

# THE LAW AND ECONOMICS OF TYING IN DIGITAL PLATFORMS: COMPARING *TENCENT* AND *ANDROID*

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## ABSTRACT

Tying has become a common practice in digital platforms. It may generate both pro-competitive effects and anti-competitive effects, which makes it difficult to distinguish between lawful and unlawful tying practices. The cases of Tencent and Android both involve tying conducts, but interestingly, the cases have different outcomes. This article explores reasons for these different case outcomes from a comparative law and economics perspective. By assessing the facts and legal rulings in Tencent and Android, we find that the different case outcomes result, on the one hand, from the different case facts, and on the other hand, from the different approaches used by the EU Commission and the Chinese Supreme People's Court. The Court scores better in terms of ensuring legal certainty; nevertheless, it may face difficulties when it has to apply economic analysis. The Commission seemingly uses more economics, but the application is not full-fledged, as it disregards important case facts when assessing competition foreclosure, and employs asymmetric legal tests and evidence standards for anti/pro-competitive effects of tying. From a law and economics perspective, we provide suggestions for China and the EU, taking the recent Anti-Monopoly Guidelines on Platforms in China and the forthcoming Digital Markets Act in the EU into account.

**JEL:** K21-Antitrust Law, L86, Digital Services

## I. INTRODUCTION

Tying<sup>1</sup> is widely prevalent among businesses. With the increasing role played by digital platforms, tying has become an even more common business practice. Digital operators may better

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<sup>1</sup> JURIAN LANGER, TYING AND BUNDLING AS A LEVERAGING CONCERN UNDER EC COMPETITION LAW 4–6 (Kluwer Law International 2007). Tying usually refers to the situation in which a consumer who wants to buy product A must also buy product B, although it is possible for a consumer to buy product B separately. A similar concept is pure bundling that product A and product B are sold together for a single price in fixed proportion. Since the impact of pure bundling and tying can sometimes be very similar and hard to distinguish, this thesis generally uses “tying” as a denominator to describe these two practices.

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satisfy consumers' needs and increase the value of their platforms' ecosystems through tying additional products and services at very low costs or even free of charge. However, stand-alone rivals may find it harder to enter the market or to survive the fierce competition. The possible coexistence of anti-competitive and pro-competitive effects of tying in digital platforms makes it very difficult to distinguish between lawful and unlawful tying practices in competition law.

When faced with these challenges, the central competition authority in the EU (European Commission) and the Chinese Supreme People's Court (SPC) seem, at least at first sight, to have taken different approaches to handle tying practices in digital platforms. In the EU, the European Commission fined Google over four billion euros for illegal tying of Google's search and browser apps with the Play Store, whereas in China, the SPC found that Tencent was not in breach of competition law when it tied QQ management software and QQ doctor with QQ instant messaging software.

Against the background of academic debate and differences in competition practice, we will compare Tencent and Android from a law and economics perspective.<sup>2</sup> After a brief presentation of the case facts of Tencent and Android in Section II, Section III will explore economic theories about tying in digital platforms<sup>3</sup>, resulting in an overview of economic criteria and theories that may help to identify the anti-competitive effects and the pro-competitive effects in competition law practice. Section IV firstly applies the economic criteria and theories to examine the effects of tying practices in Tencent and Android, respectively, and subsequently explores whether and to what extent relevant economic theories have been incorporated in the rulings of these two cases. The next section, from a comparative perspective, explores the possible explanations for the seemingly different approaches adopted by the Chinese Supreme Court and the EU Commission in two cases, and crystallizes the lessons to be learned from the law and economics analysis for China and the EU. The final section concludes the article.

## II. CASE FACTS OF TENCENT AND ANDROID

### A. Case facts of Tencent

Tencent and Qihoo 360 are two leading digital platform service providers in China, respectively, in the instant messaging service market and antivirus service market.<sup>4</sup> On the one hand, they separately provided their flagship products—QQ instant messaging software and 360 antivirus software—for free to users, while on the other hand, they utilized the user base to gain massive profits from online advertising revenues and value-added services.<sup>5</sup>

<sup>2</sup> Before assessing the anti-competition effects and the pro-competitive effects of the concerned undertakings' conducts, the SPC and the Commission both assessed the pre-conditions of dominance, the distinctiveness of the tying and the tied products, and the coercion effects of tying. This article focuses on the tying practices' effects on competition and does not assess these three pre-conditions in detail.

<sup>3</sup> We would like to point out that our economic analysis may not be directly applicable to one specific type of digital platform that exists *inter alia* in China, namely legally protected platforms. Legally protected firms derive their market power not from competing on the merits but from (different forms of) state protection, which allows them to achieve economies of scale and scope in the public interest. An example is an online database offered by the China National Knowledge Infrastructure, the establishment of which was under the approval of the Press and Publications Administration of China. The unique legal position held by this type of firm may change their incentives and the effects of their tying decisions compared to "regular" digital platforms. Legally protected firms will therefore be excluded from the main discussion of this paper.

<sup>4</sup> According to the China Internet Enterprise Comprehensive Strength Research Report, Tencent was ranked 2nd and Qihoo was ranked 11th. Zhongguo Hulianwang Qiye Zonghe Shili Yanjiu Baogao (中国互联网业综合实力研究报告) [China Internet Enterprise Comprehensive Strength Research Report] (Internet Society of China 中国互联网协会), 2020年, <https://www.isc.org.cn/editor/attached/file/20201026/20201029.pdf> (China).

<sup>5</sup> Beijing Qihu Youxian Gongsi Su Tengxun Keji (Shenzhen) Youxian Gongsi, Shenzen Shi Tengzun Jisuanji Xitong Youxian Gongsi Lanyong Shichang Zhipei Diwei Jiufen An (北京奇虎科技有限公司诉腾讯科技(深圳)有限公司、深圳市腾讯计算机系统有限公司滥用市场支配地位纠纷案) [Beijing Qihoo Technology Co., Ltd. v. Tencent Technology (Shenzhen) Co., Ltd. & Shenzhen Tencent Computer Systems Co., Ltd., A Dispute over Abusing Dominant Market Positions], SPC Guiding Case No. 78, Mar. 6, 2017 (China).

In January 2010, Tencent launched a new kind of antivirus security software, called QQ doctor. However, its promotion of this software to consumers was not successful. In September 2010, Tencent's QQ instant messaging software and QQ management software were installed in a package in the installation process of QQ instant messaging software without notice to users. In the same month, Tencent published an announcement that QQ management software and QQ doctor would be automatically upgraded and integrated to QQ computer housekeeper, which was claimed to provide users with more powerful functionalities. Since QQ instant messaging software was very popular among users, this behavior might generate the risk of eliminating and restricting competition in the antivirus service market in which Qihoo held the largest user base.

In 2012, Qihoo sued Tencent, alleging that Tencent had abused its dominant position in violation of the Anti-Monopoly Law of China<sup>6</sup> through two kinds of tying strategies. The first one was that Tencent had tied QQ instant messaging software and QQ management software, and the other one was that Tencent had tied QQ doctor with QQ management software and integrated them into QQ computer housekeeper. In 2014, the SPC held that Tencent did not hold a dominant position in the instant messaging market. In principle, if the incumbent did not have a dominant market position, there was no need to analyze whether it was an abuse of dominant market position, and it could be directly determined that it did not constitute an abuse of dominant market position prohibited by the Anti-Monopoly Law. However, in Tencent, because the boundaries of the relevant market were blurred and it was not very clear whether the operator held a dominant market position, the SPC also assessed the effects of Tencent's tying conducts finding that the practices had certain rationality, and there was no evidence showing that the practices induced a significant decrease of Qihoo's market share, or had generated the effects of eliminating or restricting competition on other operators in this market. The Court considered Tencent not in breach of Chinese Anti-Monopoly Law.

It is noteworthy that this case is a private enforcement case heard by court systems in Chinese competition law enforcement. It is further designated as the No. 78 guiding case by the SPC, among one of "the top ten anti-monopoly civil litigation cases."<sup>7</sup>

## B. Case Facts of Android

Google, the well-known American multinational technology company, offers various digital services. Among these services, its main revenues come from its general search service (Google search), which provides relevant generic and specialized search results to users on one side and targeting relevant search advertisements with advertisers on the other side.<sup>8</sup> Besides search services, it also offers other products and services to users, including Play Store, Google Chrome, YouTube, and so forth.<sup>9</sup> These other services also enable Google to collect user information that will further ensure the functioning of Google's search and search advertising services.<sup>10</sup>

<sup>6</sup> Art. 22 of the AML lists several acts that dominant undertakings are prohibited from doing, which provides the legal basis for punishing abuse of dominance in China. The prohibition of tying and adding unreasonable trading conditions are regulated as the fifth act: "Undertakings holding dominant market positions are prohibited from doing the following by abusing their dominant market position: (5) without justifiable reasons, conducting tie-in sale of goods or adding other unreasonable trading conditions to transaction." *Zhonghua Renmin Gongheguo Fanlongduan Fa* (中华人民共和国反垄断法) [Anti-monopoly Law of the People's Republic of China] (revised on Jun. 24, effective on Aug. 1, 2022), art. 22.

<sup>7</sup> SPC, Guiding Case No. 78, <http://www.court.gov.cn/fabu-xiangqing-37612.html> (China) (last visited Oct. 25, 2021). Emilio Varanini and Jiang Feng, *The Decision of the Supreme People's Court in Qihoo v. Tencent and the Rule of Law in China: Seeking Truth From Facts*, 25 *COMPETITION* 230(2016). They discuss the importance of Tencent as guiding precedent.

<sup>8</sup> Case AT. 40099-Google Android, Commission decision, ¶105 (18.07.2018) (summary: 2019 O. J. (L 28)11) [https://e.c.europa.eu/competition/antitrust/cases/dec\\_docs/40099/40099\\_9993\\_3.pdf](https://e.c.europa.eu/competition/antitrust/cases/dec_docs/40099/40099_9993_3.pdf) (last visited Oct. 25, 2021) (Google Android).

<sup>9</sup> *Id.* ¶ 106.

<sup>10</sup> *Id.* ¶¶ 108–111.

Originally, Google's search services mainly gained profits in the PC environment. The changing trend in the Internet industry from PCs to mobile devices motivated Google to promote Google Search also in mobile devices.<sup>11</sup> In 2005, Google firstly acquired the Android mobile operating system and invested significantly in its development and management. Despite this considerable investment, Google freely licensed Android to Original Equipment Manufacturers (OEMs) and Mobile Network Operators (MNOs), opened the source code and in principle enabled anyone to fork Android under the Android Open Source Project license.<sup>12</sup> In addition, Google provided a series of free apps to users such as Play Store, Google Chrome, YouTube, Gmail, and so forth. The open and free license and high-quality complementary services made Android enormously popular, occupying over 80 percent of worldwide mobile operating systems.<sup>13</sup> Although Google offered its Android platform freely, it did not provide OEMs with its proprietary app services unless they first entered into "Mobile Application Distribution Agreements (MADAs)". These MADAs included an "all-or-nothing" clause, requiring that manufacturers who wanted to pre-install one Google app to pre-install all mandatory Google apps.<sup>14</sup> Since Play Store was regarded as an essential app by consumers, manufacturers seemingly had no choice but to pre-install Google Search, Google Chrome and other Google apps. Moreover, according to such contracts, Google Search had to be set as the default search provider for all Web search access points.<sup>15</sup>

The European Commission, in July 2018, alleged that the restrictions imposed on OEMs and MNOs were in violation of article 102 TFEU<sup>16</sup> for abuses of dominance through tying including the illegal tying of Google Search with Play Store and tying of Google Chrome with Play Store and Google Search. For the first claim, the Decision concludes that the tying of the Google Search app with the Play Store is capable of restricting competition, and Google has not demonstrated the existence of any objective justification for the tying of the Google Search app with the Play Store, which constitutes an abuse of Google's dominant position under EU competition law. In September 2022, the Decision was largely confirmed by the General Court.<sup>17</sup>

### III. THE ECONOMICS OF TYING IN DIGITAL PLATFORMS

#### A. The Pro-Competitive Effects of Tying in Digital Platforms

In 1963 Stigler already showed that tying by a multi-product monopolist can reduce price inefficiencies through implementing price discrimination and reducing consumers' heterogeneity.<sup>18</sup> In digital platforms, tying may also coordinate the demand between different sides of users. When the best price structure includes a negative price on one side, tying makes it possible for a monopolist to actually engage in a negative price (when the tied products are free due to the low marginal costs in digital platforms). In this case, tying can be used by platforms as an implicit subsidy. The purpose of tying may then be to stimulate demand on one side (for example, platform users) in order to increase profits on the other side (for example, advertisers).

<sup>11</sup> *Id.* ¶¶ 112–117.

<sup>12</sup> *Id.* ¶¶ 122–131.

<sup>13</sup> *Id.* ¶¶ 148–154.

<sup>14</sup> *Id.* ¶ 180.

<sup>15</sup> *Id.* ¶¶ 184–185.

<sup>16</sup> Consolidated Version of the Treaty on the Functioning of the European Union art. 102, 2012 O.J. (C 326) 47. Tying can be considered an abuse according to art. 102(d): such abuse may, in particular, consist in (d) "making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts."

<sup>17</sup> Case T-604/18, *Google and Alphabet v Commission*, ECLI:EU:T:2022:541 (*Google and Alphabet v Commission*).

<sup>18</sup> George J. Stigler, *United States v. Loew's Inc.: A Note on Block-Booking*, 1963 THE SUPREME COURT REVIEW 152(1963). Stigler argues that tying enables consumers who value differently for separate products to pay a lower price for the package.



It can “enhance efficiency by inducing better coordination between various sides”.<sup>19</sup> Given that tying free products has become prevalent, standalone business operators would also have to expand through tying, in order to stay competitive.<sup>20</sup> The feature of low marginal costs and high fixed costs of the provision of goods and services in digital platforms, on the one hand, possibly drives prices close to (the low) marginal costs (making tying free products prevalent) and, on the other hand, forces providers to find a way to recoup their high investment on fixed costs.<sup>21</sup> It is important to take due account of the risks and costs when assessing the pro-competitive effects of such tying practices.

Besides, tying in digital platforms may also lead to cost reduction and quality improvement. The efficiencies of cost-saving may exist, in particular, due to the economies of scope in digital platforms, which occur: (1) when platforms use the same software to offer different services; (2) when platforms can utilize user relationship and commercial reputation to minimize the costs of marketing; (3) when platforms use data gained from one market to provide better services in another market.<sup>22</sup> Tying for quality improvement in digital platforms is also prominent when the added functionalities and values can better satisfy consumers’ demand with technological advance.<sup>23</sup>

## B. The Anti-Competitive Effects of Tying in Digital Platforms

Despite possible pro-competitive effects, tying practices may fall within competition law scrutiny, more particularly when a platform has already reached a critical mass and may generate anti-competitive concerns through tying during the process of platform expansion.<sup>24</sup> Before discussing the anti-competitive effects of tying in digital platforms, we would like to recall the famous “single monopoly profit” logic by the Chicago school, according to which undertakings are unable to achieve double monopolistic profits: if an undertaking is a monopolist in the tying market and extracts all consumer surplus in that market, any price increase for the tied product above the competitive price will cause a reduction of demand for the tying product.<sup>25</sup>

The assumption held by the Chicago school that an undertaking extracts all consumer surplus does not exist naturally in digital platforms. If the tying product market is two-sided and subject to nonpositive price constraints on one side (for example, because of a zero price commitment<sup>26</sup>), the free digital tying product may generate “uncollected” surplus from consumers, leading to a kind of “quality gap.”<sup>27</sup> Such quality gap would facilitate a monopolist to deter the entry of an efficient rival as long as consumers gain more from the uncollected

<sup>19</sup> Andrea Amelio & Bruno Jullien, *Tying and Freebies in Two-Sided Markets*, 30 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 436, 444 (2012).

<sup>20</sup> Daniel Mandrescu, *Tying and Bundling by Online Platforms—Distinguishing between Lawful Expansion Strategies and Anti-competitive Practices*, 40 COMPUTER LAW & SECURITY REVIEW: THE INTERNATIONAL JOURNAL OF TECHNOLOGY LAW AND PRACTICE, 8 (2021). Mandrescu (2021) notices that platforms can often choose between “on platform expansion” (integrating new features or functionalities adding matching interactions or functionalities into the interface of the original platform) or “cross platform expansion” (establishing a new platform that may bring back the platform to achieve critical mass) through tying.

<sup>21</sup> See for example, MARK R. PATTERSON, *ANTITRUST LAW IN THE NEW ECONOMY: GOOGLE, YELP, LIBOR, AND THE CONTROL OF INFORMATION* 40–1 (Harvard University Press, 2017).

<sup>22</sup> D. Condorelli & J. Padilla, *Harnessing Platform Envelopment in the Digital World*, 16 JOURNAL OF COMPETITION LAW AND ECONOMICS 143, 154–55, 163 (2020).

<sup>23</sup> HEDVIG SCHMIDT, *COMPETITION LAW, INNOVATION AND ANTITRUST: AN ANALYSIS OF TYING AND TECHNOLOGICAL INTEGRATION* 17 (Edward Elgar Pub. 2009).

<sup>24</sup> Mandrescu, *supra* note 20, at 6.

<sup>25</sup> RICHARD ALLAN POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 197 (University of Chicago Press 2nd ed. 2001). See Andrea Giannaccari & Roger van den Bergh, *Unilateral Conduct of Dominant Firms*, in *COMPARATIVE COMPETITION LAW AND ECONOMICS* 300, 317–18 (Roger van den Bergh, et al. (eds), 2017).

<sup>26</sup> Federico Etro & Cristina Caffarra, *On the Economics of the Android Case*, 13 EUROPEAN COMPETITION JOURNAL 282 (2017). For example, this may be the case when Google initially committed to offering Android and its suite for free or when the consumers are used to using it for free. The same is true for social media platforms like Facebook and Tencent.

<sup>27</sup> *Id* at 294–97.

consumer surplus than the quality differences between the competing tied products.<sup>28</sup> However, the presence of the non-negative price constraints in the tied product markets may limit aggressive responses by a standalone but equally efficient competitor in the tied markets.<sup>29</sup> The only possible, but seemingly difficult, way for a standalone competitor to compete may be to also offer a complementary product for free to overcome the quality gap from the free tying product by the incumbent.<sup>30</sup>

Besides, if the tied product market is two-sided, the premise of the Chicago School that the seller transacts with the same buyer and the buyer may reject the increased package price may also be relaxed in the context of digital platforms. After all, losses suffered (and customers lost) on the tying product market could be outweighed by profits made on the additional side of the tied product market. Under these circumstances, the digital platform would keep its incentives to tie.<sup>31</sup>

If one considers also the economies of scope in the tying and the tied product markets on the supply side (the need to invest high fixed and sunk costs) and demand side of digital platforms (the need to establish user base and reaching a critical mass<sup>32</sup>), such anti-competitive effects may be expanded. If the monopolist has already established a stable user base in the tying product market, it may utilize that user base by exposing its services to consumers and more easily enter into the tied market.<sup>33</sup> Such tying strategies may deprive its competitors in the tied product market of the ability of reaching a critical mass (that is., the minimum level of demand that platforms must have on their various sides) and deter their incentives to innovate and invest in the tied products in the presence of economies of scope or scale of digital platforms.<sup>34</sup> Moreover, when dominant firms in digital markets want to protect their dominance, they may attempt to apply defensive leveraging strategies. A dominant firm that foresees the possibility that a rival will enter the primary product market by breaking down entry barriers of an ecosystem with a complementary product<sup>35</sup>, can use tying strategies in order to deprive that potential rival firm of sufficient economies of scope in the tied product market in an earlier stage, thereby preventing it from entering the primary tying market later.<sup>36</sup>

<sup>28</sup> *Id.* Alexandre de Cornière & Greg Taylor, *Upstream Bundling and Leverage of Market Power*, THE ECONOMIC JOURNAL (2021). Cornière and Taylor (2018) also explain that the presence of Google Play increases the demand for a particular device, which therefore generates a form of complementarity for other applications due to the increased usage. Tying, in this case, would deprive search rivals of this kind of complementarity, which would make an equally efficient competitor less likely to offer payments to be pre-installed on the device.

<sup>29</sup> Jay Pil Choi & Doh-Shin Jeon, *A Leverage Theory of Tying in Two-Sided Markets with Nonnegative Price Constraints*, 13 AMERICAN ECONOMIC JOURNAL: MICROECONOMICS 283(2021).

<sup>30</sup> Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications for Antitrust Enforcement*, 80 ANTITRUST LAW JOURNAL 521, 534 (2016).

<sup>31</sup> Edward Iacobucci & Francesco Ducci, *The Google Search Case in Europe: Tying and the Single Monopoly Profit Theorem in Two-Sided Markets*, 47 EUROPEAN JOURNAL OF LAW AND ECONOMICS 15, 36 (2019).

<sup>32</sup> See Condorelli and Padilla, *supra* note 22. See also Nicolas Petit, *Are 'FANGs' Monopolies? A Theory of Competition under Uncertainty*, SSRN ELECTRONIC JOURNAL 1(2019). See also David S. Evans, et al., *The Antitrust Analysis of Multi-Sided Platform Businesses*, 2013, National Bureau of Economic Research.

<sup>33</sup> See Mandrescu, *supra* note 20.

<sup>34</sup> See Jay Pil Choi & Christodoulos Stefanadis, *Tying, Investment, and the Dynamic Leverage Theory*, 32 THE RAND JOURNAL OF ECONOMICS 52(2001).

<sup>35</sup> Nicolas Petit, and David J. Teece, *Innovating Big Tech Firms and Competition Policy: Favoring Dynamic Over Static Competition*, 30 INDUSTRIAL AND CORPORATE CHANGE 1168, 1190 (2021).

<sup>36</sup> This was also a concern in *United States v. Microsoft Corporation*, in which the US government accused Microsoft of tying its browser to its operating system. It was alleged that Microsoft could leverage its dominance over internet browsers currently and in the future to maintain its dominance in the PC operating system market, more specifically by deterring Netscape from releasing a version of its browser that would also act as an application platform. *U.S. v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001); Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 The Rand Journal of Economics 194 (2002); Condorelli and Padilla, *supra* note 22, at 160.

A possible result is that there may be finally several multi-product monopolists ending up providing a variety of services.<sup>37</sup> If tying is employed by a multi-product monopolist, the monopolist may use each of the monopolies to protect the others by significantly lowering the potential profits of a one-product entrant, which makes it more difficult for new entrants to enter and survive.<sup>38</sup>

Fortunately, however, things are not as black as they look. In digital platforms, multi-homing and switching by users are prevalent.<sup>39</sup> Multi-homing exists for every type and non-trivial (nearly 40 percent) users have switched platforms (for those who have not switched, the common reason is their satisfaction with the services they are using).<sup>40</sup> Multi-homing and switching by users can become important in countervailing strong network effects.<sup>41</sup> In this case, tying does not automatically foreclose competing products and the anti-competitive effects may be largely countervailed.<sup>42</sup> Furthermore, it is likely that low switching costs or the allowance of multi-homing can also be prevalent in the tying product market. Under these circumstances, digital giants need to be very cautious about their behavior, since anti-competitive conduct to the detriment of consumers may lead to a decrease of market share in the tying market with reverse indirect network effects.<sup>43</sup> Besides, in digital platforms, if the tying product and the tied product markets are subject to fierce competition from potential challengers with disruptive innovations<sup>44</sup>, the anti-competitive effects of tying may be less serious. However, if the monopolist constrains the possibility of multi-homing or switching, for example, engages in the pre-commitment form of technical tying so that the incompatibility problem exists between these platforms, consumers may be deprived of the opportunity to use the tied product from a more efficient or different provider.<sup>45</sup>

The assessment of the anti-competitive effects of tying in digital markets is often complex. Nevertheless, it should be acknowledged that general assumptions about consumer harm induced by tying should be abandoned, and it is important to take into account at least several economic criteria to assess tying effects on competition. These criteria, at least, include the quality differences between the “quality gap” generated by the (free) tying product and competing tied products, the profitability of the tied product compared with the loss from the tying product, the economies of scope on the supply and demand side of the tying and the tied product market, tying by a multi-product monopolist, the allowance or constraints of multi-homing and switching in the tying and the tied product markets, and the dynamic nature of the tying and the tied product markets.

<sup>37</sup> See Tao Wu, *Relevant Product Market Definition of Antitrust Cases in the Internet Industry: Taking the Baidu Cases as Examples*, in *THE CHINESE ANTI-MONOPOLY LAW: NEW DEVELOPMENTS AND EMPIRICAL EVIDENCE* 262, 275–76. (Michael Faure and Xinzhu Zhang (eds), 2013).

<sup>38</sup> Barry Nalebuff, *Bundling as an Entry Barrier*, 119 *THE QUARTERLY JOURNAL OF ECONOMICS* 159, 160, 183 (2004). Nalebuff (2004) argued that, if tying is employed by a multi-product monopolist, competitors will be limited only to these consumers who value one product but are willing to forgo the other product. If these two goods are positively correlated in value or if they are complements, there will only be fewer consumers willing to do so.

<sup>39</sup> David S. Evans, *Why the Dynamics of Competition for Online Platforms Leads to Sleepless Nights But Not Sleepy Monopolies*, *SSRN ELECTRONIC JOURNAL*, 3–4 (2017). Compared with natural monopolies in conventional markets (for example, in railroad tracks or telephone lines, in which competitors need to invest significant sunk costs to duplicate physical networks and consumers may find it expensive to hold multiple or switching between different providers), in digital markets it may be relatively easy for users to engage in multi-homing or to switch between different platforms.

<sup>40</sup> Pina Akman, *A Web of Paradoxes: Empirical Evidence on Online Platform Users and Implications for Competition and Regulation in Digital Markets*, 16 *VIRGINIA LAW AND BUSINESS REVIEW* 217 (2022).

<sup>41</sup> *Id.* at 33.

<sup>42</sup> Jay Pil Choi, *Tying in Two-Sided Markets with Multi-Homing*, 58 *THE JOURNAL OF INDUSTRIAL ECONOMICS* 607 (2010).

<sup>43</sup> David S. Evans & Richard Schmalensee, *Debunking the ‘Network Effects’ Bogyman*, 40 *REGULATION* 36, 38 (2017). Evans & Schmalensee (2017) refer to such reverse indirect network effects: as every additional user attracts more users, the same logic goes as every lost user induces more users to leave.

<sup>44</sup> Petit, *supra* note 32 and Evans, *supra* note 39.

<sup>45</sup> Choi, *supra* note 42, at 621–22.

Overall, from an economic perspective, the anti-competitive effects and the pro-competitive effects may both be significant at the same time. On the one hand, tying may serve as a way of cross-subsidization in a platform business model, which generates value for various sides of the platform. On the other hand, tying may serve as an effective way to foreclose an equally efficient rival in the short term and in the long term. A trade-off analysis of these two kinds of effects is needed when these two kinds of effects coexist.

## IV. THE LAW AND ECONOMICS ANALYSIS OF TENCENT AND ANDROID

### A. Tencent

#### 1. *Tying effects from an economic perspective*

Understanding the tying effects in Tencent from an economic perspective first requires an examination of Tencent's market position when the tying decision was made. As explained above, Tencent was operating on platform business models and acted as an intermediary, offering free instant messaging services on the user side, while relying on this user base to offer advertising and other services. Despite having achieved a critical mass and large market share in the instant messaging markets, Tencent still faced significant competitive constraints from its rivals, according to the SPC's judgement. Firstly, the technological and financial requirements of entering the instant messaging service markets were considered to be relatively low, which made such markets very dynamic. Besides, although indirect network effects existed, Tencent's possibilities to expand the volume of advertising were to a certain extent limited, since too big increases in advertising would lead to overly crowded pages for readers and thus reduce attractiveness to advertisers.<sup>46</sup> Furthermore, it was not costly for users to switch to or multi-home in different instant messaging services.<sup>47</sup>

If we take the market pressure facing Tencent in the tying product market into account, Tencent's tying practices seem to be a reasonable response to the intense competition and may even generate pro-competitive effects. The SPC noticed that users were very sensitive and selective about the quality of instant messaging services and experience. According to a survey conducted by the China Internet Network Information Center, the security of their accounts was the factor users were most concerned about (75.5 percent). Considering market pressure facing Tencent, Tencent was required to continuously improve its product quality to maintain its user base. When the two types of software were tied together, users could manage and use QQ instant messaging software better without worrying about the security of their accounts and therefore the tying practices could improve the functionalities and values of QQ instant messaging software.<sup>48</sup> By integrating complementary security services for free to users on the basis of Tencent's instant messaging software platform, Tencent could implicitly subsidize users to attract their attention while making profits by providing other services. The profits gained would further support the survival and development of its free services.

Tencent's behavior, nevertheless, might also restrict competition in the security service market in which Tencent and Qihoo competed with each other. It is important to apply relevant economic criteria to examine whether such anti-competitive incentives and effects did exist.

<sup>46</sup> *Qihoo v. Tencent*. Although direct network effects existed between users, it might not deter users from switching to another service. Users could get in contact with their friends in different services via inserting their contacts in mobile phones. The development of technology weakened the effect of consumer stickiness.

<sup>47</sup> *Id.* According to the 2009 Survey Report of Instant Messaging Users in China conducted by the China Internet Network Information Center (CNNIC), with the development of a number of emerging instant messaging services around 2007, the proportion of users who used 2 or 3 instant messaging software at the same time exceeded 50 percent, and 8.7 percent of users once switched their messaging software within six months, mostly to new Instant messaging software.

<sup>48</sup> *Id.*

By looking at the facts, it appears that Tencent did not have strong anti-competitive incentives. On the one hand, QQ instant messaging software at that time was Tencent's flagship product, which enabled Tencent to establish its reputation and user base, in order to attract advertisers and develop further additional services. QQ would be afraid of losing traffic of its flagship products led by a quality decrease if users did not like the tied product given the significant competitive pressure facing Tencent. On the other hand, QQ doctor and QQ management software were just additional services attached to QQ instant messaging software, which did not seem to bring Tencent huge benefits from advertising or other methods.

Even if Tencent might be interested in restricting competition in the security services markets given that the two concerned platforms competed on the advertising side, it did not have the ability of doing so. Firstly, the quality differences between Tencent's free tying products and the competing tied products were not significant. On the one hand, Tencent's primary product did not appear to generate large uncollected consumer surplus given that its competitors or potential competitors could also offer similar products. On the other hand, in the tied product markets, Qihoo had already been market leader and was very popular among users, whereas Tencent just entered this market after an earlier promotion campaign had failed (as we explained in Section III above). Secondly, in the tied product market, the indirect network effects did not seem to be very significant since users would not be happy with abundant advertisement. Thirdly, when multi-homing was allowed in the tied product markets, it was not very likely that users would prefer to choose Tencent over Qihoo.<sup>49</sup>

Overall, taking due account of the concerned markets conditions and Tencent's behavior, the pro-competitive effects outweigh the anti-competitive effects, and the overall effects are generally welfare increasing in Tencent.

## 2. The SPC's ruling

Article 1 of the Anti-Monopoly Law (AML) sets out its objectives, including promoting fair market competition, enhancing efficiencies and safeguarding consumer interests.<sup>50</sup> Article 7 provides that undertakings holding a dominant position on the market shall not abuse such positions to eliminate or restrict competition. A specific legal provision on tying can be found in Article 22 (5), according to which dominant undertakings are prohibited from conducting tying sales or adding other unreasonable trading conditions during transactions without justifiable reasons. The AML does not contain detailed rules on how to identify harm to competition and what may constitute justifiable reasons for tying, which allows courts and competition authorities to develop more detailed rules for the assessment of tying in practice.

In Tencent, the SPC acknowledged that tying might generate positive effects as well as negative effects. Positive effects of tying include improving products quality, reducing costs, promoting sales and ensuring safety, thus promoting efficiency. Negative effects of tying are that tying may enable the dominant undertaking to leverage its competitive advantages in the tying product markets into the tied product markets.

With regard to the negative effects, the SPC considered empirical data that even during the periods of Tencent's alleged practices, Qihoo was still the leading operator in the security software market with a market share of no less than 70 percent, while Tencent's market share was less than 5 percent with an increase only by 0.57 percent. The SPC then concluded that

<sup>49</sup> Despite that Tencent's "choose one from two" could be seen as constraints to multi-homing and should receive caution, this conduct was initiated passively and seemed to be a reasonable response to Qihoo's unfair practices of destroying the security and integrity of QQ software and its services by 360 koukou bodyguard (Qihoo's response was found in breach of unfair competition law in China).

<sup>50</sup> In the recently amended AML, the goal of "encouraging innovation" was added to Article 1. *Zhonghua Renmin Gongheguo Fanlongduan Fa (中华人民共和国反垄断法)* [Anti-monopoly Law of the People's Republic of China] (revised on Jun. 24, effective on Aug. 1, 2022), art. 1.



there was no evidence showing that the alleged tying practices induced a significant decrease of Qihoo's market share, or generated the effects of eliminating or restricting competition on other operators in this market.<sup>51</sup>

Taking a closer look, the SPC seemed to establish a threshold of "a significant decrease of market share in the tied product market" for successfully proving anti-competitive foreclosure. At the same time, the SPC allowed for other evidence to show that tying practices "generated the effect of eliminating or restricting competition on other operators in this market". This seems to indicate that the safe harbor rules do not apply when other evidence can show harm to competition.

As the SPC in Tencent held that "the focus of the AML is not the interests of individual operators, but whether the healthy competition mechanism is distorted or destroyed"<sup>52</sup>, using such thresholds as safe harbors for the incumbents can be helpful in ensuring legal certainty to maintain stable competition mechanisms for market operators. It might also be helpful to deal with the risks of over-deterrence by frivolous suits of competitors when the effects of tying are ambiguous.<sup>53</sup> The allowance of other evidence as an exception to the safe harbor rules may be helpful indeed in order to reduce error mistakes, in particular because relying only on market shares seems insufficient to prove market foreclosure in digital platforms subject to the risk of "tipping".

However, in this particular case the SPC did not incorporate detailed economic reasoning to analyze anti-competitive effects, because it concluded earlier that Tencent did not have a dominant position in the tying product market. In other cases, that is, where market dominance is a clear issue, mainly relying on empirical evidence without sufficient economic reasoning would not be convincing, in particular in the presence of demand and supply-side economies of scale in digital platforms. In our view, in addition to using empirical evidence on a decrease of market share, the court could have incorporated the presence of multi-homing and low switching costs in the tied product market to illustrate that the anti-competitive effects of Tencent's practices would not be significant.

The SPC then assessed the pro-competitive effects of tying, alleging that Tencent's practices had certain rationality. It relied on the CNNIC survey that account security of the software was the biggest concern of instant messaging users. It then concluded that the package of QQ and its management software was conducive for users to manage QQ and guarantee the security of their accounts, which would improve the functionalities and value of QQ.

It does not seem difficult for economic operators to justify their tying practices under the SPC's tests of "rationality." This can be favorable for the development of digital platforms, in particular taking the characteristics of digital platforms (high investment costs and an uncertain and risky market environment) into account.

<sup>51</sup> *Qihoo v. Tencent*.

<sup>52</sup> *Id.*

<sup>53</sup> See Roger van den Bergh, *Enforcement*, in *COMPARATIVE COMPETITION LAW AND ECONOMICS* 382, 422 (Roger van den Bergh, et al. (eds), 2017).

Overall, it seems that the SPC is cautious not to make false positive mistakes<sup>54</sup>, as it seems to set (at least in this case) “a significant decrease of market share in the tied product market” as the threshold for proving anti-competitive effects of tying, and takes potential dynamic efficiency reasons of tying seriously.

## B. Android

### 1. Tying effects from an economic perspective

In order to examine the effects of Google’s tying practices, it is important to examine the market situation at the time when Google decided to invest in developing the Android ecosystem, in retrospect.

With the increasing usage of mobile phones during the mid-/late 2000s, Google recognized that its market profits in search advertising were at risks: “if we are slow to develop products and technologies that are more compatible with non-PC communications devices, we will fail to capture a significant share of an increasingly important portion of the market for online services.”<sup>55</sup> As a late entrant to the market, the competition facing Google was great. Windows started working on licensable OSs before Google and similarly incorporated the strategies of setting Bing as the default general search service on Windows Mobile devices.<sup>56</sup> Being exposed to the risk of losing profits on advertising revenues and potential threats by competitors, Google released its commercial open-source Android OS free of charge to compete with other operating systems.<sup>57</sup> Google also developed a series of core mobile apps, most of which are available to end-users free of charge, including Play Store, Google Search, Google Maps, and YouTube.<sup>58</sup> In order to expand the market share of Android in the licensable operating system market, Google made great efforts to achieve support from OEMs, MNOs and app developers.<sup>59</sup> Despite the investment and development costs of Google for the Android ecosystem being huge,<sup>60</sup> Google does not directly generate revenues from its free operating systems and free apps. The significant motivations for Google to still develop its ecosystem lie in that through distributing the Android operating system and other apps for free, Google can indirectly attract as much attention as possible by the consumers due to their increased mobile usage, which would

<sup>54</sup> The focus on avoiding false positive mistakes can also be deduced from earlier empirical studies, which concluded that until November 2020 hardly any unilateral conduct by dominant undertakings operating in digital markets was condemned under both private enforcement and public enforcement in China. Yanxi Liu and Beichun Wu. (2021). Zhongguo Lanyong Shichang Zhipai Diwei-Minshi Susong Anli Yanjiu (2008–2020) [Abuse of dominance in China—case study of civil lawsuits, 2008–2020], <https://www.zhichanli.com/p/1257801146> (last visited May 23, 2022); Yanxi Liu and Beichun Wu (2020). Zhongguo Lanyong Shichang Zhipai Diwei-Xingzheng Zhifa Gongkai Anli Yanjiu (2008–2020) [Abuse of dominance in China—case study of published cases under public enforcement, 2008–2020], [https://mp.weixin.qq.com/s?\\_\\_biz=MjM5NzU5ODEzNw==&mid=2665292003&idx=1&sn=6ce475b0ddfa2fb3314ff118bcb20c&chksm=bdf06358a898f23e2014cf93b36c348b627102a57cac185b5c4facbe7cdcd7dcb8491c94b8&scene=21#wechat\\_redirect](https://mp.weixin.qq.com/s?__biz=MjM5NzU5ODEzNw==&mid=2665292003&idx=1&sn=6ce475b0ddfa2fb3314ff118bcb20c&chksm=bdf06358a898f23e2014cf93b36c348b627102a57cac185b5c4facbe7cdcd7dcb8491c94b8&scene=21#wechat_redirect) (last visited May 23, 2022). A turning point occurred in December 2020, since when competition authorities in China have successively issued three punishments on digital operators (Sherpa’s, Alibaba, Meituan) for exclusive dealing practices. The Shanghai AMR, The Sherpa’s Exclusive Dealing Case (沪市监反垄处(2020)06201901001号); The SAMR, The Alibaba Exclusive Dealing Case (国市监处(2021)28号); The SAMR, The Meituan Exclusive Dealing Case (国市监处(2021)74号).

<sup>55</sup> Google’s 2007 annual report; Google Android ¶ 115.

<sup>56</sup> Paolo Siciliani, *On the Law & Economics of the Android Case*, 10 JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE 638, 640 (2019).

<sup>57</sup> Google Android ¶ 123; Torsten Körber, *Let us Talk About Android—Observations on Competition in the Field of Mobile Operating Systems*, SSRN ELECTRONIC JOURNAL <https://ssrn.com/abstract=2462393> (2014).

<sup>58</sup> J. Gregory Sidak, *Do Free Mobile Apps Harm Consumers?*, 52 SAN DIEGO LAW REVIEW 619, 659 (2015).

<sup>59</sup> For example, Google provides Android for free for OEMs, gives MNOs permissions of adding apps into devices to gain additional revenues and enables app developers to create apps for Android system for free. Google Android, Section 6.2.2.2.

<sup>60</sup> For example, developing a smart mobile OS is a costly and time-consuming process. Costs result both from the initial investment in research and development to bring a smart mobile OS to the market and the need to finance the ongoing development of the OS, its new features and releases. Google Android ¶ 23.

allow Google to profit from Google search's advertising services.<sup>61</sup> Thus, it is no surprise that even in the beginning of the commercialization of Android, Google had already entered the MADAs with hardware manufacturers, requiring the preinstallation of mandatory Google apps, including Google Search.<sup>62</sup> As commented by Siciliani (2020), the tying practices "had been an essential element of the business model that underpinned the creation of the positions of dominance of Android and Google Play, not because it was necessary, but to give effect to its chief aim".<sup>63</sup> Without Google's motivations of cross-subsidizing its advertising services, it would not be certain whether alternative operating systems and ecosystems would (or could) have been introduced successfully.<sup>64</sup>

Despite the potential pro-competitive effects in Android, having achieved market dominance, Google's tying strategies seem to have strengthened its market power in general search services on mobile devices both in the short and long term. Firstly, the quality differences between Google's free tying products and the competing tied products are significant. In the Android app store market (the tying product market), there are no strong or potentially strong competitors for Play Store (in particular given the presence of economies of scale both on the supply side and the demand side of such markets)<sup>65</sup>, which generated large uncollected consumer surplus and a "quality gap" given the free prices to end users. In the tied product market, with the shift to mobile, there are several competitors in such markets and Google's search services seem to be superior to its rivals.<sup>66</sup> In the presence of large quality differences between Google's tying product compared with the competing products in the tied market, Google can induce OEMs to accept its tied product through small financial incentives (RSAs).<sup>67</sup> Besides, considering Google's popularity in both the Android app store markets and general search service markets, OEMs and consumers are more likely to choose the bundle when these two goods are complements. Further, considering the role of intertemporal indirect network effects in determining the quality of search results,<sup>68</sup> the advantage may be expanded in the long term since even a small competitive advantage gained from tying would enable Google to further attract more users and suppliers, and would further deter competitors' incentives to innovate.<sup>69</sup> Other search engine service providers, in the presence of some non-negative price constraints,<sup>70</sup> may find it rather difficult to compete with Google. Nevertheless, given that it is, in the end, not difficult for users to multi-home, disable or delete the pre-loaded apps and switch to different search engine services,<sup>71</sup> the anti-competitive effects may still be largely countervailed. Indeed,

<sup>61</sup> See Körber, *supra* note 57, at 24–5. Google Play did not generate much revenue for Google in the beginning while Google could gain huge revenues from the distribution of advertisements. See also Sidak, *supra* note 58, at 675–76.

<sup>62</sup> Google Android ¶ 189.

<sup>63</sup> Siciliani, *supra* note 56, at 641.

<sup>64</sup> See OECD, *Abuse of Dominance in Digital Markets*, at 47 (2020) [www.oecd.org/competition/globalforum/abuse-of-dominance-in-digital-markets.htm](http://www.oecd.org/competition/globalforum/abuse-of-dominance-in-digital-markets.htm) (last visited Oct. 25, 2021).

<sup>65</sup> The concerned market is subject to economies of scale both on the supply side (a fully-fledged Android app store requires significant development and commercialization investment) and the demand side (the reciprocal indirect network effects between app developers and users). Google Android Section 9.4.

<sup>66</sup> Google Android ¶ 837. "(1) the Google Search app had an average rating of 4.4 (5.8 million reviews); (ii) the Bing Search app of 4.3 (73 thousand reviews)", data retrieved in April 2017.

<sup>67</sup> Etro & Caffarra, *supra* note 26, at 296. RSAs refer to revenue share agreements that Google signed with OEMs and MNOs, requiring the exclusive pre-installation of the Google Search app.

<sup>68</sup> C. Argenton & J. Prüfer, *Search Engine Competition with Network Externalities*, 8 JOURNAL OF COMPETITION LAW AND ECONOMICS 73, 76 (2012). Users would not consider when they search information online that their search data would be aggregated with similar search results gained from other users, only to allow a certain search engine operator to predict what it can expect in the future.

<sup>69</sup> See Condorelli and Padilla, *supra* note 22, at 172. Condorelli and Padilla argue that Google could also monetize its entry to operating systems by combining data from its general search services and operating system by Google's privacy policy.

<sup>70</sup> See Etro & Caffarra, *supra* note 26, at 293. In practice, the non-negative price constraint exists for the users of search engines, but may be relaxed to some extent by paying OEMs to have their search engines pre-installed.

<sup>71</sup> Sundar Pichai, *Android has Created More Choice, Not Less*, Google's blog (Jul. 18, 2018), <https://www.blog.google/around-the-globe/google-europe/android-has-created-more-choice-not-less/> (last visited Mar. 30, 2021).

despite Google having implemented its tying practices for several years, there are still active operators in such a market.<sup>72</sup> The possibility of multi-homing and low switching costs in the tied product market require the EU Commission to consider carefully, through the use of economics, whether Google's conduct would cause harm to competition, not competitors.<sup>73</sup>

Overall, Google's conduct may generate both anti-competitive effects and pro-competitive effects. A trade-off between these two kinds of effects seems unavoidable.

## 2. The Commission's ruling

When alleging harm to competition, the Commission addressed the fact that tying the Google Search app with the Play Store by pre-installation provides significant competitive advantages for Google compared with its competitors. It also assessed the indirect network effects in the search service market and illustrated that Google's requirement of pre-installation of Google Search restrained its competitors from gaining valuable search queries, revenues and data, in order to improve their services. Based on this, the Commission further held that Google's conduct increased barriers to entry of its rivals and might reduce the incentives of its competitors to invest. In the end, the Commission assessed the effects on consumers, arguing that "Google's conduct is capable of harming, directly or indirectly consumers who, as a result of Google's interference with the normal competitive process, may see less choice of general search services available"<sup>74</sup>.

As tying conduct inherently involves (at least some) restrictions of consumer choice, we doubt whether deducing consumer harm from a strict interpretation of the concept of consumer choice without considering the possibility of multi-homing and switching platforms, can be sufficiently convincing. In comparison, in the recent *US v. Google* investigation, which also dealt with Google's preinstallation agreements, the court seemed to develop a more nuanced analysis to claim the anti-competitive effects of Google's preinstallation agreements. The US court explicitly held that "the preinstallation agreements are even more pernicious than basic ties because these agreements force distributors to configure the appearance of their phones to Google's specifications", as, for example, the requirements that manufacturers should put the Google search widget on the device's default home screen would lock up another search access point given the impracticality for a manufacturer to preinstall two search widgets on the same home screen. In our view, the European Commission can do more to verify whether that consumer choice is restricted, by incorporating more evidence in specific cases (would a product really be missed by consumers?), and by examining the efficiency of a foreclosed competitor (is it really relevant for consumers?), before claiming the existence of an actual or direct consumer harm.<sup>75</sup>

With regard to the assessment of pro-competitive effects in Android, the Commission held that Google failed to demonstrate that Google's tying "is necessary to monetize its investment in Android and its non-revenue-generating apps"<sup>76</sup>, and "necessary to avoid the need for Google to charge OEMs a fee for the Play Store"<sup>77</sup>. In other words, Google needed to prove the necessity of its behavior (there must be no less anti-competitive alternatives to achieve the

<sup>72</sup> Cornière and Taylor, *supra* note 28, at 2.

<sup>73</sup> See OECD, *Competition on the Merits*, (2005) <http://www.oecd.org/competition/abuse/35911017.pdf> (last visited Oct. 25, 2021).

<sup>74</sup> Google Android, Section 11.3.4.

<sup>75</sup> EU Commission, Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings (Communication), 2009 OJ C45/02, ¶ 19. While the Commission refers to the concept "foreclosure leading to consumer harm", in practice (perhaps for pragmatic reasons) the consumer harm is often deduced from the foreclosure of competitors, rather than assessing whether the foreclosed competitors are actually efficient and relevant (for consumers) competitors.

<sup>76</sup> Google Android ¶ 995.

<sup>77</sup> Google Android ¶ 1003.

same efficiencies).<sup>78</sup> The General Court largely followed the Commission's strict approach by requiring Google to claim the necessity of its practices to monetise its investment in Android and its non-revenue-generating apps, and to demonstrate that Google did not have an interest in developing Android in order to counter the risks to its business model resulting from the shift to mobile.<sup>79</sup>

It is worth mentioning that the case of Android is not an isolated example. The EU has adopted a rather strict approach to leveraging concerns in digital markets also in other cases. Examples include Microsoft's tying of Windows Media Player to its Windows operating system<sup>80</sup>, and Google's favorable positioning and display of its own comparison shopping service<sup>81</sup>. In Microsoft, when assessing the leveraging effects, the Commission held that the tying practices would potentially reduce choices for consumers, without examining whether actually efficient and relevant (for consumers) competitors would be foreclosed.<sup>82</sup> When assessing pro-competitive effects, in Google Comparison Shopping, the General Court explicitly acknowledged that "the algorithms for the ranking of generic results or the criteria for the positioning and display of Google's specialized product results may, as such, represent pro-competitive service improvements". However, it rejected Google's arguments on the basis of Google's failure to prove "demonstrated efficiency gains linked to that practice that would counteract its negative effects on competition."<sup>83</sup>

From a law and economics perspective, it seems inefficient to condemn tying mainly on the basis of an undertaking's failure to prove the necessity (no less anti-competitive alternatives) of its conduct or on its failure to prove that the claimed efficiencies outweigh anti-competitive effects. There are at least three aspects for that. The first is that since the less anti-competitive alternative test does not directly address the net effects of certain behavior (instead comparing the effects of an alternative action with the concerned conduct), it is still unclear whether the existence of an alternative would be sufficient to lead to the failure of justification, or the existence of an alternative is better served only as inference of bad intent and anticompetitive effects.<sup>84</sup> The second is that even if the existence of less restrictive methods may be regarded as a basis for condemning conducts given the potential difficulty of conducting trade-offs between "the apples of anti-competitive effects and the oranges of the pro-competitive effects"<sup>85</sup>, it may be too burdensome to ask the incumbent to prove a negative.<sup>86</sup> Instead, it seems more reasonable to require the competition agency to prove the superiority of the alternatives as the superiority of the alternatives should be established instead of being presumed.<sup>87</sup> Besides, public law enforcement agencies, on behalf of the public interest, shall have an obligation to conduct a

<sup>78</sup> Commission Guidance, *supra* note 75, ¶ 30.

<sup>79</sup> Google and Alphabet v Commission ¶ 313.

<sup>80</sup> Case COMP/C-3/37.792 Microsoft, Commission Decision of May 24, 2004; Case T-201/04, *Microsoft Corp. v. Commission*, Judgment of the Court of First Instance (Grand Chamber) of Sept. 17, 2007.

<sup>81</sup> Case T-612/17, *Google and Alphabet v. Commission (Google Shopping)*, Judgment of the Court of First Instance (Grand Chamber) of Nov. 10, 2021.

<sup>82</sup> Microsoft decision ¶ 835.

<sup>83</sup> The General Court largely dismisses Google's action against the decision of the Commission finding that Google abused its dominant position by favoring its own comparison shopping service over competing comparison shopping services, press and information, <https://curia.europa.eu/jcms/upload/docs/application/pdf/2021-11/cp210197en.pdf> (last visited May 20, 2022). Google Shopping judgment ¶ 568, 588.

<sup>84</sup> C. Scott Hemphill, *Less Restrictive Alternatives in Antitrust Law*, 116 COLUMBIA LAW REVIEW 927(2016).

<sup>85</sup> Michael A. Carrier, *The Four-Step Rule of Reason*, 33 ANTITRUST 50, 51(2019). Allensworth (2016) also identifies the difficulty of conducting trade-offs between incommensurate values, including trade-offs between quantitative measures of welfare (price and output) with qualitative measures of welfare (quality and variety), trade-offs between consumer welfare now or later, between inter-consumer tradeoffs. Rebecca Haw Allensworth, *The Commensurability Myth in Antitrust*, 69 VANDERBILT LAW REVIEW 1 (2016).

<sup>86</sup> Hemphill, *supra* note 84, at 980.

<sup>87</sup> *Id* at 981–82.



comprehensive analysis of the effects of behavior.<sup>88</sup> The third reason, which is more relevant to digital platforms, is that it will be more difficult (and hence costly and time-consuming) to come up with such proof in digital platforms where investment costs are often high, and the success can be uncertain. Since business operators would not know whether certain plans would succeed *ex ante*, only when their expectation for profits are high enough (so that even when they are discounted due to the risk of losing would still be positive), would they be willing to invest and innovate.<sup>89</sup> Without a careful examination of dynamic efficiencies in Android, the decision may not only deter Google's incentives but also other general search service providers' incentives to employ cross-subsidization strategies (for example, Microsoft)<sup>90</sup>. If digital players are only allowed to make "necessary" business decisions, innovative conducts (often risky but profitable and beneficial but exclusionary) would be largely deterred in particular for digital platforms where high investment costs are usually needed combined with uncertain success, and where dynamic efficiencies would increase consumer welfare through technological innovation and business model innovation. Under the very high standards of proof, efficiency reasons are of limited importance in the EU competition practices.<sup>91,92</sup>

Overall, the Commission tends to protect consumer interests in a broad sense, appearing, in our view, to be more concerned with the risk of false negatives. It applied very high "burden of proof" criteria for Google's efficiency justifications, but deduced consumer harm without further examination of the foreclosure of actual and efficient rivals, which may generate the risks of "false positives".<sup>93</sup>

## V. A COMPARATIVE LAW AND ECONOMICS ANALYSIS OF TENCENT AND ANDROID

When comparing Tencent and Android from a law and economics perspective, we find that the different case outcomes can largely be attributed to differences in the effects of tying in both cases. Nevertheless, they may also have resulted from the different approaches adopted by the SPC and the Commission: the SPC tends to avoid the risk of "false positives" and the Commission tends to avoid the risk of "false negatives". In these two cases, for proving foreclosure, the SPC seemed to establish the threshold of "a significant decrease of market share in the tied product market"; whereas the Commission tended to deduce consumer harm from a broad concept of consumer choice. For successfully claiming pro-competitive effects, economic

<sup>88</sup> Tao Wu and Dongyuan Zheng, *Jingji Fenxi Ruhe Rongru Falv Guocheng: Oumeng Jingzhengfa Gaige de Deshi yu Qishi [How economic analysis can be integrated into the legal process: Gains and losses of EU competition law reform and its enlightenment]* 37 *CAIJING FAXUE [LAW AND ECONOMY]* 3, 11 (2021).

<sup>89</sup> SIMON BISHOP & MIKE WALKER, *THE ECONOMICS OF EC COMPETITION LAW: CONCEPTS, APPLICATION AND MEASUREMENT* 47 (Sweet & Maxwell, 2010).

<sup>90</sup> Siciliani, *supra* note 56, at 642.

<sup>91</sup> Commission Guidance, *supra* note 75, ¶ 30. Even if Google could demonstrate the necessity of its behaviour, it would still have to prove that the likely efficiencies outweigh the likely negative effects and the conduct does not eliminate effective competition. R. O'Donoghue & J. Padilla, *THE LAW AND ECONOMICS OF ARTICLE 82 EC* (Hart Publishing, 2006). These two requirements seem unreasonably to add to the difficulty of proving efficiencies in EU competition law, as the burden of proof of proving an infringement of competition law usually rest on the authorities alleging the infringement, and successful innovation may naturally lead to market foreclosure despite that consumer welfare may still be increased.

<sup>92</sup> See H. Friederiszick & L. Gratz, *Hidden efficiencies: The relevance of business justifications in abuse of dominance cases*, 11 *JOURNAL OF COMPETITION LAW AND ECONOMICS* 671, 679–88 (2015).

<sup>93</sup> N. Economides & I. Lianos, *The Elusive Antitrust Standard on Bundling in Europe And in the United States in the Aftermath of the Microsoft Cases*, 76 *ANTITRUST LAW JOURNAL* 483, 551–52 (2009). Case T-201/04 *Microsoft Corp.v* Commission of the European Communities. Judgment of the Court of First Instance (Grand Chamber) of Sept. 17, 2007. They also warned the risk of false negatives in another EU tying case in digital platforms (*Microsoft*) induced by asymmetry of the standards of proof between the plaintiff and the defendant. [I]n practice, it would be very difficult for a dominant undertaking to prove the existence of objective justifications, the control and the conditions for such a defense... In contrast, the standard of proof for anticompetitive foreclosure (and consumer harm) is particularly low, as there is no need to prove the existence of an actual or direct consumer detriment. There is, thus, an important asymmetry between the standard of proof that is required from the plaintiff and the standard of proof required by the defendant, to the benefit of the former.

operators may find it easier to justify their tying conduct under the SPC's tests of "rationality" than under the Commission's tests of "necessity".

We will now consider possible explanations for the different approaches taken by the SPC and the EU Commission. First, both the SPC and the EU Commission potentially faced the challenge of assessing the coexistence of pro- and anti-competitive effects of tying in digital platforms. In order to avoid a complex trade-off between these two kinds of effects, the SPC and Commission have to choose pragmatic solutions to the requirements of administrability (the rules should be relatively easy to apply)<sup>94</sup> and potentially huge enforcement costs. When faced with such challenges, their different choices towards the assessment of tying represent their preferences to locate themselves "along the spectrum ranging from strong avoidance of false negatives to strong avoidance of false positives".<sup>95</sup> Since China is a "late starter", it tends to be more afraid of the costs of false positives. The Internet penetration rate had increased from around 48 percent in 2014 to 67 percent in 2020<sup>96</sup>, thanks to a favorable policy environment.<sup>97</sup> In the EU, on the one hand, the penetration rate of internet usage had already reached 89.4 percent in 2020.<sup>98</sup>

Second, an explanation for the different approaches taken may be that the importance of economic analysis in the assessment of tying in digital platforms is not sufficiently acknowledged. EU competition law, from a historical perspective, has long been affected by the theories of Ordoliberal schools and social market economies, which emphasize the idea that protecting an undistorted competition process is regarded as a way itself to generate efficiencies.<sup>99</sup> China, as a late starter, seem to have accepted the importance of the use of economic analysis from the very beginning, but still lacks more detailed legislation and enforcement experience on the application of economic analysis in competition law.<sup>100</sup> As discussed above, the EU in this case failed to (sufficiently) recognize that tying can serve as an important platform strategy to generate dynamic efficiencies. A long-term policy of strong avoidance of false negatives in the EU might deter digital operators' incentives to conduct desirable conduct, and would limit the EU's capability of developing its own digital giants.<sup>101</sup> In Tencent, despite that the result can be justified from an economic perspective, without incorporating convincing and detailed economic analysis into the case assessment, the SPC's judgement does not seem convincing and may induce false negatives in other cases.

Taking a more nuanced view, we should consider the possibility that the preferences of different types of institutions (courts, competition agencies) tend to be different. It is noticeable that in Tencent, the courts seemed to be less willing to incorporate economic theories of tying in digital platforms into the analysis of tying effects despite that the case result can be economically justified. The competition agency in the EU used more economics to conclude the foreclosure

<sup>94</sup> See for example, Varanini and Feng, *supra* note 8, at 231; OECD, *supra* note 73, at 23.

<sup>95</sup> OECD, *supra* note 73, at 33.

<sup>96</sup> Penetration rate of internet users in China 2008–2020, <https://www.statista.com/statistics/236963/penetration-rate-of-internet-users-in-china/> (last visited Apr. 12, 2021).

<sup>97</sup> See Guanyu Woguo Dianzi Shangwu Dianzi Shangwu Kuaisu Fazhan Yuanyin de Fenxi, Shangwubu Zhengce Yanjiushi (关于我国电子商务快速发展原因的分析, 商务部政策研究室) [the Policy Research Office of Ministry of Commerce, 'the analysis of the reasons for the rapid development of e-commerce in China'], (2016), <http://zys.mofcom.gov.cn/article/d/201605/20160501315068.shtml> (China) (last visited Oct. 25, 2021).

<sup>98</sup> Internet Usage in the European Union, <https://www.internetworldstats.com/stats9.htm>.

<sup>99</sup> Doris Hildebrand, THE ROLE OF ECONOMIC ANALYSIS IN EU COMPETITION LAW: THE EUROPEAN SCHOOL 34–7 (Kluwer Law International 2016); Paul Nihoul, "Freedom of Choice": The Emergence of a Powerful Concept in European Competition law, in CHOICE—A NEW STANDARD FOR COMPETITION LAW ANALYSIS? 9–40 (Paul Nihoul, et al. (eds), 2016).

<sup>100</sup> See Wu and Zheng, *supra* note 88, at 13.

<sup>101</sup> This may be one of the reasons why none of the most Top 10 valuable technology companies is from the EU. See FXSSI, Top 10 World's Most Valuable Technology Companies in 2021, <https://fxssi.com/most-valuable-tech-companies> (last visited Oct. 25, 2021).

effects of Google's conducts, but somewhat selectively. The court's ruling in Tencent may relate to observations by Ma (2020) and Yan (2019) that courts (generalist judges) may have difficulty in incorporating complex economic analysis into case assessment.<sup>102</sup> The EU Commission's selective application of economics in Android (disregarding seemingly important case facts when concluding competition foreclosure, and employing obvious asymmetric legal tests and evidence standards for anti/pro-competitive effects of tying) seems to reflect Wils (2004)'s arguments about three possible sources of prosecutorial bias (confirmation bias that public enforcement authorities tend to confirm its initial belief about a possible violation through gathering evidence instead of challenging it, hindsight bias that the enforcement authorities might want to avoid discovering that there is no violation in the end, and desire to demonstrate a high level of enforcement) when the EU Commission combines investigative, prosecutorial and adjudicative powers.<sup>103</sup> In particular, when the courts tend to follow a more form-based approach (this could be relevant given that the General Court was strict on tying practices in the earlier case Microsoft<sup>104</sup>), the risk of opportunism by the Commission may indeed exist.<sup>105</sup> Although the Commission explicitly refers to the concept "foreclosure leading to consumer harm" in its guidelines on Article 102, it remains questionable whether the Commission has sufficient incentives to carry out a serious effects-based analysis in practice.<sup>106</sup>

These observations reveal the challenges of incorporating economic analysis into competition law. On the one hand, it is important to reduce error costs (false positives and false negatives) by applying sound economic analyses in order to examine whether the concerned behaviors would lead to consumer harm, taking into account also the enforcement costs.<sup>107</sup> On the other hand, the prevention of error costs must be in accordance with legal principles, including, for example, the principle of legal certainty and the principle of proportionality. The following paragraphs provide some pointers to achieve a balance between these requirements.

Firstly, in accordance with the principle of legal certainty, it is important to ensure that requirements placed on economic operators are foreseeable, so that consumers can benefit from healthy competition mechanisms.<sup>108</sup> In order to meet the requirement of legal certainty, it is important to clearly define thresholds and to apply these thresholds consistently in practice. For example, clear guidance on the interpretation of the concept "foreclosure leading to consumer harm" as used by the European Commission is crucial, as it allows dominant understandings to

<sup>102</sup> Jingyuan Ma, *Enforcement of Competition Law—Role of the Courts and Economic Experts*, in COMPETITION LAW IN CHINA: A LAW AND ECONOMICS PERSPECTIVE (2020). Xingyu Yan, *Theories of Harm on Abuse of Dominance: A Sino-EU Comparative Analysis of the Impact of Institutional Dynamics on the Law Enforcement*. University of Groningen (2019).

<sup>103</sup> Wils W (2004), *The Combination of the Investigative, Prosecutorial Function and the Adjudicative Function in EU Antitrust Enforcement: A Legal and Economic Analysis* 27 *World Competition* 205.

<sup>104</sup> Case T-201/04 *Microsoft Corp. v. Commission of the European Communities*. Judgment of the Court of First Instance (Grand Chamber) of Sept. 17, 2007. Damien Geradin, *Is the Guidance Paper on the Commission's Enforcement Priorities in Applying Article 102 TFEU to Abusive Exclusionary Conduct Useful?*, in COMPETITION LAW AND THE ENFORCEMENT OF ARTICLE 102 264 (F. Etro, & I. Kokkoris (eds), 2010). "The case-law of the ECJ is very restrictive, especially after the General Court's decision in *Microsoft*. But this case-law is not necessarily in line with the effects-based approach, which should place a heavier evidentiary burden on the Commission." See also Giannaccari & Van den Bergh, *supra* note 25, at 327. "In spite of the Commission's focus on the economic effects of technological tying, on appeal the General Court has again halted the transition towards a More Economic Approach."

<sup>105</sup> Geradin, *supra* note 103.

<sup>106</sup> *Id.*

<sup>107</sup> See for example, OECD, Executive Summary of the Roundtable on Safe Harbours and Legal Presumptions in Competition Law, DAF/COMP/M(2017)2/ANN1/FINAL (2017); See also Van den Bergh, *supra* note 53, at 382.

<sup>108</sup> Ryan R. Stones, *The Chicago School and the Formal Rule of Law*, 14 *JOURNAL OF COMPETITION LAW & ECONOMICS* 527 (2019). Revisiting the ideas of the Chicago school, Stones (2019) stresses the need of the desirable formal conceptualization of antitrust as law, and challenges the ad hoc, conduct-specific analysis of the rule of reason standard and a "more economic" approach to EU competition law. Michael G. Faure et al., *The Regulator's Dilemma: Caught between the Need for Flexibility & the Demands of Foreseeability. Reassessing the Lex Certa Principle*, 24 *Albany Law Journal of Science & Technology* 283, 333 (2014). Aurelien Portuese et al., *The Principle of Legal Certainty As a Principle of Economic Efficiency*, 44 *European Journal of Law and Economics* 131 (2017).

(better) self-assess their conduct. The safe harbor rule of “a significant decrease of market share in the tied product market” with the allowance of exceptions, as applied in China, may also be useful to ensure legal certainty, and meanwhile reduces false negatives. Another choice would be to apply a *de minimis* threshold that requires the anti-competitive effect on a non-dominated market to be appreciable.<sup>109</sup>

Secondly, according to the principle of proportionality, measures adopted shall not exceed what is appropriate and necessary, to achieve an optimal balance between deterring harmful tying and encouraging beneficial tying to protect consumer interests. Considering this, simply rejecting the existence of anti-competitive effects or pro-competitive effects by imposing an asymmetric burden of proof may not be in accordance with the principle of proportionality. With regard to the assessment of pro-competitive effects, taking into account the characteristics of digital platforms (high fixed costs and uncertainties) and considering that consumers may benefit from tying in digital platforms through cost reduction and quality improvement, a more tolerant criterion, such as “rationality” or “reasonability”, could (as a general standard) replace the “necessity” requirement. We do acknowledge the potential difficulty of conducting trade-offs between “the apples of anti-competitive effects and the oranges of the pro-competitive effects”<sup>110</sup> if the anti-competitive effects and the pro-competitive effects of tying in digital platforms coexist. In this case, using a pragmatic way of condemning conduct based on the finding of less restrictive methods might be necessary to achieve deterrence. Nevertheless, we would like to stress that the burden of proving the existence of less restrictive methods should lie on the authority, instead of on the undertakings. Alternatively, competition authorities could prove that anti-competitive effects outweigh pro-competitive effects. This may be the case when the ties are “more pernicious” without substantial benefits, for example, when (1) tipping is likely and irreversible considering specific characteristics of the concerned digital platforms; (2) strong restrictions exist on consumers’ multi-homing and switching; (3) it concerns defensive leveraging strategies, that is, when the anti-competitive effects of tying occur not only on the tied product market where the undertaking is not (yet) dominant, but also on the tying product market where the undertaking is already dominant.<sup>111</sup>

Thirdly, to reduce both error costs and enforcement costs, the economic criteria referred to above can be incorporated into the (admittedly complex) analysis of tying in digital platforms. One possible way to achieve this would be to include these criteria in soft law, such as guidelines and interpretations,<sup>112</sup> which may help economic actors avoid infringing competition law.<sup>113</sup> Summing up the above economic findings, we argue that in relation to digital platforms, it is important to consider the anti-competitive effects and efficiencies of tying practices not only on the users’ side of the platforms, but also on the other side. With regard to the anti-competitive effects, competition foreclosure resulting from tying needs to be identified more carefully in digital platforms, taking into account the circumstances of the market under review. The tying product market, if subject to non-positive price constraints, may generate possibilities

<sup>109</sup> This is the approach adopted by the UK high Court in the case of *Streetmap v. Google. Streetmap.EU v. Google Inc.*, Google Ireland Limited and Google UK Limited [2016] EWHC 253 (Ch) ¶ 96–98.

<sup>110</sup> Carrier, *supra* note 85; Allensworth, *supra* note 85.

<sup>111</sup> See Condorelli and Padilla, *supra* note 22, at 176. Condorelli and Padilla (2020) also hold that false negative mistakes may be greater when “(i) tipping is likely or (ii) the envelopment strategy involves coercively tying the privacy policies in the origin and target markets”. Considering this, they suggest that it may be appropriate to change from the application of a rebuttable presumption of legality to a rebuttable presumption of illegality in such rare cases, or at least apply a lower evidential standard to rebut the presumption of illegality.

<sup>112</sup> See for example, Wu and Zheng, *supra* note 88, at 14.

<sup>113</sup> See for example, Stefan, Oana Andreea et al, *EU Competition and State Aid Soft Law in the Member States: Finland, France, Germany, Italy, the Netherlands, Slovenia and the UK* King’s College London Law School Research Paper Forthcoming, (2020), <https://ssrn.com/abstract=3667387> or <http://dx.doi.org/10.2139/ssrn.3667387>. This research paper discusses the role of soft law in competition law.

to leverage market power to a secondary market because of “the uncollected consumer surplus”. Such leveraging risks would be significant, when there is a new or an existing stand-alone competitor in the tied product market that needs to reach critical mass in order to survive. This requires competition authorities to be cautious of market characteristics of the tying and the tied product markets in each specific case. Furthermore, the fact that tying by a multi-product monopolist may generate even more significant anti-competitive effects could also be considered. In addition, the profitability of the tied product compared with the loss from the tying product can be used to examine the anti-competitive incentives of certain types of conducts. We acknowledge that the relevance of economic models and economic theories may depend on the assumptions made and may therefore not fit well with each case in practice. It is hence important to bring in sufficient evidence of harm to competition<sup>114</sup>. In the assessment of pro-competitive effects of tying, it is important to take due account of potential consumer benefits in the form of lower prices and higher quality, as well as the efficiencies generated when tying is used as a business strategy to enhance the coordination between different sides of a platform.

Recently, both China and the EU have been adopting specific documents targeted on digital platforms. In China, the Anti-Monopoly Committee of the State Council published the Anti-Monopoly Guidelines of the Anti-monopoly Committee of the State Council on Platform Economy (7 February 2021)<sup>115</sup>. Article 16 of this document regulates tying practices. It lists several factual situations to take into consideration in the analysis of whether certain practices constitute a tying sale, including, for example, tying by means of format terms, pop-up windows and necessary operation steps, which cannot be selected, changed or rejected by the trading counterpart; and tying by means of punitive measures such as search ranking reduction, data restriction and technical barriers. This article lists several forms that may constitute tying sales in practice because of their (potential) limitations of counterparties’ and consumers’ choices. Nevertheless, since there should be no general presumptions that limiting consumers choice equals harm to competition given the complexity of tying conducts in practice, we recommend Chinese competition authorities to be very cautious in using this article to condemn tying practices and to incorporate a comprehensive analysis to avoid false positive mistakes. Article 16 also lists some justifiable reasons for tying in digital platforms, including when it is in accordance with legitimate trade practices and trading habits; when it is necessary to protect the interests of transaction parties and consumers; when it is necessary for improving the commodity’s use value or efficiency; other reasons that can justify an act. It is observed that the guideline follows a pragmatic way by using the requirement of “necessity” instead of “rationality” as benchmarks to prove pro-competitive effects. Given this, we would like to stress that the burden of proving the existence of less restrictive methods should lie on the authority, instead of on the undertakings. Further, the guidelines fail to recognize the possible coexistence of anti-competitive effects and pro-competitive effects, which may make it still difficult to conduct a trade-off analysis under the current framework.

<sup>114</sup> Commission Guidance, *supra* note 75, ¶ 20. See also Li Zhu, Huiyanwang Changye Lanyong Shichang Zhipei Diwei de Fanlongduan Fenxi [A competition law analysis of abuse of dominance in the internet industry] Sep Jingzheng Zhengce Yanjiu [Competition Policy Research] 23, 25 (2015). Both China and the EU recognize the importance of direct evidence of harm to competition. For example, the SPC used direct evidence about harm to competition in *Tencent*. In the EU, the EU Commission recognized the importance of “possible evidence of actual foreclosure: if the conduct has been in place for a sufficient period of time, the market performance of the dominant undertaking and its competitors may provide direct evidence of anti-competitive foreclosure.”

<sup>115</sup> Guowuyuan Fanlongduan Weiyuanhui Guanyu Pingtai Jingji Lingyu de Fanlongduan Zhi-nan (国务院反垄断委员会关于平台经济领域的反垄断指南) [Anti-Monopoly Guidelines of the Anti-monopoly Committee of the State Council on Platform Economy] (Anti-Monopoly Committee of the State Council, Feb. 7, 2021), [http://www.gov.cn/xinwen/2021-02/07/content\\_5585758.htm](http://www.gov.cn/xinwen/2021-02/07/content_5585758.htm) (China) (last visited Oct. 25, 2021).



Compared with the platform guideline adopted in China in the form of soft law<sup>116</sup>, forthcoming Digital Markets Act (DMA) teaches us that the EU intends to crack down on tying practices even more seriously than before.<sup>117</sup> According to article 5(8), once digital platforms are regarded as “gatekeepers”, they shall refrain from requiring business users to subscribe to or register with any other core platform services as a condition to access, sign up or register with any of their core platform services. According to such clause, tying practices in Android would be directly prohibited with only limited possibilities of being suspended or exempted<sup>118</sup>, which would deny potential benefits brought tying practices without solid economic basis. The possibilities of generating false positive mistakes in the EU seem to increase as a result.

From the above analysis, it appears that competition agencies in these two jurisdictions are now cautious of the anti-competitive effects of tying in digital platforms. We suggest that both jurisdictions at the same time carefully consider the possible coexisting pro-competitive effects.

## VI. CONCLUSION

In this article, we first conducted an economic analysis of tying in digital platforms, showing that the anti-competitive effects and the pro-competitive effects often coexist and may be non-separable. On the one hand, tying can serve as a way of cross-subsidization in platform business models, generating value for various sides of the market. On the other hand, tying in digital platforms may also serve as an effective way to foreclose competition in the short term and in the long term. Given that the anti-competitive effects and the pro-competitive effects of tying in digital platforms can be both obvious and intertwined, conducting a trade-off analysis of these two kinds of effects, by incorporating important economic criteria, may be crucial for competition authorities in order to understand the effects of tying in digital markets in a particular case.

We then applied the economics to Tencent and Android to understand the overall effects of the concerned practices and explored whether and to what extent those economic lessons have been reflected in the rulings. From a comparative perspective, we find that when faced with potentially difficult trade-offs between anti-competitive effects and pro-competitive effects, the EU Commission and the SPC chose different approaches in the regard of legal tests and standards of proof, which may represent their relative preferences of avoiding the risks of false positives and false negatives, as explained in more detail above. Nevertheless, from an economic perspective, both of them, to some extent failed to incorporate convincing and detailed economic analysis into their case assessments, potentially leading to error costs (false positives or false negatives) and inconsistencies. In the light of the recent Anti-Monopoly Guidelines on Platform in China and the forthcoming Digital Markets Act in the EU, we provide suggestions, from a law and economics perspective, for both of these jurisdictions about how to reduce error costs in line with economic theories and legal principles.

<sup>116</sup> In addition to the platform guidelines under the AML, China also considers to introduce *ex-ante* regulation addressing anti-competitive concerns raised by one specific type of tying in digital platforms. In October 2021, the SAMR issued a draft proposal of the Guideline of the implementation of responsibilities of internet platforms. The draft guideline defines a type of so-called “super-large platforms”, and provides the obligations for such “super large platforms”, including “not to require platform operators and users in the platform to use the services provided by its associated platforms as a prerequisite to access, register, log in and obtain the platform services they need”. In contrast to the Digital Markets Act proposal, should this guideline be adopted, it would only be regarded as a soft law instrument without binding effects. Huijianwang Pingtai Luoshi Zhuti Zeren Zhinan (Zhengqiu Yijiangao) (互联网平台落实主体责任指南<征求意见稿>)[draft proposal of the Guideline of the implementation of responsibilities of internet platforms] (SAMR, Oct. 2021), [https://www.samr.gov.cn/hd/zjdc/202110/t20211027\\_336137.html](https://www.samr.gov.cn/hd/zjdc/202110/t20211027_336137.html) (China) (last visited May 24, 2022).

<sup>117</sup> REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act), <https://data.europa.eu/doc/document/PE-17-2022-INIT/en/pdf>.

<sup>118</sup> *Id.* Art. 9 and art. 10 of this proposal provide two possibilities: the incumbent’s obligation may be suspended when the compliance with that specific obligation would endanger the economic viability of the operation of the gatekeeper; a gatekeeper may be exempted on the ground of interest (public health; public security).