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# **TTLF Working Papers**

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**Antitrust Mega Fines in Digital Markets and  
Their Impact on Compliance: An Overview  
of EU and US Approaches**

**Umberto Nizza and Cristina Poncibò**

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# TTLF Working Papers

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## **Abstract**

This paper conducts a comparative analysis of the EU and US approaches to antitrust enforcement that focuses on mega-fines in digital markets. Despite the shared goals of promoting competition and deterring anticompetitive behavior, the two jurisdictions employ distinct enforcement mechanisms. The EU primarily relies on public enforcement and the imposition of large administrative or quasi-criminal fines by the European Commission and national authorities. In contrast, the US approach places greater emphasis on antitrust damages and punitive measures imposed by the courts, often through private actions brought by competitors and consumers, as well as on public enforcement by the Department of Justice and the Federal Trade Commission. The paper develops a theoretical framework in which to analyze the impact of mega-fines on compliance with antitrust regulations. It demonstrates that the threat of exceptionally large fines can significantly increase the expected cost associated with engaging in anticompetitive practices, making such behavior less attractive to companies. The model incorporates key variables such as the probability of detection, the expected revenue from anti-competitive behavior, the cost of compliance, and the company's risk aversion and sensitivity to fines. Empirical evidence suggests that the EU's reliance on mega-fines has prompted some digital market players to change their business practices and has led to closer scrutiny of market practices. In comparison, the US approach, historically influenced by the Chicago School's laissez-faire ideology, has been less aggressive in imposing large fines, relying more on antitrust damages and private litigation. However, recent developments indicate a shift in the USA, with antitrust authorities taking a more proactive stance towards regulating large technology companies. The initiation of a lawsuit against Apple by the US authorities following a significant fine imposed by the EU may highlight a convergence in the two jurisdictions' approaches to addressing anti-competitive behavior in digital markets with important sanctions. The paper concludes that the use of mega-fines, as exemplified by the EU's approach, can be an effective means to foster compliance with antitrust regulations, particularly in digital markets dominated by powerful tech giants. The comparative analysis provides insights into the distinct enforcement mechanisms employed by the EU and the USA, and the potential impact of these approaches on shaping the behavior of digital market players.

## Table of Contents

<b>1. Introduction</b>	<b>1</b>
<b>2. Antitrust approaches to digital markets</b>	<b>3</b>
<b>3. Theoretical arguments for the efficacy of mega-fines in fostering compliance</b>	<b>7</b>
<b>4. Antitrust mega-fines in practice: The EU approach(es) in the digital markets</b>	<b>17</b>
<b>4.1 France</b>	<b>21</b>
<b>4.2 Italy</b>	<b>23</b>
<b>4.3 Recent developments: The Apple case and the DMA</b>	<b>24</b>
<b>5. Antitrust (mega) fines in practice: The <i>laissez-faire</i> US approach to digital markets</b>	<b>28</b>
<b>5.1 The US minimalist approach and a <i>laissez-faire</i> paradox</b>	<b>30</b>
<b>5.2 A turnaround? Recent proactive engagement of the US authorities</b>	<b>34</b>
<b>5. Conclusions</b>	<b>37</b>

### 1. Introduction

The landscape of digital markets has ushered in a new era of competition law enforcement, prompting jurisdictions worldwide to adapt their regulatory frameworks to address emerging challenges. At the forefront of this regulatory evolution are the European Union (EU) and the United States (USA), two major players in global antitrust enforcement. While both jurisdictions seek to promote competition and prevent anticompetitive behavior in digital markets, they employ distinct approaches to achieve these goals.

In the EU, antitrust protection in digital markets primarily relies on public enforcement mechanisms administered by the European Commission (EC) and national antitrust authorities. These mechanisms include the imposition of fines, often of an administrative or quasi-criminal nature, following investigations into alleged anticompetitive conduct. In this paper, we specifically focus on the impact of administrative or quasi-criminal fines (we label them ‘mega-

finer’) to underline this trend towards increasing the amount of the penalties in the EU. In contrast, US antitrust fines tend to be smaller and less frequent.

Recent developments, such as the introduction of preventive measures like the Digital Markets Act (DMA), reflect the EU's commitment to addressing emerging challenges in digital competition law. However, despite efforts to enhance enforcement, the level of private enforcement in the EU remains comparatively low, with collective redress mechanisms such as class actions and punitive damages playing a modest role.

In contrast, the USA adopts a multifaceted approach to antitrust enforcement in digital markets. Unlike the EU’s reliance on public enforcement through fines, the US system places greater emphasis on antitrust damages and punitive measures imposed by courts. These measures are often the result of actions brought by both private actors, including competitors and consumers, and public actors such as the Department of Justice (DOJ). Additionally, the US system incorporates criminal enforcement measures, further augmenting its means of enforcement.

This paper compares the European and US approaches in issuing antitrust fines in the digital markets, and it analyses their impact on regulation compliance. The inquiry finds that both Europe and the United States have similar objectives when it comes to antitrust fines in the digital market. Both aim to protect consumers, promote competition, and prevent anti-competitive behavior. However, the way in which they achieve these objectives and the compliance results that they achieve differ significantly. European antitrust fines tend to be larger and more frequent than their American counterparts, which means they can have a greater impact on digital market players. The size and frequency of fines in the EU are designed to discourage anti-competitive behavior without relying on criminalization (such as in the USA) and to promote competition by leveling the playing field for smaller players in the market. As a result, European fines have prompted some digital market players to change their business practices, and they have led to closer scrutiny of market practices.

## 2. Antitrust approaches to digital markets

In an era dominated by tech giants wielding unprecedented influence over digital markets<sup>1</sup>, concerns about anti-competitive behavior have prompted regulatory authorities to punish such conduct. The related antitrust fines aim to deter monopolistic practices and to safeguard fair competition. The EU is strongly reliant on mega-fines, but only recently have the US authorities begun to impose similar high fines. Indeed, this paper examines the EU and US antitrust approaches to mega-fines by also considering the systemic differences between them. In particular, we think there are two main differences between the two approaches: on the one hand, the EU Commission has discretion in issuing and calculating fines; on the other hand, the European framework is marked by the absence of criminal sanctions.<sup>2</sup> Furthermore, the EU Commission is not required to go to court to enforce fines or remedies against a party. Finally, when dealing with intricate economic matters or policy decisions, EU courts grant the Commission considerable discretion, whilst retaining broader powers to assess the appropriateness of fines.

In stark contrast, the DOJ and the Federal Trade Commission (FTC) lack the unilateral authority to “impose” relief on a party. Instead, they must initially seek and secure such relief from a federal judge, who, in turn, must adhere to established case law regarding both the alleged violation and the extent of the sanction. Moreover, the common law framework grants US courts, including the Supreme Court, substantial leeway in interpreting Section 2 of the

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<sup>1</sup> The digital market is characterized by the dominance of a select few tech giants, which shape the landscape of economic activity and wield significant influence and control over digital platforms and services. These “digital empires” are able to strongly impact on competition, innovation, and consumer choice, and this is one of the main reasons for the stricter European regulation. In this regard, see Anu Bradford, *Digital Empires: The Global Battle to Regulate Technology* (Oxford University Press 2023)

<sup>2</sup> This important difference is stressed in Cento Veljanovski ‘The Effectiveness of European Antitrust Fines’ in Tihamer Tóth (ed.), *The Cambridge Handbook of Competition Law Sanctions* (54-86, Cambridge University Press 2022)



Sherman Act and in scrutinizing intricate economic matters that often prove decisive.<sup>3</sup> These systemic disparities have subtle yet profound repercussions. The EU Commission enjoys relatively unrestrained discretion to pursue any substantive policy or liability theory it deems fit, subject only to the subsequent review with the aforementioned limitations. This latitude extends to the selection of competition policies under Article 102, a latitude that in the USA is constrained by what can feasibly be achieved through judicial proceedings.

A second significant difference between the EU and the USA regarding antitrust law is the absence of criminalization in the European system.<sup>4</sup> In the USA, certain antitrust violations can lead to criminal charges, resulting in fines or even imprisonment for individuals involved in illegal anticompetitive behavior, which adds another layer of enforcement in the USA. By contrast, in the EU, antitrust violations are primarily addressed through civil or administrative proceedings. The EU Commission and national competition authorities can impose substantial fines and sanctions for anticompetitive conduct, including the formation of cartels and abuses of dominance, to ensure fair competition in the market. Nonetheless, the lack of criminalization in the EU antitrust regime still contributes to deterring and rectifying violations using a enforcement mechanism different from the US system.<sup>5</sup>

Despite the arguments in favor of the US criminalization of antitrust sanctions, the digital market appears to be exempt from substantive reprimands. In October 2020, a committee within the US House of Representatives released a report on behaviors by GAFA (Google, Amazon,

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<sup>3</sup> Regarding the extent to which common law is considered a fundamental basis for distinguishing the Sherman Act from other statutes, see Keith N. Hylton, *Antitrust Law: Economic Theory and Common Law Evolution* (Cambridge University Press 2003), 31 ff., in particular.

<sup>4</sup> Wouter P.J. Wils, 'EU Antitrust Fines and Managerial Liability - A Legal and Economic Analysis' [2023] *World Competition*. 383.

<sup>5</sup> For a review of the theoretical arguments in favor of the criminalization of antitrust sanctions, see Wouter P.J. Wils, 'Is Criminalization of EU Competition Law the Answer?' [2005] *World Competition* 117. In this paper, we will argue that European mega-fines are not dissimilar in their effects to criminal sanctions, considering that the "impossibly high fines" suggested in the aforementioned paper are theoretically and practically justified against big tech companies.

Facebook, and Apple) which stated the necessity to address their dominant market positions.<sup>6</sup> Subsequently, the Federal Trade Commission (FTC) filed a landmark lawsuit against Facebook,<sup>7</sup> alleging that the company had engaged in anticompetitive practices to sustain its monopoly in personal social networking for several years.<sup>8</sup> Most of the digital companies have gone unscathed in the USA for practices penalized in the EU for dominance “abuses”. There have been varying interpretations of these divergent outcomes. Some have perceived them as manifestations of a “techlash” or direct assaults on American innovation and achievements. Conversely, others have attributed the discrepancies to variations in enforcement systems and objectives. For instance, the EU’s persistent endeavor to construct a discrimination-free “internal market” among its Member States is seen as a significant factor. A scholar notes that: “It is in this regard (fines) that Europe has been a veritable torchbearer.”<sup>9</sup>

In this regard, the long-standing influence of the Chicago School of Economics’ neoclassical laissez-faire ideology may have contributed to limiting fines in the US antitrust enforcement, leaving more space for litigation and antitrust damages and/or criminalization.<sup>10</sup> However, another reason for this wide difference in enforcement, one which complicates matters further, is that tech giants have extensively financed academic research and think tanks to promote regulatory frameworks favorable to big tech and advocate minimal government intervention.<sup>11</sup>

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<sup>6</sup> Sandra M. Colino, ‘Towards a Global Big Tech Clampdown?’ (January 19, 2021). Agenda Pública, The Chinese University of Hong Kong Faculty of Law Research Paper No. 2021-04, <<https://ssrn.com/abstract=3773151>> accessed 8 May 2024.

<sup>7</sup> FTC v Facebook Inc, FTC complaint (8 December 2020) nyd <<https://www.ftc.gov/system/files/documents/cases/1910134fbcomplaint.pdf>> accessed 8 May 2024.

<sup>8</sup> FTC Press Release, ‘FTC Sues Facebook for Illegal Monopolization’ (9 December 2020) <<https://www.ftc.gov/news-events/press-releases/2020/12/ftc-sues-facebook-illegal-monopolization>> accessed 8 May 2024.

<sup>9</sup> Colino (n 6) 3.

<sup>10</sup> After more than fifty years, the laissez-faire argument’s principal focus on efficiency has been subject to different and widespread criticisms in both the USA and the EU. See, for instance, Patrice Bougette, Marc Deschamps, and Frédéric Marty, ‘When economics met antitrust: The second Chicago School and the economization of antitrust law’ [2015] *Enterprise & Society* 313.

<sup>11</sup> The discussion on new legal frameworks for digital markets also in the USA, coupled with the imposition of a \$5 billion fine on Facebook in 2019 for its failure to safeguard user privacy, can be understood as timid signals of a potential paradigm shift.

Recently, US antitrust authorities started a closer scrutiny of tech companies because of the growing public and political concerns about market concentration, consumer privacy, and data security.<sup>12</sup> Vocal advocates of stronger antitrust enforcement, coupled with the publication of reports and guidelines outlining potential anti-competitive practices in the tech industry, signals a shift towards a significant change in the USA and a coordinated effort to regulate big tech by issuing mega-fines.<sup>13</sup>

Thus, the more recent activity of US antitrust authorities in addressing tech companies aligns with the efforts of EU institutions to impose regulatory measures and mega fines on similar grounds. Both jurisdictions have recognized the need to address anti-competitive behavior and monopolistic practices within the tech industry, leading to mega-fines and regulatory initiatives. Interestingly, the recent initiation of a lawsuit against Apple follows the imposition of a significant fine by the EU and serves to highlight an escalating trend of governmental regulatory actions targeting large technology corporations.<sup>14</sup> This lawsuit comes in the wake of numerous failed attempts to introduce legislation aimed at regulating the technology sector.

The landscape of antitrust enforcement is undergoing a significant change. Both the United States and the European Union appear to be converging on the use of mega-fines – exceptionally large financial penalties – to deter anticompetitive behavior by tech giants. However, despite this apparent alignment, there are still substantial differences between the two

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<sup>12</sup> The ongoing investigations into the practices of tech giants like Google, Facebook, Amazon, and, more recently, Apple, underscore the need for robust antitrust enforcement in the digital sphere.

<sup>13</sup> See, in this regard, the recent press release of the Justice Department regarding Apple’s alleged monopoly in the smartphone markets, in which the attorney general stated that “No matter how powerful, no matter how prominent, no matter how popular, no company is above the law”. Office of Public Affairs, US Department of Justice, ‘Justice Department Sues Apple for Monopolizing Smartphone Markets’ (March 21, 2024), at <<https://www.justice.gov/opa/pr/justice-department-sues-apple-monopolizing-smartphone-markets>>, accessed 8 May 2024.

<sup>14</sup> In addition to the lawsuit against Apple, the Justice Department is aggressively pushing forward with a high-profile legal action against Google’s Alphabet digital-advertising division that is slated for trial commencement in early September. This forthcoming lawsuit represents the second major antitrust challenge directed at Google, following a trial last autumn which contested Google’s dominant position as the default search engine across a multitude of devices.

regulatory systems. This paper argues that mega-fines serve a crucial function in promoting compliance with antitrust regulations. In the following section, we will offer some first theoretical and mathematical arguments that support this claim. In particular, we will show that mega-fines significantly increase the expected cost associated with engaging in anti-competitive practices, and that they send a strong public message that anti-competitive behavior will not be tolerated. The threat of mega-fines can make anti-competitive practices less attractive, inducing a re-evaluation of the potential benefits of such behavior. We then show that even if the potential benefits of anti-competitive behavior seem high, the fear of mega-fines may induce companies to prioritize legal compliance. In the subsequent sections we will supplement these theoretical justifications with concrete examples and provide further arguments in favor of utilizing mega-fines.

### **3. Theoretical arguments for the efficacy of mega-fines in fostering compliance**

Developing a comprehensive mathematical model to compare American and European antitrust approaches to anti-competitive behaviors in the digital market is undoubtedly a daunting task. The intricate nature of the digital marketplace, coupled with the legal and enforcement disparities between continents, is a significant challenge in building a comprehensive mathematical model to compare antitrust approaches towards anti-competitive behavior in the USA and the EU. Nonetheless, despite these challenges, it is feasible to construct a general framework that can serve as a blueprint for developing a more refined model focused on the impact of mega-fines on compliance with antitrust rules.

While this initial framework may necessarily involve simplifying assumptions and generalizations, its value lies in providing a structured starting point for future in-depth analysis and empirical validation. At the core of this framework lies the recognition of key variables and dynamics shaping the interplay among antitrust regulations, market behavior, and enforcement

actions. In particular, we can start by defining a simple mathematical model that includes the following variables:

1.  $P(C)$  = Probability of a company engaging in anti-competitive behavior
2.  $F$  = Fine imposed by the regulatory authority
3.  $R$  = Revenue or benefit expected from engaging in anti-competitive behavior
4.  $C$  = Cost of compliance with antitrust regulations
5.  $\alpha$  = Probability of successful prosecution by regulatory authorities
6.  $\beta$  = Deterrence factor (a measure of the company's risk aversion and sensitivity to fines)

In particular, a company's decision to engage in anti-competitive behavior can be modeled as a cost-benefit analysis, factoring in potential fines and compliance costs. The expected net benefit (ENB) from such behavior can be expressed by the following equation:

$$ENB = P(C) \times (R - \alpha \times F) - (1 - P(C)) \times C$$

In the equation, the first term represents the benefit expected from engaging in anti-competitive behavior, calculated as the product of the probability of engaging ( $P(C)$ ) and the net revenue or benefit ( $R$ ) minus the expected fine ( $\alpha \times F$ ). The second term represents the expected cost of compliance ( $(1 - P(C)) \times C$ ) incurred when the company chooses to comply. This simple model does not take into account a potential deterrence factor ( $\beta$ ), which can be incorporated by modifying the expected net benefit and the fine term as follows:

$$ENB = P(C) \times (R - \alpha \times \beta \times F) - (1 - P(C)) \times C$$

This baseline model immediately shows that the impact of the fine  $F$  on the company's decision-making process is, in itself, amplified by the deterrence factor  $\beta$ . A higher value of  $\beta$  indicates a stronger deterrence effect, making the company more sensitive to expected fines. In effect, building upon this general model, we can further analyze the comparative deterrence effects of mega-fines in the EU and US by incorporating the specific differences in fine structures and

perceived detection probabilities within each jurisdiction. In particular, we can define separated variables for each jurisdiction, as follows:

1.  $F_{EU}$  = Mega-fine amount imposed by the European Union
2.  $F_{US}$  = Fine amount imposed by the United States
3.  $\alpha_{EU}$  = Perceived probability of successful prosecution by EU authorities
4.  $\alpha_{US}$  = Perceived probability of successful prosecution by US authorities
5.  $\beta_{EU}$  = Deterrence factor for companies operating in the EU market
6.  $\beta_{US}$  = Deterrence factor for companies operating in the US market
7.  $C_{EU}$  = Cost of compliance with antitrust regulations in the EU market
8.  $C_{US}$  = Cost of compliance with antitrust regulations in the US market

The expected net benefit (ENB) of engaging in anti-competitive behavior in the EU market can be expressed as:

$$ENB_{EU} = P(C) \times (R_{EU} - \alpha_{EU} \times \beta_{EU} \times F_{EU}) - (1 - P(C)) \times C_{EU}$$

Similarly, for the US market:

$$ENB_{US} = P(C) \times (R_{US} - \alpha_{US} \times \beta_{US} \times F_{US}) - (1 - P(C)) \times C_{US}$$

Within our model,  $R_{EU}$  and  $R_{US}$  represent the anticipated revenue or benefit a company expects from engaging in anti-competitive behavior in the European and US markets, respectively. Similarly,  $C_{EU}$  and  $C_{US}$  capture the corresponding compliance costs in each jurisdiction. Historically, the EU has been more aggressive in imposing significant fines for such practices, suggesting potentially higher values for  $F_{EU}$  compared to  $F_{US}$ . This could translate into a stronger deterrence effect of fines in the EU market, assuming that other factors remain constant. In addition to these more objective factors, a crucial distinction lies in the perceived likelihood of successful prosecution ( $\alpha_{EU}$  vs.  $\alpha_{US}$ ). Companies may perceive a significantly higher risk of facing legal consequences in the EU ( $\alpha_{EU} > \alpha_{US}$ ). This perception, coupled with the potential for larger fines ( $F_{EU} > F_{US}$ ), could significantly amplify the deterrence effect of

antitrust enforcement in the European market. Furthermore, the deterrence factor ( $\beta_{EU}$  vs.  $\beta_{US}$ ) can also differ between the EU and the USA. This factor reflects a company's risk tolerance and sensitivity to fines. A higher deterrence factor in the EU ( $\beta_{EU} > \beta_{US}$ ) would further strengthen the deterrent effect of its enforcement actions. In this regard, it is important to remember that reaching a settlement is a common outcome for antitrust investigations in the USA, while the EU is more likely to pursue full court cases. Additionally, the recently implemented DMA in the EU specifically targets "gatekeeper" companies (dominant tech companies). This targeted approach may further increase the perceived likelihood of successful prosecution for such companies in the EU ( $\alpha_{EU}$ ). All these factors combined seem to imply a higher compliance in light of the lower expected net benefit in the EU market ( $ENB_{EU} < ENB_{US}$ ) and indicate a stronger deterrence effect of mega-fines imposed by EU authorities, assuming that all other factors are equal.

Our current model assumes that companies make rational decisions solely on the basis of expected net benefits. However, in reality, additional factors like risk aversion, sensitivity to fines, market dominance, regulatory stringency, innovation impact, legal uncertainties and fines' legal challenge? can also influence a company's decision whether or not to engage in anti-competitive behavior. These factors could be incorporated into the model as supplementary variables or constraints, particularly regarding a company's risk aversion and sensitivity to fines. In particular, we can define the following additional variables:

1.  $\gamma_{EU}$  and  $\gamma_{US}$ : Risk aversion factor for tech companies in the EU and US digital markets;
2.  $\delta_{EU}$  and  $\delta_{US}$ : Sensitivity to fines factor for tech companies in the EU and US markets;
3.  $\varphi_{EU}$  and  $\varphi_{US}$ : Market dominance factors for tech giants in the EU and US digital markets;
4.  $\rho_{EU}$  and  $\rho_{US}$ : Regulatory stringency factors for antitrust enforcement in the EU and US;
5.  $\psi_{EU}$  and  $\psi_{US}$ : Innovation impact factors, representing the potential negative effect of mega-fines on innovation in the EU and US digital markets;

6.  $\lambda_{EU}$  and  $\lambda_{US}$ : Legal challenge factors, representing the perceived likelihood of successfully challenging or reducing mega-fines through legal proceedings in the EU and US systems.

The risk aversion factor ( $\gamma$ ) represents the degree to which companies in each jurisdiction are willing to take risks associated with potentially anti-competitive practices. A higher value of  $\gamma$  indicates a more risk-averse company, less likely to engage in such behavior. The sensitivity to fines factor ( $\delta$ ) captures the extent to which companies in each region are influenced by the threat of fines when making decisions about anti-competitive practices. A higher value of  $\delta$  implies that companies are more sensitive to fines and thus more likely to be deterred from engaging in such behavior. The market dominance ( $\phi$ ) variable represents the level of market power held by tech giants in the EU and the USA. High  $\phi$  values indicate significant dominance, which can influence both the potential benefits ( $REU$  and  $RUS$ ) from anti-competitive practices (e.g., higher profits) and the perceived likelihood of detection ( $\alpha_{EU}$  and  $\alpha_{US}$ ) by regulators, as dominant companies become more visible targets. The regulatory stringency factor ( $\rho$ ) captures the intensity of antitrust enforcement in the EU and the USA. A higher value of  $\rho$  signifies a more proactive and rigorous regulatory environment. The EU framework seems to lead to a higher perceived probability of detection of antitrust behavior ( $\alpha_{EU} > \alpha_{US}$ ) and a stronger sensitivity effect of fines ( $\delta_{EU} > \delta_{US}$ ) for tech giants operating in that region. The innovation impact variable ( $\psi$ ) represents the potential negative impact of antitrust sanctions on innovation within the EU and US digital markets. High values of  $\psi$  suggest a greater risk of discouraging investment in new technologies and services due to the financial burden of fines. Finally, legal challenge factors ( $\lambda$ ) represent the perceived likelihood of tech giants successfully contesting or reducing mega-fines through legal proceedings in the EU and the USA. A higher value of  $\lambda$  indicates a better chance of legal success, potentially diminishing the overall deterrence effect of fines in that jurisdiction.



To incorporate the additional factors discussed, we can expand the model as follows:

$$ENB_{EU} = P(C) \times (R_{EU} \times \varphi_{EU} - \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) - (1 - P(C)) \times C_{EU} \times (1 - \lambda_{EU})$$

and

$$ENB_{US} = P(C) \times (R_{US} \times \varphi_{US} - \alpha_{US} \times \rho_{US} \times \gamma_{US} \times \delta_{US} \times F_{US}) - (1 - P(C)) \times C_{US} \times (1 - \lambda_{US})$$

In these expanded equations, we may assume that risk aversion factors ( $\gamma_{EU} \approx \gamma_{US}$ ), sensitivity factor to fines ( $\delta_{EU} \approx \delta_{US}$ ), market dominance ( $\varphi_{EU} \approx \varphi_{US}$ ), perceived probability of successful prosecution ( $\alpha_{EU} \approx \alpha_{US}$ ), regulatory stringency ( $\rho_{EU} \approx \rho_{US}$ ), risk aversion ( $\gamma_{EU} \approx \gamma_{US}$ ), sensitivity to fines ( $\delta_{EU} \approx \delta_{US}$ ), and legal challenge factors ( $\lambda_{EU} \approx \lambda_{US}$ ) are similar in both markets.

The rationale for these assumptions can be based on the following factors: large tech companies often operate globally, holding significant market power in both the EU and the USA; both the EU and the USA have antitrust regulations, and companies may perceive a similar baseline risk of being prosecuted for anti-competitive practices, and we may assume a similar level of regulatory pressure on companies in both regions<sup>15</sup>; companies, regardless of location, may have similar risk appetites when it comes to the potential legal and reputational consequences of anti-competitive behavior; and they may have a similar sensitivity to large fines.

Even considering these additional factors, the difference in the expected net benefits would still primarily depend on the fine amounts (i.e.,  $F_{EU}$  and  $F_{US}$ ). Thus, given that  $F_{EU} > F_{US}$ , the expected net benefit of engaging in anti-competitive behavior for tech giants in the EU digital market would be lower than in the US digital market:

$$ENB_{EU} < ENB_{US}$$

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<sup>15</sup> This strong assumption stems from the fact that the current US administration antitrust roadmap intends to promote a number of new and disruptive rulings for this year, which may signal “a big year for the enforcers”. Cit. Jan Wolfe, ‘Big Tech Braces for Wave of Antitrust Rulings in 2024’ (Wall Street Journal, January 1, 2024) <<https://www.wsj.com/tech/big-tech-braces-for-wave-of-antitrust-rulings-in-2024-860f0149>>. Last access May 5, 2024. At the same time, although the legal systems in both the EU and the USA are complex, and the likelihood of successfully challenging fines can be perceived as similar for tech giants, we acknowledge that the US enforcement approach may be less stringent, especially considering the prevalence of settlements compared to full court cases in the USA.

A lower expected net benefit ( $ENB_{EU} < ENB_{US}$ ) indicates a stronger effect of mega-fines imposed by EU authorities on tech giants' compliance with antitrust regulation, given that

$$P(C) \times (R_{EU} \times \varphi_{EU} - \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) < P(C) \times (R_{US} \times \varphi_{US} - \alpha_{US} \times \rho_{US} \times \gamma_{US} \times \delta_{US} \times F_{US})$$

The aforementioned inequality suggests, in fact, that sanctions imposed by EU authorities (left-hand side of the inequality) is stronger than that of fines imposed by US authorities (right-hand side of the inequality), primarily because of the higher fine amounts ( $F_{EU} > F_{US}$ ). In the case of tech giants, despite the recent investigations by the US authorities, we can assume that

$$\lim_{X \rightarrow \infty} F_{US} \approx 0 \text{ and that } \lim_{X \rightarrow \infty} F_{EU} \rightarrow 1$$

Historically, a key difference between antitrust enforcement in the EU and the USA has been the level of fines imposed. The EU has a track record of imposing much larger fines on companies found to be engaging in anti-competitive practices. This trend is reflected in our model's assumption that fines in the USA ( $F_{US}$ ) approach zero and fines in the EU ( $F_{EU}$ ) tend towards 1 as the number of antitrust cases pursued increases.

To find the maximum value of  $ENB_{EU}$ , we can take the derivative of the expression with respect to the decision variable,  $P(C)$ , and set it equal to zero:

$$\partial ENB_{EU} / \partial P(C) = R_{EU} \times \varphi_{EU} - \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU} + C_{EU} \times (1 - \lambda_{EU}) = 0$$

Solving for  $P(C)$ , we get:

$$P(C) = \frac{(R_{EU} \times \varphi_{EU} + C_{EU} \times (1 - \lambda_{EU}))}{(R_{EU} \times \varphi_{EU} - \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU} + C_{EU} \times (1 - \lambda_{EU}))}$$

which represents the optimal probability of engaging in anti-competitive behavior in the EU market that maximizes the expected net benefit,  $ENB_{EU}$ .

On the other hand, and adopting the same approach as in the case of the EU market, we set the derivative of  $ENB_{US}$  with respect to  $P(C)$  equal to zero:

$$\partial ENB_{US} / \partial P(C) = R_{US} \times \varphi_{US} - \alpha_{US} \times \rho_{US} \times \gamma_{US} \times \delta_{US} \times F_{US} + C_{US} \times (1 - \lambda_{US}) = 0$$

Solving for  $P(C)$ , we get:

$$P(C) = \frac{(R_{US} \times \varphi_{US} + C_{US} \times (1 - \lambda_{US}))}{(R_{US} \times \varphi_{US} - \alpha_{US} \times \rho_{US} \times \gamma_{US} \times \delta_{US} \times F_{US} + C_{US} \times (1 - \lambda_{US}))}$$

which represents the specular and optimal probability of engaging in anti-competitive behavior in the US market that maximizes the expected net benefit,  $ENB_{US}$ .

To demonstrate that mega-fines in Europe are more efficient in inducing compliance than American antitrust sanctions, we can compare the maximum values of  $ENB_{EU}$  and  $ENB_{US}$ . If  $ENB_{EU} < ENB_{US}$ , this would indicate that the expected net benefit of engaging in anti-competitive behavior is lower in the EU market than in the US market, suggesting a stronger deterrence effect of mega-fines in Europe. Mathematically, we can say that the partial derivative with respect to the fine amount ( $F_{EU}$ ) is the largest in magnitude by analyzing the terms for the expected cost associated with anti-competitive behavior ( $\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}$ ) and take the partial derivatives of this expression with respect to each factor:

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} = \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \alpha_{EU} = \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \rho_{EU} = \alpha_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \gamma_{EU} = \alpha_{EU} \times \rho_{EU} \times \delta_{EU} \times F_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \delta_{EU} = \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times F_{EU}$$

According to these partial derivatives, we can immediately conclude, on the one hand, that the fine amount ( $F_{EU}$ ) acts as a multiplier in all the partial derivatives, except for the one with respect to  $F_{EU}$  itself. On the other hand, the other factors ( $\alpha_{EU}$ ,  $\rho_{EU}$ ,  $\gamma_{EU}$ ,  $\delta_{EU}$ ) are all non-negative and less than or equal to 1 because they represent probabilities, sensitivity factors, and risk aversion factors. Therefore, the partial derivative with respect to the fine amount – i.e.,  $\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} = \alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU}$  – can be considered the largest in magnitude. Hence, we can express this as:

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} > \partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \alpha_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} > \partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \rho_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} > \partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \gamma_{EU}$$

$$\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU} > \partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial \delta_{EU}$$

demonstrating that the fine amount ( $F_{EU}$ ) has a more significant impact on the expected cost associated with anti-competitive behavior compared to the other factors ( $\alpha_{EU}$ ,  $\rho_{EU}$ ,  $\gamma_{EU}$ ,  $\delta_{EU}$ ).

Indeed, we can quantify the relative importance of the fine amount ( $F_{EU}$ ) compared to the other factors by comparing the magnitudes of the partial derivatives with respect to each factor. In fact, the relative importance of  $F_{EU}$  can be defined as:

$$(\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU}) / (\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial x)$$

where  $x$  can be any of the other factors:  $\alpha_{EU}$ ,  $\rho_{EU}$ ,  $\gamma_{EU}$ , or  $\delta_{EU}$ . If we express the relative importance of the fine amount using the concept of elasticity, we can state that:

$$\varepsilon_{F_{EU}} = (\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU}) \times (F_{EU} / (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}))$$

and substituting the partial derivative, we get:

$$\varepsilon_{F_{EU}} = (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU}) \times (F_{EU} / (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU})) = 1$$

Furthermore, we can define the relative importance of the fine amount ( $F_{EU}$ ) as the reciprocal of the elasticity of the expected cost with respect to the fine amount, suggesting that the relative importance of  $F_{EU} = 1 / \varepsilon_{F_{EU}}$  where  $\varepsilon_{F_{EU}}$  is the elasticity of the expected cost ( $\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}$ ) with respect to the fine amount ( $F_{EU}$ ), so that:

$$\varepsilon_{F_{EU}} = (\partial(\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU}) / \partial F_{EU}) \times (F_{EU} / (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU})) = (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU}) \times (F_{EU} / (\alpha_{EU} \times \rho_{EU} \times \gamma_{EU} \times \delta_{EU} \times F_{EU})) = 1$$

which, to be clearer, can be identified as

$$\text{Relative Importance of } F_{EU} = 1 / \varepsilon_{F_{EU}} = 1 / 1 = 1$$

showing that the relative importance of the fine amount ( $F_{EU}$ ) is inversely proportional to its elasticity, which is equal to 1. If we instead consider that  $\varepsilon_{F_{US}}$  is close to zero for the US market, this might suggest that a 1% increase in the fine amount ( $F_{US}$ ) has a minimal impact on the

expected cost of compliance. Due to the near-zero elasticity ( $\varepsilon_{F_{US}} \approx 0$ ), the relative importance of the fine amount in the US market can be written as

$$\text{Relative Importance of } F_{US} = 1 / \varepsilon_{F_{US}} \approx \infty$$

meaning that when  $\varepsilon_{F_{US}}$  is close to zero, a 1% change in  $F_{US}$  gives rise to a very small proportional change in compliance cost. A more accurate interpretation is that even large percentage increases in  $F_{US}$  may have a minimal proportional effect on compliance costs due to the already low baseline cost influenced by other factors (e.g., low perceived probability of getting caught and being sanctioned in the US system).

Following this simple model, we can say that the EU has a well-established reputation for imposing hefty fines on companies deemed to be stifling competition. This aggressive stance is reflected in our model, where the fine amount in the EU ( $F_{EU}$ ) tends towards 1 as the number of antitrust actions increases. These "mega-fines" carry significant weight, making them a highly influential factor in the expected cost that a tech giant incurs by engaging in anti-competitive behavior. Notably, a mere 1% change in  $F_{EU}$  translates – in our model – into a 1% change in the expected cost. This underscores the significant impact that mega-fines have on deterring such practices in the EU market. In stark contrast, the US approach to dealing with tech giants has been more lenient. Our model reflects this by assuming that the fine amount in the USA ( $F_{US}$ ) approaches zero as the number of antitrust actions rises. These low fines translate into a negligible factor when one considers the overall expected cost of anti-competitive behavior. This is further emphasized by the near-zero elasticity of the expected cost with respect to  $F_{US}$ . Here, a 1% change in the fine amount leads to an infinitesimally small change in the expected cost. This suggests that fines in the USA have a minimal deterrent effect, leaving other factors like the probability of getting caught and a company's risk aversion to play a more significant role.

The mathematical framework set out above postulates a way to analyze and compare the impact of antitrust enforcement approaches between the EU and the USA. It highlights the role of fine amounts as a key lever with which to influence compliance with antitrust regulations. The model demonstrates the potential utility of mega-fines in fostering greater compliance with antitrust regulations, particularly in the EU, where fines appear to have a more substantial deterrence effect than in the USA. The model provides a framework for further empirical validation and refinement so that better understanding of the comparative impacts of antitrust enforcement strategies can be gained. In the next sections we will provide, on the one hand, further reasons for our decision to assume that the EU is more aggressive in imposing larger fines on companies found guilty of anti-competitive behavior. On the other hand, we will show that by lowering the expected net benefit of non-compliance, mega-fines can induce big tech companies to comply with antitrust regulations.

#### **4. Antitrust mega-fines in practice: The EU approach(es) in the digital markets**

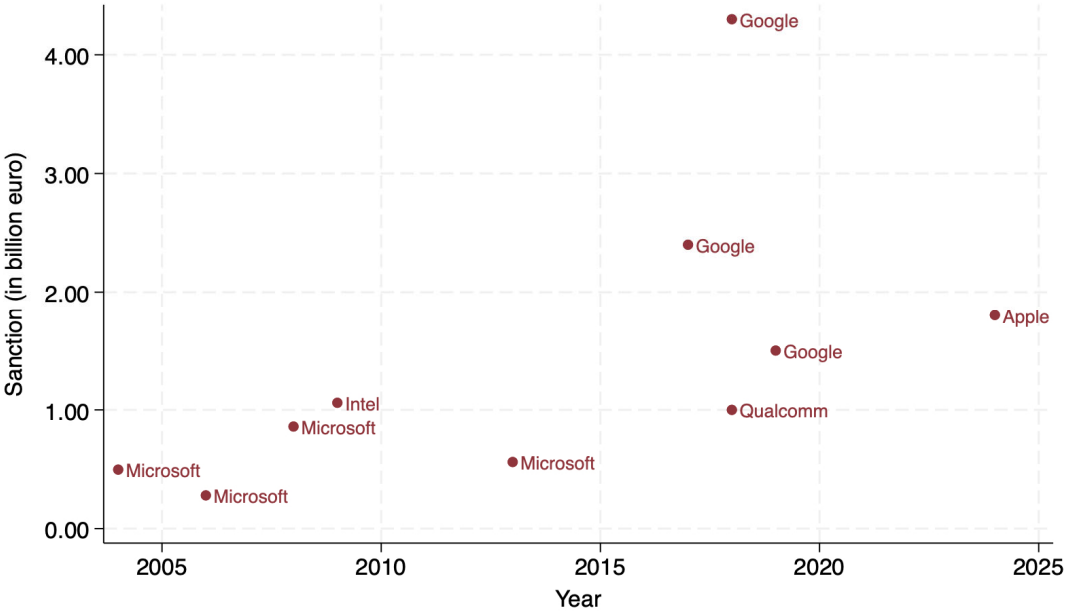
As anticipated, the EU's approach consists in increasing the costs and risks associated with anti-competitive behavior, while encouraging companies to operate within the legal framework and fostering a more competitive digital landscape. At the forefront of these nudging actions have been several eye-catching fines imposed on industry giants, indicating a robust regulatory approach aimed at ensuring fair competition and consumer protection.<sup>16</sup> One of the most notable cases has involved Google, which found itself facing a substantial fine of \$5.1 billion. This sanction was levied due to allegations of engaging in tying and exclusivity arrangements related to pre-installed search services. Moreover, Google incurred another fine of \$2.7 billion for

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<sup>16</sup> It can be argued that mega-fines can be one of the answers to the “hyper-nudging” structure of big techs and a legitimate form of nudging against global challenges, as advocated by some commentators. In this regard, see, in particular, Anna Gerbrandy, ‘Changing Competition Law in a Changing European Union’ [2019] Competition Law Review 33.

allegedly giving preferential treatment to its own online shopping service; a fine which highlighted the EU’s profound scrutiny of big tech practices.<sup>17</sup> In addition to these fines, the EU has recently imposed record penalties, such as the unprecedented 1.8-billion-euro fine imposed on Apple for abusing its dominant position in the market. These substantial fines serve as clear signals that the EU is willing to take decisive action against companies that stifle competition and harm consumers.

This phenomenon is not isolated. In the last twenty years, there has been an increasing trend of fines levied on major players in the tech industry; a trend which reflects heightened regulatory scrutiny and enforcement efforts by the European Commission. In this regard, Figure 1 shows the trend of antitrust mega-fines imposed by European authorities on major tech companies over the years from 2004 to 2024.



<sup>17</sup> In this regard, see Thomas Höppner and Philipp Westerhoff, ‘EU General Court Confirms Landmark Google Android Decision with Strong Signal for Tougher Antitrust Enforcement in Digital Ecosystems’ (2022). Hausfeld Perspectives 2022, <<https://ssrn.com/abstract=4219920>>.

Figure 1: The graph highlights the significant financial impact that European antitrust actions have had on leading tech firms in recent years. Source: Own elaboration of European Commission data.

The graph shows that the sanctions against these tech companies, including Google, Apple, Microsoft, Intel, Qualcomm, and others, have been increasing over the years, with the most significant sanctions occurring in the most recent ones. At the same time, the data show that the sanctioned companies are among the largest and most dominant players in the technology industry. This suggests that antitrust authorities have been focusing their efforts on addressing the market power and potential anti-competitive practices of these industry leaders. At the same time, we also see that Microsoft has been subject to antitrust scrutiny and a number of heavy sanctions, which have not been replicated in more recent years. In addition, we also note that Google's prominent position in the chart underscores its status as a recent and frequent target of EU antitrust investigations and fines. The company's dominance in various online markets has attracted regulatory attention, resulting in significant penalties for practices deemed to impede competition or to harm consumers. Moreover, the inclusion of other tech giants like Qualcomm, Intel, and Apple demonstrates the breadth of enforcement actions taken by the EU against companies across many different sectors of the tech industry.

This trend can be explained by various factors. Firstly, the escalating fines appear to mirror the EC's commitment to upholding its policy of compliance nudging by means of sanctions. The objective of dissuading potential wrongdoers through fines has been reiterated numerous times over the past decade, and it has featured prominently in recent enforcement actions, such as the Novartis-Roche case involving abuse of collective dominance.<sup>18</sup> Secondly, the heftiest fines seem to be predominantly aimed at digital giants, and the surge in mega-fines imposed by

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<sup>18</sup> See Alain Ronzano, 'Collective dominant position: The Paris Court of Appeal rules that none of the alleged practices were established and overturns the Competition Authority's decision in the AMD case in its entirety (Novartis; Roche; Genentech)' [2023] Concurrences <<https://www.concurrences.com/en/review/issues/no-2-2023/alertes/collective-dominant-position-the-paris-court-of-appeal-rules-that-none-of-the>> accessed 8 May 2024.



regulatory authorities has reached such substantial levels that they are approaching the realm of penalties typically associated with criminal offenses. We noted above that, unlike in some jurisdictions where antitrust violations can incur criminal charges, the EU does not criminalize antitrust breaches. However, the unprecedented magnitude of these fines is raising questions about whether they are effectively serving as substitutes for criminal penalties.<sup>19</sup> The increasing resemblance of mega-fines to quasi-criminal sanctions seems to silence the possible criticism that European sanctions lack deterrent effectiveness due to the absence of detention.<sup>20</sup> While it can be pointed out that companies could simply factor the potential fine into their cost-benefit analysis and still engage in anti-competitive practices if the perceived benefits outweighed the financial penalty, mega-fines, reaching billions of euros, significantly alter the equation. These large sanctions – which may represent a significant proportion of a company’s revenues – can inflict serious financial pain, reputational damage and potential divestitures, thus exerting a more substantial deterrent effect.<sup>21</sup>

Furthermore, we note that the trend of imposing substantial fines in order to deter anticompetitive practices is not confined solely to the EU level. While the EU has been at the forefront of imposing these hefty penalties, the movement is gaining traction elsewhere. This powerful tool is increasingly adopted by individual member-states in their fight against anti-

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<sup>19</sup> In this regard, some commentators have argued that the European antitrust framework can be seen as having a quasi-criminal structure, with similar deterrence results. See, in particular, Christopher Harding, *The System of EU Antitrust Law: Characteristics, safeguards and differences from traditional criminal law* [2019] *Revue internationale de droit pénal* 85.

<sup>20</sup> Regardless of the fact that there has never been a case of imprisonment of the CEO of any big tech company for antitrust violations even in the USA, the deterrence effect inherent in significant monetary sanctions compared to custodial ones has been extensively demonstrated in the literature. See, in particular, the important conclusions provided by Mitchell A. Polinsky and Steven Shavell, ‘The optimal use of fines and imprisonment’ [1984] *Journal of Public Economics* 89, and, more recently, Ingolf Dittmann, ‘Imprisonment versus fines: A theoretical perspective’ in Ziggy Macdonald and David Pyle (eds.) *Illicit Activity: The Economics of Crime, Drugs and Tax Fraud* (129-150, Routledge 2018).

<sup>21</sup> The “blame-game” can be quite effective in deterring companies from pursuing a specific direction toward non-compliance with antitrust norms. See Dávid Sobor and Péter Virág, ‘Corporate Governance and Competition Law Sanctions’ in Tihamer Tóth (ed.), *The Cambridge Handbook of Competition Law Sanctions* (86-101, Cambridge University Press 2022).

competitive behavior by Big Tech. Analyzing specific cases such as France and Italy can illustrate this growing trend and its potential impact.

#### 4.1 France

With the clear intention of enhancing transparency and providing clarity to businesses regarding the application of its sanctioning authority, the *Autorité de la Concurrence* – the French Competition Authority (FCA) – introduced its Guidance on Antitrust Fines on 17 May 2011.<sup>22</sup> This guidance reiterates the provisions of Article L 464-2 of the Commercial Code and the FCA's freedom to consider mitigating or aggravating factors when determining adjustments to the base fine. Specifically, it stipulates that the FCA reserves the right to increase fines in response to the economic prowess of the company or the conglomerate to which it belongs, the purpose being to ensure that financial penalties are both deterrent and proportionate. Following the precedent set in the *Janssen-Cilag* case,<sup>23</sup> wherein the FCA applied a 70 percent increment to the fine to account for the economic clout of the group, this provision has emerged as a potent mechanism with which the FCA can significantly escalate fines imposed on offending companies. On this basis, the FCA has markedly increased the fines levied on companies for violations of articles L 420-1 and L 420-2 of the Commercial Code, corresponding to articles 101 and 102 of the Treaty on the Functioning of the European Union.

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<sup>22</sup> In this regard, the “transparent and pragmatic approach” of the French Authority can be found in *Autorité de la Concurrence*, ‘Antitrust enforcement: new guidance on antitrust fines’ (17 May 2011) <<https://www.autoritedelaconcurrence.fr/en/communiqués-de-presse/17-may-2011-antitrust-enforcement-new-guidance-antitrust-fines>> accessed 8 May 2024.

<sup>23</sup> See *Autorité de la Concurrence*, Decision No. 17-D-25 of 20 December 2017 relating to practices implemented in the sector of transdermal fentanyl patches (20 December 2017) <<https://www.autoritedelaconcurrence.fr/en/decision/regarding-practices-implemented-sector-transdermal-patches-fentanyl>> accessed 8 May 2024.

In short, French sanctions appear to exhibit an upward trajectory and harsher penalties<sup>24</sup> for abuse of dominance in the French market, at least in the last ten years (see Figure 2).

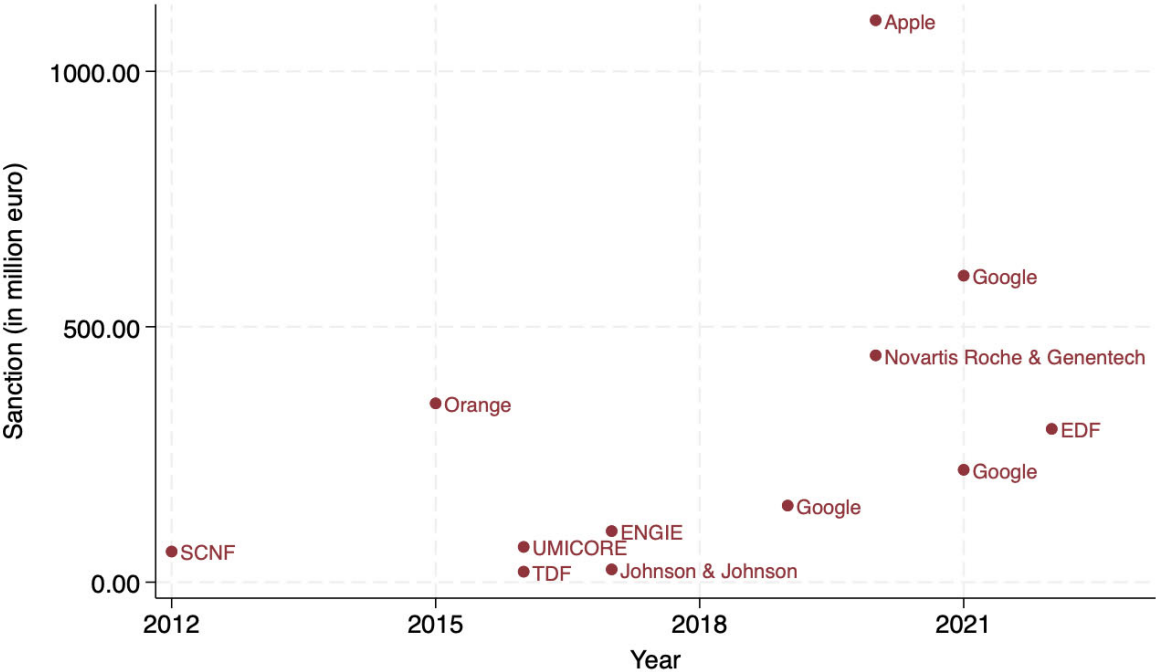


Figure 2: The graph highlights the significant French antitrust sanctions with regard to abuse of dominant position. Source: Own elaboration on *Autorité de la Concurrence* data.

Inspection of the figure shows that big tech companies have been the target of particular antitrust scrutiny by the FCA since the Covid pandemic crisis. Google faced hefty fines in 2019 and 2021. All sanctions, combined with additional investigations for non-compliance, resulted in increasing fines, and one of the highest fines in the FCA’s history for abuse of dominance.<sup>25</sup>

<sup>24</sup> In this regard, see Jérôme Philippe and Aude-Charlotte Guyon, ‘France: Beyond the Punisher’ [2021] *Global Competition Review* <<https://globalcompetitionreview.com/review/the-european-middle-east-and-african-antitrust-review/2022/article/france-beyond-the-punisher>> accessed 8 May 2024.

<sup>25</sup> Details of the “Google saga” against the FCA can be found in Thomas Höppner, Maximilian Volmar, and Philipp Westerhoff, ‘Online Advertising: The French Competition Decision on Google’s Self-Preferencing in Ad Tech’ (2021). *Concurrences eCompetitions* Sep 2021 II, <<https://ssrn.com/abstract=3929310>> accessed 8 May 2024.

Similarly, in a landmark decision in 2020, Apple incurred the most substantial penalty ever imposed by the FCA on an economic entity.<sup>26</sup>

## 4.2 Italy

On 13 May 2021, the *Autorità Garante della Concorrenza e del Mercato* (AGCM) – the Italian Competition Authority (ICA) – issued a landmark decision concerning Google's conduct in the electric vehicle market. The case centered on the "JuicePass" app, developed by Enel X Italia, which allows electric vehicle drivers to locate and book charging points while on the road. Despite being available on the Google Play Store, JuicePass was denied access to the Android Auto platform, a crucial feature allowing app functionality within a vehicle's infotainment system.

The ICA deemed Google's exclusion of JuicePass to be an unjustified restriction on competition, and a violation of Article 102 of the Treaty on the Functioning of the European Union (TFEU). The ICA argued that Google's actions disregarded the principle of interoperability – the seamless interaction between different systems. By denying JuicePass access to Android Auto, Google effectively prioritized its own apps and stifled competition within the EV charging service market. This not only impeded consumer choice but also potentially hindered the development of essential infrastructure for a sustainable future.

The ICA's decision carried significant weight. The hefty fine of €102 million was intended to serve as a strong deterrent against “winner-takes-all” anti-competitive practices.<sup>27</sup> More importantly, the imposed behavioral commitments required Google to take concrete steps to

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<sup>26</sup> See *Autorité de la Concurrence*, Decision No. 20-D-04 dated 16 March 2020 relating to practices implemented in the Apple products distribution sector (15 June 2020) <<https://www.autoritedelaconcurrence.fr/en/decision/regarding-practices-implemented-apple-products-distribution-sector>> accessed 8 May 2024.

<sup>27</sup> See, in particular, paragraph 274 of Decision No. 29645 of the *Autorità Garante della Concorrenza e del Mercato*, ‘A529 - Google/Compatibilità App Enel X Italia con Sistema Android Auto’ <[https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/D7C5BF86903B8387C12586D800495AB1/\\$File/p29645.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/D7C5BF86903B8387C12586D800495AB1/$File/p29645.pdf)> accessed 8 May 2024.

rectify the situation. These included the development of a new template for publishing electric vehicle charging service apps on Android Auto and the guaranteed inclusion of JuicePass on the platform. The purpose of such measures was to create a level playing field, fostering fair competition and promoting innovation within the digital e-mobility service.

The Italian case, as well as the French cases mentioned above, are indicative of a common endeavor not only within the EU but also among its founding countries to punish anti-competitive behaviors and to compel giants like Google, Amazon, Facebook, and Apple (the so-called GAFA) to respect the rules imposed in one of the world's largest and most attractive markets, with 440 million consumers.<sup>28</sup>

#### **4.3 Recent developments: The Apple case and the DMA**

The Apple case in Europe warrants specific attention. Following the imposition of a record penalty of 1.8 billion euros on Apple for abusing its dominant position, on 25 March 2024 the Commission announced that it was initiating an investigation against the American company for potential non-compliance with its obligations under the DMA (which became binding on March 7). These actions by the Commission against Apple are significant for understanding both the approach of European antitrust authorities towards vertically integrated models<sup>29</sup> and the potential interplay between the DMA and public enforcement under Regulation 1/2003.

While the focus was initially on compliance with the DMA, the Commission announced on March 8 that it had fined Apple for abusing its dominant position in the narrow market for distributing music streaming apps for iOS users. This sanction stemmed from a notification

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<sup>28</sup> See European Commission, 'EU position in world trade', <[https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/eu-position-world-trade\\_en](https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/eu-position-world-trade_en)> accessed 8 May 2024.

<sup>29</sup> The imposition of contractual restrictions and the lack of interoperability among products and services has long been tolerated by antitrust authorities but it is currently under scrutiny by both European and U.S. regulators, which are taking action for violation of Section 2 of the Sherman Act. See, in particular, Office of Public Affairs, 'Justice Department Sues Apple for Monopolizing Smartphone Markets' (U.S. Department of Justice, 21 March 2024) <<https://www.justice.gov/opa/pr/justice-department-sues-apple-monopolizing-smartphone-markets>> accessed 9 May 2024.

made in 2019 by Spotify and another reading app<sup>30</sup>, highlighting the abusive economic and contractual terms imposed by Apple on app developers distributing their products via the company's proprietary App Store.<sup>31</sup>

The investigation targeted the obligation imposed by Apple to use its proprietary payment system for in-app transactions (such as Spotify premium subscriptions), along with the prohibition, enforced through "anti-steering" clauses, of informing end users about alternative payment methods outside the Apple ecosystem. Apple's vertically integrated and closed ecosystem, which distinguishes it from those of other manufacturers using the Android operating system, grants the company control (and a de facto monopoly) over app distribution of its products solely through the App Store, under conditions dictated by Apple.

These conditions, including the mandatory use of Apple's payment system and anti-steering provisions, have long been criticized as abusive.<sup>32</sup> Given that most apps follow the "freemium" model, where revenue comes from in-app purchases, the 30 percent fee imposed by Apple significantly impacts both developers and the company. Indeed, legal challenges to Apple's closed ecosystem have arisen in various jurisdictions, such as the case brought by the developer of the game "Fortnite" in the USA because of Apple's anti-steering provisions and unfair trade

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<sup>30</sup> See European Commission, 'Antitrust: Commission opens investigations into Apple's App Store rules' (16 June 2020) <[https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1073](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1073)> accessed 8 May 2024.

<sup>31</sup> For a more comprehensive analysis of the Apple practices that triggered the level of anticompetitive practices, see Damien Geradin and Dimitrios Katsifis 'The antitrust case against the Apple App Store' [2021] *Journal of Competition Law & Economics* 503.

<sup>32</sup> It has been argued that the reference to Art. 102(a) of the TFEU was a good move by the European Commission, given that it followed a clearly defined and known legality test of previous sanctions, and that the focus on both consumer harm and innovation should be welcomed positively. See Thibault Schrepel, 'Antitrust Law The Apple Music Streaming Case: The Good, The Bad, and The Ugly' (Network Law Review, 27 March 2024) <<https://www.networklawreview.org/apple-music-streaming/>> accessed 9 May 2024.

practices.<sup>33</sup> Similar investigations have been launched in the Netherlands<sup>34</sup> and Japan<sup>35</sup>, resulting in fines and adjustments to Apple's practices. In response to these developments and to counterclaims submitted by Apple, the Commission focused on anti-steering clauses and sanctioned the Cupertino firm with an additional lump sum of 45 times the basic amount of sanctions, the highest ever imposed by the Commission. Indeed, this penalty might reflect an increasing trend of regulatory actions targeting large technology corporations, as evidenced by the recent US Justice Department's lawsuit against Apple following the EU's penalty.<sup>36</sup> Furthermore, the imposition of such a substantial lump sum has added significance considering the Commission's initiation of proceedings against Apple under Art. 20 of the DMA. These proceedings encompass the imposition of anti-steering clauses under Art. 5(4) of the DMA and compliance with the obligation to allow users to uninstall system apps and change default settings under Art. 6(3) and Art. 6(4) of the DMA. For instance, Apple plans to introduce a new fee system for developers not exclusively using the App Store, thus potentially hindering the DMA's implementation. This raises questions about the evaluation of Apple's fee system under the DMA, since it previously withstood scrutiny under Article 102 TFEU and the Sherman Act. Under the DMA, fines for gatekeepers are calculated according to their global turnover, which is a significant departure from traditional methods. This approach ensures penalties

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<sup>33</sup> See Kathryn E. McMahon, 'USA: monopolization of mobile ecosystems-the decision in Epic v Apple' [2022] Concurrences Review <<https://www.concurrences.com/en/review/issues/no-3-2022/international/107327>> accessed 9 May 2024.

<sup>34</sup> The Dutch Authority sanctioned Apple's dominant position because of "unfair conditions" that prevented users from using alternative payment methods in dating apps. See Murco Mijnlief, 'ACM: Apple changes unfair conditions, allows alternative payments methods in dating apps' (Netherlands Authority for Consumers & Markets, 11 June 2022) <<https://www.acm.nl/en/publications/acm-apple-changes-unfair-conditions-allows-alternative-payments-methods-dating-apps>> accessed 8 May 2024.

<sup>35</sup> In this case, the Japanese Authorities suspected that Apple's policy on means of payment was too restrictive on new businesses and investments, but it concluded that the modified implemented guidelines were sufficiently clear not to violate antitrust rules. See Japan Fair Trade Commission, 'Closing the Investigation on the Suspected Violation of the Antimonopoly Act by Apple Inc.' (2 September 2024) <<https://www.jftc.go.jp/en/pressreleases/yearly-2021/September/210902.html>> accessed 8 May 2024.

<sup>36</sup> See US Department of Justice, 'Justice Department Sues Apple for Monopolizing Smartphone Markets' (Office of Public Affairs, 21 March 2024) <<https://www.justice.gov/opa/pr/justice-department-sues-apple-monopolizing-smartphone-markets>> accessed 8 May 2024.

commensurate with the gatekeeper's financial capacity and market reach. It thus addresses the cross-border nature of digital markets and enhances regulatory effectiveness within the EU. Moreover, heavy penalties under the DMA are complemented by behavioral or structural remedies aimed at enhancing deterrence, signaling the EU's commitment to ensuring fair competition in the digital sphere.

The interplay between these regulations can foster increased compliance for gatekeepers, and a level playing field in the digital marketplace. In this sense, the imposition of mega-fines can be seen as an institutional choice<sup>37</sup> intended to foster an entrepreneurial culture of compliance from within while sustaining long-term viability in the digital market.<sup>38</sup> We have extensively elaborated on the logical and mathematical rationale behind imposing notably severe penalties on industry giants with considerable economic clout. The imposition of a substantial monetary fine not only exerts direct pressure on the financial health of the company but also triggers significant media attention and stock market reactions,<sup>39</sup> thereby directly influencing the expected net benefit that the company, acting rationally, would seek to achieve by flouting compliance norms. Furthermore, hefty punitive measures have an additional deterrent effect because they serve as a stark warning to other major tech entities,<sup>40</sup> which are made acutely

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<sup>37</sup> Research has illustrated that corporations, particularly in response to significant fines and sanctions, have transitioned towards implementing internal compliance mechanisms. See, in particular, Jacques Crémer and others, 'Enforcing the Digital Markets Act: institutional choices, compliance, and antitrust' [2023] *Journal of Antitrust Enforcement* 315.

<sup>38</sup> Historically, inadequate dissuasive sanctions have significantly contributed to subpar compliance efforts, particularly from an enforcement standpoint. It has been argued that the absence of sufficiently impactful penalties has allowed non-compliant behavior to persist within the technology sectors, where tech giants appear to be out of the public authority's control. See Anne C. Witt, 'The Digital Markets Act: Regulating the Wild West' [2023] *Common Market Law Review* 625, and Gehad Mohamed Abdelaziz and Adham Hashish, 'Using Sanctions in Enforcing Digital Markets Act in the EU' in Rim El Khoury and Nohade Nasrallah (eds.) *Intelligent Systems, Business, and Innovation Research* (775–783, Springer Nature Switzerland 2024).

<sup>39</sup> In this regard, there is evidence that convicted firms not only lose profitability but suffer significant reputational damage. See Andrea Günster and Mathijs van Dijk, 'The impact of European antitrust policy: Evidence from the stock market' [2016] *International Review of Law and Economics* 20.

<sup>40</sup> See Veljanovski (n 2), who argues that significant antitrust sanctions fundamentally encompass three principles: abstain from contravening antitrust regulations; should a violation occur, promptly terminate the infringement; and once cessation is achieved, avoid recurrence.



aware that similar punitive actions could befall them should they fail to adhere to the regulatory framework set forth for the European market.

## **5 Antitrust (mega) fines in practice: The *laissez-faire* US approach to digital markets**

The pivotal moments in shaping the modern regulatory landscape in the United States can be traced back to the Sherman Act of 1890 and the Federal Trade Commission Act of 1914, the two principal laws, enforced at the federal level by the DOJ and the FTC, intended to prevent firms from engaging in anti-competitive practices and unfair competition. Nonetheless, in stark contrast with the EU, the DOJ and the FTC lack the unilateral authority to "impose" relief on a party. Instead, they must initially seek and secure such relief from a federal judge, who, in turn, must adhere to established case law regarding both the alleged violation and the extent of the remedy. Additionally, the common law framework grants US courts, including the Supreme Court, substantial leeway in interpreting Section 2 of the Sherman Act and scrutinizing intricate economic matters that often prove decisive.<sup>41</sup> These systemic disparities have subtle yet profound repercussions. The EU Commission enjoys relatively unrestrained discretion to pursue any substantive policy or liability theory it deems fit, subject only to the subsequent review (with the aforementioned limitations). This latitude extends to the selection of competition policies under Article 102, a latitude that in the US is constrained by what could feasibly be achieved through judicial proceedings.

Moreover, in contrast to the EU, the US legal system also relies on additional avenues for litigation – such as third-party funding (TPF) or class actions – and criminalization – resulting in fines or even imprisonment for individuals involved in illegal anticompetitive behavior –

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<sup>41</sup> Regarding the extent to which common law is considered a fundamental basis for distinguishing the Sherman Act from other statutes, see Keith N. Hylton, *Antitrust Law: Economic Theory and Common Law Evolution*, Cambridge University Press (2003), 31 ff.

which add another layer of enforcement and deterrence in the USA.<sup>42</sup> By contrast, in the EU, antitrust violations are primarily addressed through civil or administrative proceedings. While the EU Commission and national competition authorities can impose substantial fines and remedies for anticompetitive conduct, the lack of criminalization in the EU antitrust regime still contributes? to deterring and rectifying violations using different enforcement mechanisms in comparison to the US system.<sup>43</sup> Despite the evident arguments in favor of the US substantial punishment of anticompetitive behavior, the digital market appears to be exempt from substantive reprimands. In the realm of the digital market, there seems to be a prevailing inclination towards prioritizing the freedom of contract and a vision of competition devoid of governmental influence.<sup>44</sup> The curious aspect of this laissez-faire approach is that regulators are aware of the existence of a dominant market position.<sup>45</sup> Most of the American companies active in the digital market have gone unscathed in the United States for practices penalized in the EU for anticompetitive “abuses”.

One of the reasons for this discrepancy might be that, in the USA, companies operating in the digital market are perceived as a “dazzling national asset”<sup>46</sup>. Another factor could be the

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<sup>42</sup> Douglas H. Ginsburg, ‘Comparing antitrust enforcement in the United States and Europe’ [2005] *Journal of Competition Law and Economics* 427.

<sup>43</sup> For a review of the theoretical arguments in favor of the criminalization of antitrust sanctions, see W. P. J. Wils, ‘Is Criminalization of EU Competition Law the Answer?’ *28/2 World Competition*, (2005) 117-159. In this paper, we argue that European mega-fines are not dissimilar in their effects to criminal sanctions, considering that the “impossibly high fines” suggested in the aforementioned paper are theoretically and practically justified against big tech companies.

<sup>44</sup> See Walter Adams and James W. Brock, ‘Antitrust Economics on Trial: A Dialogue on the New Laissez-Faire’ (Princeton University Press 1991), in particular 125 ff.

<sup>45</sup> In October 2020, a committee within the US House of Representatives released findings on concerning behaviors exhibited by GAFA (Google, Amazon, Facebook, and Apple), in particular for their killer acquisition of more than 500 companies in the previous twenty years, revealing the necessity to address their dominant market position. See Mikah Roberts ‘Killer acquisitions and the death of competition in the digital economy’ [2022] *Transactions: The Tennessee Journal of Business Law* 61, and Abdullah Hussain and Perna Parashar, ‘Merger Thresholds and Merger Thresholds in the Digital Economy’ [2021] *NLS Business Law Review* 1.

<sup>46</sup> Cit. Eve Smit ‘The techlash against Amazon, Facebook and Google—and what they can do: Which antitrust remedies to welcome, which to fight’ (*The Economist*, 20 January 2018) <<https://www.economist.com/briefing/2018/01/20/the-techlash-against-amazon-facebook-and-google-and-what-they-can-do>> accessed 8 May 2024.

substantial financial investments made by tech giants and their affiliated trade associations over the past couple of years in order to thwart a long-standing congressional initiative aimed at revamping antitrust laws.<sup>47</sup> Big tech companies appear to have become, at least in the USA, regulation-proof empires that are difficult to nudge into complying with antitrust rules.<sup>48</sup> Despite big tech's high productivity, innovation rates, significant investment in research and development, large patent holdings, minimal evidence of collusion, and strong competition among companies, it is widely believed that targeting them as industries to regulate is fundamentally misguided.<sup>49</sup> Ultimately, many concerns regarding public intervention in the delicate balance of market competition can be attributed to the neoclassical approach of the Chicago School of Economics and the imperative to uphold international competitiveness following World War II.<sup>50</sup>

### **5.1 The US minimalist approach and a laissez-faire paradox**

In the United States, the influence of the Chicago school of economics shifted the focus of competition policy to the idea of well-functioning markets, which were believed to yield the greatest efficiencies and the highest level of economic welfare.<sup>51</sup> In the late 1970s, Robert Bork and Richard Posner published influential books critiquing antitrust law, arguing against its restrictions on efficient business practices, and advocating deregulation. Amid favorable

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<sup>47</sup> In this regard, see Rebecca Klar and Karl Evers-Hillstrom 'How Big Tech fought antitrust reform and won' (The Hill, 23 December 2022) < <https://thehill.com/policy/technology/3785894-how-big-tech-fought-antitrust-reform-and-won/>> accessed 8 May 2024.

<sup>48</sup> See Alexis Wichowski, 'The U.S. can't regulate Big Tech companies when they act like nations' (Washington Post, 29 October 2020) <<https://www.washingtonpost.com/outlook/2020/10/29/antitrust-big-tech-net-states/>> accessed 8 May 2024.

<sup>49</sup> See the lucid analysis by Herbert Hovenkamp in Robert Armstrong and Ethan Wu 'What Big Tech antitrust gets wrong: An interview with Herbert Hovenkamp' (Financial Times, 19 January 2024) <<https://www.ft.com/content/4eec8bc3-c892-4704-ae66-a4432c6d4fd7>> accessed 8 May 2024.

<sup>50</sup> In particular, there were concerns that imposing stricter antitrust measures domestically could undermine the competitive strength of US companies on the global stage, notably in comparison to Japanese firms. See Daniel J. Gifford and Robert T. Kudrle, *The Atlantic divide in antitrust: An examination of US and EU competition policy* (University of Chicago Press 2015).

<sup>51</sup> In Europe, Anna Gerbrandy, 'Changing Competition Law in a Changing European Union' [2019] Competition Law Review 33.

political conditions, their ideas gained traction, generating a deregulatory trend that ultimately failed to deliver long-term benefits, as market power widened without significant gains in consumer welfare accompanied by declining economic dynamism and productivity growth.<sup>52</sup> In essence, the Chicago School of economists criticized the sentimental favoritism shown toward small competitors, and they made the key consideration that antitrust measures intended to protect less efficient competitors harm social and consumer welfare. Even firms with significant market shares face competitive pressures as long as barriers to entry and exit are low, making competition authority intervention unnecessary in most cases.<sup>53</sup> The Chicago school of antitrust economists argued that existing rules from the structural era were imbalanced in that they emphasized deterrence of harmful conduct over promoting efficiency. They contended that practices like exclusive distribution territories and price cutting were not inherently anticompetitive but instead mechanisms for enhancing efficiency. According to this perspective, antitrust concerns should arise only when firms possess dominant market shares protected by entry barriers or when the government restricts competition. Courts, influenced by Chicago arguments, gradually modified antitrust rules, relaxing restrictions on vertical restraints, predatory pricing, and resale price maintenance. Eventually, the Supreme Court's decisions narrowed the scope of potential antitrust liability for various practices, emphasizing economic concerns over social and political goals.<sup>54</sup> In this sense, the influence of the Chicago School of Economics' neoclassical *laissez-faire* ideology has contributed to limiting fines in

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<sup>52</sup> Chicago lawyers anticipated that easing antitrust regulations would lead to enhanced efficiencies for firms, potentially resulting in cost reductions, price decreases, improved products and services, and accelerated innovation, stimulating economic growth. See Jonathan B. Baker, *The antitrust paradigm: restoring a competitive economy* (Harvard University Press 2019).

<sup>53</sup> On this “uncritical sentimentality” see, in particular, Richard Whith and David Bailey, *Competition Law* (Third edition, Oxford University Press 2012), 21 ff.

<sup>54</sup> *Idem*, 43 ff., in particular.

the US antitrust enforcement, giving more space to private litigation and limiting at maximum criminal enforcement.<sup>55</sup>

The laissez-faire approach to online platforms advocates minimal regulation, suggesting that digital capitalism should be governed by light rules. This entails abandoning traditional paradigms like dominance and market power, and viewing platform activities primarily as efficient business models that enhance allocative and distributive efficiency.<sup>56</sup> Laissez-faire policies are based on the belief in the efficacy of free markets compared to hierarchical institutions, and they emphasize freedom of choice for both users and providers. However, the network effects of online platforms, where user benefits increase with platform size, can create significant costs for users wanting to switch platforms. This undermines the traditional mechanism of competition based on free choice among alternatives.<sup>57</sup> In this regard, the contemporary antitrust paradox lies in the institutional commitment of the United States to antitrust principles while facing challenges in effectively deterring information technology firms from exercising long-term market power. Despite the substantial endorsement and enforcement of antitrust norms by authorities and courts, the impact of enforcement actions remains insufficient. Firms operating in the digital market exploit gaps in antitrust rules to deter entry, and they engage in coordinated conduct without violating these rules.<sup>58</sup> Furthermore, courts have refrained from applying existing antitrust principles to these companies, primarily because of an excessive focus on consumer prices as the sole measure of competitive harm

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<sup>55</sup> After more than fifty years, the principal focus on efficiency of the laissez-faire argument has been subject to different and widespread criticisms in both the USA and the EU. See, for instance, P. Bougette, M. Deschamps, and F. Marty, 'When economics met antitrust: The second Chicago School and the economization of antitrust law' 16/2 *Enterprise & Society* (2015) 313-353.

<sup>56</sup> David S. Evans and Richard Schmalensee, *Matchmakers: The new economics of multisided platforms* (Harvard Business Review Press 2016).

<sup>57</sup> On the issue related to reconciling the benefits of free markets with the emergence of substantial exit costs for platform users, which poses a challenge within the laissez-faire framework, see Alain Marciano and others, 'Big data and big techs: Understanding the value of information in platform capitalism' [2020] *European Journal of Law and Economics* 345.

<sup>58</sup> In this regard, see Baker (n 52).

under the consumer welfare standard. This misapplication paradoxically sustains market concentration, hinders innovation, and disproportionately affects vulnerable consumer groups.<sup>59</sup> Another reason for this lack of antitrust enforcement, which complicates matters further, is that tech giants have extensively financed academic research and think tanks to promote regulatory frameworks favorable to big tech, and they press for minimal government intervention.<sup>60</sup>

The absence of significant fines in the US antitrust landscape has substantial implications. Primarily, as our model has evidenced, the lack of substantial penalties provides little incentive for tech companies to refrain from engaging in anticompetitive practices or from exploiting their market dominance. This scenario perpetuates market concentration and harms consumer welfare over time, with important implications for a number of democratic core values.<sup>61</sup> Moreover, the dearth of significant fines and the reluctance of regulatory bodies and courts to levy hefty fines may embolden tech giants to exploit loopholes in antitrust regulations, secure in the knowledge that repercussions will be minimal. This behavior could exacerbate existing challenges in fostering competition within digital markets and curbing coordinated efforts to stifle rival firms. Finally, the preference for minimal regulation in the name of efficiency could

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<sup>59</sup> It is noteworthy that, as some scholars point out, the misapplication of the consumer welfare standard is particularly common in tech-related services that are perceived as free, like social media platforms, search engines, and app stores. See Christos A. Makridis and Joel Thayer ‘The Big Tech Antitrust Paradox: A Reevaluation of the Consumer Welfare Standard for Digital Markets’ [2023] *Stanford Technology Law Review* 71.

<sup>60</sup> Despite potential criticism, the discussions about new legal frameworks also in the US for digital markets, coupled with the imposition of a \$5 billion fine on Facebook in 2019 for its failure to safeguard user privacy, can be understood as timid signals of a potential shift in paradigm.

<sup>61</sup> We maintain the stance that major technology giants do not inherently pose a direct threat to democracy. However, it is essential to acknowledge scholarly discourse indicating that their overwhelming influence in information distribution and political mobilization coordination presents distinctive challenges to the integrity of democratic processes. The monopolistic control of information vital to democratic decision-making can indeed lead to the amplification of certain narratives or voices while silencing others, thereby skewing the public discourse essential for informed citizenry participation. See Francis Fukuyama and others, ‘How to Save Democracy from Technology: Ending Big Tech’s Information Monopoly’ [2021] *Foreign Affairs* 98.

hinder robust antitrust enforcement efforts, allowing tech firms to operate with impunity and solidify their dominance.<sup>62</sup>

## **5.2 A turnaround? Recent proactive engagement of the US authorities**

Recently, there has been a notable increase in the activity of US antitrust authorities in investigating tech companies for alleged anti-competitive behavior. The heightened scrutiny of tech companies by US antitrust authorities can be attributed to several factors. Firstly, there is a growing public and political awareness of the outsized influence of tech platforms in various sectors, including online retail, digital advertising, and social media<sup>63</sup>. Concerns about market concentration, consumer privacy, and data security have prompted high-profile investigations and legal proceedings, calling for more rigorous antitrust enforcement to rein in the power of these companies. Changes in leadership and policy priorities within US antitrust agencies have contributed to a more proactive approach towards tech regulation<sup>64</sup>. The appointment of officials who are vocal advocates for stronger antitrust enforcement, coupled with the publication of reports and guidelines outlining potential anti-competitive practices in the tech industry, signaled a shift towards more aggressive and inflexible enforcement actions against tech companies<sup>65</sup>. These recent instances serve as evidence of a notable shift within the US

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<sup>62</sup> On this matter, see Alan Devlin, *Antitrust as Regulation* [2012] *San Diego Law Review* 823.

<sup>63</sup> On the global growing concerns on the expansionism of big tech companies see Tamar Sharon and Raphaël Gellert, 'Regulating Big Tech expansionism? Sphere transgressions and the limits of Europe's digital regulatory strategy, [2023] *Information, Communication & Society* 1.

<sup>64</sup> Youngjae Lee and Morgan Hagenbuch, 'The Battle with Big Tech: Analyzing Antitrust Enforcement and Proposed Reforms' [2023] *Fordham Journal of Corporate & Financial Law* 293.

<sup>65</sup> See, in this regard, the recent press release of the Justice Department regarding the alleged monopoly in smartphone markets against Apple, in which the attorney general stated that "No matter how powerful, no matter how prominent, no matter how popular, no company is above the law". Office of Public Affairs, US Department of Justice, 'Justice Department Sues Apple for Monopolizing Smartphone Markets' (March 21, 2024), at <<https://www.justice.gov/opa/pr/justice-department-sues-apple-monopolizing-smartphone-markets>>, last access 30 April 2024.

landscape, highlighting a unified push to oversee big tech and a crucial examination of the effectiveness of antitrust legislation in ensuring a healthy digital market<sup>66</sup>.

Thus, the more recent activity of US antitrust authorities in addressing tech companies aligns with the efforts of EU institutions to impose regulatory measures on similar grounds. Both jurisdictions have recognized the need to address anti-competitive behavior and monopolistic practices within the tech industry. Among the most notable investigations, the FTC has filed a landmark lawsuit against Facebook – alleging that the company engaged in anticompetitive practices to sustain its monopoly in personal social networking over several years<sup>67</sup> – while the DOJ recently sued Apple – alleging monopolization of the smartphone market by the bitten apple firm.<sup>68</sup> Nonetheless, the outcomes of these investigations have differed between the USA and the EU. While the EU has acted as a “torchbearer” for constructing a discrimination-free market and advocating international antitrust solutions for digital market giants<sup>69</sup>, US cases are still pending<sup>70</sup> without a solution foreseeable in the near future. In several respects, the United

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<sup>66</sup> On the important test of current US antitrust responses to emerging digital markets, see, notably, Laura Alexander, 'Major federal 'Big Tech' antitrust case against Google will test the strength of current U.S. antitrust laws in new digital markets' (Washington Center for Equitable Growth, 13 March 2023) <<https://equitablegrowth.org/major-federal-big-tech-antitrust-case-against-google-will-test-the-strength-of-current-u-s-antitrust-laws-in-new-digital-markets/>> accessed 8 May 2024.

<sup>67</sup> See FTC v Facebook Inc, FTC complaint (8 December 2020) nyd <<https://www.ftc.gov/system/files/documents/cases/1910134fbcomplaint.pdf>> accessed 8 May 2024, and FTC Press Release, 'FTC Sues Facebook for Illegal Monopolization' (9 December 2020) <<https://www.ftc.gov/news-events/press-releases/2020/12/ftc-sues-facebook-illegal-monopolization>> accessed 8 May 2024.

<sup>68</sup> The complaint filed by the Department of Justice, supported by 15 states, specifically highlights Apple's conduct in the mobile market and argues for a monopoly on the ground that Apple's extensive, exclusionary practices create obstacles for Americans wishing to switch smartphones, hinder innovation for apps, products, and services, and impose significant costs on developers, businesses, and consumers. On this matter, see Oxford Analytica, 'US antitrust challenge may alter Apple's course' (Emerald Expert Briefings 2024) <<https://www.emerald.com/insight/content/doi/10.1108/OXAN-ES286158/full/html>> accessed 8 May 2024, and US Department of Justice (n 75).

<sup>69</sup> See, in this regard, Michal S. Gal, 'International antitrust solutions: Discrete steps or causally linked?' in Josef Drexler and others (eds.) *More Common Ground for International Competition Law?* (239-260, Edward Elgar Publishing, 2011).

<sup>70</sup> While the FTC contends that the lawsuit may be trial-ready by year-end 2024, Meta's attorneys have expressed scepticism because of the size and complexity of the case. See Matthew Perlman, 'FTC Eyes 2024 Trial For Meta Antitrust Case' (Law360 22 February 2024) <<https://www.law360.com/articles/1805439/ftc-eyes-2024-trial-for-meta-antitrust-case>> accessed 8 May 2024.



States falls short compared to the European Union, which has implemented multibillion-dollar sanctions against Google, Apple, and Meta, and compelled Amazon to alter its business practices, imposing stricter obligations on these major technology giants to deter them from exploiting their dominant market positions.<sup>71</sup>

Without the genuine threat of significant financial penalties, major tech companies like Google, Amazon, Facebook, and Apple have been able to maintain their dominant market positions, stifling competition. This reduced incentive to comply with antitrust laws means that these firms can engage in anti-competitive practices with limited repercussions. As a result, dominant tech platforms have been able to acquire potential competitors at will, further entrenching their market power without fear of substantial antitrust enforcement. As if this were not enough, the consolidation and acquisition of smaller firms makes it increasingly difficult for new players to enter the market and challenge the *status quo*, creating substantial barriers to entry for potential competitors. The lack of robust antitrust enforcement has led to reduced consumer choice, ultimately harming the interests of consumers. The concentration of power in the hands of a few tech giants can have far-reaching consequences, including increased wealth inequality,<sup>72</sup> higher prices,<sup>73</sup> and negative impacts on societal sustainability<sup>74</sup>. Overall, the absence of substantial antitrust fines in the digital market has allowed big tech giants to consolidate their power and engage in practices that have unexpectedly stifled competition<sup>75</sup> and undermined the

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<sup>71</sup> It is interesting that some commentators argue that, in this regard, the USA is not leading the way in regulating such an important range of industries. See D. Daniel Sokol and Bobby Zhou, ‘Antitrust Regulation’ [2024] *Journal of Law and Innovation*.

<sup>72</sup> On the winner-take-all dynamics of the digital market see Jonathan P. Allen, *Technology and inequality: concentrated wealth in a digital world* (Springer 2017).

<sup>73</sup> See Herbert Hovenkamp, ‘Is Antitrust’s Consumer Welfare Principle Imperiled?’ [2019] *Journal of Corporation Law* 65.

<sup>74</sup> It is known that the various technological innovations provided by big tech companies are having dysfunctional impacts, including automation replacing human labor, search engines tracking our interests, social media profiting from our data, online retailers exerting excessive bargaining power, and virtual technologies altering our cognition and sense of self. See Bernard Arogyaswamy, ‘Big tech and societal sustainability: an ethical framework’ [2020] *AI & society* 829.

<sup>75</sup> This possibility is far from remote according to some commentators. See Josh Hawley, *The tyranny of big tech* (Regnery Publishing 2021).

principles of a free and fair market.<sup>76</sup> This worrying trend requires greater scrutiny and stronger antitrust measures to restore balance and promote healthy competition in the digital economy.

## 6 Conclusions

This comparative analysis of antitrust mega-fines in the digital markets of the EU and the USA has shed light on distinct regulatory approaches and their impact on compliance. The EU's reliance on large administrative or quasi-criminal fines, which we have labeled "mega-fines", represents a concerted effort to deter anti-competitive practices and promote a level playing field in the digital economy. The mathematical model developed in this paper demonstrates how the threat of significant fines, also combined with factors like perceived detection probability and company sensitivity to penalties, can make anti-competitive behavior less attractive for tech giants operating in the EU market. The model suggests that the expected net benefit of engaging in such practices is lower in the EU than in the USA, largely because of the significantly higher fine amounts imposed by European authorities.

By contrast, the USA has historically taken a more lenient approach, with smaller fines and a greater emphasis on antitrust damages and private litigation. However, recent events point to a shift in US policy, with the antitrust authorities taking a more proactive stance against tech giants. The filing of a landmark lawsuit against Facebook by the FTC and the heightened scrutiny of other digital platforms signal a convergence between the EU and the USA in recognizing the need to address the excessive influence of tech companies. This convergence is further exemplified by the US authorities' initiation of a lawsuit against Apple, following the imposition of a substantial fine by the EU.

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<sup>76</sup> This compelling argument about market dominance and consumer control can be found in Viktor Mayer-Schönberger and Thomas Ramge. *Access rules: Freeing data from big tech for a better future* (University of California Press 2022).

In this regard, the findings of this study<sup>77</sup> suggest that mega-fines can be effective means to foster compliance with antitrust regulations in digital markets. By significantly increasing the expected cost associated with engaging in anti-competitive practices, the threat of such fines can deter tech giants from pursuing profit-maximizing strategies at the expense of consumer welfare and fair competition. The targeted nature of the EU’s recently implemented Digital Markets Act, which specifically focuses on “gatekeeper” companies, further amplifies the deterrence effect by heightening the perceived likelihood of successful prosecution.

It is important to note, however, that the impact of mega-fines is not limited to their direct financial consequences. These fines also serve as a strong public message signaling that anti-competitive behavior will not be tolerated. This symbolic effect can shape the overall compliance culture within the digital industry, encouraging companies to prioritize legal and ethical practices over short-term gains. Moreover, the threat of mega-fines<sup>78</sup> can incentivize tech giants to proactively review and adjust their business strategies to ensure alignment with applicable antitrust regulations.<sup>79</sup>

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<sup>77</sup> We acknowledge that, at present, there is a lack of sufficient empirical data to fully validate our model.

<sup>78</sup> It is important to stress that mega-fines should not be understood as merely punitive *per se* or as targeting a specific American “tech business model”; rather, they should be treated by antitrust authorities as a last resort, as a form of nudging operation to protect consumers when everything else fails. In this regard, see Christopher Harding, ‘The System of EU Antitrust Law: Characteristics, safeguards and differences from traditional criminal law’ [2019] *Revue internationale de droit pénal* 85, and Florian Wagner-von Papp, ‘Remedies, sanctions and commitments’ in Pinar Akman and others (eds), *Research Handbook on Abuse of Dominance and Monopolization* (283-316, Edward Elgar Publishing 2023).

<sup>79</sup> At the European level, the compliance effect of mega fines seems to be confirmed by the constant dialogue between tech giants and the European Commission, with constant monitoring and clear commitments to comply with the EU regulations. See, on the one hand, Tim Lamb, ‘Offering People More Choice on How They Can Use Our Services in the EU’ (Meta, 22 January 2024) <<https://about.fb.com/news/2024/01/offering-people-more-choice-on-how-they-can-use-our-services-in-the-eu/>>; Oliver Bethell, ‘Complying with the Digital Markets Act’ (Google, 5 March 2024) <<https://blog.google/around-the-globe/google-europe/complying-with-the-digital-markets-act/>>; Apple Inc., ‘Apple announces changes to iOS, Safari, and the App Store in the European Union’ (25 January 2024) <<https://www.apple.com/newsroom/2024/01/apple-announces-changes-to-ios-safari-and-the-app-store-in-the-european-union/>>; Chris Nelson ‘Microsoft implements DMA compliance measures’ (Microsoft, 7 March 2024) <<https://www.microsoft.com/en-us/legal/compliance/dmacompliance>>; Amazon Team, ‘Amazon and the Digital Markets Act’ (Amazon, 7 March 2024) <<https://www.aboutamazon.eu/news/policy/amazon-and-the-digital-markets-act>>; and, on the other hand, European Commission, ‘Apple DMA compliance workshop’ (18 March 2024) <[38](https://digital-</a></p></div><div data-bbox=)

As the digital economy continues to evolve, robust and adaptive antitrust enforcement mechanisms become increasingly necessary. The comparative analysis presented in this paper suggests that the EU's approach of leveraging mega-fines may be an effective way to address the unique challenges posed by digital markets. While the USA has been more indulgent toward big tech companies, both jurisdictions seem to be refining their antitrust approaches. In the future, it will be crucial to closely monitor the long-term impacts on compliance, innovation, and the overall competitiveness of the digital landscape.

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[markets-act.ec.europa.eu/events-poolpage/apple-dma-compliance-workshop-2024-03-18\\_en](https://digital-markets-act.ec.europa.eu/events-poolpage/apple-dma-compliance-workshop-2024-03-18_en)>; 'Meta DMA compliance workshop' <[https://digital-markets-act.ec.europa.eu/events-poolpage/meta-dma-compliance-workshop-2024-03-19\\_en](https://digital-markets-act.ec.europa.eu/events-poolpage/meta-dma-compliance-workshop-2024-03-19_en)> (19 March 2024); 'Amazon DMA compliance workshop' (20 March 2024) <[https://digital-markets-act.ec.europa.eu/events-poolpage/amazon-dma-compliance-workshop-2024-03-20\\_en](https://digital-markets-act.ec.europa.eu/events-poolpage/amazon-dma-compliance-workshop-2024-03-20_en)>; 'Microsoft DMA compliance workshop' <[https://digital-markets-act.ec.europa.eu/events-poolpage/microsoft-dma-compliance-workshop-2024-03-26\\_en](https://digital-markets-act.ec.europa.eu/events-poolpage/microsoft-dma-compliance-workshop-2024-03-26_en)> (26 March 2024). All websites accessed 8 May 2024.