capacity to invest so that lower prices, higher quality, and innovation can result from the reduced range of choices available to consumers. *See* Joshua D. Wright & Douglas H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 FORDHAM L. REV., 2405, 2411 (2013) (arguing that "a flaw with [the consumer choice] approach is that both economic theory and empirical evidence are replete with examples of business conduct that simultaneously reduces choice and increases welfare in the form of lower prices, increased innovation, or higher quality products and services." From a historical perspective, consumer choice standard as a mean to protect innovation can arguably be captured by competitors against incumbent.). One historical illustration is offered with Sun Microsystems's CEO McNealy considered that Microsoft's antitrust "issue is about protecting consumer choice in the marketplace. It is about protecting innovation." quoted in Steve Lhor, *Gates, on Capitol Hill, Presents*

consumer harm constitutes a meaningful change from both the economic approach to competition laws and from the modernization of the E.U. competition policy. Aimed at helping to "revitalize more aggressive antitrust enforcement,"[205] the consumer choice standard reveals a more profound logic with a return to structural presumptions and the prevalence of a view of (Ordoliberal) freedom over (market) efficiency.[206]

Second, precautionary antitrust indices are a justificatory ground for regulatory interventions merely in the presence of "risks to competition." These risks threaten the alleged irreversible damage to the competitive structure that the regulators aim to protect. The market structure appears to require protection in a resurgence of Ordoliberal thinking[207] (and to Neo-Brandeisian thinking in the US). In this protective move, the "new competition tools" imagined by Commissioner Vestager are caused by "structural competition problems" not currently addressed in a "timely and effective manner." She justified new tools in the following way:

> The world is changing fast and it is important that the competition rules are fit for that change. Our rules have an inbuilt flexibility, which allows us to deal with a broad range of anti-competitive conduct across markets. We see, however, that there are certain structural risks for competition, such as tipping markets, which are not addressed by the current rules. We are seeking the views of stakeholders to explore the need for a possible new competition tool that

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Case for an Unfettered Microsoft, N.Y. TIMES, March 4, 1998, https://www.nytimes.com/1998/03/04/business/gates-on-capitol-hill-presents-case-for-an-unfettered-microsoft.html. Similar arguments of consumer choice standard are currently raised against big tech companies as evidenced in July 2020 Big Tech Hearings at the US House of Representatives. *See* Avery Hartman, *Wednesday's Big Tech Antitrust Hearing has Echoes of Bill Gates' and Microsoft's Landmark Court Battle 22 Years Ago. Here's Why the Government Scrutinized Gates and How it Played out for the Company.* BUS. INSIDER, July 29, 2020, https://static5.businessinsider.com/bill-gates-microsoft-antitrust-case-history-outcome-2020-7/#on-march-3-1998-then-microsoft-ceo-bill-gates-came-to-capitol-hill-to-testify-before-the-senate-judiciary-committee-1.

205 Robert H. Lande, Resurrecting Incipiency: From Von's Grocery to Consumer Choice, 68 ANTITRUST L. J. 875, 875 (2001).

206 Agustin Reyna & David Martin, *Online Gatekeeping and the Google Shopping Antitrust Decision: The Beginning of the End or the End of the Beginning?*, 3 COMPETITION AND REGUL. L. REV. 204, 206 (2017) (noting that "The Commission has taken an important step forward with this [Google Shopping] decision. It is a landmark development towards a healthier and more competitive Digital Single Market. This market has to be built on consumer choice and innovation and aim to deliver the best services for consumers.").

207 *See* Rosch *supra* note 192; NIHOUL, *supra* note 192 at 274 (arguing that the European Commission's ordoliberalism may conflict with the US's Chicago School so that "there still might not be a total convergence, even under a consumer choice standard."). *But see* Averitt & Lande, *supra* note 197, at 249-250 (arguing that the "choice paradigm" may be "particularly useful for presentation the European Union as a mutually-acceptable midpoint around which the ongoing convergence of national policies in the industrialized nations can continue. The European Union is less completely committed than we are to the efficiency-centered antitrust paradigm . . . But they might agree on a choice model. Some E.U. statements on competition policy are already framed in terms very similar to our proposed choice approach.").

> would allow addressing such structural competition problems, in a timely and effective manner ensuring fair and competitive markets across the economy.[208]

Borrowing from the precautionary rhetoric of risks, the so-called structural risks to the competition are illustrated, according to Commissioner Vestager, by "market tipping" this new expression in antitrust enforcement evidence of the creativity of describing market situations that are already well-known (*i.e.,* is market tipping similar to dominance or even super-dominance?). More importantly, this newly devised expression of "market tipping" under the language of (structural) risks to competition aims at implying, explicitly or implicitly, that the said dominance has become "irreversible." Indeed, it is the very irreversibility of dominance that appears to give a definitional sense to this expression of "market tipping." Risks, protection of market structure, irreversibility...the rhetoric of the precautionary principle is implicitly instilled into the new decisional practice of the European Commission and as a justificatory ground for further regulatory reforms in the antitrust tools available. The Digital Markets Acts explicitly refers to such irreversibility. At para.26, the proposal states that "Undertakings can try to induce this tipping and emerged as a gatekeeper by using some of the unfair conditions and practices regulated in this Regulation. In such a situation, it appears appropriate to intervene before the market tips irreversibly."[209] Thus, with market tipping irreversible effects, the regulator can justify anticipating that digital markets tip; intervention becomes necessary before irreversible tipping entrenches platform dominance. Again, the precautionary logic surfaces in the "market tipping" rhetoric since *ex ante* interventions via urgent regulations are decided.

Margrethe Vestager had given some explanations before the U.S. Congress in her testimony of July 2020 when she argued that

> The reflection process has identified certain structural competition problems that we believe that our existing competition rules cannot tackle (such as monopolization strategies by non-dominant companies which nevertheless have market power) or cannot address most effectively (e.g., parallel leveraging strategies by dominant companies into multiple adjacent markets).[210]

These proposed changes constitute significant shaking up of the fundamental principles of antitrust enforcement; non-dominant firms may end up being liable for abuse of their market power, thereby unreasonably stretching out the reach of Article 102 TFEU, whereas parallel leveraging jeopardizes digital ecosystem-building where the multiplicity of product

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208 *Id.*

209 Digital Markets Act, *supra* note 202, at ¶ 26.

210 Margrethe Vestager, *Statement Before the Comm. on the Judiciary, Subcomm. on Antitrust, Com. and Admin. L.*, 116th Cong. (2020). http://docs.house.gov/meetings/JU/JU05/20200729/110883/HHRG-116-JU05-20200729-SD007.pdf.

complementarities is inherent to consumer benefits and innovation. Consequently, Article 102 TFEU's ambit would be outstretched beyond the remits laid down by the Treaties themselves. These revolutionary changes not only raise questions concerning their legal basis but, more importantly, question the concept of structure raised by Commissioner Vestager are these conducts capable of creating "structural risks" to the competition? One needs to grasp better what is in the mind of Commissioner Vestager concerning these "structural risks." Some elements of answers are provided in the same testimony before the US Congress. Commissioner Vestager indeed distinguishes between two categories of "structural risks":

1. *Structural risks for competition*: some features of markets are conducive to "market tipping" by gatekeepers, "the emergence of which could be prevented by early intervention." Also, this category covers anti-competitive conduct by non-dominant companies.

2. *Structural lack of competition*: this refers to "structural market failures" evidenced by i) "systemic failures" about more than a particular company (e.g., high market concentration, high entry barriers, consumer lock-in, data access barriers), ii) "oligopolistic market structures" with risks of (algorithmic) tacit collusion.[211]

The critical notion to these revolutionary proposals is obviously "risk." In a quasi-regulatory risk assessment,[212] antitrust enforcement would, if these "new tools" be adopted, increasingly resemble precautionary measures where the hypothetically detrimental outcomes anticipated justify ex-ante regulation towards "digital gatekeeper platforms"[213] – namely, the GAFA and alike platforms. This refers to the precautionary principle's essential feature, which instills a default presumption to preserve the market structure's status

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211 *Id.* at 7.

212 For an introduction to risk assessment, *see* Veerle Heyvaert, *Reconceptualizing Risk Assessment*, 8 RECIEL 135, 135 (1999) (who uncontroversially defines risk assessment as "a methodology for making predictions about the risks attached to the introduction, maintenance or abandonment of certain activities . . . based on available information relating to the activity under examination. In other words, risk assessment is a way of ordering, structuring and interpreting existing information with the aim of creating a qualitatively new type of information, namely estimations on the likelihood (or probability) of the occurrence of adverse effects." The precautionary principle has been criticized with the argument from adverse effects – meaning that the principle creates extra risks rather than decrease them.) In the environmental context, *see* INDUR M. GOKLANY, THE PRECAUTIONARY PRINCIPLE: A CRITICAL APPRAISAL OF ENVIRONMENT RISK ASSESSMENT (2000). Applying the precautionary principle is a broader context. JULIAN MORRIS, RETHINKING RISK AND THE PRECAUTIONARY PRINCIPLE 189-228 (2001).

213 Vestager, *supra* note 210, at 7.

quo because suboptimal market structure yields suboptimal consumer benefits and suboptimal innovation levels.[214]

In the U.S., the Stigler Report advocated for regulation for antitrust matters:

> Regulations that mimic the antitrust laws but lower the burden of proof for the regulator and allow it to move faster are a way to gain effective enforcement in this sector, if not others. Regulation offers a valuable addition to antitrust enforcement. It can help design the digital landscape and align the interests and incentives of platforms and key providers with those of consumers and society.[215]

These regulatory tools aimed at reducing structural risks to competition and/or lack of competition come together with the perception that earlier and timely interventions are necessary instead of the lengthy process of antitrust liability characterized by the judicial process and the adherence to the Rule of law principles. Consequently, associated with the new regulatory tools possibly applicable to antitrust matters, the precautionary principle justifies preemptive interventionism illustrated by interim and urgent measures.

3. Preemptive Interventionism Justified by Precautionary Antitrust

The permissioned innovation authorized by the precautionary principle clashes with the benefits of permissionless innovation.[216] Such permissioned innovation intrinsic to the precautionary principle undoubtedly stifles the level and speed of innovation. The permissioned innovation derives from the precautionary principle's essence, legitimizing ex ante regulatory interventions rather than ex post liability. Compensating weaker *ex post* liability regimes, the *ex-ante* regulatory interventions that the precautionary principle encourages create the permission for innovation: it is a regulatory threat of censorship, banning, and non-recoupment of sunk costs incurred by the entrepreneur. Its deterrence effect proves to be incommensurable.[217]

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214 *See id.* at 5. (such presumptions are implicitly called for when the effect-analysis is criticized for being both too demanding and too time-consuming. Indeed, in her testimony, Commissioner Vestager has clearly suggested that reversed burden of proof (thus, legal presumptions) might be needed since, according to her, "whilst it is our burden of proof to demonstrate that a certain practice has harmful effects, when we undertake an effects analysis, I sometimes wonder how much needs to be shown to demonstrate that a company with a 95% market share which locks up more than half the market by imposing exclusivity on customers has harmed choice and competition".).

215 Stigler Report, *supra* note 180, at 100.

216 Adam Thierer, Permissionless Innovation: The Continuing Case for Comprehensive Technological Freedom (2016).

217 This is the "policeman at the elbow" effect as referred by Wu when discussing about the IBM antitrust case in the US. *See* Tim Wu, *Tech Dominance and the Policeman at the Elbow* (Columbia Public

The precautionary principle's essence is to justify *ex ante* regulation before any harm arises or even before any credible threat materializes. Indeed, one should not confuse the precautionary principle, which explains preemptive measures adopted in the absence of probable harm, with the preventative principle that justifies preventive measures adopted in alleged injury. While the precautionary principle grounds *ex ante* regulation for the merely theoretical, hypothetical risks, the preventative principle grounds *ex ante* regulation for the realistically plausible risks. The latter principle fits into the probabilistic theory of a cost-benefit analysis. The former principle appears detached from probabilistic calculus and discards cost-benefit analysis.

Nevertheless, both principles extol *ex ante* regulations, albeit each justified on a different basis. Preemptive measures supported the precautionary principle merely consist of prohibitions of conduct, bans of products, suspension until subsequent authorization, and lastly, regulatory constraints depending on approval. Therefore, the *ex-ante* regulations inferred by the precautionary principle often entail prohibitions rather than mere authorizations subject to regulations. In other words, the deterring effect of these preemptive measures is at maximum since the probability that the precautionary principle commands a ban on the examined activity remains highly probable.

Indeed, Commissioner Vestager has outlined the revolutionary shift of antitrust enforcement from ex post liability regime towards a more ex ante regulatory regime through *ex ante* tools in her testimony before the US Congress in July 2020. She has detailed the nature of the possible ex ante tools for tomorrow's antitrust enforcement:

> Whilst the precise nature and scope of any [ex ante regulatory] provisions are still to be determined, one option would be to establish a clear list of dos and don'ts that the platforms concerned would be required to comply within other words, a specifically defined set of obligations and prohibitions that would be of general applicability to the platforms concerns. That might include, for example, rules to stop platforms misusing their position as both player and referee – both owing to a platform, and competing with others that rely on that very same platform.[218]

The ambitious objective here is not so much to prohibit *ex post* alleged abuses (such as in the *Google Shopping* decision) but more precisely to prevent market tipping by digital gatekeepers so that potential abuses may not be deemed possible by the platform. The structural unbundling of the platform activities and the merchant activities may raise endless questions. For instance, why such structural separation be imposed on digital platforms

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Law Rsch., Working Paper No. 14-623, 2019) (arguing that " . . . both firms and individuals may behave differently when enforcement is more likely, especially "with a policeman at the elbow. . . . pending monopolization case, which focuses on exclusionary and anticompetitive acts and scrutinizes efforts to dominate new industries, may affect firm conduct in recognizable ways.").

218 Vestager, *supra* note 210, at 6.

and not on brick-and-mortar competitors with the risks of creating a two-level playing field amongst rivals? How can we ascertain that consumers and innovation do not benefit when the platform steps into the downstream market to offer cheaper prices and high quality? The ex-ante regulatory tools envisaged by the European Commission are more grounded on a view of the ideal market structure rather than based on evidence of efficiency losses and innovation deterrence concerning the blamed business conduct.

Another rationale for preemptive measures to come to the fore as justified by the precautionary principle lies in the preservation objective in the context of time constraints. Without further inquiry, the precautionary principle thus justifies interim measures and/or urgent measures. Interim measures refer to ex ante regulations that may intervene outside emergencies and often have a definitive status. On the other hand, urgent measures refer to *ex ante* regulations under emergency. They are usually temporary, pending a subsequent definitive measure that will override and confirm the urgent measure previously decided. Both interim measures and urgent measures are part of the preemptive measures provided for the precautionary principle. While the urgent measures are banal and are highly justified given the proven contextual environment legitimizing these measures adopted under emergency, interim measures are those measures dedicated to illustrating the precautionary logic towards a set of identified policy issues.

Indeed, interim measures substitute this ex-ante regulation most of the time, taking place outside any emergency requirement, instead of an ex-post liability regime whereby only those materialized harms create legitimate claims for compensation through damages. One fundamental condition for such an ex-post liability regime to be dependable is that it needs to be efficient, transparent, and fully accessible to potential victims. Failures and perceived malfunctions of the ex-post liability regime render the precautionary principle and its ex ante interim measures more attractive to litigants and regulators. The interim measures' precautionary logic is illustrated by Article 22 of the Digital Markets Act, which adopts the precautionary rhetorical language. Article 22 states that:

> In case of urgency due to the risk of serious and irreparable damage for business users or end users of gatekeepers, the Commission may [...] order interim measures against a gatekeeper on the basis of a prima facie finding of an infringement of Article 5 or 6."[219]

Such *prima facie* finding legitimizes early regulatory intervention absent the demonstration of damage only hypothetical risks of damage may suffice to stop the gatekeeper from doing particular conduct.

With this hindsight as a background, it can be noted that the ex-post liability regime available in the European Union for claiming ex post liability

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219 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202, at art. 22.

for an identified antitrust injury suffers notable pitfalls. Indeed, both institutional and public feelings can demonstrate that the ex-post liability system in the E.U. for antitrust claims may appear for some observers as unsatisfactory considering some pressing claims and accessibility imperatives. Consequently, rather than reforming these imperfect legal mechanisms so that ex post antitrust liability can more quickly and efficiently be claimed, a paradigm shift towards a more precautionary answer via the use of interim measures and ex ante regulations becomes more attractive in terms of radical reforms and in terms of the vigorous hastiness aimed at being instilled in the antitrust enforcement. Indeed, such interim measures portraying the precautionary logic inherent to ex ante regulations have first been envisaged by the European Commission better to address the ex post antitrust liability system's shortcoming.

On the 16th of October 2019, the European Commission ordered the American chipmaker Broadcom to stop applying specific provisions of its agreements with six of its main customers.[220] The interim measures decision is justified because this prohibition warrants "serious and irreparable damage to competition" in specific markets for systems-on-a-chip for TV. Competition Commissioner Margrethe Vestager justified the measure by arguing that:

> We have strong indications that Broadcom, the world's leading supplier of chipsets used for TV set-top boxes and modems, is engaging in anti-competitive practices. Broadcom's behavior is likely, in the absence of intervention, to create serious and irreversible harm to competition. We cannot let this happen, or else European customers and consumers would face higher prices and less choice and innovation. We, therefore, ordered Broadcom to stop its conduct immediately.[221]

Interestingly, these interim measures were intended to be decided at the start of the investigations' opening, which took place on the 26th of June 2019. Indeed, in a statement at the beginning of the inquiry against Broadcom, Commissioner Vestager argued that:

> TV set-top boxes and modems are part of our daily lives, for both works and leisure. We suspect that Broadcom, a major supplier of component for these devices, has put in place contractual restrictions to exclude its competitors from the market. This would prevent Broadcom's customers and, ultimately, final consumers from reaping the benefits of choice and innovation. We also intend to order Broadcom to halt its behaviour while our investigation proceeds, to avoid any risk of serious and irreparable harm to competition.[222]

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220 European Commission Press Release, Antitrust: Commission Imposes Interim Measures on Broadcom in TV and Modem Chipset Markets (Oct. 16, 2019).

221 *Id.*

222 European Commission Press Release, Antitrust: Commission Opens Investigation into Broadcom and Sends Statement of Objections Seeking to Impose Interim Measures in TV and Modem Chipsets Markets (June 26, 2019).

The allegedly exclusionary practices, falling within the ambit of Article 102 TFEU, are i) setting exclusive purchasing obligations; ii) granting rebates or other advantages conditioned on exclusivity or minimum purchase requirements; iii) product bundling; iv) abusive IP-related strategies and v) deliberately degrading interoperability between Broadcom products and other products.[223] Broadcom's market dominance has been identified in the supply of systems-on-a-chip for TV set-top boxes and modems. These interim measures were deemed "indispensable" in the Statement of Objections to "ensure the effectiveness of any final decision taken by the Commission at a later date."[224] This early assessment was based on the need "the suspected anti-competitive behaviour damages the market irreparably [...]".[225] In other words, "interim measures can only be granted if a company's behavior constitutes, at first sight, an infringement of competition rules and if there is a risk of serious and irreparable harm to competition."[226] In the present case of *Broadcom*, the Statement of Objections considered that the alleged competition concerns were "serious" and that there was a risk of "elimination or marginalization of competitors before the end of proceedings."[227] Thus, the European Commission has an *a priori* clear view of the course of the investigations since interim measures were, in a rare fashion, envisaged at their opening. The justifications given for Broadcom's interim measures decision echo the jargon associated with the precautionary principle. Indeed, interim measures were deemed "indispensable" to avoid "irreversible damage" and "serious and irreparable harm," so regulatory intervention is necessary. These criteria are precisely those about the precautionary principle when this principle is invoked to avoid, despite uncertainties, generating potentially severe and irreversible harm as provided by the definition of the European Environment Agency in the area of environmental protection:

> The precautionary principle provides justifications for public policy and other actions in situations of scientific complexity, uncertainty, and ignorance, where there may be a need to act in order to avoid, or reduce, potentially serious or irreversible threats to health and/or the environment, using an appropriate strength of scientific evidence, and taking into account the pros and cons of action and inaction and their distribution.[228]

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223 *Id.*

224 *Id.*

225 *Id.*

226 *Id.*

227 *Id.*

228 *See* Eur. Env't Agency, Late Lessons from Early Warnings II: Science, Precaution and Innovation, Doc. No. 1/2013, at 649 (2013). *See also* Econ. & Soc. Council, Comm. on Sustainable Dev., Rio Declaration on Environment and Development: application and implementation, at ¶ ¶ 80-86 (Feb. 10, 1997), https://www.un.org/esa/documents/ecosoc/cn17/1997/ecn171997-8.htm (stating that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their

These interim measures are explicitly "precautionary" in their nature, according to Commissioner Vestager, as revealed in her answer given to a Member of the European Parliament (MEP) on the 5th of July 2017. Spanish MEP Ramon Luis Valcarcel Siso asked, in a question entitled "Applying precautionary measures in antitrust cases," whether, following the fine imposed in the 2017 Google Shopping decision, "temporary measures" could oblige companies to abide by remedies before the end of antitrust investigations. He asked:

> [C]ompanies affected by the unfair practices identified have reported that their business was severely damaged because of those practices during the years that DG Competition took to come to a verdict. In fact, of this situation, Commissioner Vestager has suggested that temporary measures may be introduced to oblige companies being investigated in antitrust cases to cease unfair practices even before those practices have been proven to exist. The aim of those measures would be to have DG Competition respond to any sign of unfair practices in such a way that those affected by the practices would not have to wait the several years that it usually takes to close investigations of that type [...] Could the Commissioner provide more detailed information on the proposal?[229]

Interim measures have been dormant instruments of E.U. competition policy for many years.[230] Article 8 of the Council Regulation (E1/2003 of 16 December 2002 provides for interim measures. It states that "in cases of urgency due to the risk of serious and irreparable damage to competition, the Commission, acting on its own initiative may be decision, on the basis of a prima facie finding of infringement, order interim measures" (Article 8(1)). The interim measures decision can be renewed if deemed necessary and appropriate (Article 8(2)). The Regulation also acknowledges the Member States' competition authorities to order interim measures when applying E.U. competition rules (Article 5). Article 8 of the Regulation codifies the seminal

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capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."). Furthermore, the Appellate Body of the WTO reinforces the essential element of irreversibility of the potential damages considered in the precautionary principle when it endorses a precautionary approach for the WTO panels who "may [...] and should, bear in mind that responsible, representative governments commonly act from perspectives of produce and precaution where risks of irreversible, e.g. life-terminating damage to human health, are concerned." *EC Measures*, *supra* note 89, at ¶ 123.

229 VALCARCEL SISO, APPLYING PRECAUTIONARY MEASURES IN ANTITRUST CASES, Question for written answer E-004559/2017, European Parliament, Rule 130, PE 607.713 (2017).

230 Commission interim measures decisions have not been numerous over the years. Before the Broadcom decision, the Commission ordered interim measures in Commission Decision of 18 August 1982 (IV/30.6969 - Distribution system of Ford Werke AG - interim measures, 1982 O.J. (L256) 1092; Commission Decision of 29 July 1983 (IV/30.698 - ECS/AKZO: interim measures), 1983 O.J. (L252); Commission Decision of 29 July 1987 (IV/32279 - BBI/Boosey & Hawkes: interim measures) 1987 O.J. (L286); Commission Decision of 26 March 1990 adopting (IV/33.157 Ecosystem / Peugeot - Provisional measures); Commission Decision of 25 March 1992 (IV/34.072 - Mars/Langnese and Schoeller - interim measures); Commission Decision of 11 June 1992 (IV/34.174 - Sealink/B&J - Halyhead: interim measures); Commission Decision of 3 July 2001 (Case COMP D3/38.044 - NDC Health/IMS Health: interim measures, 2002 O.J. (L59)).

E.U. case *IMS Health Inc*[231] of 2001, discussing an interim measures decision.[232] In *IMS Health Inc*, the Court referred to the general Article 105(2) of the Rules of Procedure, which permits judges to apply interim measures when necessary to be able to

> have enough time to be sufficiently informed so as to be in a position to judge a complex factual and/or legal situation" or "where it is desirable in the interests of the proper administration of justice that the status quo be maintained pending a decision. [233]

In other words, the interim measures here referred to compulsory licensing of IP rights to competitors. Here, interim measures, in that case, would reach a different solution than a mere preservation of the status quo (as the French meaning, , *mesures conservatoires* suggests). For, interim measures here would alter the market structure and modify the firm's business model together with the competitive constraints at stake. Because of the disruptive nature of interim measures on the dynamic process of competition as well as on the firm's property rights, the Court in the *IMS Health* case has suspended the interim measures decision of the European Commission based on "potentially very important economic consequences" for the firm subject to the interim measures decision and based on the "serious encroachment on its property rights."[234]

After this demise, interim measures in EU competition law became dormant.[235] Dedicated to tackle such dormancy, MEP Valcarcel Siso rightly referred to E.U. interim measures as a "precautionary measures in cases" when he suggested to Commissioner Vestager taking interim measures out of their dormancy in EU antitrust.[236] Commissioner Vestager replied on the

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231 T-184/01, IMS Health Inc. v. European Commission, 2001 E.C.R. II-2351 (suspending the Commission Decision in COMP D3/38/044 NDC health / IMSHealth: Interim measures).

232 *See also* C-792/79 R, Camera Care v. Commission 1980 E.C.R. 119 (where the Court of Justice asserted that the Commission had power to order interim measures under competition rules); *See also* Lang (1981:52) (writing that "interim measures will not be ordered if they would impose irreparable loss on the firm against which they were ordered. All interim measures are adopted without prejudice to the Commission's final decision on the merits. As interim measures are essentially to protect the status quo ante, they will not normally put the firm requesting them in a better position than it would have been in if the alleged infringement had not occurred"); *See also* Morris (1985:108) who recaps the two conditions for interim measures to be adopted as being in cases of proven urgency, their adoption aims at avoiding "1) serious and irreparable damage to the party requesting protective measures, or 2) a situation which is intolerable for the public interest"; *See also* Mantzari, D., *Interim Measures in E.U. Competition Cases: Origins, Evolution, and Implications for Digital Markets*. CLES Research Paper Series 1/2020 (2020).

233 *Id.* at ¶ 20.

234 *Id.* at ¶ 27.

235 Despoina Mantzari, Interim Measures in E.U. Competition Cases: Origins, Evolution, and Implications for Digital Markets, 11 J. OF EUROPEAN COMPETITION LAW & PRACTICE 487 (2020).

236 Ramon Luis Valcarcel Siso, *Applying Precautionary Measures in Antitrust Cases*, Question for Written Answer E-004559-17 Rule 130 (July 5, 2017) https://www.europarl.europa.eu/doceo/document//E-8-2017-004559_EN.html.

21st of September 2017, foretelling the Broadcom decision a few months later:

> The Commission already has the power to impose so-called interim measures. Such measures ensure that whilst an investigation is being carried out, no serious and irreparable damage is caused to competition that could not be remedied after the Commission procedure. The power of the Commission to impose interim measures is set out in Article 8 of Council Regulation (EC) No. 1/2003. This article codifies the two conditions outlined by the Court of Justice of the European Union in its case-law on interim measures. These two conditions are cumulative:
>
> A) there must be a prima facie finding of an infringement; and
>
> B) there must be an urgent need for protective measures due to the risk of serious and irreparable harm to competition.
>
> The Commission recognizes that the speed and timely nature of an intervention, if necessary, may be crucial in antitrust cases. For this reason, the Commission carefully analyses in each case whether the imposition of interim measures is appropriate [...] The Commission will not hesitate to decide on interim measures in suitable cases.[237]

Commissioner Vestager "resurrected"[238] E.U. interim measures for the *Broadcom* decision. Such change partakes to a broader changer of shifting antitrust from an ex post enforcement mechanism toward ex ante rules of competition. Big tech companies,[239] and more generally, large market actors, may not have to wait years of investigations before some regulatory obligations become applicable: The opening of antitrust investigations can lead to interim measures be immediately imposed in the name of avoiding "irreversible" risks to competition which oftentimes, if not always, are risks to the financial viability of competitors rather than actual consumer harm. Departing from *IMS Health Inc.*'s *res judicata*, the new policy of the European Commission signals a strongly interventionists bias in dynamic markets as precaution, not disruption, has subrepticely become the main concern of antitrust enforcers.

This trend partakes to the more generally precautionary approach to E.U. competition enforcement illustrated with the recent "new competition tools"[240] to be devised under the new mandate of Commissioner Vestager that

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237 Commissioner Vestager, *Answer Given by Ms. Vestager on Behalf of the Commission* (Sept. 21, 2017) https://www.europarl.europa.eu/doceo/document/E-8-2017-004559-ASW_EN.html.

238 See Bryan Koenig, In Broadcom Test, E.U. Tries to Resurrect 'Interim Measures,' LAW360 (June 28, 2019).

239 On the general, and largely unfounded, bias against large companies, *see* ROBERT D. ATKINSON & MICHAEL LIND, BIG IS BEAUTIFUL: DEBUNKING THE MYTH OF SMALL BUSINESS (MIT Press 2018) (aiming to "debunk the small-is-beautiful orthodoxy" with a size-neutrality principle toward companies).

240 See European Commission, *Antitrust: Commission consults stakeholders on a possible new competition tool*, Press Release IP/20/977 (2020a). *See also* Euractiv (2020) (reporting that MEP Carmen Avram, shadow rapporteur on the Parliament's annual competition report, argued that "the main objective

these "new competition tools" (NCT) are blatant departures from the existential feature of competition policy–*i.e., ex -post* antitrust liability as part of corrective justice regime–towards a more preemptive nature of competition policy– *i.e., ex-ante* precautionary antitrust as part of a deontological justice regime. In short, (antitrust) liability occurs when excuses are no longer acceptable for modern and accountable regulators (antitrust) precaution becomes the norm, and absence of harm (either to be shown or to be expected) becomes the rule.[241] Additionally, the European Commission launched in June 2020 an "Inception Impact Assessment," as part of the proposed "Digital Services Act package," aimed at assessing the need for an "ex-ante regulatory instrument for large online platforms with significant network effects acting as gate-keepers in the European Union's internal market."[242] Because precaution is better than cure according to common-sense old adagio, Commissioner Vestager prefers to intervene in digital markets that "fail" structurally by regulating them at the expense of the industry dynamics concerning innovativeness without having evidenced potential consumer harm. This increasingly regulatory trend in antitrust enforcement, especially on big digital platforms, pertains to shifting from a liability regime towards a no-fault regulatory authority.[243] Market failures

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for the new competition tool is to be able to deal more effectively and faster with digital antitrust and merger cases in particular.").

241 This precautionary approach infuses into national competition authorities as illustrated by the French Competition Authority (Autorité de la Concurrence) and its interim measures decision against Google on 2020. *See* Autorité de la Concurrence, *Décision No 20(MC-01) relative à des demandes de mesures conservatoires présentées par le Syndicat des éditeurs de la presse magazine*, l'Alliance de la presse d'information générale e.a. et L'Agence France-Presse, April 9, 2020 (2020) (who imposed interim measures on the basis of Article L.464-1 of the French Commercial Code and due to the necessity and proportionality to the seriousness of the alleged anti-competitive conduct of Google vis-à-vis the press agencies).

242 European Commission, Inception Impact Assessment - Digital Services Act package: Ex ante regulatory instrument for large online platforms with significant network effects acting as gate-keepers in the European Union's internal market, Ares (2020)2877647, June 2, 2020 (2020) (arguing that "whereas over 10,000 such online platforms operate in Europe's digital economy, most of which are SMEs, a small number of large online platforms captures the biggest shares of the value. This mainly follows from the development of large online platforms operating as gatekeepers between businesses and citizens, benefitting from strong network effects. Furthermore, some of these large online platforms exercise control over whole platform ecosystems that are essentially impossible to contest by existing or new market operators, irrespective of how innovative and efficiency they may be". Thus, the Commission considers a number of policy options in order to regulate these big digital platforms, including the adoption of "a new and flexible ex ante regulatory framework for large online platforms acting as gatekeepers" which may include the "adoption of tailor-made remedies addressed to large online platforms acting as gatekeepers on a case-by-case basis where necessary and justified".)

243 This is particularly well illustrated by the Report entitled "White Paper - Digital Platforms" issued by the German Ministry for Economic Affairs and Energy (2017:106) which pursues the aim of the "Establishment of a dual, proactive competition law. For this purpose, the applicable elements of the general and rather reactive competition law – as defined by the Act against Barriers to Competition (GWB) – will be combined with a distinctly more active and systematic market supervision and robust

are addressed preemptively without much emphasis on potential regulatory shortcomings. In that regard, Type I error costs are discarded while Type II error costs are exaggerated in coherence with the logic underpinning the precautionary principle. This is now enshrined in the proposed Digital Markets Act, and especially its Article 22.[244] Commissioner Vestager has made clear that the Broadcom interim measures decision "is a sign of things to come." In the same vein, interim measures, mostly digital platforms, are commanded by several digital competition reports.[245] Consequently, it is no surprise that the Article 24 of the Digital Markets Act allows for the European Commission to regulate digital gatekeepers through the use of interim measures given the precautionary logic of both interim measures and the Digital Markets Act.[246] Article 24 of the DMA states:

> In case of urgency due to the risk of serious and irreparable damage for business users or end users of gatekeepers, the Commission may adopt implementing acts ordering interim measures against a gatekeeper on the basis of a prima facie finding of an infringement of Article 5, 6 or 7.[247]

It is *because* interim measures have a precautionary logic that the DMA integrated them as one of the power the European Commission should have in the new precautionary antitrust. Such precautionary antitrust is further illustrated with another fundamental aspect of the precautionary principle –

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intervention powers. The aim is to institutionalize an 'early warning system' . . . Proof of a market-dominant position as so far required by the GWB is no longer a prerequisite for intervention."

244 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202, at art. 22.

245 *See e.g.*, Furman Report, *Unlocking Digital Competition*, REPORT OF THE DIGITAL COMPETITION EXPERT PANEL 6 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf (2019); BRICS Report, *Digital Era Competition: A BRICS View*, REPORT BY THE BRICS COMPETITION LAW AND POLICY CENTRE 410 http://bricscompetition.org/upload/iblock/6a1/brics%20book%20full.pdf (2019); Cremer Report, *Competition Policy for the Digital Era*, FINAL REPORT 17 https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf (2019) (mentioning interim measures without reaching a conclusion).

246 This is also true at the national competition authorities' level thanks to the adoption of the ECN+ Directive on the December 11, 2018. This Directive enable national competition authorities (NCAs) to impose interim measures. The Directive notes that "interim measures can be an important tool to ensure that, while an investigation is ongoing, the infringement being investigated does not seriously and irreparably harm competition. This tool is important to avoid market developments that could be exceedingly difficult to reverse by a decision taken by an NCA at the end of the proceedings. NCAs should therefore have the power to impose interim measures by decision. At a minimum, this power should apply in cases where an NCA has made a prima facie finding of infringement of Article 101 or 102 TFEU and where there is a risk of serious and irreparable harm to competition", in ¶ 38 and codified in Article 11 of Directive (EU) 2019/1 to empower the competition authorities of the Member States to be more effective enforcers and to ensure the proper functioning of the internal market.

247 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202, at art. 24.

the reversal of the burden of proof (or everything is prohibited unless proven otherwise).

4. The Reversed Burden of Proof Implied by Precautionary Antitrust

Along with the precautionary principle, the Digital Markets Act shifts the burden of proof: the platforms have to demonstrate that they have not infringed the regulations or harmed anyone (be it consumers, rivals, or the general idea of innovation). Indeed, paragraph twenty-three of the Digital Markets Acts states that, against the presumption that digital gatekeepers are liable,

> the burden of adducing evidence that the presumption deriving from the fulfillment of quantitative thresholds should not apply to a specific provider should be borne by that provider.[248]

Therefore, designed digital gatekeepers can almost impossibly be exempted from falling under the scope of the Digital Markets Act. Furthermore, quite astonishingly, the Digital Markets Act further considers that

> any justification on economic grounds seeking to demonstrate efficiencies deriving from a specific type of behaviour by the provider of core platform services should be discarded, as it is not relevant to the designation as a gatekeeper."[249]

The burden of proof is not only shifted. The precautionary approach embodied in the Digital Markets Act entails some irrebuttable presumptions and an increase in the standard of proof when relevant.

Suppose the ability to intervene ahead of the damage via ex-ante regulations such as interim measures form an essential component of the precautionary principle. In that case, another critical part deserves scrutiny, the shift in the burden of proof inherent to the precautionary principle.[250] As

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248 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202, at ¶ 23.

249 *Id.*

250 The E.U. rules of the burden of proof in competition law were first laid down in Article 2 of the Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Article 81 and 82 of the Treaty (2003) 2003 O.J. (L 1/1) which states that "the burden of proving an infringement of Article 81(1) or of Article 82 of the Treaty shall rest on the party or the authority alleging the infringement. The undertaking or association of undertakings claiming the benefit of Article 81(3) of the Treaty shall bear the burden of proving that the conditions of that paragraph are fulfilled". This codified the statement of the Court according to which "Where there is a dispute as to the existence of an infringement of the competition rules, it is incumbent on the Commission to prove the

we shall now prove, this shift of the burden of proof both pertains to the precautionary principle and appears in recent antitrust reforms suggested by or advised to Commissioner Vestager.[251] This reversed burden of proof is strongly advocated in the U.S., as shown by the Stigler Report.[252] This report concludes that:

> Burdens of proof might be switched by adopting rules that will presume anticompetitive harm based on preliminary showings by antitrust plaintiffs and shift a burden of exculpation to the defendant or by ensuring that plaintiffs are not required to prove matters to which the defendants have greater knowledge and better access to relevant information.[253]

First, let us delve into the extent to which the precautionary principle implies a shift of the burden of proof. To prevent the regulator from intervening based on theoretical risks of irreversible damage, the individual must prove the absence of harm or damage caused by the envisaged course of action under the precautionary principle. This means that the burden of proof must be reversed with the precautionary principle instead of traditional liability regimes. Uncertainties no longer prevent the regulator from intervening but rather command for regulatory interventions. Furthermore, only certainties of innocuousness showed by the individual can wave off regulatory interventions.[254] Indeed, the European Commission saw that, in applying the precautionary principle for prior approval of products before they are marketed, "the legislator, by way of precaution, has reversed the burden of proof by requiring that the substances be deemed hazardous until proven otherwise. Hence it is up to the business community to carry out the scientific work needed to evaluate the risk."[255] The European Commission further considers that "action taken under the head of the precautionary principle must in some instances include a clause reversing the burden of proof and placing it on the producer, manufacturer or importer, but such an obligation cannot be systematically entertained as a general principle."[256]

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infringements found by it and to adduce evidence capable of demonstrating to the requisite legal standard the existence of the circumstances constituting an infringement", in C-185/95 P Baustahlgewebe v. Commission, ¶ 58, 1998 E.C.R. 608.

251 Investigation Into Competition in the Digital Economy and the Role of Digital Platforms Before the Subcomm. On Antitrust, Commercial & Admin Law of the H. Comm. on the Judiciary, 116th Cong. 5 (July 30, 2020) (statement of Margrethe Vestager, Executive Vice-President, Eurpean Commission).

252 Stigler Report, *Stigler Committee on Digital Platforms* (2019) https://research.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf?la=en&hash=2D23583FF8BCC560B7FEF7A81E1F95C1DDC5225E.

253 *Id.* at 98.

254 Jonathan Wiener & Michael Rogers, *Comparing precaution in the United States and Europe*, 5 J. OF RISK RSCH. 317, 321 (2002).

255 Communication from the Commission on the Precautionary Principle, *supra* note 99, at 20.

256 *Id.* at 20-21.

The seminal text defining the precautionary principle, the 1998 Wingspread Declaration, encapsulates explicitly such reversed burden on proof:

> When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not established scientifically. In this context, the proponent of the activity, rather than the public, should be the burden of proof.[257]

Second, the recent calls for antitrust enforcement reforms in Europe concerning digital markets: the shift of the burden of proof appear conditional to the new line of thinking.[258] On the one hand, Commissioner Vestager has clearly stated that, given the difficulty in demonstrating consumer harm in the allegedly anti-competitive conducts of big digital platforms, she reflects on proposals for shifting the burden of proof onto big digital platforms: it would be for digital platforms to demonstrate the absence of harm to competition/consumer/innovation caused by their behaviors.[259] To explicit commissioner Vestager's thoughts, one of her advisers, used the example of the Uber company:

> Say, for instance, Uber started offering higher rates for those drivers who used its platform more often," said this person. "This would put competitors at a disadvantage because drivers would start favouring Uber to carry out their trips over competing apps. Under the proposed change it would be Uber who would need to show its behaviour is causing no harm to competition rather than the Commission having to prove it.[260]

Such a reversed burden of proof has been suggested quite influentially in high-level reports. Primarily, the so-called "Cremer Report,"

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257 Wingspread Conference on the Precautionary Principle, Consensus Statement on the January 26, 1998, https://www.sehn.org/sehn/wingspread-conference-on-the-precautionary-principle (1998).

258 Cani Fernandez, *Presumptions and Burden of Proof in E.U. Competition Law: the Intel Judgment*, 10 J. OF EUR. COMPETITION L. & PRAC., 448, 456 (2019) (noting that standard of proof and burden of proof are intrinsically related since "the allocation of the burden of proof (who should bear it) closely relates to the matter of its discharge (how the person carrying the burden of proof may satisfy it).").

259 *See* Emily Craig, *Vestager considers shifting burden of proof for big tech*, GLOB. COMPETITION REV. (Oct. 31, 2019), https://globalcompetitionreview.com/article/vestager-considers-shifting-burden-of-proof-big-tech (who precises that such reversed burden of proof appears questionable to many observers.) On the merits of big companies over small business, *see* ROBERT D. ATKINSON & MICHAEL LIND, BIG IS BEAUTIFUL: DEBUNKING THE MYTH OF SMALL BUSINESS 13 (2018) (eloquently recapping that "left-wing populists have made common cause with right-wing libertarians in their disdain for large business, co-opting the language of the market fundamentalist right to paint their antipathy to large business in the guise of the support of markets.").

260 *See* Javier Espinoza & Sam Fleming, *Margrethe Vestager eyes toughening 'burden of proof' for Big Tech*, FIN.TIMES (Oct. 31, 2019) https://www.ft.com/content/24635a5c-fa4f-11e9-a354-36acbbb0d9b6?shareType=nongift.

commissioned by the European Commission and delivered in early 2019, made the following proposals:

> We propose that competition law should not try to work with the error cost framework on a case-by-case basis. Rather, competition law should try to translate general insights about error costs into legal tests. The specific characteristics of many digital markets have arguably changed the balance of error costs and implementation costs, such that some modifications of the established tests, including allocation of the burden of proof and definition of the standard of proof, may be called for. In particular, in the context of highly concentrated markets characterised by strong network effects and high barriers to entry (I.e., not easily corrected by markets themselves), one may want to err on the side of disallowing potentially anti-competitive conducts and impose on the incumbent the burden of proof for showing the pro-competitiveness of its conduct.[261]

Another clear illustration is represented in the so-called "Furman Report" commissioned by the U.K. Competition & Markets Authority, where it is said that:

> The principal alternative considered by the Panel has been the introduction of a legal presumption against acquisitions by large digital companies, with the burden placed on parties involved to provide proof that the merger will not be anti-competitive.[262]

In a similar vein, the French competition authority (*Autorité de la Concurrence*) embraces such shift of the burden of proof for the merger because the reversal would enable "timely intervention for addressing anticompetitive conduct whenever they arise."[263] Therefore, the reversed burden of proof carries the dual advantage to out-source the duty to evidence from the regulator to the private actor and enable, together with interim measures, speedy intervention given the probable inability of this private actor to prove the absence of harm. This reversal of the burden of proof is revolutionary for antitrust enforcement.[264]

With the structural presumptions suggested by *ex-ante* regulatory tools,[265] the precautionary principle is *de facto* and *de jure*, a reversal of the

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261 Cremer Report, *Competition Policy for the Digital Era*, Final Report, European Commission, https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf at 4 (2019).

262 Furman Report, *Unlocking Digital Competition – Report of the Digital Competition Expert Panel*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf at 101 (2019).

263 Our translation from "Ce renversement de la charge de la preuve permettrait ainsi de gagner en rapidité, pour corriger toute distorsion de concurrence le plus rapidement possible après son apparition", in Autorité de la Concurrence (2020:9).

264 Indeed, it does not match the discussion relating to the allocation of the burden of proof and when, from the standard of proof perspective, the burden shifts from the plaintiff to the defendant. For a general discussion on this shift with a specific application to U.S. antitrust, *see* ANDREW I. GAVIL, BURDEN OF PROOF IN U.S. ANTITRUST LAW: ISSUES IN COMPETITION LAW AND POLICY 125-27 (ABA Book Publishing 2008).

265 *See* § II, *supra* note 263.

burden of proof;[266] liable until proven irreproachable, digital platforms would not only be subject to *ex-ante* tools (structural tools and interim measures). Still, they would also have ex-post to prove that they have created sufficient efficiency benefits to provide a credible defense. Unfortunately for them, the threshold for evidencing efficiency defenses stays unreasonably high in Europe[267] and is subject to potentially heightened U.S. requirements.[268] Consequently, in light of the literature and most notably in light of the

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266 Cani Fernandez, *Presumptions and Burden of Proof in E.U. Competition Law: the Intel Judgment*, 10 J. OF EUR. COMPETITION L. & PRAC., 448, 456 (2019) (concluding that "when the conditions imposed to rebut a presumption are disproportionate, this has the effect of depriving completely this tool of its function. Because when a presumption is not rebuttable, not only this amounts to a non-respect of the principle of presumption of innocence, but also the competition enforcement is costly in terms of welfare, as the application of such a presumption will cause an excessive number of type I errors". Thus, in the context of reversed burden of proof applied inherent to precautionary antitrust where hypothetical risks to competition are alleged, the discharge of the burden of proof by evidencing efficiencies/innovation becomes unattainable. Consequently, the legal presumption, hinted by the precautionary reversal of the burden of proof, becomes an irrebuttable presumption contrary to fundamental right of a fair trial and to the basic tenets of the rule of law principles. Indeed, the same author at 449 clearly recalls that "a resort to presumptions not surrounded by the proper procedural guarantees, which prevents to call into question, the conclusions that derive from their application, may imply a violation of the presumption of innocence and result in an infringement of the undertakings' rights of defence".)

267 Efficiencies have not played a prominent role in merger cases before the Council Regulation no 139/2004 of 20 January 2004, and even after that date, "the European Commission has cleared no merger solely on the basis of efficiencies" and "the European Commission and Community Courts were initially reluctant to acknowledge efficiency justifications in dominance cases". *See* OECD, *Background Note, in The Role of Efficiency Claims in Antitrust Proceedings*, OECD Policy Roundtables, DAF/COMP(2012)23, 11-60, at 23 (2012). Furthermore, Richard Wish and David Bailey stated that they are "not aware of any case in which an efficiency defence has succeeded under Article 102." RICHARD WISH & DAVID BAILEY, COMPETITION LAW 218 (9th ed. 2018). In the US, a growing number of voices have advocated to question the rule of reason in favour of a per se illegality rule whereby efficiency defence would play no role."

268 *See for instance*, Maurice Stucke, *Does the Rule of Reason Violate the Rule of Law*, 42 U.C. DAVIS L. REV. 1375, 1378-79 (2009) (arguing that "Under the Court's per se illegal rule, certain restraints of trade are deemed illegal without consideration of any defences. These restraints are so likely to harm competition and to lack any significant procompetitive benefits that, in the Court's estimation, 'they do not warrant the time and expense required for particularized inquiry into their effects.'"); TIM WU, THE CURSE OF BIGNESS: ANTITRUST IN THE NEW GILDED AGE 129 (Columbia Global Reports 2018) (advocating that "we might also consider a return to structural presumptions, such as a simple but per se ban on mergers that reduce the number of major firms to less than four"); Stigler Report, *Stigler Committee on Digital Platforms*, https://research.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf?la=en&hash=2D23583FF8BCC560B7FEF7A81E1F95C1DDC5225E (2019) (at 78 arguing that "Mergers between dominant firms and substantial competitors or uniquely likely future competitors should be presumed to be unlawful, subject to rebuttal by defendants. This presumption would be valuable, not because it would identify anticompetitive mergers with precision, but because it would shift the burden to the party with the best access to relevant information on issues of competitive effects and efficiencies from the merger", at footnote 11 stating that "at some point we need to start thinking about inverting the burden of proof: Prima facie evidence of responsibility that cannot be further scrutinized because the companies refuse to share the data that would prove or disprove the claims should be considered strong evidence they are responsible".)

proposed Digital Markets Act,[269] it can be argued that the suggested (and probably soon materialized) shifts in the burdens of proof reveal the pervasiveness of the precautionary principle into antitrust enforcement towards digital platforms. The change of the burden of evidence, limited to big tech companies with no specific, convincing reason, bears several detrimental effects in enforcing a modern antitrust policy.

First, it introduces structural presumptions according to which significant digital platforms' conduct is thought to be anti-competitive unless proven otherwise. Such structural presumptions prevent the same level playing field of enforcement to all players and prejudge any consumer/innovation harm to prevent an arbitrarily selected range of conducts by a handful of companies to, for instance, enter new markets and disrupt incumbents for the benefits of consumers and of the competitive process. Structural presumptions derail the rule of law and introduce an unjustified two-level playing field in antitrust enforcement. Second, while in digital sectors, the introduction of new products or services yields high risks (thus generates expectations of high returns), the chilling out the effect of the reversed burden of proof - which can never be met given the inability to prove any innocuousness - will be disastrous on the innovation and competitiveness of our economies. Premiums are *de facto* granted to proven products and services (e.g., firms' expansions through external growth/mergers). Price tags are put on new products and services (e.g., firms' expansion through innovation). Third, Europe would become the place to introduce new products and services in digital markets compared to other places globally, which would, correspondingly, gain from this self-inflicted cost on innovation. For these reasons and potentially many others, the reversed burden of proof explicitly applied to a few digital market platforms is both incoherent and unconvincing from both a legal and an economic perspective.

This section shows how the precautionary principle's core elements are in European antitrust enforcement in digital markets. It is indeed commonly accepted that informational uncertainties surround the application of competition policy in digital markets due to unpredictable consequences, lack of counterfactuals, and traditional notions (such as market definition and market power, innovation, and consumer harm) being profoundly challenged by novel business practices. Furthermore, consumer harm is increasingly superfluous in showing antitrust liability because of a preferred standard to preserve the market structure, protection of consumer choices. Also, in a precautionary stance, uncertainties must not prevent regulators from intervening under urgent conditions to avoid what is considered structural risks incurring irreparable harm to competition. Finally, the targeted companies would be subject to a reversed burden of proof to ease the institution's work at the expense of market actors who will have great

269 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202.

difficulties to evidence dynamic efficiencies (innovation). Altogether, these elements dramatically shift the regulator's mindset concerning the "structural risks" to competition generated by big tech companies: regulatory interventions are warranted to preserve the status quo and avoid potential damages. Such extrapolation of the precautionary principle to antitrust enforcement is inevitably both fascinating and worrying – fascinating because it exemplifies the prestige of the precautionary principle in all the decision-making processes and worrying because it stands for a risk-averse market environment in time of a competitive quest for innovation across the globe. Nevertheless, the demonstration of applying the precautionary principle to E.U. antitrust enforcement (and its influence in the U.S.) does not explain such an application has taken place. This is now what we may decipher.

5. The Brussels' Effect: American Precautionary Antitrust

Professor Anu Bradford has famously coined the expression "the Brussels Effect" to describe the tremendous extraterritorial influence European regulations have.[270] In other words, the rest of the world follows the European regulatory approach, given the size and influence of the European market. But, as European regulations often epitomize a precautionary logic given the importance of the precautionary principle in Europe, the precautionary approach tends to be exported too.

Given the rise of Europe's precautionary antitrust together with the Brussels effect, it is unsurprising that a similar approach would arise in the United States.[271] As the Neo-Brandeisians frequently take inspiration from Europe to justify a more aggressive antitrust enforcement, the European precautionary approach to antitrust matters when it comes to innovative companies has been transplanted in the United States in two major ways.

First, the antitrust bills represent a shift toward ex-ante rules of competition with reversed burden of proof, quasi-rules of per se illegality given the reduced role of efficiency defenses, and ultimately a departure from the judicial enforcement of antitrust rules.

Second, and most importantly, the FTC has explicitly identified rulemaking as a new way to intervene in antitrust matters. Rather than relying on judicial enforcement of antitrust rules, the FTC aims at shifting the enforcement to ex-ante rules via rulemakings "unfair methods of

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270 ANU BRADFORD, BRUSSELS EFFECTS: HOW THE EUROPEAN UNION RULES THE WORLD, (Oxford University Press 2020); Anu Bradford, *The Brussels Effect*, 107 NW. UNIV. L. REV. 1 (2020).

271 Aurelien Portuese, *Changes to antitrust policy would harm U.S. economy,* TIMES UNION (June 29, 2021), https://www.timesunion.com/opinion/article/Commentary-Changes-to-antitrust-policy-would-16280255.php.

competition" (UMC).[272] This ambition is questionably on two fronts. First, it is very likely that such rulemaking ambition is illegal, given the FTC's inability to engage in substantive rulemaking authority when it comes to "unfair methods of competition." Second, should such legally questionable rulemaking materialize; UMC rulemakings will inevitably portray the characteristics of a precautionary approach to pro-competitive and pro-innovative behaviors. Indeed, UMC rulemaking will preemptively prohibit a number of business practices irrespective of efficiency defenses. These blanket prohibitions would be imposed ex-ante by regulators rather than ex-post by judges. The prevalence of regulation over litigation, and more importantly of precaution over possible innovations, characterize the precautionary approach inherent to the shift from ex-post to ex-ante rules of competition. Finally, the rise of American precautionary antitrust is also illustrated by President Biden's Executive Order on Competition which calls for a wide range of regulatory rules aimed at promoting competition despite possible unintended consequences on innovation.[273]

In conclusion, the American version of precautionary antitrust follows from, but also differs from, the European version of precautionary antitrust. It may rely more on agencies' activity rather than on legislative changes, given the inability of Congress to substantially change antitrust laws. Be that as it may, the American version of precautionary antitrust will decidedly remain softer and milder than the European version of precautionary antitrust, thereby leaving the European precautionary approach to competition as the most influential model of regulations.

B. *Conceptualizing Precautionary Antitrust*

Precautionary antitrust has become a reality both in the E.U. and in the U.S. only because the conceptual tenets for its emergence were present. These conceptual prerequisites are numerous. Some have remained persistent throughout history, while others appeared only lately. For instance, the structural approach inherent to precautionary antitrust has never utterly lost its grasp on antitrust enforcement (III.B.1). An emerging consensus coalesced around the competition rules' alleged inappropriateness to prompt address anticompetitive behaviors (III.B.2). Finally, as one of the concepts that needed to be discarded for precautionary antitrust to appear, the error-cost framework has incrementally lost its appeal as arguments were thrown out from both sides of the antitrust spectrum without much usefulness (III.B.3.).

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272 Aurelien Portuese, *American Precautionary Antitrust: Unrestrained FTC Rulemaking Authority*, INFO. TECH. & INNOVATION FOUND. (JAN. 31, 2022), https://itif.org/publications/2022/01/31/american-precautionary-antitrust-unrestrained-ftc-rulemaking-authority.

273 Robert D. Atkinson, et al., *Reflections on President Biden's Executive Order on Competition*, July 2021, https://itif.org/sites/default/files/2021-biden-competition-executive-order.pdf (2021).

1. The Revival of the Structural Approach to Competition

Aimed at preventing potential "structural risks to competition" or potential "structural lack of competition,"[274] the precautionary principle applied to antitrust enforcement reveals an underlying structural approach to market competition. Beyond this rhetorical reference to the structure of the market, the precautionary approach illustrated by the European Commission (as well as by Neo-Brandeisians) proves adherence to the long-established, yet criticized, "structure-conduct-performance" (SCP) paradigm first articulated by Bain[275] as well as others.[276] Indeed, aimed primarily at tackling market concentration, the Digital Markets Act postulates that a number of digital services are:

> Highly concentrated multi-sided platform services, where usually one or very few large digital platforms set the commercial conditions with considerable autonomy.[277]

Article 12 of the Digital Markets Act obliges digital gatekeepers to notify the European Commission of every concentration project, irrespectively of their size, under the belief that any concentration involving a digital gatekeeper is detrimental to the economy.[278] These recent proposals are well aligned with the old, yet revived, SCP approach to markets.

The SCP paradigm postulates that a lousy market structure prevents optimal firm performance, and in reverse, optimal firm performance can only be achieved with an optimal market structure. They were justifying great regulatory interventions in the market to reach an optimal market structure. The SCP paradigm analyses decentralized market structure and its associated myriad of small companies as the goal of economic policies aimed at pursuing social welfare. Firm size, number of firms, and firms' relative

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274 Margrethe Vestager, Statement Before the Committee on the Judiciary, Subcommittee on Antitrust, Commercial and Administrative Law, United States House of Representatives, July 30, 2020, http://docs.house.gov/meetings/JU/JU05/20200729/110883/HHRG-116-JU05-20200729-SD007.pdf (2020)

275 Joe Bain, *A Note in Monopoly and Oligopoly*, 39 *AM. ECON. REV.* 448 (1949); Joe Bain, *Workable Competition in Oligopoly*, 40 *AM. ECON. REV.* 35 (1950); Joe Bain, Economies of Scale, Concentration, and Condition to Entry in Twenty Manufacturing Industries, 44 *AM. ECON. REV.* 15-39 (1954); JOE BAIN, *BARRIERS TO NEW COMPETITION* (Harvard University Press 1956); JOE BAIN, *INDUSTRIAL ORGANIZATION* (2d ed., John Wiley & Sons, Inc. 1967).

276 William J. Baumol et al., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* (1982); Edward A. G. Robinson, *THE STRUCTURE OF COMPETITIVE INDUSTRY* (1931); George J. Stigler, *Theory of Oligopoly*, 72 J. OF POL. ECON. 44 (1964); Richard Caves, *AMERICAN INDUSTRY: STRUCTURE, CONDUCT, PERFORMANCE* (1964); Harold Demsetz, *Industry Structure, Market Rivalry and Policy*, 16 J. OF L. AND ECON. 1 (1973); FREDERIC M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (Houghton Mifflin Company 1990).

277 Proposal for a Regulation of the European Parliament and of the Council, *supra* note 202, at exp. memo 3.

278 *Id.*

equalities amongst them all are determinants of the (good) conduct of these firms. Monopolists, or large companies,[279] were sanctioned, and so, irrespectively of their (superior) efficiencies.[280] Oligopolistic markets are blamed for the so-called imperfect competition they stand for. Indeed, in an optimal market structure, firms are deterred and impeded from abusing their market positions. These good conducts enable the optimization of market performance.

Consequently, it appears that regulatory interventions must take place preemptively in the marketplace (*i.e.,* structuring the market) so that interventions become useless subsequently (*i.e.,* in assessing the market's conduct). Therefore, the SCP paradigm is central to the recent reform calls for early interventions on the market before any damaging behavior may arise to prevent the advent of abusive conduct. The revival of the SCP paradigm for antitrust enforcement in digital markets is hardly coincidental. Indeed, never has the Chicago School truly landed in Europe or enjoyed consensus in the U.S.

The focus on the market structure by antitrust enforcers has never felted away. Indeed, despite the Chicagoans' efforts to incentivize enforcers to focus on conduct only rather than pre-existing structure to carry out antitrust analysis, market structure's importance remained essential to any antitrust analysis.[281] The Chicago revolution was more of a reform than a true revolution.[282] The "rise of the Chicago School"[283] has unfolded, contrary to

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279 Common language confuses large companies with monopolists. *See e.g.,* Zephyr Teachout, *How Biden Can Break the Stranglehold of Amazon and Other Monopolies*, The Nation, January 4, 2021 (lamenting the "tentacles of today's monopolistic companies") (2021).

280 The Alcoa case of 1945 is illustrative of the legal attack on oligopolistic markets and imperfect market structures by resorting to a syllogism from the unconditional prohibition of cartels to the unconditional prohibition of large firms when Judge Learned Hand state: "it would be absurd to condemn such contracts unconditionally, and not to extend the condemnation to monopolies; for the contracts are only steps toward that entire control which monopoly confers: they are really partial monopolies", in United States v Aluminium Co. of America (Alcoa), 147 F.2d 416. Robert Bork summed up the idea of the time of Alcoa's decision by lamenting that "the message is unmistakable: monopoly (two-thirds of a market or more) is illegal unless the monopolist could not avoid it. Superior efficiency is not only no excuse, it is an 'abuse' of large size". Firms of large size were "equated" with price-fixing cartels. *See* ROBERT BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF, 170 (Basic Books Inc. 1978).

281 Carl T. Bogus, *The New Road to Serfdom: The Curse of Bigness and the Failure of Antitrust*, 49 UNIV. OF MICH. J. OF L.14 (2015). *But see* ROBERT D. ATKINSON & MICHAEL LIND, BIG IS BEAUTIFUL: DEBUNKING THE MYTH OF SMALL BUSINESS (MIT Press 2018).

282 William Kovacic, *The Antitrust Paradox Revisited: Robert Bork and the Transformation of Modern Antitrust Policy*, 36 WAYNE L. REV. 1413, 1470 (1990) (noting that "Bork's analysis has played an important part in guiding enforcement agencies and courts to recast enforcement policy and doctrine concerning horizontal restraints, vertical restraints, and single-firm conduct. For at least the short term, this trend is likely to continue.").

283 Tim Wu, The Curse of Bigness: Antitrust in the New Gilded Age 83-92 (Columbia Global Reports 2018).

general beliefs, with only minor changes since the Chicago School itself remained somehow concerned with the ideal market structure.[284]

To refer to one of the heroes of the Chicago School – Robert Bork, the author of *The Antitrust Paradox,* recommended that "the law should be reformed so that its strikes" [...] "horizontal mergers creating exceptionally large market shares (those that leave fewer than three significant rivals in any market)."[285] Surprisingly, this structuralist approach by one of the most influential figures of the Chicago School has remained mostly unnoticed. According to Bork, several firms are to be set at an ideal level, and it is implied that duopolies cannot exert sufficient rivalry. This viewpoint unexpectedly squares well with one of the key figures of the Neo-Brandeisians – Tim Wu, who calls for reforms of antitrust laws to reinstate "structural presumptions" that ban "mergers that reduce the number of major firms to less than four."[286] Rarely have these supposedly opposite views been put into perspective so that the "Chicago revolution" may instead appear to be slight changes amidst an unchallenged structuralist approach in antitrust.[287] Antitrust laws in the U.S. have always remained structuralist – despite some minor qualifications with an exaggerated reliance upon price theory.[288]

In the E.U., at the time of reception of the Chicago School in the eighties, the first regulation for merger control is adopted with a clear focus on preserving market structure. The E.U. goal of market integration has

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284 Marc Glick, Antitrust and Economic History: The Historic Failure of the Chicago School of Antitrust, (Inst. of Econ. Thinking, Working Paper, No. 95, 2019).

285 Robert Bork, The Antitrust Paradox: A Policy at War With Itself 405-06 (Basic Books Inc. 1978).

286 TIM WU, THE CURSE OF BIGNESS: ANTITRUST IN THE NEW GILDED AGE 129 (Columbia Global Reports 2018). *See also* Lina Khan, *Separation of Platforms and Commerce*, 119 COLUMBIA L. REV. 973 (2019) (where structural separations (breakups) are suggested on the basis of preserving the market structure. She indeed considers that "structural separations should be recovered as a tool of competition policy . . . because digital platform markets seem to favor monopolistic market structures." *Id.* at 1035. Hence she advocates for "recovering our understanding of structural separations . . ." *Id.* at 1091).

287 Sanctions of market structure irrespective of the anticompetitiveness of the conducts have a long history both in the US with the so-called "no-fault monopoly" and in the E.U. with the so-called "economic freedoms of rivals". For an overview and the discussion of the inadequacy of no-fault monopoly approach to digital markets, *see* Marina Lao, *No-fault Digital Platform Monopolization*, 61 WM. & MARY L. REV. 755 (2020); For the E.U. Ordoliberal approach and its requirements of protecting consumer which and an ideal market structure, *see* Peter Behrens, *The Consumer Choice Paradigm in German Ordoliberalism and its Impact Upon Competition Law*, Europa-Kolleg Hamburg, Discussion Paper 1/14 (2014).

288 ROBERT BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF, 405 (Basic Books Inc. 1978). (where Bork considers that consumer welfare standard measured as productive efficiency, and ancillarily as allocative efficiency, is the exclusive criterion of antitrust laws. Dynamic efficiency (i.e. innovation) is granted few, if not none, grounds for antitrust analysis. In that regard, over-reliance on price theory and its productive efficiency criterion discounts the necessary analysis of the dynamic efficiency inherent to firms' conducts.)

contributed not to focus on firm conducts exclusively.[289] The nineties have typically placed market structure as a prerequisite to any antitrust analysis. The so-called "more economic approach" has only marginally reduced the market structure's weight in E.U. competition enforcement.[290] Decisions during this "modernization" era illustrate that the Ordoliberal fundamentals have been revised but not honestly questioned.[291]

Against this background, it appears non-surprising that the structural approach could quickly be revived when the times enabled such reappearance. And the digital era is prone to this revival. With its network effects and winner-take-all phenomenon, the digital markets can easily be perceived by structuralists as the best illustrations of what a sub-optimal market structure would look like. Market concentration in the digital markets has allegedly increased when relevant markets are defined narrowly for antitrust purposes. Structuralists, such as Neo-Brandeisians, point out the concentration in digital markets as an unacceptable feature of these markets – the solution is the big tech companies' break up.

The structuralist approach is revived as part of the precautionary principle and its aversion to risks. Indeed, according to Neo-Brandeisians and most explicitly by European Ordoliberals, the need for precautionary measures is justified based on the "risks to the structure of competition," or alternative, of the "structural risks of competition."[292] To be clear, it is no longer the conduct of firms believed to be assessed either as pro- or anti-competitive. More specifically, the market structure. Anticompetitiveness results from the market structure from any evidence conduct. The return to the original structural approach conceptualized with the SCP research

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289 Ben Van Rompuy, Economic Efficiency The Sole Concern of Modern Antitrust Policy? Non-Efficiency Considerations under Article 101 TFEU, Wolters Kluwer 2012); Pinar Akman, *The Reform of the Application of Article 102 TFEU: Mission Accomplished*, 81 ANTITRUST L. J. 145 (2016).

290 Timur Ergen & Sebastien Kohl, Varieties of Economization in Competition Policy. A Comparative Analysis of German and American Antitrust Doctrines, 1960-2000, MPIfG Discussion Paper 17/18 (2017); Sigrid Quack & Marie-Laure Djelic, *Adaptation, Recombination, and Reinforcement: The Story of Antitrust and Competition Law in Germany and Europe*, in BEYOND CONTINUITY: INSTITUTIONAL CHANGE IN ADVANCED POLITICAL ECONOMIES 255 (Oxford University Press 2005); DANIEL J. GIFFORD & ROBERT T. KUDRLE, THE ATLANTIC DIVIDE IN ANTITRUST: AN EXAMINATION OF U.S. AND E.U. COMPETITION POLICY (University of Chicago Press 2015).

291 C-209/10 Post Danmark A/S v. Konkurrencerådet, ECLI:EU:C:2012, 172, ¶ 30 ("'price discrimiation'...cannot of itself suggest that there exists an exclsuonary abuse."); C-49/07 Motosykletistiki Omospondia Ellados NPID. (MOTOE) v. Elliniko Dimosio, ECR I-4863, ¶ 51 ("A system of undistorted competition, such as that provided for by the Treaty, can be guaranteed only if equality of opportunity is secured as between the various economic operators.") ; C-553/12 P European Commission v. Dimosia Epicheirisi Ilektrismou AE (DEI), ECLI:EU:C:2014:2081, ¶ 57 ("inequality of opportunity between economic operators, and thus distorted competition . . .").

292 *See* NAZZINI, *supra* note 195, at 32; *see also* European Commission Press Release, Antitrust: Commission consults stakeholders on a possible new competition tool (June 2, 2020), https://ec.europa.eu/commission/presscorner/detail/en/ip_20_977 (2020) (stating "We see, however, that there are certain structural risks for competition, such as tipping markets, which are not addressed by the current rules").

program is straightforward and proudly invoked. It is the structure of the market that justifies the Department of Justice to request "structural reliefs" against Google: the search engine cannot arguably avoid anticompetitive conduct without a reshuffling of the market through break-ups.[293] The Department of Justice's complaint's underlying goal is not so much Google's past conduct – as a traditional antitrust analysis would focus on – but more the prospect of re-organizing the market with more atomized market actors. In the vein of the SCP approach, the assessment of past conducts matters less than the design of future market structure – antitrust interventions conceptually shift from backward-looking liability analysis in favor of forward-looking market designs. This paradigmatic change conceptually speculates on the nature of the market is highly innovative and strongly unpredictable industries. As it may, never has the structural approach enjoyed such widely accepted and praised consensus since the Chicago School's mini-revolution.

Therefore, the demise (or, more appropriately, the failure to have a lasting influence) of the Chicago School enabled the structuralists such as Neo-Brandeisians and Ordoliberals to succeed in laying down the conceptual basis for precautionary antitrust to become the prime approach in antitrust across the Atlantic. This results in preserving the market structure – resembling a "competitor-welfare standard"[294] – at the expense of antitrust authorities' interventions only in cases where evidenced consumer harm and stifled innovation. The precautionary approach to restoring the allegedly lost rivalry in digital markets commands early interventionism for preservation purposes – be it ecological preservation in the traditional field of the precautionary principle or the market structure preservation in the startling area of precautionary antitrust. In both cases, the sense of the cherished present and an idealized past situation trumps the dreaded prospect of the

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293 *See* U.S. DEP'T OF JUST., U.S. AND PLAINTIFF STATES V. GOOGLE LLC JOINT STATUS REPORT ¶ 194 (Janaury 4, 2022) ("Google acted unlawfully to maintain general search serices, sercice advertising, and general search text advertising mponopolies...Enter structural relief as needed to cure any anticompetitive harm . . ."). In alike manner, the House Report identifies "structural separations and prohibitions of certain dominant platforms from operating in adjacent lines of business" as the prime recommendation in order to restore competition in the digital economy. JERROLD NADLER & DAVID N. CICILLINE, INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, MAJORITY STAFF REPORT AND RECOMMENDATIONS 20 (2020).

294 *See* Declaration of Economists and Antitrust Scholars on Behalf of Radiomóvil Dipsa S.A. de C.V (Telcel), Reconsideration Recourse, RA-007-2011, Case File No. DE-37-2006, Comisión Federal de Competencia (United Mexican States) (Oct. 14, 2011) (lamenting against the "protectionist competitor-welfare standard" hinted by some reforms banning price-squeeze which would have been tantamount to "increasing the complaining firm's margin [which] would require increasing the retail price of the service at the expense of customers, or reducing the wholesale price of the service, which would require cross-subsidies from other services again at the expense of customers. The more accurate assessment is that the subsidy inherent in a liability rule for margin squeeze turns antitrust law into a tool for rent-seeking behavior by competitors"). For having coined the expression, *see* J. Gregory Sidak, *The Failure of Good Intentions: The WorldCom Fraud and the Collapse of American Telecommunications After Deregulation,* 20 YALE J. ON REG. 207 (2003).

new world to unfold. Thus, social security is expanded to a sort of market security where economic actors are entitled to play a role in the market without the risks of being ousted for uncompetitiveness and uninnovativeness. The desire for safety in our fast-changing world is indeed highly valued – and the precautionary principle best illustrates the legal vehicle to achieve that desire.

2. The Long Demise of the Error Cost Framework in Antitrust

Antitrust enforcement has long been dominated by the so-called "error-cost framework" seminally laid down by Professor Easterbrook.[295] Subsequently, the discussion resolved around antitrust authorities engaging in false positives (Type I errors) or false negatives (Type II errors). False positives were said to be costlier than false negatives due to regulatory and judicial decisions' stickiness. Because of the immediate costs and deterrence on innovation, these flawed decisions were generated. As a matter of principle, the antitrust debates accepted the error-cost framework's main tenets, despite some vocal opposition. This was true for many years – but it is no longer valid.

Indeed, the error-cost framework has morphed into the frame of dialogue where some who advocate for more antitrust interventionism blame opponents for favoring lax enforcement and to acclaim decisions that allegedly are illustrative of false negatives: the scholars who support underenforcement are accomplices of decisions and judgment which create costly false negatives. On the other hand, some who advocate for less antitrust interventionism blame opponents for favoring aggressive enforcement and acclaim decisions that allegedly are illustrative of false positives: scholars who support overenforcement are accomplices of decision judgments create costly false positives.

Both sides of this highly divided academic and policy debate seem irreconcilable: profound divergences in the role of the State in the market, on the need to protect competitors rather than consumers, on the adequacy of the incentives created in terms of efficiency and innovation appear continuously and irremediably. The divide seems irreconcilable. The stances are as strong as they are lightly shown: one side tries to convince the other side that erring on her owner's side rather than erring on the other's side is advisable. Beyond the sheer vanity of such exercise doomed to fail, the very justification for erring at all is not provided. Thus, the rhetorical exercise is hardly convincing. Still, this exercise is fundamentally flawed from a legal ethics

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295 *See* Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEXAS L. REV. (1984). *See also* Fred S. McChesney, *Easterbrook on Errors*, 6 COMPETITION L. & ECON. 11 (2020); Geoffrey A. Manne & Joshua D. Wright, *Innovation and the Limits of Antitrust*, 6 COMPETITION L. & ECON. J. 153 (2010); Keith N. Hylton & Michael Saling, *Tying Law and Policy: A Decision-Theoretic Approach*, 69 ANTITRUST L. J. 469 (2001).

perspective – erring under the law is wrong as a matter of principle irrespectively of each decision's respective costs.

Therefore, the antitrust debate framework takes place for the last thirty years or so appears as inadequate as obsolete now. However, there is a need to conceptualize and explain the current antitrust debate about over-or under-enforcement. This debate is no longer a matter of costs (which falsehood is costlier than the other?) or a matter of evidencing errors (which error type are we facing?) – but more a matter of preference. Indeed, citizens and, more significantly, regulators and judges reveal idiosyncratic preferences that may evolve over the years. With the uncertain world we live in, the precautionary principle has found favorable grounds in the regulatory policy-making arena to cope with the shared fears of new, innovative, and uncertain products and services. Antitrust enforcement has not escaped such appeal from the precautionary principle.

"In case of uncertainties, regulate with early interventions" here is the main teaching of the precautionary principle, which applies to antitrust enforcement in digital markets. Indeed, concerning algorithm-enabled competition, data-driven rivalry, and new markets created . . . antitrust authorities wish to regulate and prevent something that has not yet delivered its benefits and/or has not yet been predictable enough to predict the detrimental effects of the future it wishes to avoid. Nevertheless, the precautionary principle appeases the fear, tames the anxiety, and corresponds to regulators' preferences not to be blamed subsequently for not having pre-emptively acted at an early stage. Again, precaution is better than cure: in antitrust enforcement, precautionary intervention is better than the hypothetical risks of damage and its associated risks of professional blame for regulators. Rationally minded regulators discount the costs of precaution and inflammation from the costs of non-acting. Within this biased decision-making framework, the precautionary principle represents an underlying preference by regulators and citizens.

Consequently, it appears blatant that precautionary antitrust supports a more robust conceptual framework than the error-cost framework. With the precautionary principle applied to antitrust enforcement, we no longer are in the same and pointless debate of error-costs analysis where neither errors nor costs can be shown. Still, we enter a discussion of subjective preferences where errors fade away in favor of citizens' and regulators' preferences. The allegedly mathematical pretense of the error-cost framework is ultimately discarded in exchange for a subjective, policy-oriented preference for precaution over risks, for present regulations over speculative innovations. In short, with the precautionary antitrust perspective, there is no longer a right/wrong decision, a costly/cheap decision to make; there now is a decision taken in the grey zone of risk perceptions and risk sensitivity. This grey zone adapts particularly well to antitrust enforcement. Economic analysis and discussions are prone to arguments and counterarguments in what is not a black or white answer. Precautionary antitrust supports a sound

conceptual framework for the antitrust debate to take place: those who used to blame false negatives and lax enforcement can now justify their decisions and policy choices based on the well-accepted and widely used precautionary principle; those who used to blame false positives and aggressive enforcement can also explain their critics based on the cost and anti-innovation precautionary principle. Thanks to the precautionary antitrust framework, both sides of the antitrust debates can agree on the terms of the debates while disagreeing based on their subjective preferences concerning the use of the precautionary principle in antitrust enforcement. Thanks to the precautionary antitrust framework, the antitrust debates can occur in a more civilized, less divisive manner.

CONCLUSION: THE NEED FOR DYNAMIC ANTITRUST

This article demonstrates that the underlying forces that have first shaped E.U. antitrust and influence U.S. antitrust are persistent and explained with a novel conceptual framework. Antitrust has embraced the precautionary principle. This is demonstrated by the presence, either in decisions or in the rhetoric, of the fundamental elements inherent to the precautionary principle.

As the precautionary principle entered antitrust, innovation exited it. Precautionary antitrust implies preemptive regulations, a static view of competition disingenuous to the valuable disruptive innovations which underpin dynamic competition. While precautionary antitrust protects the current market structure, disruptions create the next markets. As the status quo bias of precautionary antitrust solidifies, competition becomes less dynamic and less disruptive.

The willingness to let innovation thrive despite the uncertainties implies the need to accept innovation defenses in antitrust cases and understand the new business models that are idiosyncratic to disruptive innovators have all waned. Against the status quo bias of precautionary antitrust, we need principles of "dynamic antitrust"[296]–namely, antitrust principles which foster dynamic competition and preserve innovation incentives as a source of competition.

From algorithm-driven companies to two-sided digital platforms through the build-in of encompassing digital ecosystems, the digital economy's phenomenon remains unfamiliar to traditional enforcement of antitrust and enforcers – be they regulators or judges. Such newness ushered in fears and speculations about the fundamental threats digital companies can

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296 Aurelien Portuese, *Principles of Dynamic Antitrust: Competing Through Innovation*, in INFO. TECH. & INNOVATION FOUND. (June 14, 2021) https://itif.org/publications/2021/06/14/principles-dynamic-antitrust-competing-through-innovation#:~:text=Principles%20of%20dynamic%20antitrust%20suggest,over%20vertical%20and%20conglomerate%20mergers.

constitute to the market and democracy's functioning. Early regulations have become the consensual way of addressing digital platforms, while antitrust liability appeared inappropriate. To be sure, advocates of precautionary antitrust discounted innovations to be ushered by massive R&D. Precautionary antitrust offered security for rivals, certainty for the market structure, and warranties for regulators' oversight. Given the popularity of the precautionary principle irrespectively of its innovation costs, this principle inspired regulators who have generally become acquainted with decades of experience in implementing this principle. Antitrust was the last area of regulation to remain immune from the precautionary principle's grasp – it is no longer the case. Precautionary antitrust prevents the maximization of innovation but offers a sound conceptual framework within which antitrust debates can occur.

The emergence of precautionary antitrust, first in Europe and later transplanted into the United States, has several explanations, as discussed above – from risk perceptions to the demise of the Chicago School and the revival of the populist antitrust, as well as the appeal of the S-C-P approach, and to the burning desire to regulate despite compelling evidence to do so. To be sure, the desire to crack down on big tech firms is another powerful explanation irrespective of preferences toward precaution. These firms are colloquially portrayed as "monopolists." But big tech firms are no monopolists; they face intense rivalry akin to monopolistic competition.

Unfortunately, precautionary antitrust overlooks the innovation dynamics–namely, present competition as the outcome of innovation and innovation as a prerequisite for future competition, in a coherent lineage with the precautionary principle's skepticism toward technologies, precautionary antitrust discounts technological innovation and any entrepreneurial innovations, to favor its value-based, undebatable regulations enforced as a matter of principle – the precautionary principle.

Due to its increasing tendency to favor precaution, antitrust enforcement is still insufficiently innovation-based. We have indirectly proven this fundamental flaw by portraying the importance of the precautionary principle in antitrust enforcement. Alike in general terms, where the precautionary principle needs to be overcome and balanced out with an innovation principle, precautionary antitrust needs to be balanced out with more innovation-based antitrust. Such innovation-based antitrust is yet to be defined but would require a robust antitrust framework built on sound principles. Increased antitrust agencies independence from politics, increased agencies staffing, truly functioning innovation defenses, a better consideration for potential competition, better consideration of the expenses of R&D by firms, and the need to adhere to both economic efficiencies (allocative, productive, dynamic) as an overarching criterion for antitrust analysis – all are potential paths for a sound reform of antitrust enforcement away from political calculus but instead, really concerned with innovation-based antitrust enforcement. Should these principles be discounted,

precautionary antitrust would pervade market actors' traditional functioning, where tough rivalry and aggressive innovation would be replaced by market structure preservation and permissioned innovation. These outcomes would ironically be the opposite of the essence of antitrust laws. Precautionary antitrust has entered enforcement – it is time to make dynamic antitrust triumphant instead.[297]

What would be the founding stones upon which dynamic antitrust rest? We have demonstrated that antitrust has become precautionary both in Europe and the U.S. It embraces an antitrust policy at war with innovation. In detail, a program for innovation-based antitrust is outside the scope of this Article.[298] Nonetheless, we may outline the main guidelines enabling innovation-based antitrust as a profoundly necessitated counter-thesis of the emerging precautionary antitrust. These guidelines are:

- Antitrust philosophy: a dynamic, long-term view of the appraisal of what competition on the merits is proving to be essential. A shift away from equilibrium, static, photographic-like perspective to the functioning of the market in favor of a disequilibrium, dynamic, and more refined view of the market's competitive tensions is crucial for the diagnosis. Enforcers must acknowledge that entrepreneurial creativity pares down to the firm's dynamic capabilities.[299] Such acknowledgment entails regulatory humility, but it must require in-depth inquiry and understanding of the firm's internal functioning and dynamic capabilities and their impact on the external implications in terms of antitrust policy. Innovation, as a broader goal than price-centric consumer welfare, needs to become the point of focus of antitrust enforcers;
- Antitrust substance: all presumptions must be made rebuttable. *Per se* prohibitions prove absurd in a world of complex and open innovation business models. Market shares and market structure should no longer remain the prime tool for antitrust analysis. In that regard, market definitions can no longer be sustained the way they are and must be substituted with industry investigations

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297 For a detailed analysis, *see* Portuese, *supra* note 293.

298 Innovation-based antitrust has long remained at the altar of the quest for dynamic antitrust. There is a broad consensus that innovation matters, and yet antitrust enforcers fail to enforce antitrust laws in a manner which is consistent with innovation dynamics. *See, e.g.,* Christine Wilson, Commissioner, Fed. Trade Comm'n, Remarks at the Standard Essential Patents Symposium, Antitrust and Innovation: Still Not a Dynamic Duo? (Sept. 10, 2019), https://www.ftc.gov/system/files/documents/public_statements/1544179/wilson_-_remarks_seps_9-10-19.pdf (stating that "[w]e have long known that dynamic effects are important, but we have also long struggled to properly account for them in our antitrust analysis."). For a general discussion, *see* Portuese, *supra* note 293; *see* Portuese, *supra* note 75, at 237–58.

299 DAVID J. TEECE, DYNAMIC CAPABILITIES & STRATEGIC MANAGEMENT: ORGANIZING FOR INNOVATION AND GROWTH (Oxford University Press 2009) (outlining the role of firms' dynamic capabilities in shaping market rivalry, and who advises at 236 that "framing competition issues in terms of monopoly versus competition appears to have been unhelpful, at minimum inconclusive. Rivalry matters, but market concentration doesn't necessarily determine rivalry.").

where market substitutability plays a more significant role. Also, the anti-innovation effects of cartels and collusive practices must become the prime focus of antitrust enforcers over single conduct investigations where plentiful (innovation) efficiencies are often present. The extent to which a firm innovates (measured through a bundle of proxies) can no longer be discarded as immaterial. Also, merger analysis needs to encompass potential competition domestically and globally with a revised timeframe of 3 to 5 years (instead of 2 to 3 years presently);

- Antitrust institutions: Dynamic antitrust rely on the court system because of the evolutionary nature of judge-made law. Instead of an ex-ante system of antitrust whereby judicial precedents play a minor role, dynamic antitrust would extensively rely on the evolutionary process of the judicial system in order to shed light on the nature of the pro- and anticompetitive nature of the practices under examination. Judges have prevalence over regulators in a dynamic antitrust approach. Also, because the anti-innovation stance of precautionary antitrust is fueled by popular fears and popular weaponization of antitrust, antitrust agencies must further complete the de-politicization of antitrust enforcement. Politicians should no longer be in charge of antitrust policies. Similarly, the monetary policy has gained full independence. Therefore, in Europe, the DG-Comp must become a fully independent agency akin to national competition authorities. In the U.S., the FTC should be less subject to political pressures and political guidance;
- Antitrust cooperation: legal uncertainty generated by antitrust divergences is the best enemy to firms' innovations. Therefore, global antitrust must come to the fore more ambitiously than is currently informally discussed at the International Competition Network and tersely debated within the World Trade Organization. Of course, such an ideal prospect may not unfold in the short run. Therefore, in the short run, a Transatlantic partnership on antitrust enforcement must be given full reality. Involving both the E.U. and the U.S., this partnership may also attract small jurisdictions such as Canada, the U.K., Switzerland, and Mexico. Such partnership is essential in minimizing antitrust divergences, fostering antitrust coherences across jurisdictions – thereby enabling companies to generate innovations with a reasonably clear regulatory framework and enforcement when it comes to antitrust policy.

Precautionary antitrust has emerged in a world of disruptive innovations. It appeared as a limiting philosophy about the disruptive effects of technology and innovation on markets in a time where the race to innovation globally, the need for innovation domestically, and the chances to

reap innovation benefits have never been so large. And yet, precautionary antitrust cautions against all sorts of fears, from the fear of a market structure imbalance to the fear of an insufficient assertion of the political power against the economic power. Preemptive regulations, sanctions without evidence harms, and restructuring companies: the guidelines defined by precautionary antitrust run afoul innovation-based antitrust. The application of the precautionary principle in antitrust reveals a regulator's preference but embodies a society's detrimental future.

Precautionary antitrust is a reality in Europe. Thanks to the Neo-Brandeisians, it seems inevitable that precautionary antitrust is to be transplanted into the U.S. through antitrust bills and/or Section 5 of the FTC Act. And yet, we need to have another path: we plainly need a more optimistic, innovation-embracing, competition-enhancing alternative where innovation is maximized and competition is reasonably enforced. We need to overcome precautionary antitrust with innovation-based antitrust that best incentivizes dynamic competition. In other words, we need principles of dynamic antitrust that foster dynamic competition, respect the necessary legal predictability required by the rule of law, and bolster innovation incentives. Dynamic antitrust principles would rest upon two pillars: the promotion of dynamic competition substantively and the promotion of the dynamic enforcement of antitrust through courts procedurally. Opposite to precautionary antitrust, dynamic antitrust would improve ex-post judicial enforcement of antitrust and would encourage disruptions that best topple incumbents and drive social progress. This article has introduced the notion of precautionary antitrust as an explanatory thesis of the current preference of regulators to aggressively weaponize antitrust. It has sketched out the reasons for overcoming precautionary antitrust and how to do so. The path forward is clear; the journey for dynamic antitrust only commences.