

Assessing abuse of dominance in the platform economy: a case study of app stores

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While online platforms are an enforcement priority for European competition authorities, the latter are only now turning their attention to app stores (after having scrutinized, among others, hotel booking websites, search engines and online marketplaces). However, app stores can be characterized as the quintessential multisided platform market, where a few players (Apple and Google) serve as intermediaries between third-party suppliers (app developers) and consumers in exchange for a commission fee. Moreover, these app stores are embedded in intricate mobile ecosystems with varying degrees of ‘openness’ to third parties.

Increasingly, these third parties are complaining about allegedly anticompetitive practices. In particular, the operators of app stores—which are vertically integrated into the supply of apps—are said to prefer the distribution of their own apps over those of competitors. Such ‘self-preferencing’ can take many forms. Music streaming app Spotify, for example, complains that it is being treated unfairly in comparison with Apple’s music app because of exorbitant commission fees, delayed approvals, restricted promotions, and limited integration with Apple’s broader ecosystem. Other apps claim they have simply been removed when the app store operator introduced its own competing app.

App stores thus constitute the ideal case study to clarify the assessment of abuse of dominance in the platform economy. Firstly, this implies correctly delineating markets: do app stores operate in one or multiple markets (one for each ‘side’ of the platform)? Secondly, one needs to establish market power: do network effects entrench the market power of app stores, or is any market power transient in a digital context? Thirdly, under which theory of harm should one qualify the conduct of app stores: refusal to supply, margin squeeze, tying—or perhaps an independent theory of self-preferencing? Fourthly, can seemingly anticompetitive practices not be justified by the need for effective platform management? And finally, how does the new P2B Regulation impact the freedom of app store operators? In answering these questions, this paper offers a guide to both authorities and concerned businesses, when it comes to app stores as well as other multisided platforms.

Keywords: app stores, abuse of dominance, market definition, market power, theories of harm, objective justification, P2B Regulation

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1 INTRODUCTION TO (COMPETITION CONCERNS IN) THE APP ECONOMY

Whether you are a consumer looking to purchase an application (app) or a programmer wishing to develop one, you are inevitably navigating within a mobile ecosystem. Consumers use their mobile device—with its corresponding mobile operating system (OS)—for app purchases; app developers have to develop their apps for a specific mobile OS, and then sell it through the app store on the mobile OS they are programming for. Mobile ecosystems thus consist of a combination of hardware: the device (mobile phone) produced by an original equipment manufacturer (OEM) such as Samsung or Huawei—as well as software: the OS and app store provided by one of two Silicon Valley tech companies.¹ The apps developed by a wide variety of app developers also qualify as software but are often categorized under a separate ‘services’ heading.

¹ The examples here are not chosen at random. In an observation that could probably be transposed to many EU countries, the Austrian Regulatory Authority reports that ‘the world of smartphones in Austria is dominated by three device manufacturers (Samsung, Apple and Huawei) and two operating systems (Android and iOS)’. See Austrian Regulatory Authority, ‘The open internet: OS, apps and app stores’ (Report – English summary) 2019, 1.

Within this technological layer cake, the mobile OS layer appears to be the driving force,² which results in the existence of two predominant mobile ecosystems: Apple’s iOS-based ecosystem and Google’s Android-based ecosystem. The products at the basis of these ecosystems are quite differentiated. iOS is characterized by its exclusive integration into Apple’s iPhones—an in-house combination of software and hardware that is said to maximize user-friendliness. Google, on the other hand, licenses its Android OS to OEMs willing to accept its conditions, which means that Android powers a large array of mobile devices. The company even makes the source code of Android public (making the project ‘open source’), allowing anyone to build their own version of the OS (so-called ‘Android forks’).³

While the hardware-software integration is thus more far-reaching for Apple than Google, both companies have tightly integrated their own app store into their mobile OS: Apple’s App Store is the only app store available on iOS phones, i.e. iPhones; Google’s Play Store is found on any phone running Android and the installation of additional app stores is discouraged.⁴ For developers, however, the experience with each app store can be quite different. In particular, Apple is a lot stricter than Google when it comes to approving the apps that are allowed in its store. In principle, any app that complies with the app store’s developer guidelines⁵ should be approved, but Apple appears to draft stricter guidelines and then more closely scrutinizes compliance with those guidelines (while Apple takes several days to review an app, for example, Google only takes hours).⁶ When it comes to fee structures, however, the App Store and Google Play are similar: both app stores take advantage of their monopoly or duopoly position (see section 2) by charging a 30% commission fee on each app sale, in-app purchase, or in-app subscription (see further section 3).⁷

² The OS predominance can be considered an application of the adage ‘software is eating the world’. See Marc Andreessen, ‘Why software is eating the world’ (*a16z*, 20 August 2011) <<https://a16z.com/2011/08/20/why-software-is-eating-the-world/>>.

³ This is operationalized through the Open Handset Alliance, a consortium of OEMs and developers, see <http://www.openhandsetalliance.com/android_overview.html>.

⁴ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 51 (‘In conclusion, other app stores are not an alternative for iOS, because no other app stores are available on iOS. On Android, other app stores are available, but they are not used that much.’). The reason that alternative Android app stores ‘are not used that much’ may lie in the fact that Google appears to discourage using alternatives. See e.g. Natasha Lomas, ‘Aptoide, a Play Store rival, cries antitrust foul over Google hiding its app’ (*TechCrunch*, 4 June 2019) <<https://techcrunch.com/2019/06/04/aptoide-a-play-store-rival-cries-antitrust-foul-over-google-hiding-its-app/>> (Aptoide alleges that ‘Google Play Protect flags Aptoide as a harmful app, hiding it in users’ Android devices and requesting them to uninstall it’).

⁵ For Apple’s App Store Review Guidelines (plus its additional Development Guidelines, Design Guidelines, and Brand and Marketing Guidelines) and Apple Developer Agreement, see <<https://developer.apple.com/terms/>>; for the Google Play Developer Content Policy and Developer Distribution Agreement, see <<https://play.google.com/about/developer-content-policy-print/>>.

⁶ See Priya Viswanathan, ‘iOS App Store vs. Google Play Store for app developers’ (*Lifewire*, 24 January 2019) <<https://www.lifewire.com/ios-app-store-vs-google-play-store-for-app-developers-2373130>> and Madhu Kesavan, ‘The approval process: Android vs. iPhone’ (*DZone*, 18 January 2017) <<https://dzone.com/articles/the-approval-process-android-vs-iphone>>. For an App Store approval case study (including a short comparison with Google Play), see Jessica Lessin, ‘Inside our Apple App Store ordeal’ (*The Information*, 7 December 2019) <<https://www.theinformation.com/articles/inside-our-apple-app-store-ordeal>>.

⁷ See Google, ‘Service fees’ <<https://support.google.com/googleplay/android-developer/answer/112622?hl=en>> and Lauren Goode, ‘App Store 2.0’ (*The Verge*, 8 June 2016) <<https://www.theverge.com/2016/6/8/11880730/apple-app-store-subscription-update-phil-schiller-interview>>. See further under section 3.

The above description thus reveals the structure of mobile ecosystems, in which consumers buy apps from developers through an app store, which is embedded in a specific OS, which is in turn installed on a mobile device. Apple is vertically and exclusively integrated throughout the complete mobile value chain, running from app stores to devices; Google is primarily focused on the software layers of mobile ecosystems (although it also started offering its own devices under the Pixel brand).⁸ The ecosystems are also managed differently, with Apple keeping the reins tighter than Google. These differences in integration and management⁹ lead commentators to term Apple a closed ecosystem (or ‘walled garden’), while Google Android is classified as an open ecosystem.¹⁰ However, the distinction between open and closed is not binary; rather, both qualifications are ends of a spectrum, and Apple and Google have both been moving closer towards the center of that spectrum.¹¹

Recently, regulators have started taking an interest in mobile ecosystems—and the operation of app stores in particular.¹² This is not surprising given the large and rapidly increasing value of the app economy: by 2022, consumers are predicted to spend more than \$150 billion in app stores.¹³ In the first quarter of 2020, about two thirds of consumer spending on apps passed through the App Store, while the other one third was spent on Google Play.¹⁴ Given that there are fewer App Store customers (i.e. iPhone users), this means that—on average—each one of them has been spending about *ten times as much* as Google Play customers (i.e. Android phone users).¹⁵ This observation aligns with the fact that the more expensive Apple ecosystem is more popular in more affluent regions.¹⁶ Apart from the

⁸ Pixel phones are ‘Made by Google’ but manufactured by HTC. On the partnership, see Rick Osterloh, ‘Google signs agreement with HTC, continuing our big bet on hardware’ (*The Keyword – Google Blog*, 21 September 2017) <<https://www.blog.google/topics/hardware/google-signs-agreement-htc-continuing-our-big-bet-hardware/>>.

⁹ Considering these factors determinative to classify ecosystems, see Autorité de la concurrence and Competition and Markets Authority, ‘The economics of open and closed systems’ (Report) 2014, 12 (naming ‘the extent of vertical integration and of control of the system components by the system owner, and the compatibility between systems’ as the relevant indicators to determine the degree of openness of an ecosystem).

¹⁰ See e.g. Jonathan Zittrain, *The future of the internet—and how to stop it* (Yale University Press 2008) and EC, ‘Online platforms’ (Staff Working Document) SWD(2016)172, 26.

¹¹ On Google becoming more closed, see Ron Amadeo, ‘Google’s iron grip on Android: controlling open source by any means necessary’ (*Ars Technica*, 21 October 2013) <<https://arstechnica.com/gadgets/2018/07/googles-iron-grip-on-android-controlling-open-source-by-any-means-necessary/?comments=1>> as well as (more implicitly) *Google Android* (Case AT.40099) Commission Decision. On Apple becoming more open, see James Grimmelman and Paul Ohm, ‘Dr. Generative, or: how I learned to stop worrying and love the iPhone’ (2010) 69 *Maryland Law Review* 910, 911, 921-4 and 934-6.

¹² See e.g. Austrian Regulatory Authority, ‘The open internet: OS, apps and app stores’ (Report) 2019.

¹³ Sam Cheney and Eric Thompson, ‘The 2017-2022 app economy forecast: 6 billion devices, \$157 billion in spend & more’ (*App Annie Blog*, 2 May 2018) <<https://www.appannie.com/en/insights/market-data/app-annie-2017-2022-forecast/>>. For a specific look at the EU app economy, see Mark Mulligan and David Card, ‘Sizing the EU app economy’ (Report) 2014, available via <<https://ec.europa.eu/digital-single-market/en/news/sizing-eu-app-economy>>. For a specific look at the US app economy, see Roya Stephens and Adarsh Mahesh, ‘State of the app economy’ (The App Association Report) 2018, available via <https://actonline.org/wp-content/uploads/ACT_2018-State-of-the-App-Economy-Report_4.pdf>.

¹⁴ ‘Weekly time spent in apps grows 20% year over year as people hunker down at home’ (*App Annie*, 2 April 2020) <<https://www.appannie.com/en/insights/market-data/weekly-time-spent-in-apps-grows-20-year-over-year-as-people-hunker-down-at-home/>>.

¹⁵ Philip Elmer-DeWitt, ‘Morgan Stanley: Apple’s App Store clobbers Google Play’ (*Apple 3.0*, 28 May 2018) <<https://www.ped30.com/2018/05/28/apple-app-store-clobbers-google-play-now-ever/>>.

¹⁶ Marcin Szczepeński, ‘European app economy: state of play, challenges and EU policy’ (Briefing by the European Parliamentary Research Service) 2018, 3 (‘Android is dominating developing nations’ markets, such as Asia (apart from China and Japan) and Africa, while the main iOS markets are in developed countries such as Europe, the US, Australia, and Canada’).

App Store and Google Play, ‘independent’ app stores exist (e.g. Aptoide), but their competitive significance is marginal in comparison.¹⁷

App stores provide a host of benefits: they provide tools and handle distribution for app developers, allowing these creators to focus on building innovative products; for consumers, they centralize and curate the large supply of apps while ensuring their security. More and more, however, app developers are complaining about the restrictive role that app stores play in supplying their apps to consumers. Music streaming app Spotify, for example, has complained that it is being treated unfairly in comparison with Apple’s music app because of exorbitant commission fees, delayed approvals, restricted promotions, and limited integration with Apple’s broader ecosystem.¹⁸ Other app developers claim their apps have been delisted from the App Store when Apple introduced a competing app,¹⁹ or have been removed from the Play Store because they interfered with Google’s business model.²⁰ Apple and Google have justified their actions by referring to the necessity of effectively governing their ecosystems, which may sometimes require restricting or banning certain apps.²¹

There are two broad dynamics underlying the complaints of app developers. Firstly, the App Store and Google Play are argued to be in dominant positions—the little competition they face thus gives them the *capability* to act anticompetitively. Secondly, as to the underlying *incentive* for allegedly anticompetitive conduct, observers often point to a ‘conflict of interest’ facing app store operators: while they offer the infrastructure to distribute apps, they are also vertically integrated into the supply of apps—whenever an independent app developer offers a similar app, they may thus be incentivized to preference the distribution of their own apps over those of competitors in various ways. Of course, app stores only face such an incentive when the gains from supplying their own app exceed the losses from not distributing a third-party app.²²

Competition authorities are showing increasing interest in the complaints of app developers. The Dutch competition authority—the Authority for Consumers & Markets (ACM)—took the lead by conducting a market study into app stores.²³ After completing its study, it started investigating whether Apple—through its App Store—abused its dominant position, ‘for example, by giving preferential

¹⁷ *Google Android* (Case AT.40099) Commission Decision, para 598 (“[N]o downloadable app store has achieved any meaningful market share. Aptoide, which claims to be the largest “independent” app store outside China, has only achieved a market share of [0-5]% in the period 2011-2016.”).

¹⁸ Spotify, ‘Time to Play Fair’ <<https://www.timetoplayfair.com/>>. For a discussion, see Friso Bostoan, ‘Spotify lodges antitrust complaint against Apple: it’s “time to play fair” in the music streaming industry’ (*CoRe Blog*, 24 April 2019) <<https://coreblog.lexxion.eu/spotify-apple/>>.

¹⁹ See e.g. ‘Qustodio & Kidslox file a complaint against Apple with the European Commission over abuse of dominant position’ (*GlobeNewswire*, 30 April 2019) <<https://www.globenewswire.com/news-release/2019/04/30/1812192/0/en/Qustodio-Kidslox-File-a-Complaint-Against-Apple-with-the-European-Commission-over-Abuse-of-Dominant-Position.html>>.

²⁰ See e.g. ‘We filed an EU antitrust complaint against Google’ (*Disconnect*, 6 June 2015) <<https://blog.disconnect.me/our-eu-antitrust-complaint-against-google/>>; for a discussion, see Ariel Ezrachi and Maurice Stucke, *Virtual competition: the promise and perils of the algorithm-driven economy* (Harvard University Press 2016), 179-80 and 184-90 and ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 79-80.

²¹ On the need for and dynamics of such management, see Kevin Boudreau and Andrei Hagiu, ‘Platforms rules: multi-sided platforms as regulators’ in Annabelle Gawer, *Platforms, markets and innovation* (Edward Elgar 2009), 163-191.

²² See section 4 on how these losses should be interpreted broadly.

²³ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019.

treatment to its own apps.²⁴ At the EU level, the European Commission (EC) is now ‘looking in detail into the merits of the complaint’ of Spotify against Apple.²⁵ Of course, the EC already made headlines when it imposed its highest fine ever in its *Google Android* decision.²⁶ While this decision concerned the tying of the Play Store with other Google apps rather than the operation of the store itself, it offers valuable guidance when assessing dominance in mobile ecosystems. Finally, app stores are also making waves in antitrust circles on the other side of the Atlantic: the *Apple v Pepper* case regarding the allegedly monopolistic commission fees of the App Store is making its way through the US judicial system.²⁷

The new attention from both app developers and competition authorities for the operation of app stores, combined with their economic significance, offers a good reason to take a close look at them through the lens of competition law. However, the OS and app stores that make up mobile ecosystems are also quintessential examples of ‘multisided platforms’—a form of economic organization in which an intermediary facilitates transactions between different user groups (the multiple ‘sides’, e.g. consumers and app developers). Increasingly, these platforms are integrating vertically from distribution into the supply of the products they are distributing for third parties (e.g. from app stores to apps), making them ‘hybrid platforms’. This leads to the aforementioned conflict of interest and so-called ‘self-preferencing’ conduct, which has been identified by various competition authorities as a key challenge.²⁸ App stores constitute the ideal case study to help tackle this challenge.

The goal of this paper is thus to assess under which conditions the platform governance rules of the main app stores may be considered an abuse of dominance—an assessment that is instructive for potentially abusive conduct in the broader platform economy.²⁹ It proceeds as follows. Section 2 examines the prerequisite for an abuse of dominance, namely the market power of app stores. Establishing such market power implies, firstly, correctly defining markets: do app stores operate in one market or rather multiple markets (one for each ‘side’ of the platform)? Secondly, one needs to analyze the determinants of market power in the platform—and more specifically app—economy: do indirect network effects and other economic characteristics of platforms entrench such market power,

²⁴ ACM, ‘ACM launches investigation into abuse of dominance by Apple in its App Store’ (press release, 11 April 2019) <<https://www.acm.nl/en/publications/acm-launches-investigation-abuse-dominance-apple-its-app-store>>. The Federal Antimonopoly Service of the Russian Federation (FAS) also opened a case against Apple based on the complaint of a parental control app it banned, see FAS, ‘FAS opened a case against Apple Inc.’ (press release, 9 August 2019) <<http://en.fas.gov.ru/press-center/news/detail.html?pid=54248>>.

²⁵ Answer given by Ms Vestager on behalf of the European Commission regarding ‘Official complaint by Spotify against Apple for discrimination and Apple Music’s unfair advantage over Spotify: the power of digital platforms’ (Parliamentary question E-002996/2019) <http://www.europarl.europa.eu/doceo/document/E-9-2019-002996-ASW_EN.html>.

²⁶ *Google Android* (Case AT.40099) Commission Decision.

²⁷ Recently, the Supreme Court decided on an admissibility question, holding that iPhone owners are direct purchasers of the App Store and thus have standing to sue Apple for alleged monopolization. However, it is for the District Court to decide whether Apple actually monopolized the market. See Supreme Court of the United States, *Apple v Pepper*, 587 U.S. ____ (2019). For a discussion, see Konstantinos Stylianou, ‘*Apple v Pepper*: the unintended fallout in Europe’ (2019) 7 *Journal of Antitrust Enforcement* 457 and Daniel Mândrescu, ‘Apple’s App Store commission fee and (anti-competitive) governance: when a platform’s zero-pricing strategy becomes expensive’ (*CoRe Blog*, 29 November 2018) <<https://coreblog.lexxion.eu/apples-app-store-commission-fee-and-anti-competitive-governance-when-a-platforms-zero-pricing-strategy-becomes-expensive/>>.

²⁸ See e.g. Common Understanding of G7 Competition Authorities on “Competition and the Digital Economy” (Paris, 5 June 2019), 5 (calling assessing the conduct of ‘hybrid platforms active in both offering their own services and providing access and infrastructure to competitors’ one of their main substantive challenges).

²⁹ While app Stores can quickly decide the faith of an app, which underlines the need for speedy interventions in the digital economy, such institutional concerns are outside of the scope of this article.

or is any market power transient in a fast-moving digital context? Section 3 deals with the question of which theory of harm—and corresponding legal standard—one should apply to the conduct of app stores: excessive pricing, refusal to supply, margin squeeze, tying, or perhaps an independent theory of self-preferencing? Section 4 investigates to which extent seemingly anticompetitive practices can be justified by the need for effective platform management. Before concluding, section 5 assesses how the Platform-to-Business Regulation and future regulatory initiatives may restrict the freedom of app store operators.

2 MARKET POWER OF APP STORES

One could argue that the App Store and Google Play form a duopoly. This duopoly would be a natural consequence of Apple and Google’s duopoly in the mobile OS market,³⁰ given that ‘[a]pps are almost exclusively downloaded via the pre-installed app stores of the respective operating system provider.’³¹ In its *Google Android* decision, however, the EC considered Google Play to be in a separate market for ‘app stores for Android devices’.³² Mobile ecosystems thus form separate markets, and app stores constitute aftermarket of those ecosystems, meaning that Google Play holds a (near-)monopoly (presumably, the same goes for the App Store). Then again, one could also argue the market should not be further narrowed but rather broadened beyond app stores so as to include other channels through which developers offer and consumers download apps. Which of these approaches is the correct one? And, aside from market shares, which factors determine the market power of an app store? These questions are answered in the next two sections.

2.1 Which market(s) do app stores operate in?

As set out under section 1, mobile ecosystems constitute a technological layer cake, where each layer is built on top of or at least interconnected with another layer. The mobile OS can be considered the heart of the of the ecosystem—the principal layer—which allows for the operation of smart mobile devices and provides the technical infrastructure on top of which app stores and apps are built. While the success of the ecosystem undeniably depends on the respective success of each of its constitutive elements (i.e. OS, mobile devices, app store and apps), each of these elements operates in separate yet related markets.

Within this ecosystem context, app stores entail multisided platforms, which serve as the distribution channel for apps developed for either iOS or Android OS. Like any platform, app stores bring together two separate user groups and facilitate the interaction between them in return for a fee. The transaction facilitated here concerns the sale of an app (or an in-app subscription) from developer to consumer;

³⁰ Since the demise of the Windows Mobile, Apple and Google hold a 100% market share in the mobile OS market, see IDC, ‘Smartphone OS Market Share, 2019’ <<https://www.idc.com/promo/smartphone-market-share/os>>. See also Marcin Szczepański, ‘European app economy: state of play, challenges and EU policy’ (Briefing by the European Parliamentary Research Service) 2018, 3 (‘it can be said that the two main operating systems for apps (Google Android and Apple iOS) effectively form a duopoly on global markets, having a combined market share of more than 99%’).

³¹ Austrian Regulatory Authority, ‘The open internet: OS, apps and app stores’ (Report – English summary) 2019, 1.

³² *Google Android* (Case AT.40099) Commission Decision, para 281 (own emphasis). For a discussion, see Daniel Mándrescu, ‘Lessons and questions from Google Android – Part 1: the market definition’ (*CoRe Blog*, 29 October 2019) <<https://coreblog.lexxion.eu/lessons-and-questions-from-google-android-part-1-the-market-definition/>>.

the fee consists in a percentage of the transaction, charged to the developer. In this light, app stores can be considered ‘matching platforms’ or ‘transaction platforms’,³³ although such qualifications—while helpful (see below)—should not be considered dispositive either.

Assessing the lawfulness of app store governance rules under the scope of Article 102 TFEU requires establishing a position of market dominance. In turn, however, such a finding requires defining the relevant market, which constitutes one of the most debated elements of the competition law assessment of platforms.³⁴ The multisided nature of platforms, which entails simultaneously meeting the demand of at least two separate yet interdependent customer groups by facilitating an interaction between them, raises the question of *how many* markets need to be defined. From a competition law perspective, this intermediary service constitutes the focal product of the market definition exercise, for which demand-side substitutability should be tested. As the intermediary service of the platform is provided to at least two groups simultaneously, however, demand-side substitutability can be assessed with regard to more than one customer group, potentially resulting in multiple relevant markets.

There is thus a choice between defining a single relevant market per interaction or separate relevant markets for every user group that is part of the interaction.³⁵ In this case of app stores, this translates to either defining a single relevant market for both app developers and consumers or separate markets for each of these parties. Determining that a *single* relevant market needs to be defined for the interaction facilitated by the app store means that all potential substitutes must be able to meet the demand of both app developers and consumers. Essentially, this scenario implies that app stores compete solely or mostly with the same undertakings for each customer group. Consequently, the potential alternatives for app stores will very likely also have to be app stores, which facilitate a comparable interaction. Alternatively, if *separate* relevant markets are defined with regard to consumers and app developers, substitutability is tested separately with regard to each of these groups. Therefore, in this second scenario, the potential alternatives for app stores are more likely to also include non-platform undertakings. From the perspective of assessing market power, the difference between the two approaches can be significant. Defining a single market is likely to result in narrower markets where market power and/or anticompetitive effects are more likely to be identified, whereas defining separate markets may point to the contrary.

In the past years multiple theoretical approaches have been developed with the purpose of answering the question of how many markets need to be defined in the case of two-sided platforms more easily. These approaches included various platform differentiation typologies including transaction vs non-transaction platforms,³⁶ matching vs advertising platforms,³⁷ as well as differentiation based on the

³³ Bundeskartellamt, ‘The market power of platforms and networks’ (Working Paper) 2016, 17-25.

³⁴ For a discussion, see Daniel Mândrescu, ‘Applying (EU) competition law to online platforms, reflections on the definition of the relevant market(s)’ (2018) 41 *World Competition* 453.

³⁵ Note that, when dealing a multisided platform, defining the relevant market first requires determining which of the interactions constitutes the subject of investigation. This step of the analysis varies from case to case depending on the nature of the interaction facilitated by the platform and the infringement that is investigated.

³⁶ Lapo Filistrucchi, Damien Geradin, Eric van Damme and Pauline Affeldt, ‘Market definition in two-sided markets: theory and practice’ (2014) 10 *Journal of Competition Law & Economics* 293.

³⁷ Bundeskartellamt, ‘The market power of platforms and networks’ (Working Paper) 2016.

demand relations.³⁸ However, despite its significant implications for the assessment of market power and anticompetitive effects, the question of the amount of markets to be defined has rarely been explicitly addressed in practice.³⁹ Instead, this matter is approached essentially through a demand substitution assessment with regard to the platform customer groups that are considered relevant to the case at hand. Based on the views of such customer groups with regard to substitution, the decision on whether the case requires the definition of one or multiple relevant markets is made (implicitly).

This approach is illustrated by the *Google Android* decision, where the EC only mentioned the multisided nature of the various Google services under investigation in passing and did not link this characterization to the market definition question.⁴⁰ Instead, the EC assessed the multisided demand substitution for such services from the perspective of OEMs, app developers and consumers.⁴¹ In the case of Google Play, the EC found that the relevant market consists only of Android app stores.⁴² This finding has two implications. Firstly, it implies that each mobile OS-based ecosystem constitutes a market by itself,⁴³ and that app stores constitute ecosystem-specific aftermarkets.⁴⁴ Secondly and relatedly, the only viable substitute for app stores are other OS-compatible app stores; other app distribution channels are not considered realistic substitutes. Therefore, to the question of how many markets need to be defined, the EC answered ‘one’: the market for app stores for the OS they are compatible with. Although these findings were made with regard to Google’s app store, it is highly likely that such a finding is transposable to the case of Apple.

Indeed, the EC’s findings regarding Google—and their applicability to Apple—are supported by the ACM’s recent market study of app stores. In the context of this market study, the ACM carried out a demand-side substitutability assessment for both Google Play Store and Apple’s App Store from the perspective of both consumers and app developers.⁴⁵ The ACM explored all the technically possible avenues that could serve as alternative distribution channels for developers to offer their app to consumers. These options included third-party app stores, the sideloading of apps, and the use of web apps. Furthermore, the analysis also considered the possibility that app developers would negotiate pre-installation arrangements with OEMs. After assessing the feasibility of all these options in detail, the ACM concluded that they do not constitute realistic substitutes for the iOS and Android app

³⁸ Daniel Mândrescu, ‘Applying (EU) competition law to online platforms, reflections on the definition of the relevant market(s)’ (2018) 41 *World Competition* 453.

³⁹ On notable exception in this regard is the U.S. Supreme Court case *Ohio et al. v American Express Co. et al.* 585 U. S. ____ (2018). In this case, the U.S. Supreme Court explicitly endorsed the theory put forward in Lapo Filistrucchi, Damien Geradin, Eric van Damme and Pauline Affeldt, ‘Market definition in two-sided markets: theory and practice’ (2014) 10 *Journal of Competition Law & Economics* 293, meaning that in ‘transaction markets’ (which includes credit cards, the subject of the case), a *single* market has to be defined.

⁴⁰ See *Google Android* (Case AT.40099) Commission Decision, para 638 for a passing mention of the two-sided nature of app stores.

⁴¹ *Google Android* (Case AT.40099) Commission Decision, section 7.

⁴² *Google Android* (Case AT.40099) Commission Decision, paras 268-322.

⁴³ This is confirmed by the EC’s definition of a relevant market for ‘licensable smart mobile OS’, which includes Android but excludes iOS.

⁴⁴ For the EC’s views on aftermarkets, see EC, ‘The application of Article 82 of the Treaty to exclusionary abuses’ (Discussion Paper) 2005, 69-70 and EC, ‘The definition of relevant market for the purposes of Community competition law’ (Notice) OJ C 372/5, para 56; for a contemporary perspective, see Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, ‘Competition policy for the digital era’ (Special Advisers’ Report) 2019, 47-48 (‘where the firms’ lock-in strategies are successful, and consumers are drawn into ecosystems which they find difficult to leave, ecosystem-specific aftermarkets may need to be defined’).

⁴⁵ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 44-51.

stores. According to the ACM's analysis, alternative avenues are subject to a multitude of technical and financial barriers faced by both app developers and consumers.⁴⁶ Therefore, the ACM considered the relevant market of app stores limited to that of iOS or Android app stores.⁴⁷ The segmentation of the app store market based on the OS for which they are designed follows from the lack of interoperability between the iOS and Android operating systems and their respective app stores.

In light of such findings one may even dare to argue that the incumbent app stores constitute competitive bottlenecks (perhaps even the main one) in both the iOS and Android ecosystems. Evidently, in terms of business strategy, this state of affairs is desirable for both Apple and Google. However, when it comes to competition law, the same cannot be said. As previously mentioned, restricting the relevant market to the platform market (rather than a user-group market) makes a finding of market power more likely. In the case of app stores, the consequences are even more pronounced since the relevant market is further segmented based on the specific OS. This sub-segmentation, together with the 'closedness' of the iOS and Android ecosystems, further increases the likelihood that—for the foreseeable future—Apple and Google will continue to be considered dominant in their respective ecosystem markets, as is discussed under the next section.

2.2 Do the incumbent app stores hold market power?

In accordance with the EC's Guidance paper, assessing market power implies an inquiry into the competitive constraints faced by the undertaking in question, which include actual competition, future competition and countervailing buying power.⁴⁸ However, the assessment of these constraints requires some adjustment to the economic reality of competition in the case of multisided platforms such as app stores. Furthermore, the respective weight carried by each of these criteria may shift, for example from the concept of actual towards that of potential competition, which likely becomes the heart of the assessment due to the dynamic nature of digital markets.

When it comes to **actual competition**, market shares are commonly relied upon to provide a first indication of the existing market structure and competitive relations.⁴⁹ While the existence of high market shares is not sufficient to establish dominance,⁵⁰ it may under certain circumstances suffice to establish a presumption or at least an indication of dominance.⁵¹ In the case of multisided digital platforms, the importance of market shares has been questioned due to the difficulty of correctly calculating them as well as the dynamic nature of online markets.⁵² In addition, the possibility that multiple relevant markets are defined—and the corresponding multiple findings of market share data—may further complicate correct comparisons with competitors.⁵³

⁴⁶ *ibid*, 50-51.

⁴⁷ *ibid*, 40-51.

⁴⁸ Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, paras 10-2.

⁴⁹ *ibid*, para 13.

⁵⁰ Case C-202/07 P *France Télécom v Commission* EU:C:2009:214 [2009] ECR I-2369, paras 100-111.

⁵¹ Case C-62/86 *Akzo Chemie v Commission* EU:C:1991:286 [1991] ECR I-3359, para 60; Jonathan Faull and Ali Nikpay (eds), *The EU Law of Competition* (3rd ed.) (Oxford University Press 2014), 365.

⁵² German Monopolies Commission, 'Competition policy: the challenge of digital markets' (Special Report) 2015, 24.

⁵³ David Evans and Richard Schmalensee, 'The antitrust analysis of multi-sided platform businesses' (2013), 20-21, available via <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2185373>; Jonathan Faull and Ali Nikpay (eds), *The EU Law of Competition* (3rd ed.) (Oxford University Press 2014), 367-8.

At least when it comes to market share, app stores present a less complicated platform case, as they avoid a large share of the practical difficulties identified above. Given that the relevant market has been (and likely will be) limited to that of app stores for a specific smart mobile OS, covering both consumers and app developers, measuring market share in a more reliable fashion is feasible. In this case, market share data can be generated based on traditional volume data, as well as the number of installed and downloaded app stores, the installed base of developers and apps per app store,⁵⁴ and the share of multi-homing consumers and app developers.⁵⁵ Based on the data in the *Google Android* decision, the market share of the Play Store exceeds 90%, which is more than sufficient to trigger a presumption of dominance.⁵⁶ In the case of Apple, the market structure is even more clear-cut. Given that each ecosystem is considered to be a separate market and the iOS ecosystem is more closed than Android (as it does not allow downloading alternative app stores, nor sideloading apps), the market for iOS app stores is almost completely in the hands of Apple, resulting in a (near) 100% market share. Although the findings of the EC in its *Google Android* decision have been intensely critiqued, it is unlikely that the findings on the relevant market will be successfully refuted on appeal.⁵⁷ Moreover, even if the EC's finding on the relevant OS market in *Google Android* is annulled and iOS is considered to be in the same market as Android, this does not necessarily affect the conclusion on the relevant app store markets, given that those may still constitute distinct aftermarkets. Once consumers make their choice for either an iOS or Android smart mobile device, they are locked in to that specific ecosystem and can acquire apps solely via the app store(s) designed for their respective OS, leading to a presumption of dominance with respect to both Google Play and the App Store.

However, a high degree of market share alone is not sufficient to establish dominance, particularly in the case of digital platforms which operate on highly dynamic markets.⁵⁸ Whether Google and Apple are dominant with regard to their app stores depends on the (at least theoretical) ability of **potential competitors** to enter the market, which is becoming the focus of market power assessments in the case of digital platforms.⁵⁹ Assessing the competitive constraints emanating from potential competition primarily implies looking into the barriers to entry in the market.⁶⁰ In the case of digital platforms, this assessment includes a combination of common categories of barriers to entry established by practice as well as specific barriers to entry in platform markets discussed mostly in academic work. The latter category includes the presence of network effects, multihoming patterns

⁵⁴ Bundeskartellamt, 'The market power of platforms and networks' (Working Paper – Executive Summary) 2016, 9-10.

⁵⁵ *Google Android* (Case AT.40099) Commission Decision, paras 591-614.

⁵⁶ *Ibid.*

⁵⁷ The definition of relevant market falls within the broad discretion given to the EC when engaging in complex economic assessments. Accordingly, as long as no flagrant mistake in this process can be identified by the General Court, the annulment of this particular finding on appeal is unlikely.

⁵⁸ Case T-79/12 *Cisco v Commission* EU:T:2013:635, para 69. See similarly *Facebook/WhatsApp* (Case M.7217) Commission Decision, para 99.

⁵⁹ Bundeskartellamt, 'The market power of platforms and networks' (Working Paper – Executive Summary) 2016, 10. See also See Inge Graef, 'Stretching EU competition law tools for search engines and social networks' (2015) 4 Internet Policy Review, 7.

⁶⁰ OECD, 'Barriers to Entry' (Policy Roundtable Report) DAF/COMP(2005)42, 9-11; Jonathan Faull and Ali Nikpay (eds), *The EU Law of Competition* (3rd ed.) (Oxford University Press 2014), 367-8.

(i.e. making parallel use of more than one platform), potential for differentiation, access to data, and learning effects.⁶¹

When considering the barriers to entry that are most relevant in the market for ecosystem-compatible app stores, even at a glance, one may conclude they are significant. Due to the multisided nature of app stores, it is undeniable that positive indirect network effects are at play. App stores need to bring on board multiple user groups. Firstly, app stores need to ensure compatibility with a smart mobile OS and the hardware that the OS runs on. In the case of Apple, this is where the assessment of potential competition already breaks down because Apple does not allow third-party app stores to run on its iOS devices. By contrast, Google's Android's open source software platform allows for the creation of third-party app stores. Secondly, after overcoming the initial technical hurdle, third-party Android app stores must attract both consumers and app developers. In this stage, indirect network effects play an immensely important role as consumers are more likely to make use of an app store when it has more developers and vice versa. Although indirect network effects imply that competing app stores can achieve a significant scale in relative short periods of time, it also means getting an app store off the ground requires overcoming the so-called 'chicken and egg problem' that all platforms face at their launch phase (i.e. they have neither developers nor consumers, but need one to attract the other).⁶² As the failed attempts of BlackBerry and Windows Mobile show, overcoming this problem and developing a successful app store is anything but easy. While third-party app stores for Android do not need to struggle with the declining demand for an unsuccessful mobile OS like in these examples, the case of third-party app stores is remains difficult due to the fact that the Play Store is pre-installed on virtually every Android device. Such pre-installation makes solving the chicken and egg problem more difficult since it requires overcoming the status quo bias of consumers.⁶³ For similar reasons, multi-homing patterns—which can prevent the market from tipping towards one player—are also very scarce. In the case of Apple, no multihoming is possible within the iOS ecosystem since there can be no third-party iOS app stores. In the case of Android, multihoming is theoretically possible as the OS governance allows for the creation of third party app stores, but in practice this possibility remains largely theoretical: even other pre-installed, proprietary app stores like Samsung's Galaxy Store have not achieved a meaningful market share.⁶⁴ In light of such circumstances, the first impression is that potential competition from third party app store is non-existent in the case of iOS and very restricted in the case of Android. Therefore, it would appear that if potential competition

⁶¹ Bundeskartellamt, 'The market power of platforms and networks' (Working Paper – Executive Summary) 2016, 9-17. See also David Evans and Richard Schmalensee, 'The industrial organization of markets with two-sided platforms' (2007) 3 Competition Policy International 151; Justus Haucap and Ulrich Heimeshoff, 'Google, Facebook, Amazon, eBay: is the internet driving competition or market monopolization?' (2014) 11 International Economics and Economic Policy 49; Hal Varian, 'Use and abuse of network effects' (2017) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3215488>.

⁶² Jean Charles Rochet and Jean Tirole, 'Platform competition in two-sided markets' (2003) 1 Journal of the European Economics Association 990; Bernard Caillaud and Bruno Jullien, 'Chicken & egg: competition among intermediation service providers' (2003) 34 RAND Journal of Economics 309.

⁶³ See *Google Android* (Case AT.40099) Commission Decision, paras 782 for the EC's findings on status quo bias regarding the pre-installation of the Google Search app ('In order to overcome the status quo bias and see users looking for alternatives, service providers need to convince users that their service is significantly better than the alternative that is already pre-installed, premium placed or set as default.'). Earlier, see *Facebook/WhatsApp* (Case M.7217) Commission Decision, para 124 ('The fact that neither Facebook Messenger nor WhatsApp is pre-installed on a large base of handsets also implies that distribution of rival apps is not made more difficult by potential barriers created by a "status quo bias".').

⁶⁴ *Google Android* (Case AT.40099) Commission Decision, paras 598-9.

will indeed become feasible, the most promising source may be a differentiated one which relies on a distinct distribution strategy or even technical architecture, such as web apps. Although such alternative channels may develop naturally as the smart mobile app market matures, it is hard to predict when such changes may occur and to what extent the OS developers would be able to counter such innovations.

The final competitive constraint considered in a market power assessment is **countervailing buying power**, which has not yet been extensively discussed in the context of digital platforms. However, in light of the intermediary function of app stores, it can be assumed that buying power is likely of limited relevance. In order for countervailing power to exist there must be proof of a powerful buyer that can constrain price increases by Apple or Google's app stores for the entire market.⁶⁵ This would require a credible alternative to these app stores to which an important buyer could switch, or otherwise a new entrant that would be sponsored by such a buyer. In the case of app stores, this is difficult to imagine due to the barriers to entry discussed above.⁶⁶ Furthermore, in practice most app developers do not offer more than a handful of apps, leaving them with limited leverage. Indeed, app stores generally facilitate interactions between consumers and a multitude of smaller rather than bigger players. In addition, many of the most successful apps such as Facebook (and its various properties) and TikTok are offered for free, so there are not many reasons for these players to have (price-related) quarrels with the app stores to begin with. In those instances where major app developers were not pleased with distribution through the app store, they turned to the OEMs for pre-installation or provided alternative sideloading routes solely for their own app rather than contemplating a new, alternative app store (see further under section 3.1).⁶⁷

In light of the above, and despite the dynamic nature of digital platform markets, it is difficult to see how the presumption or at least indication of dominance that the incumbent app stores display based on their high market can be rebutted in the near future.

3 THEORIES OF HARM IN THE APP ECONOMY

While the first stage of an abuse of dominance assessment—i.e. establishing market power—presents difficulties, one can at least rely on the EC's *Google Android* decision as a relevant precedent (although it is still under judicial review). When it comes to the abuse itself, however, no such guidance is available. Still, the developer community has raised many complaints of abuse—unofficially in the press as well as officially through complaints to competition authorities and (anonymously) in the context of market studies. While these allegations often only highlight one part of the story, they are a valuable starting point for our inquiry (section 3.1). Next, we examine to which extent these complaints fit existing theories of harm and whether new theories are called for (section 3.2). Afterwards, the (at times underexplored) other side of the story, i.e. to which extent the necessity of platform governance may justify seemingly anticompetitive conduct, is duly discussed (section 4).

⁶⁵ Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para 18.

⁶⁶ Amazon did try to turn its app into an app store, but had to pull its app from Google Play because Google changed its guidelines. This episode thus underlines that countervailing buyer power appears to be, if not inexistent, then at least ineffective. See Chris Burns, 'Amazon app kicked out from Google Play' (*Slash Gear*, 11 December 2014) <<https://www.slashgear.com/amazon-app-kicked-from-google-play-11359190/>>.

⁶⁷ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 50.

3.1 App store practices considered anticompetitive by the developer community

When it comes to the behaviour of app store operators (in particular Apple and Google), three main categories of concerns can be distinguished: self-preferencing conduct, commission fees and a lack of transparency.⁶⁸ Firstly, there is the aforementioned concern of **self-preferencing**, or how an app store may favour its own apps over those of independent suppliers. Such self-preferencing can take many forms, but a (not very binary) distinction can be made between technical and contractual self-preferencing.

Technical self-preferencing can be implemented by limiting the interoperability between independent apps and the mobile ecosystem, e.g. by not giving certain apps access to the applications programming interfaces (APIs) that govern the interaction between the app and the various hardware and software components of the ecosystem.⁶⁹ Apple, for example, does not grant app developers access to its Near Field Communication (NFC) chip, which allows for contactless communication between devices (necessary for digital wallet services), while its own Apple Pay app does make use of the NFC chip.⁷⁰ And, while you could ask Siri (Apple’s digital assistant) to play songs on Apple Music, you could not—until recently—ask her to play songs from competing music streaming services such as Spotify.⁷¹ Apart from the question of *access to APIs*, there is the question of *defaults within APIs*. When users are moving between various services on their device (e.g. clicking a website link in an e-mail), they are often redirected to the mobile ecosystem’s own apps rather than to alternatives they installed—a setting that consumers cannot always change.⁷² The apps of the mobile ecosystem operators are also given a head start by being pre-installed: Apple pre-installs its own apps on the iPhone; Google conditions the use

⁶⁸ See ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 74-100 and 106-8 [distinguishing ‘equal access to the end-user’/‘favouring own apps over apps from other providers’ (self-preferencing), ‘in-app purchases’ (commission fees) and ‘lack of transparency’]. See also Application Developers Alliance, ‘Competition in the mobile app ecosystem: global survey of 673 mobile app publishers and developers’ (Report) 2016; EC, ‘Business-to-Business relations in the online platform environment’ (Final Report) FWC ENTR/300/PP/2013/FC-WIFO, 17-48 (in particular the separate sections on app stores); Austrian Regulatory Authority, ‘The open internet: OS, apps and app stores’ (Report) 2019.

⁶⁹ The EC defines an API as ‘a particular set of rules and specifications that a software program follows in order to access and make use of the services and resources provided by another software program or hardware that also implements that API. In essence, APIs allow software programs and hardware, or different software programs, to communicate with each other.’ See *Google Android* (Case AT.40099) Commission Decision, paras 89-90.

⁷⁰ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 81-3. The EC appears to be probing this limitation, see ‘EU: Regulator looking into Apple Pay over antitrust concerns’ (*Competition Policy International*, 16 October 2019) <<https://www.competitionpolicyinternational.com/eu-regulator-looking-into-applepay-over-antitrust-concerns/>>. In Germany, legislators forced Apple to give developers access to its NFC chip, see Holger Hansen, ‘Apple warns of risks from German law to open up mobile payments’ (*Reuters*, 15 November 2019) <<https://www.reuters.com/article/us-apple-germany-apple-pay/apple-warns-of-risks-from-german-law-to-open-up-mobile-payments-idUSKBN1XP16M>>.

⁷¹ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 62 and 82. This non-interoperability was part of Spotify’s complaint, but has recently been adjusted, see <<https://www.timetoplayfair.com/timeline/>> (‘Apple, for the first time (and after years of unavailability), will allow Siri integration with Spotify, letting users on certain devices with iOS 13 control Spotify using their voice. However, you still can’t choose Spotify as the default music player.’).

⁷² ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 59-60. Defaults are also relevant *outside* of the device. When Swiss customers scanned a QR code, for example, Apple Pay would launch automatically. The Swiss competition authority closed its preliminary investigation when Apple offered a commitment to allow rivals to suppress Apple during their transactions. See COMCO, ‘Secretariat agrees with Apple about a TWINT-friendly solution’ (press release, 18 December 2018) <<https://www.weko.admin.ch/weko/en/home/latest-news/press-releases/nsb-news.msg-id-73448.html>>.

of the Play Store on the pre-installation of a number of apps (although the *Google Android* decision is bound to change that).⁷³ Many of the pre-installed apps cannot be deleted by users. Finally, through their control of technological architecture, the user interface and the ranking algorithms, the app store operators control how/which apps are shown to users, and they may use this control in favour of their own apps, e.g. by consistently placing their own apps at the top of search results.⁷⁴

Self-preferencing can also be implemented contractually, e.g. by imposing terms and conditions (T&Cs) on independent app developers which don't apply to the app store's own apps. Or, an app store can ban competing apps based on alleged non-compliance with developer guidelines. Various developers have complained, for example, that Apple rejected their payment app, ostensibly because of a conflict with developer guidelines (or even without explanation), but in reality because they would compete with Apple Pay.⁷⁵ Similarly, various developers of apps that allow parents to control the screen habits of their children (both in terms of content and duration) have complained that Apple started hindering or even removing their apps when Apple introduced its own alternative, Screen Time.⁷⁶ As an alternative to banning a competing app, an app store can put its commission fees at a level where even an equally efficient developer cannot profitably market its apps.

Secondly, the app stores' **commission fees** can become a concern in themselves (rather than because they exclude equally efficient developers from the market). Remember that the main app stores charge a 30% commission fee on each app sale and in-app purchase, including subscriptions.⁷⁷ There are certain nuances to this 30% fee, primarily that (i) it applies to purchases of and subscriptions to digital content, but not to in-app purchases of physical services such as an Uber ride or Airbnb stay; and (ii) it is lowered to 15% when subscriptions exceed one year.⁷⁸ While many app developers would like to

⁷³ *ibid.*, 84-5; *Google Android* (Case AT.40099) Commission Decision, Articles 1 and 3 (obliging Google to bring to an end 'the tying of the Google Search app with the Play Store' and the 'the tying of Google Chrome with the Play Store and the Google Search app').

⁷⁴ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 85. See also Jack Nicas and Keith Collins, 'How Apple's apps topped rivals in the App Store it controls' (*The New York Times*, 9 September 2019) <<https://www.nytimes.com/interactive/2019/09/09/technology/apple-app-store-competition.html>> and Tripp Mickle, 'Apple dominates App Store search results, thwarting competitors' (*The Wall Street Journal*, 23 July 2019) <<https://www.wsj.com/articles/apple-dominates-app-store-search-results-thwarting-competitors-11563897221>>. However, establishing that app store results are 'biased' means knowing what the optimal ranking of search results is—a difficult question that also played a role in *Google Search (Shopping)* (Case AT.39740) Commission Decision.

⁷⁵ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 79. The EC appears to be investigating these complaints, see 'EU: Regulator looking into Apple Pay over antitrust concerns' (*Competition Policy International*, 16 October 2019) <<https://www.competitionpolicyinternational.com/eu-regulator-looking-into-applepay-over-antitrust-concerns/>>.

⁷⁶ 'Qustodio & Kidslox file a complaint against Apple with the European Commission over abuse of dominant position' (*GlobeNewswire*, 30 April 2019) <<https://www.globenewswire.com/news-release/2019/04/30/1812192/0/en/Qustodio-Kidslox-File-a-Complaint-Against-Apple-with-the-European-Commission-over-Abuse-of-Dominant-Position.html>>; 'Kaspersky's antitrust complaint against Apple in Russia' (*Kaspersky Daily*, 8 August 2019) <<https://www.kaspersky.com/blog/apple-fas-complaint/26017/>>. After the complaints, Apple revised its policy, see Jack Nicas, 'Apple backs off crackdown on parental-control apps' (*The New York Times*, 3 June 2019) <<https://www.nytimes.com/2019/06/03/technology/apple-parental-control-apps.html>>.

⁷⁷ Apart from the exception for physical services as well as Google's exception for 'digital content that may be consumed outside of the app' (e.g. song downloads), Google is also said to enforce its app store billing policy less strictly than Apple.

⁷⁸ In addition, Google allows developers to bill customers outside of the app for 'digital content that may be consumed outside of the app itself (e.g. songs that can be played on other music players)'. See Google Play Developer Content Policy, section 'Monetization and Ads – Payments'. Apple does have an exception for 'previously purchased

avoid this commission fee, especially when it comes to in-app purchases, the app stores' rules do not allow this: transactions within an app must go through In-App Purchase (IAP) or Google Play Billing, the respective billing systems of Apple and Google.⁷⁹ App developers are not allowed to circumvent this obligation by including 'buttons, external links, or other calls to action that direct customers to purchasing mechanisms other than in-app purchase.'⁸⁰

Given the level of commissions, app developers find the prohibition to use external payment options unfair, all the more so because it is enforced inconsistently.⁸¹ Within iOS, some prominent apps—including Netflix, Amazon's Kindle, and Google's YouTube TV—have simply disabled IAP, making it impossible for consumers to subscribe/purchase within the app.⁸² Within Android, where alternative distribution channels are more feasible, some of the more popular developers have tried to bypass app stores altogether. Epic Games removed its app Fortnite from the Play Store, opting instead to let users sideload its app—a more onerous process with various drawbacks.⁸³ However, Epic subsequently returned to the Play Store, holding it was forced to do so because '[n]ew efforts such as Google Play Protect outright block software obtained outside the Google Play store.'⁸⁴ Interestingly, while Epic was ultimately unable to challenge mobile app distribution, it was able to disrupt pc game distribution by launching its own marketplace with a 12% commission fee, which put significant pressure on the 30% commission fee charged by the incumbent Valve (Steam).⁸⁵

Thirdly, and underlying many other concerns, app stores can complicate the business of developers through a **lack of transparency**.⁸⁶ In case of the removal of an app, for example, the store operator

content or content subscriptions', but this exception only concerns access, not the purchase itself. See App Store Review Guidelines, section '3.1.3(a) Reader Apps'.

⁷⁹ App Store Review Guidelines, section '3.1.1 In-App Purchase' ('If you want to unlock features or functionality within your app (by way of example: subscriptions, in-game currencies, game levels, access to premium content, or unlocking a full version), you must use in-app purchase.');

Google Play Developer Content Policy, section 'Monetization and Ads – Payments' ('In-app purchases: Developers offering products within a game downloaded on Google Play or providing access to game content must use Google Play In-app Billing as the method of payment. Developers offering products within another category of app downloaded on Google Play must do the same.')

⁸⁰ App Store Review Guidelines, section '3.1.1 In-App Purchase'. While Google's billing policy is similar, 'in practice, the enforcement of Apple is stricter, and, as such, the complaints of app providers focus mostly on Apple', see ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 95.

⁸¹ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 92-3.

⁸² Brian Fung, 'The app-store war between Netflix and Apple is heating up' (*The Washington Post*, 4 January 2019) <<https://www.washingtonpost.com/technology/2019/01/04/app-store-war-between-netflix-apple-is-heating-up/>>; Dante D'Orazio, 'Amazon skirts Apple restrictions with updated Kindle iOS app' (*The Verge*, 30 July 2013) <<https://www.theverge.com/2013/7/30/4572170/amazon-finds-clever-way-around-apple-restrictions-with-kindle-ios-app>>; Chris Welch, 'YouTube TV will cancel subscriptions of customers using Apple's in-app payments in March' (*The Verge*, 13 February 2020) <<https://www.theverge.com/2020/2/13/21136730/youtube-tv-ending-apple-app-store-in-app-subscription>>.

⁸³ Nick Statt, 'Fortnite for Android will ditch Google Play Store for Epic's website' (*The Verge*, 3 August 2018) <<https://www.theverge.com/2018/8/3/17645982/epic-games-fortnite-android-version-bypass-google-play-store>>. One drawback is that users cannot easily update the app. For an assessment of the economic pros (no commission fee) and cons (decreased demand) of this move, see ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 47-9.

⁸⁴ 'Fortnite reluctantly comes to Google Play store' (*BBC*, 22 April 2020) <<https://www.bbc.com/news/technology-52383286>>.

⁸⁵ Nick Statt, 'Why Epic's new PC game store is the Steam competitor the industry needed' (*The Verge*, 7 December 2018) <<https://www.theverge.com/2018/12/7/18129563/epic-games-store-fortnite-valve-steam-competition-pc-gaming-distribution>>. For another example of a game store disrupting established commission fees, see 'Why not 90/10?' (*Medium – Discord Blog*, 14 December 2018) <<https://blog.discord.com/why-not-90-10-3761ebef4eab>>.

⁸⁶ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 96-8.

could refer to non-compliance with ‘developer guidelines’ or one of its broad sections, rather than stating specific reasons.⁸⁷ Moreover, the guidelines leave ample room for interpretation and can be changed at any time, which means that app stores have a wide discretion in removing apps.⁸⁸ Once an app has been removed, app developers find it difficult to contact the platform for more information.

Even when practices within the above three categories are implemented, many of them will not qualify as an abuse of dominance in the sense of Article 102 TFEU. Establishing an abuse requires proving that the legal test for a specific form of abuse is fulfilled. While a legal test often consists of a number of conditions, they generally boil down to: (i) a definition of potentially abusive conduct; (ii) a threshold of competitive harm—when this threshold is met, the defined conduct becomes abusive. We focus on the first step in this analysis, i.e. whether and how the conduct identified above fits within established definitions of abuse. Completing the legal test requires proving that the potentially abusive conduct engenders competitive harm (either to consumers or to the structure of competition), which implies demonstrating a certain probability of anticompetitive effects.⁸⁹ We mostly shy away from this second step in the analysis, given that ascertaining competitive harm requires proof that is unavailable (although on-going investigations will help remedy this gap).⁹⁰ Finally, even when *prima facie* anticompetitive, it bears repeating that these practices may be justified by the need for platform governance. However, because some of these practices do merit further scrutiny, we present a preliminary framework for analysis (while remaining largely agnostic as to its application, which requires a case-by-case assessment).

3.2 Legal analysis of potentially anticompetitive practices: *Spotify v Apple* as a case study

Previous research on app stores, such as the ACM’s market study, has chosen ‘not to place potentially problematic conduct in a specific legal framework’.⁹¹ Here, we do take the first steps in doing so. The

⁸⁷ Apple is said to give more specific information regarding app rejections than Google, see *ibid*.

⁸⁸ Amazon has stated it had to take its app (store) down after a change in Google’s developer guidelines, see Michael Rougeau and Matt Hanson, ‘Amazon explains why its app was kicked from Google Play’ (*Techradar*, 12 December 2014) <<https://www.techradar.com/news/software/applications/amazon-tried-and-failed-to-sneak-its-own-app-store-onto-google-play-1276738>>.

⁸⁹ See extensively Pablo Ibáñez Colomo, ‘Anticompetitive effects in EU competition law’ (2020) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3599407>.

⁹⁰ One of the few examples of empirical research on the operation of app stores was conducted by Wen and Zhu, who studied what happens when Google threatens to enter/actually enters into competition with app developers. Their conclusions are mixed: on the one hand, ‘affected developers reduce innovation and raise the prices for the affected apps’; on the other hand, ‘their incentives to innovate are not completely suppressed’—rather, ‘they shift innovation to unaffected and new apps.’ However, their conclusions appear to apply mainly to smaller apps (which offer, e.g., flashlight or screen dimming functionality) and to a lesser extent to larger apps that require more investment and where product differentiation plays a greater role (e.g. music or video streaming apps). Indeed, the authors find that, under entry threat, popular app developers—unlike average ones—expand their efforts, which they attribute to the desire to be acquired by Google. See Wen Wen and Feng Zhu, ‘Threat of platform-owner entry and complementor responses? Evidence from the mobile app market’ (2019) *Strategic Management Journal* 1336. Kang has examined Apple and Google’s entry into health and fitness apps, finding that such entry decreases downloads of competing apps in case of Apple but increases them in case of Google. She attributes this difference to the more closed nature of Apple’s ecosystem. However, the study is not very instructive as to the effect on consumers. See Hye Kang, ‘Intra-platform envelopment: the cooperative dynamics between the platform owner and complementors’ (2017), available via <<https://pdfs.semanticscholar.org/0dc3/ad6dd8fa88b99ff696cc41475040415d9620.pdf>>.

⁹¹ Henk Don, Michiel Van Dijk and Femke Nagelhoud–De Jong, ‘Taking stock of app stores’ (2019) 47 *InterMEDIA* 33, 34.

relevant framework is Article 102 TFEU, which prohibits abusing a dominant position, whether that abuse is exclusionary (foreclosing competitors) or exploitative (directly harming customers). Forms of abuse such as refusal to supply, margin squeeze, tying, predatory pricing, and perhaps even self-preferencing fit under the former heading, while exploitative abuse usually consists in the imposition of unfair terms and conditions, including excessive prices. However, this *summa divisio* is losing some of its relevance in the platform economy, where dominance cases regularly present a mix of both kinds of abuse.⁹²

To illustrate the application of the various theories of harm to app stores, we turn to the most consequential case on the operation of app stores, namely *Spotify v Apple*. Of course, it is too early to speak of a ‘case’, as the EC (and apparently the ACM) have only recently started investigating the potentially anticompetitive conduct of Apple vis-à-vis Spotify.⁹³ But since Spotify’s complaint encapsulates most of the potentially anticompetitive practices surveyed above (from self-preferencing over commission fees to a lack of transparency), it presents an ideal opportunity to keep our analysis of app stores grounded in reality.⁹⁴ The complaint can be broken down as follows.⁹⁵

Commission fees. Apple imposes a 30% commission fee (or in Spotify’s words, ‘tax’) on music streaming subscriptions through its App Store. This fee is considered discriminatory, as Apple Music does not have to pay it (neither does Uber, for example). Moreover, Spotify is not in any way allowed to direct users to its website in order to avoid the fee. This leaves Spotify with two choices: either use Apple’s IAP and pay a 30% fee, or disable IAP and make it a lot more difficult for iPhone users to subscribe to Spotify. Spotify chose the second route in May 2016.

Equal access. Apple has a history of tightening its app guidelines and (re-)interprets them to disadvantage rivals, which has led to delays and even rejections of updates to the Spotify app. Spotify has been limited in the ways it can communicate with its users through the app. For example, it was prohibited from promoting a low-cost three-month trial—while Apple Music does hold similar promotions. Further, Apple does not allow for integration between Spotify and Siri (its voice assistant) and HomePod (its smart speaker), meaning that iPhone/HomePod users cannot ask their devices to play Spotify.⁹⁶ After the launch of the complaint, Apple has started allowing Spotify-Siri integration, but Apple Music remains the (unchangeable) default option.

⁹² See e.g. Bundeskartellamt, Case B6-22/16, *Facebook*, 15 February 2019 and Bundeskartellamt, Case B2-88/18, *Amazon*, 17 July 2019 (while the case mainly concerned allegations of exploitative abuse, ‘[a]llegations regarding the cancellation and blocking of seller accounts, rights of use and parity requirements, product reviews and seller ratings or European delivery schemes were i.a. reviewed under exclusionary abuse considerations’).

⁹³ In the U.S., the FTC also started examining Apple’s conduct, but the probe appears to have stalled. See Diane Bartz and Julia Love, ‘FTC exploring Apple rules for streaming music rivals in App Store’ (*Reuters*, 10 July 2015) <<https://www.reuters.com/article/us-apple-music-antitrust-idUSKCN0PL03O20150711>>.

⁹⁴ Moreover, given the specific characteristics of music streaming (e.g. low or negative margins), Spotify’s complaint may present one of the stronger cases against some categories of app store conduct (in particular self-preferencing and the level of commission fees).

⁹⁵ The various actions making up the conduct complained of are set out in the ‘Timeline’ and ‘Fast Facts’ sections of Spotify’s ‘Time to Play Fair’ microwebsite <<https://www.timetoplayfair.com/>>. For a first discussion, see Friso Bostoën, ‘Spotify lodges antitrust complaint against Apple: it’s “time to play fair” in the music streaming industry’ (*CoRe Blog*, 24 April 2019) <<https://coreblog.lexxion.eu/spotify-apple/>>.

⁹⁶ An additional complaint regarding interoperability is that Apple has prohibited use of its API to recommend podcasts to users.

In sum, Spotify argues that Apple interferes with the competitive process, as the various restrictions of its app ‘deny consumers true *choice*’.⁹⁷ As Apple does not compete on a ‘level playing field’, other services do not ‘get a fair chance to succeed’, which ‘limit[s] creativity and *innovation*’.⁹⁸ Spotify’s argument is thus not based primarily on price, but rather on consumer choice and innovation—parameters of competition that are equally important but much more difficult to measure.⁹⁹ Therefore, it will be challenging for the EC to determine the extent to which consumers are being harmed. The different forms of abuse and their respective legal tests are a guide in this regard: as noted *supra* (section 3), the form of abuse determines which kind of anticompetitive effects the EC needs to prove.

3.2.1 *Discriminatory leveraging*

As its reference to a ‘level playing field’ indicates, Spotify’s complaint is essentially about the differentiated way in which Apple treats the music streaming service in comparison to its own Apple Music. Although the term is a bit more loaded, such ‘differentiated treatment’ can be described in one world as ‘discrimination’.¹⁰⁰ While the ‘discrimination’ terminology focuses on the object of the action (Spotify), ‘self-preferencing’ puts the spotlight on the subject (Apple). Allegations of self-preferencing are abundant beyond *Spotify v Apple*. Under section 3.1, we highlighted self-preferencing complaints of the broader developer community, but the issue is not limited to app stores. In fact, a great deal of the complaints regarding anticompetitive practices by online platforms now relate to self-preferencing conduct in some way.¹⁰¹ The question is whether such self-preferencing can be abusive in the sense of Article 102 TFEU, and if so, under which conditions.

Instances of self-preferencing almost invariably fit the label of ‘leveraging’, which—according to the US Supreme Court—occurs when ‘a seller exploits his dominant position in one market to expand his empire into the next.’¹⁰² Others have similarly defined leveraging as an undertaking ‘with a substantial degree of market power in one market engaging in anticompetitive practices with the aim of extending its market power into another market.’¹⁰³ In line with these definitions, the idea of self-preferencing is that a platform uses its control over its platform to give its downstream operations an advantage over competitors in that space. However, the question remains if and when this constitutes an abuse.

⁹⁷ Spotify, ‘Time to Play Fair – The Case’ <<https://www.timetoplayfair.com/the-case/>> (own emphasis).

⁹⁸ Spotify ‘Time to Play Fair – Frequently Asked Questions’ <<https://www.timetoplayfair.com/frequently-asked-questions/>> (own emphasis).

⁹⁹ Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para 5 (‘Consumers benefit from competition through lower prices, better quality and a wider choice of new or improved goods and services’).

¹⁰⁰ One could argue that the ‘discrimination’ terminology presupposes that the services treated differently are equivalent, which appears to be the case in *Spotify v Apple*. Using both the ‘discrimination’ and ‘self-preferencing’ terminology, see Autorita’ Garante della Concorrenza e del Mercato: ‘Amazon: investigation launched on possible abuse of a dominant position in online marketplaces and logistic services’ (press release, 16 April 2019) <<https://en.agcm.it/en/media/press-releases/2019/4/Amazon-investigation-launched-on-possible-abuse-of-a-dominant-position-in-online-marketplaces-and-logistic-services>>.

¹⁰¹ For an overview, see Patrick Todd, ‘Digital platforms and the leverage problem’ (2019) 98 *Nebraska Law Review* 486, 496-504.

¹⁰² *Times-Picayune Pub. Co. v. United States*, 345 U.S. 594, 611 (1953).

¹⁰³ Pietro Crocioni, ‘Leveraging of market power in emerging markets: a review of cases, literature, and a suggested framework’ (2007) 4 *Journal of Competition Law & Economics* 449, 449.

In *Google Shopping*, the EC fined Google for ‘leverag[ing] its market dominance in general internet search into a separate market, comparison shopping’ by positioning, in its general search results pages, its own comparison shopping service more favourably compared to competing comparison shopping services.¹⁰⁴ The EC explained that

*conduct consisting in the use of a dominant position on one market to extend that dominant position to one or more adjacent markets ... constitutes a well-established, independent, form of abuse falling outside the scope of competition on the merits.*¹⁰⁵

The EC thus presented Google’s conduct as a ‘well-established’ form of abuse, i.e. leveraging. Others strongly disagreed, instead criticizing the decision as ‘unprecedented’.¹⁰⁶ The reason for this disagreement is that leveraging is generally not considered an independent *form* of abuse, but rather a *category* of abuse.¹⁰⁷ In other words, leveraging is not considered an abuse in itself, but rather a container term for a number of other forms of abuse including refusal to supply, margin squeeze, tying, and certain instances of price discrimination. The EC’s struggle with this distinction is also apparent in its reference to judgments supporting the independent nature of leveraging: on the one hand, they do contain statements to the effect that leveraging can be abusive; on the other hand, the judgments also identify specific forms of abuse, namely refusal to supply (*Télémarketing*¹⁰⁸, *Microsoft I*¹⁰⁹), margin squeeze (*TeliaSonera*¹¹⁰), tying (*Tetra Pak*¹¹¹, *Microsoft I*¹¹²), or discriminatory rebates (*Irish Sugar*¹¹³).

Thus, the EC effectively elevated leveraging from a *category* of abuse to a *form* of abuse.¹¹⁴ This is not a problem in itself: given that Article 102 TFEU only puts forward a non-exhaustive list of abusive

¹⁰⁴ EC, ‘Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service’ (Factsheet, 27 June 2017) MEMO/17/1785.

¹⁰⁵ *Google Search (Shopping)* (Case AT.39740) Commission Decision, para 649. Commissioner Vestager confirmed that *Google Shopping* can serve ‘as a framework to analyse the legality of such conduct’ in the future, see ‘Commissioner Vestager on Commission decision to fine Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service’ (statement, 27 June 2017) STATEMENT/17/1806.

¹⁰⁶ See e.g. Alfonso Lamadrid, ‘Google Shopping Decision – First Urgent Comments’ (*Chillin’ Competition*, 27 June 2017) <<https://chillingcompetition.com/2017/06/27/google-shopping-decision-first-urgent-comments/>> (‘From a legal standpoint, this case is *unprecedented*; there has never been a case like this, in Europe or anywhere else’), and Bo Vesterdorf and Kyriokos Fountoukakos, ‘An appraisal of the remedy in the Commission’s *Google Search (Shopping)* decision and a guide to its interpretation in light of an analytical reading of the case law’ (2018) 9 *Journal of European Competition Law & Practice* 3, 3 (‘Many aspects of the Commission’s case have been the subject of intense debate, not least the Commission’s novel and *unprecedented* theory of harm of “favouring”’) (emphasis added twice).

¹⁰⁷ See Robert O’Donoghue and Jorge Padilla, *The law and economics of Article 102 TFEU* (Hart Publishing 2013), 153; Giorgio Monti, *EC Competition Law* (Cambridge University Press 2007), 186-95; Pietro Crocioni, ‘Leveraging of market power in emerging markets: a review of cases, literature, and a suggested framework’ (2007) 4 *Journal of Competition Law & Economics* 449, 454 (‘The term leveraging of market power refers to a wide range of anticompetitive behaviors or activities undertaken by a firm aiming at protecting or expanding its market power.’); Patrick Todd, ‘Digital platforms and the leverage problem’ (2019) 98 *Nebraska Law Review* 486, 489 (‘Importantly, leverage is not a standalone theory of abuse in antitrust law. It is better thought of as a *category* that encompasses numerous legal theories of harm’).

¹⁰⁸ Case 311/84 *Centre belge d’études de marché - Télémarketing (CBEM) v Compagnie luxembourgeoise de télédiffusion (CLT) and Information publicité Benelux (IPB)* EU:C:1985:394 [1985] ECR 3261.

¹⁰⁹ Case T-201/04 *Microsoft v Commission* EU:T:2007:289 [2007] ECR II-3601.

¹¹⁰ Case C-52/09 *Konkurrensverket v TeliaSonera Sverige AB* EU:C:2011:83 [2011] I-527.

¹¹¹ Case C-333/94 P *Tetra Pak v Commission* EU:C:1996:436 [1996] ECR I-5951.

¹¹² Case T-201/04 *Microsoft v Commission* EU:T:2007:289 [2007] ECR II-3601.

¹¹³ Case T-228/97 *Irish Sugar plc v Commission* EU:T:1999:246 [1999] ECR II-2969.

¹¹⁴ Somewhat confusingly, the EC argued in the General Court hearing of *Google Shopping* that its decision ‘explains why the practice constitutes a form of leveraging abuse’, see Case T-612/17 *Alphabet and Google v Commission* Report

practices, the EC is free to qualify additional practices as abusive.¹¹⁵ If it were not, competition law would be static. In doing so, however, the EC must take care to respect legal certainty.¹¹⁶ It does so to a certain extent through the legal test it puts forward. Firstly, the chosen definition of leveraging has long permeated the case law, even if only as a container term. Secondly, as a threshold for competitive harm, the EC determines that the conduct must be ‘capable of having, or likely to have, anti-competitive effects’¹¹⁷—the standard effects test in abuse cases.¹¹⁸ As has been noted: ‘Perhaps the primary objection to the decision ... is how it refuses to engage with its own novelty.’¹¹⁹ The General Court will undoubtedly deepen that engagement.¹²⁰ Until then, however, a general theory of leveraging is not the safest theory of harm to address self-preferencing conduct by app stores. At the same time, due to its breadth, many of the allegations in *Spotify v Apple* (those relating to both commission fees and equal access) do fit the definition of leveraging. The discussion then shifts to the presence of anticompetitive effects.

A perhaps more specific fit for self-preferencing conduct is found in Article 102(c) TFEU, which prohibits ‘applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage’—in other words, discrimination that leads to certain anticompetitive effects. The wording leaves room for doubt as to its applicability to discrimination by vertically integrated platforms: are the transactions between the App Store and Apple Music ‘equivalent’ to those with Spotify; does Apple Music even qualify as an ‘other trading party’?¹²¹ Despite these semantic difficulties, the European¹²² and national¹²³ courts have found that discrimination by a vertically integrated undertaking in favour of its own downstream operations/at the expense of downstream competitors can be abusive. The EC has been more explicit, holding that Article 102(c)

for the Hearing, para 322. This appears to contradict *Google Search (Shopping)* (Case AT.39740) Commission Decision, para 649 (excerpted above), in which the EC considers leveraging itself an independent form of abuse. In what follows, the EC decision rather than the GC hearing report is relied upon.

¹¹⁵ Case C-333/94 P *Tetra Pak v Commission* EU:C:1996:436 [1996] ECR I-5951, para 37.

¹¹⁶ See Renato Nazzini, ‘Unequal treatment by online platforms: a structured approach to the abuse test in *Google*’ (2016) Paper presented at the 11th Annual Conference of the GCLC, 22 p. (note that the paper was commissioned by Google).

¹¹⁷ *Google Search (Shopping)* (Case AT.39740) Commission Decision, paras 341, see also para 602.

¹¹⁸ See Pablo Ibáñez Colomo, ‘Legal tests in EU competition law: taxonomy and operation’ (2019) 10 *Journal of European Competition Law & Practice* 424.

¹¹⁹ Alison Jones, Brenda Sufirin and Niamh Dunne, *EU competition law: text, cases, and materials* (7th ed.) (Oxford University Press 2019), 533.

¹²⁰ See already the interesting arguments and discussion in Case T-612/17 *Google v Commission*, Hearing Report.

¹²¹ Inge Graef, ‘Differentiated treatment in platform-to-business relations’ (2019) *Yearbook of European Law* (pre-publication), 27 (‘transactions with a dominant undertaking’s downstream business are difficult to regard as equivalent to a transaction with a third party’); Pinar Akman, ‘The theory of abuse in *Google Search*: a positive and normative assessment under EU competition law’ (2017) *Journal of Law, Technology & Policy* 302, 330-1 (‘it appears difficult to argue that the prohibition can be applied to discrimination between one’s self and others’) (note that the paper was commissioned by Google).

¹²² See e.g. Case T-229/94 *Deutsche Bahn v Commission* EU:T:1997:155 [1997] ECR II-1689; Case C-242/95 *GT-Link v De Danske Statsbaner* EU:C:1997:376 [1997] ECR I-4449; Case T-228/97 *Irish Sugar plc v Commission* EU:T:1999:246 [1999] ECR II-2969; Case T-301/04, *Clearstream Banking and Clearstream International v Commission*, EU:T:2009:317 [2009] ECR II-3155. Moreover, most margin squeeze cases also imply a discrimination between the vertically integrated undertaking’s own downstream operations and competitors, which is very apparent in *Deutsche Bahn I and II* (Cases AT.39678 and AT.39731) Commission Decision, which concerns a margin squeeze implemented through discriminatory rebates.

¹²³ High Court of Justice, Case No. HC-2013-000090, *Streetmap.eu v Google*, 12 February 2016, para 54, qualifying the preferential display of Google Maps in Google search results as discrimination; *Gerechtshof Amsterdam*, Case C/13/528337, *VBO Makelaar v Funda Real Estate*, 26 May 2020.

TFEU covers discrimination whereby ‘the customer of the dominant firm is placed at a competitive disadvantage vis-à-vis the dominant firm itself.’¹²⁴ Scholarship has also qualified the provision as a ‘straightforward legal basis for a theory of abusive self-preferencing’.¹²⁵

Even should we accept that a platform’s downstream operation cannot be considered an ‘other trading party’, or that transactions between them cannot be considered ‘equivalent’ to those with independent suppliers, there may still be a case for discrimination. Firstly, the 30% commission fee is only charged for digital content consumed ‘within the app’, not for physical services consumed outside of it, although these are not necessarily equivalent. Secondly and more importantly, Apple has exempted certain ‘premium video entertainment apps’ from its commission fee, at least for individual purchases such as a movie download or tv show rental.¹²⁶ These providers are allowed to use external payment options and are further integrated with core Apple services. The program was able to draw Amazon Prime Video, which used to direct consumers to a browser to complete their purchase, fully back into Apple’s ecosystem.¹²⁷ Subscription streaming services such as Netflix, which—like Amazon—has disabled IAP, cannot benefit from the program, even though a case could be made that they offer equivalent services. Similarly, Apple has in the past exempted Microsoft from billing cloud storage purchases within the app.¹²⁸ A common factor between these exemptions appears to be the bargaining power of providers like Amazon and Microsoft.¹²⁹

When equivalent apps are treated differently, Article 102(c) TFEU still requires that one group suffers a ‘competitive disadvantage’. While proving that this threshold of competitive harm was met used to be ‘not very demanding’,¹³⁰ the recent *MEO* judgment has further clarified the notion.¹³¹ The ECJ held that discriminatory conduct must be ‘capable’ of distorting competition to fall under the prohibition of Article 102(c) TFEU.¹³² On the one hand, the mere presence of an immediate disadvantage does not prove such a capability.¹³³ On the other hand, it is not required that ‘proof be adduced of an actual, quantifiable deterioration in the competitive position of the business partners taken individually’.¹³⁴ Rather, the capability to distort competition must be established with regard for all circumstances, which may include ‘the possible existence of a strategy aiming to exclude from the

¹²⁴ *BdKEP/Deutsche Post* (Case COMP/38.745), para 93. See also *Deutsche Post* (Case COMP/C-1/36.915) Commission Decision [2001] OJ L331/40 and *German Electricity Wholesale Market and German Electricity Balancing Market* (Case COMP/39.388-389) Commission Decision.

¹²⁵ Nicolas Petit, ‘Theories of self-preferencing under article 102 TFEU: a reply to Bo Vesterdorf’ (2015), 3 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2592253>.

¹²⁶ Nick Statt, ‘Apple now lets some video streaming apps bypass the App Store cut’ (*The Verge*, 1 April 2020) <<https://www.theverge.com/2020/4/1/21203630/apple-amazon-prime-video-ios-app-store-cut-exempt-program-deal>>.

¹²⁷ Canal+ and Altice One also participate in the program.

¹²⁸ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 93.

¹²⁹ Apple also has contacts with Amazon and Microsoft on multiple markets, which exacerbates the bargaining power of those companies.

¹³⁰ Damien Geradin and Nicolas Petit, ‘Price discrimination under EC competition law: the need for a case-by-case approach’ (2005) GCLC Working Paper 07/05, 10.

¹³¹ Case C-525/16 *MEO – Serviços de Comunicações e Multimédia SA v Autoridade da Concorrência* EU:C:2018:270, referencing Case C-95/04 P *British Airways v Commission* EU:C:2007:166 [2007] ECR I-2331.

¹³² Case C-525/16 *MEO – Serviços de Comunicações e Multimédia SA v Autoridade da Concorrência* EU:C:2018:270, paras 26, 28 and 37.

¹³³ *ibid*, para 26.

¹³⁴ *ibid*, para 27.

downstream market one of its trade partners which is at least as efficient as its competitors'.¹³⁵ In particular, it may be relevant to examine the effect of the discrimination on the profitability of the undertaking concerned.¹³⁶

The anticompetitiveness threshold thus appears largely in line with the standard effects test that governs a variety of abuses, including margin squeeze (and, according to the EC, leveraging). While competition authorities and courts have ample experience with this test, discrimination cases add the dimension of having to distinguish between legal advantages to downstream operations and illegal harm to downstream competitors.¹³⁷ However, such difficulty should not stand in the way of preventing competitive harm in the platform and app economy.

3.2.2 *Essential facilities*

The application of the essential facilities doctrine in the context of digital platforms has often focused on access to the (personal) data that these platforms accumulate through the participation of their users and business partners.¹³⁸ By contrast, the application of the essential facilities doctrine to with respect to access to the platform has rarely been discussed. This discrepancy in interest is not entirely unjustified as the proliferation of digital platforms makes meeting the legal criteria of the essential facility doctrine, as developed by EU courts, unlikely.¹³⁹ However, the removal or refusal of apps from Google Play/the App Store, as well as restricted interoperability with Apple's mobile ecosystems may fall in the refusal to supply category. A closer examination of the essential facilities doctrine as applied to platforms is thus called for. Such an examination raises a number of questions that need to be addressed if the essential facilities doctrine is to be considered in the context of digital markets.¹⁴⁰

The essential facilities test was developed through a series of cases before the EU courts,¹⁴¹ which indicate that a refusal is only abusive when the refusal (i) concerns an input that is indispensable for carrying out business on a related market; (ii) eliminates any effective competition on that market; and (iii) is not objectively justified.¹⁴² In addition, when the refusal concerns intellectual property, it must

¹³⁵ *ibid*, para 31.

¹³⁶ *ibid*, para 34 ('where the effect of a tariff differentiation on the costs borne by the operator which considers itself to be wronged, or on the profitability and profits of that operator, is not significant, it may, in some circumstances, be deduced that that tariff differentiation is not capable of having any effect on the competitive position of that operator').

¹³⁷ See e.g. *Gerechtshof Amsterdam, Case C/13/528337, VBO Makelaar v Funda Real Estate*, 26 May 2020, para 3.20. Margin squeeze case also face this challenge, but are facilitated by the standard application of the as-efficient-competitor test. Even though they are only an option in discrimination cases, they are a recommended tool.

¹³⁸ See e.g. German Monopolies Commission, 'Competition policy: the challenge of digital markets' (Special Report) 2015, 29-31; Inge Graef, Yuli Wahyuningtyas and Peggy Valcke, 'Assessing data access issues in online platforms' (2015) 39 *Telecommunications Policy* 375.

¹³⁹ The same could, however, be argued with regard to the proliferation of data.

¹⁴⁰ See Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, 'Competition policy for the digital era' (Special Advisers' Report) 2019, 98-109.

¹⁴¹ *Case C-6/73 Istituto Chemioterapico Italiano and Commercial Solvents v Commission* EU:C:1974:18 [1974] ECR 223, para 25; *C-311/84 CBEM v CLT and IPB* EU:C:1985:394 [1985] ECR 3261, paras 25-27; *Case C-7/97 Oscar Bronner* EU:C:1998:569 [1998] ECR I-7791, paras 41-47.

¹⁴² Similar criteria are described in the Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para. 81.

prevent the appearance of a new product¹⁴³ or at least limit technical development.¹⁴⁴ When dealing with such type of potential abuses, it is evident that the main hurdle to finding an abuse is concluding the concerned facility in the case is indeed indispensable for competition in a neighboring market. The *Oscar Bronner* judgment set a very high standard of proof for this indispensability criterion. According to the ECJ, ‘indispensability’ means that there is no substitute for the facility in question and it is impossible to replicate such a facility due to technical, legal or economic reasons under current market conditions.¹⁴⁵

When considering the removal or refusal of apps from the App Store, however, the indispensability criterion may be met due to the closed nature of Apple’s ecosystem (a ‘technical reason’, in the ECJ’s formulation). As iOS devices do not allow for the installation of other app stores, replicating such a facility is a pointless. Furthermore, there are few alternative routes to uploading apps on iOS devices and the routes that do exist are mostly restricted by Apple: the few consumers that have the technical aptitude to access them are prohibited from doing so, with a loss of warranty and tech support as a consequence of doing so anyway.¹⁴⁶ Therefore, it could be argued that the App Store does in fact constitute an essential facility for app developers which seek to offer their apps to consumers. Not being accepted to the App Store or being removed from it eliminates any chance to compete in the iOS app market. The only alternative that such developers have to reach consumers is to develop web apps that do not need to be installed.¹⁴⁷ Nevertheless, this option is also quite restricted due to multiple technical choices made by Apple such as not supporting Flash.¹⁴⁸ Moreover, even if technically feasible, web apps do not truly constitute an alternative since they force developers to provide a different kind of app that is technically inferior to regular apps.¹⁴⁹ In essence, the alternative for such developers is not to make apps at all but a rather different product, which would still not enable them to compete in the market for iOS apps. Therefore, the removal or refusal of apps from Apple’s App Store without an objective justification (see section 4), may constitute an abuse of dominance.

In contrast to the case of Apple, applying the refusal to supply criteria to the Google Play Store leads to a different result, since it appears that the Play Store is not indispensable to app developers in the sense of the EU case law. As indicated by the ACM in its market study and the EC in *Google Android*, there are indeed alternatives to the Google Play Store in the form of app stores as well as other technical means of uploading apps to Android devices such as side loading.¹⁵⁰ Therefore, Android app developers are less likely to be able to rely on the refusal to supply case law to challenge the refusal or removal of their apps from the Play Store.¹⁵¹

¹⁴³ Joined cases C-241/91 P and C-242/91 P *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v Commission* (*Magill*) EU:C:1995:98 [1995] ECR I-743, para 49-58; C-418/01 *IMS Health GmbH & Co. OHG v NDC Health GmbH & Co. KG*. EU:C:2004:257 [2004] ECR I-5039, para 38.

¹⁴⁴ Case T-201/04 *Microsoft v Commission* EU:T:2007:289 [2007] ECR II-3601, para 647.

¹⁴⁵ Case C-7/97 *Oscar Bronner* EU:C:1998:569 [1998] ECR I-7791, paras 42-46.

¹⁴⁶ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 46.

¹⁴⁷ See e.g. Appscope, an app store like directory for web apps, at <<https://appsco.pe/>>.

¹⁴⁸ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 43.

¹⁴⁹ *ibid*, 42-47.

¹⁵⁰ *ibid*, 45-47 and *Google Android* (Case AT.40099) Commission Decision, footnote 295 (on sideloading) and section 9.4.5 (on—barriers to entry to—the app store market).

¹⁵¹ However, this may change if alternatives are increasingly blocked off, which is what appears to be happening. On alternative app stores, see Natasha Lomas, ‘Aptoide, a Play Store rival, cries antitrust foul over Google hiding its app’ (*TechCrunch*, 4 June 2019) <<https://techcrunch.com/2019/06/04/aptoide-a-play-store-rival-cries-antitrust-foul-over-google-hiding-its-app/>> (Aptoide alleges that ‘Google Play Protect flags Aptoide as a harmful app, hiding it in users’

However, this different outcome—while perhaps legally sound—triggers the question whether a difference in treatment between the App Store and Google Play makes sense when examining the competitive reality. Even though Apple clearly presents the more closed system of the two, the prominence of each distribution channel in practice is not worlds apart: under current market definitions (see section 3.1), Apple has market share of virtually 100%, while Google’s market share is 90-100%.¹⁵² While other forms of app distribution are available within Android, most app developers and consumers do not turn to them. Furthermore, in terms of OS market share, Android holds approximately 80% where Apple has a market share of no more than 20%.¹⁵³ Although, iOS users are known for spending more on apps than Android users (see section 1), developers of free, advertising-supported apps may experience a removal from the Play Store as more damaging than that from App Store. The outcome in practice is the same, namely not being able to reach consumers, but in some cases the exposure that is being cut off may be greater. Yet, despite the—in some cases potentially greater—economic and innovative impact on app developers, their legal position in relation to the Play Store is far weaker due to the existence of alternatives that remain mostly theoretical. In such circumstances, it is fair to question whether the indispensability criteria in this theory can be interpreted in a manner that takes the commercial reality of a case better into account.

The foregoing has considered the application of the essential facilities doctrine to flat-out refusals or removals of apps from app stores. In addition, there are cases of restricted integration between apps and the smart mobile OS, which can often be traced to the OS developer not granting app developers access to APIs (see section 3.1). This is the kind of access that Spotify sought with regard to Apple’s voice assistant Siri, for example. We know from *Microsoft I* that interoperability information can constitute an essential facility.¹⁵⁴ In the case of Spotify, however, the essential facility doctrine does not appear to be of much help. Similarly to the App Store, Siri is also a facility held exclusively by Apple. It is also the only manner in which app developers can offer voice control functionality to iOS users. In this sense, it may be considered indispensable, although there are often alternatives to voice commands. In any case, not benefitting from full integration Siri’s voice functions is unlikely to eliminate competition in the app market, as it is simply an additional feature—not the core of the music streaming experience. That is not to say that restricted integration is competitively harmless. In the context of investigations into Apple’s conduct, it may still serve as evidence to corroborate the existence of an anticompetitive strategy that is pursued through a variety of practices that are on their own insufficient to constitute an abuse but in combination may be considered harmful.¹⁵⁵

A lack of interoperability can have more far-reaching consequences for developers who depend on it to provide the core of their service. This may be the case, for example, when it comes to the issue of

Android devices and requesting them to uninstall it’); on sideloading, see ‘Fortnite reluctantly comes to Google Play store’ (*BBC*, 22 April 2020) <<https://www.bbc.com/news/technology-52383286>> (Epic alleges that ‘[n]ew efforts such as Google Play Protect outright block software obtained outside the Google Play store.’).

¹⁵² *Google Android* (Case AT.40099) Commission Decision, paras 590-600.

¹⁵³ *Google Android* (Case AT.40099) Commission Decision, paras 500-21.

¹⁵⁴ In its first decision regarding Microsoft (confirmed on appeal), the EC found that Microsoft had illegally refused to supply Sun Microsystems with interoperability information (i.e. the information constituted an essential facility). See *Microsoft* (Case COMP/C-3/37.792) Commission Decision.

¹⁵⁵ *Google Search (Shopping)* (Case AT.39740) Commission Decision can be seen as an example of a case where it is the combination of multiple actions that lead to a finding of abuse rather than the mere refusal to grant (equal) access to the Google shopping tool to third-party comparison shopping services.

access to the NFC chip in iPhones (see section 3.1), which is necessary for developers to be able to offer digital wallet apps.¹⁵⁶ A less straightforward situation is that of Tile, an app that helps you keep track of valuable items by attaching small tiles to them. Once users give their permission, Tile has access to the iOS location services, which are necessary to provide the core of its service. However, a recent iOS update made giving permission more difficult, while also introducing prompts encouraging users to reconsider their permission.¹⁵⁷ In addition, Tile is not given access to the Ultra Wide Band technology integrated in new iPhones, which would enhance the tracking experience. While Tile can thus provide the core of its service, it is increasingly restricted in doing so, while Apple's own Find My app is not subject to these restrictions.¹⁵⁸ In such cases, the question is whether the conduct (as a whole) eliminates effective competition.

3.2.3 *Margin squeeze*

Margin squeeze,¹⁵⁹ an infringement of Article 102 TFEU, is defined as a situation where a vertically integrated, dominant undertaking charges 'a price for the product on the upstream market which, compared to the price it charges on the downstream market, does not allow even an equally efficient competitor to trade profitably in the downstream market on a lasting basis.'¹⁶⁰ In other words, an upstream operator forces its downstream competitor—who is just as efficient—off the market by squeezing its profit margins. This description aligns well with Spotify's allegations: Apple uses its control over the upstream App Store to levy a high commission fee, which depresses Spotify's profitability and competitiveness in the downstream music market.

While margin squeeze theory did not originate in the telecom sector (the first case concerned coal),¹⁶¹ it certainly developed into its current form in that context.¹⁶² During the liberalization of the European telecom sector, the EC complemented sector-specific regulation with competition law—in particular margin squeeze theory—to safeguard the access of (downstream) providers of telecom services to the (upstream) telecom network.¹⁶³ Despite this context, the ECJ has stated that margin squeeze

¹⁵⁶ Patrick McGee and Javier Espinoza, 'EU sets sights on Apple Pay over antitrust concerns' (*Financial Times*, 16 October 2019) <<https://www.ft.com/content/e65c9a76-f039-11e9-bfa4-b25f11f42901>>.

¹⁵⁷ Tile has taken its complaint to the EC, see Javier Espinoza, 'Apple accused of competition abuse over tracking apps' (*Financial Times*, 28 May 2020) <<https://www.ft.com/content/a08627c5-61d6-4513-9e7e-acac6b1ba862>>. For background, see House Committee on the Judiciary, 'Responses to Questions for the Record from Kristen Daru with Tile' (Online Platforms and Market Power, Part 5: Competitors in the Digital Economy, 17 January 2020), available via <<https://judiciary.house.gov/calendar/eventsingle.aspx?EventID=2386>>.

¹⁵⁸ Apple is also rumoured to be developing a 'a Tile-like Bluetooth tracking device' named 'AirTag', see 'AirTags: everything we know so far' (*MacRumors*, 18 May 2020) <<https://www.macrumors.com/guide/airtags/>>.

¹⁵⁹ One of the authors has previously written about the application of the margin squeeze framework to online multisided platforms including app stores, see Friso Bostoën, 'Online platforms and vertical integration: the return of margin squeeze' (2018) 6 *Journal of Antitrust Enforcement* 355. This section draws on that article, but adapts, updates and shortens it.

¹⁶⁰ Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para 80.

¹⁶¹ Case 109/75 R *National Carbonising v Commission* EU:C:1975:133 [1975] ECR 1193.

¹⁶² For an extensive overview, see Friso Bostoën, 'Margin squeeze: where competition law and sector regulation compete' (2017) 53 *Jura Falconis* 3, also available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2922633>.

¹⁶³ Zoltan Biro, George Houpis and Matt Hunt, 'Applying margin squeeze in telecommunications: some economic insights' (2011) 2 *Journal of European Competition Law & Practice* 588, 589-90; Damien Geradin and Robert

constitutes an independent form of abuse (distinct, in particular, from that of refusal to supply).¹⁶⁴ Beyond the requirement of market power in the upstream market, the ECJ has conditioned margin squeeze on fulfilling the as-efficient-competitor test¹⁶⁵ and finding that the conduct is capable of having anticompetitive effects on the downstream market.¹⁶⁶ Let us tentatively check whether the latter two conditions are met in our case study.

The first question is whether Spotify is an ‘as efficient competitor’—as efficient as Apple Music, that is; if not, it does not deserve protection under competition law (or at least its prohibition of margin squeeze). To ascertain if that is the case, the EC has to carry out the as-efficient-competitor test, which consists in ‘determining whether a competitor having the same cost structure as that of the downstream activity of the vertically integrated undertaking would be in a position to offer downstream services without incurring a loss if that vertically integrated undertaking had to pay the upstream access price charged to its competitors.’¹⁶⁷ In other words, this test establishes whether the vertically integrated dominant undertaking would have been able to offer its retail services to end-users profitably if it had first been obliged to pay its own wholesale prices.¹⁶⁸

Applied to *Spotify v Apple*, the question is thus Apple Music’s €10 subscription model be profitable if it had to pay its own commission fee of 30%.¹⁶⁹ If the answer is negative, Apple may be engaging in a margin squeeze. However, there is some difficulty in applying this profitability-based test to music streaming as the industry is not (very) profitable: Spotify has been making losses for years but is slowly moving towards profitability;¹⁷⁰ Apple does not report the financial results of Apple Music separately, but—certainly in comparison with Apple’s others product and services—it has definitely not been a profit booster. Although only estimates of Apple’s gross margin are available, it appears to be lower

O’Donoghue, ‘The concurrent application of competition law and regulation: the cases of margin squeeze abuses in the telecommunications sector’ (2005) 1 *Journal of Competition Law & Economics* 355, 360.

¹⁶⁴ Case C-52/09 *Konkurrensverket v TeliaSonera* EU:C:2011:83 [2011] ECR I-527, paras 54-9; Case T-336/07 *Telefónica v Commission* EU:T:2012:172, paras 180-2 and 184.

¹⁶⁵ Case C-280/08 P *Deutsche Telekom v Commission* EU:C:2010:603 [2010] ECR I-9555, paras 196-202; Case C-52/09 *Konkurrensverket v TeliaSonera* EU:C:2011:83 [2011] ECR I-527, paras 31-3; Case T-336/07 *Telefónica v Commission* EU:T:2012:172, para 194.

¹⁶⁶ Case C-280/08 P *Deutsche Telekom v Commission* EU:C:2010:603 [2010] ECR I-9555, paras 252-4 (‘capable of making market entry more difficult’ for competitors); Case C-52/09 *Konkurrensverket v TeliaSonera* EU:C:2011:83 [2011] ECR I-527, paras 60-74 (‘likely to hinder’ competitors/‘capable of having anti-competitive effects’; however, it is ‘sufficient to demonstrate that there is a potential anti-competitive effect which may exclude competitors who are at least as efficient as the dominant undertaking’); Case T-336/07 *Telefónica v Commission* EU:T:2012:172, paras 267-76 (‘capable of having, or likely to have [anticompetitive] effects’).

¹⁶⁷ Case T-336/07 *Telefónica v Commission* EU:T:2012:172, para 194.

¹⁶⁸ Case C-280/08 P *Deutsche Telekom v Commission* EU:C:2010:603 [2010] ECR I-9555, para 201; Case T-336/07 *Telefónica v Commission* EU:T:2012:172, para 194.

¹⁶⁹ Factoring in the long-term (>1 year) subscription rate of 15%, one would have to look at the average effective rate paid per user. If the average subscription duration is 3 years, this effective rate would be 20%.

¹⁷⁰ Spotify Technology S.A., Form 20-F Annual Report to the Securities and Exchange Commission for the fiscal year ended 31 December 2019, 5 available via <<https://investors.spotify.com/financials/default.aspx>> (showing significant operating losses in the years 2015-2019).

than Spotify's (15%¹⁷¹ vs 25%¹⁷²). This difference is likely explained by Apple's higher variable costs given that it pays artists significantly higher royalties than Spotify on a per-stream basis.¹⁷³

While the EC has to carry out a detailed assessment, it does not seem improbable that Spotify is as at least as efficient as Apple. Once this has been established, the EC must demonstrate that the conduct is capable of having anticompetitive effects on the downstream market. It can do so by showing that the pricing policy makes it more difficult for the as efficient competitor to trade on the downstream market,¹⁷⁴ e.g. through 'delayed prospect[s] of becoming profitable'¹⁷⁵—a measure that seems appropriate here, but that demands an in-depth assessment.

Finally, margin squeeze theory is interesting because it offers a clear remedy: the dominant firm has to adjust its upstream prices up to the point where its downstream division would be profitable if it were charged those prices.¹⁷⁶ Apple would thus have to lower its commission fee for music streaming services until Apple Music could pay it without making a loss. If one credits the above estimate of Apple Music's gross margins, this adapted commission fee would be closer to 15% than the current 30%.¹⁷⁷

Margin squeeze thus offers a well-established assessment framework for certain potentially anticompetitive conduct engaged in by online platforms and app stores in particular.¹⁷⁸ However, given

¹⁷¹ Apple Inc., Form 10-K Annual Report to the Securities and Exchange Commission for the fiscal year ended 28 September 2019, 21 available via <<https://investor.apple.com/sec-filings/default.aspx>>. Apple only reports the gross margin on its complete 'services' category, which include its app store, streaming services, AppleCare, licensing and other services. That gross margin hovers around 60%, but analysts put Apple Music's margin at around 15%. See Anne Steele and Tripp Mickle, 'Apple Music overtakes Spotify in paid U.S. subscribers' (*Wall Street Journal*, 5 April 2019) <<https://www.wsj.com/articles/apple-music-overtakes-spotify-in-u-s-subscribers-11554475924>> (Apple Music 'has a gross margin of roughly 15%, the lowest of any of Apple's services, according to RBC Capital Markets') and Evan Niu, 'Apple Music is boosting services revenue, but not profits' (*The Motley Fool*, 17 April 2018) <<https://www.fool.com/investing/2018/04/17/apple-music-is-boosting-services-revenue-but-not-p.aspx>> (reporting on the model of Macquarie Research analyst Ben Schachter, which puts Apple's gross margin at 15%).

¹⁷² Spotify Technology S.A., Form 20-F Annual Report to the Securities and Exchange Commission for the fiscal year ended 31 December 2019, 51.

¹⁷³ Daniel Sanchez, 'What streaming music services pay (updated for 2019)' (*Digital Music News*, 25 December 2018) <<https://www.digitalmusicnews.com/2018/12/25/streaming-music-services-pay-2019/>> (Apple pays \$0.00735 per stream while Spotify pays \$0.00437 per stream). Apple's fixed costs may, however, be lower due to the pre-existence of its iTunes infrastructure.

¹⁷⁴ Case C-280/08 P *Deutsche Telekom v Commission* EU:C:2010:603 [2010] ECR I-9555, paras 252-4; Case C-52/09 *Konkurrensverket v TeliaSonera* EU:C:2011:83 [2011] ECR I-527, paras 60-74. An anticompetitive effect is assumed when the wholesale price the undertaking charges to competitors is higher than the retail price it charges to end-users, but that is not the case here.

¹⁷⁵ Case T-336/07 *Telefónica v Commission* EU:T:2012:172, para 279; *Slovak Telekom* (Case AT.39523) Commission Decision, para 823.

¹⁷⁶ Alternatively, the vertically integrated undertaking can opt to increase its upstream prices. However, in the music streaming market—where there are numerous alternative services offered at €10/month—this option seems competitively unfeasible.

¹⁷⁷ A 15% commission fee already applies from the first year onwards (see section 3.1), but—through a margin squeeze remedy—would have to apply from day one.

¹⁷⁸ See earlier Friso Bostoen, 'Online platforms and vertical integration: the return of margin squeeze' (2018) 6 *Journal of Antitrust Enforcement* 355, supported by Niamh Dunne, 'OECD Roundtable on the implications of e-commerce for competition policy' (Background Note) DAF/COMP(2018)3, 35-6 (where 'an online marketplace competes at the retail level with third party retailers which access final consumers via its platform, this creates at least the *possibility* of margin squeeze') and Inge Graef, 'Differentiated treatment in platform-to-business relations: EU competition law and economic dependence' (2019) *Yearbook of European Law* (pre-publication), 30-2 ('It is particularly promising to analyse self-preferencing as a form of margin squeeze').

the current conception of the as-efficient-competitor test, it is only readily applicable to *price-based* conduct, which means it is only suitable for issues regarding commission fees.¹⁷⁹ For app store conduct of which the potentially exclusionary effect does not emanate from an upstream *price* (such as refusals/removals and interoperability complaints), the margin squeeze framework will have to be rethought fundamentally in order to be useful.

3.2.4 *Unfair terms and conditions, including excessive prices*

One of the main elements in Spotify's complaint against Apple concerns the commission fee of 30% (15% after one year), which is levied based on the monthly subscription price of Spotify Premium, at least when iOS users subscribe through Spotify's app (rather than its website). The complaint holds that this transaction fee is too high, which makes it difficult for Spotify to offer competitive prices to consumers, especially compared to Apple's own music streaming app, Apple Music. From a competition law perspective, one may thus ask whether Apple's commission fee is unfair in the sense of Article 102(a) TFEU, or more specifically, excessive.

Decisions or judgments on abuse of dominance through the imposition of excessive prices are a rare sight at the EU level. The leading case concerning excessive pricing is *United Brands*, in which the ECJ formulated the initial assessment criteria for this abuse.¹⁸⁰ According to the ECJ, a price is 'excessive because it has no reasonable relation to the economic value of the product supplied'.¹⁸¹ The economic value represents an accumulation of elements that varies from case to case,¹⁸² and represents a legal qualification rather than an economic benchmark. In *United Brands*, the ECJ operationalized its basic formula by adopting a two-pronged test: first, one has to determine 'whether the difference between the costs actually incurred and the price actually charged'—i.e. the profit margin—is excessive; second, if the profit margin is excessive, it must be established whether the price is unfair in itself or in comparison to the prices of competitors.¹⁸³ Regarding the first prong, however, the ECJ added that the profit margin is one way of showing the excessiveness of the price, but that there is no obligation to undertake this particular test¹⁸⁴—essentially, the choice of the methodology in a specific case is left to the discretion of economists.¹⁸⁵ The comparison in the second prong of the test can take many forms, but the reference price is often (i) the price charged by the company in different markets (where

¹⁷⁹ Adapting the as-efficient-competitor test to non-price-based conduct is a challenge that has not been taken on seriously yet.

¹⁸⁰ Case 27/76 *United Brands Company v Commission* EU:C:1978:22 [1978] ECR 207.

¹⁸¹ Case 27/76 *United Brands Company v Commission* EU:C:1978:22 [1978] ECR 207, para 250, recently confirmed in Case C-177/16 *Autortiesību un komunikācijas konsultāciju agentūra v Latvijas Autoru apvienība v Konkurences padome* EU:C:2017:689, para 35.

¹⁸² See e.g. *Attherraces Ltd & Anr v The British Horse Racing Board & Anr* [2007] EWCA Civ 38.

¹⁸³ Case 27/76 *United Brands Company v Commission* EU:C:1978:22 [1978] ECR 207, para 252. Adding the second prong to the test makes sense because a high profit margin may simply be the result of high efficiency/innovation, which competition law does not want to discourage. Note that the two prongs of the test are cumulative, see *Scandlines Sverige AB v Port of Helsingborg* (Case COMP/A.36.568/D3) Commission Decision, paras 85 and 147-9. The second prong, however, consists of two alternative criteria, see Case C-158/08 P *Isabella Scippacervola and Ioannis Trezakis v Commission* [2009] ECR I-46, para 47.

¹⁸⁴ Case 27/76 *United Brands Company v Commission* EU:C:1978:22 [1978] ECR 207, para 253.

¹⁸⁵ See Case C-177/16 *Autortiesību un komunikācijas konsultāciju agentūra v Latvijas Autoru apvienība v Konkurences padome* EU:C:2017:286 (AG Opinion), paras 43-46.

it does not have market power); (ii) the price charged by the company at a different point in time; and/or (iii) the price charged for comparable products by other companies in different markets.¹⁸⁶

Although the excessive pricing test may seem quite straightforward, its application in the case of multisided platforms is challenging, as one has to consider their specific economic characteristics. In the case of app stores, the most relevant characteristics to be included in the price analysis are indirect network effects and price skewness. The presence of positive indirect network effects in the context of app stores can be observed between consumers and app developers (see section 3.2). This demand interdependence between consumers and app developers means that app stores must adopt both a price level (the total to be paid by both parties) and a price structure (the division of this total over the parties), which helps to get all parties on board. In practice, this often leads to a skewed pricing structure where one side of the platform is partially or fully subsidized by the other side(s) of the platform.¹⁸⁷ In the case of app stores, the developer side covers the cost of running the app store, including the participation of consumers.¹⁸⁸ When assessing the potential excessiveness app store transaction fee, it is therefore important to fully consider this subsidy, which implies that app developers pay a fee that represents more than just the cost of enabling their participation in the app store. However, one could argue that it is not reasonable that one side continues to carry the costs of the platform (and a profit for the operator) in perpetuity. The assessment of excessive prices has to look further than the ratio between the net cost and profit margin of the platform as a whole. Such a simplistic approach could give platform operators *de facto* immunity from excessive pricing claims.

A reasonable approach to excessive pricing in such cases, and particularly in the case of Spotify, is to consider the nature of the indirect network effects. In the case of app stores, it is evident that developers are interested in getting access to a great number of consumers, so it is reasonable to assume that they would also be willing to finance the participation of the latter in the app store. Furthermore, the app store operator (Apple or Google) also provides developers with many tools and technical support to allow them to create apps to begin with. The costs involved in such activities are also reasonably passed on to app developers. However, not all app developers are treated the same as developers that offer their apps for free or allow for purchases of physical services (e.g. an Uber ride) do not cover any of these costs. Instead these costs are covered by a smaller section of app developers which offer their apps or in-app purchases of digital content for a fee.¹⁸⁹ This scenario is problematic since app developers are unlikely to be interested in the participation of other app developers in app store, or in any case certainly not as much as they are interested in having consumers participate on

¹⁸⁶ OECD Working Party No. 2 on Competition and Regulation, Excessive Prices (Contribution of the European Union) DAF/COMP/WP2/WD(2011)54, 11-2.

¹⁸⁷ See Rochet and Jean Tirole, 'Platform competition in two-sided markets' (2003) 1 Journal of the European Economics Association 990, 990-2 and 1013-7; Bernard Caillaud and Bruno Jullien, 'Chicken & egg: competition among intermediation service providers' (2003) 34 RAND Journal of Economics 309, 310; Jean-Charles Rochet and Jean Tirole, 'Two-sided markets: a progress report' (2006) 37 RAND Journal of Economics 645, 665.

¹⁸⁸ In addition, app store operators derive revenue from advertising. Moreover, app developers may pass on the commission fee imposed on them to consumers. While Spotify still used IAP, it actually did so, which lead to a subscription price on iOS of €12,99 instead of €9,99. Other music streaming services still do.

¹⁸⁹ 84% of apps obtained through the App Store share no revenue with Apple, see House Committee on the Judiciary, 'Apple Responses to Steube Questions for the Record' (Online Platforms and Market Power, Part 2: Innovation and Entrepreneurship, 16 July 2019), available via <<https://judiciary.house.gov/calendar/eventsingle.aspx?EventID=2258>>.

the app store.¹⁹⁰ Therefore, under the *United Brands* test, one could argue that the developers paying a 30% commission fee are subject to excessive pricing as part of this fee is used to finance the participation of other non-paying app developers. Since the latter costs are not part of the economic value of the service provided to paying app developers, these can be considered (at least in part) excessive.

An alternative to this more distributive approach to excessive pricing, which focuses on the economic value of services to different users, is a comparative approach. The most relevant point of comparison here is the price charged for similar services by different companies. However, when it comes to commission fees, other app stores seem to follow the lead of Apple and Google.¹⁹¹ One exception is Aptoide, which promises a maximum commission of 19%.¹⁹² However, the question remains whether Aptoide gives developers access to the same breadth of developer tools and APIs. A comparison could also be made with pc game stores, where the incumbent (Steam) also charges a 30% fee.¹⁹³ In contrast to app stores, however, this incumbent is meaningfully being challenged by a competitor (Epic) that charges 12% (see section 3.1).¹⁹⁴ Given the reluctance of competition authorities to engage in price regulation, such price differences—50% higher than Aptoide, 150% higher than Epic—are unlikely to form the basis of an excessive pricing case, especially when they may be explained (in part) by quality differences.¹⁹⁵

Article 102(a) TFEU does not only target excessive prices, but also other ‘unfair terms and conditions’. ECJ guidance on how to assess the unfairness of non-price terms and conditions is, however, scarce and rather antiquated.¹⁹⁶ The recent *Google Ads* decision by the French competition authority (FCA) does shed light on its possible application in the new economy.¹⁹⁷ Like app stores, Google Ads is a platform, although it connects advertisers rather than app developers with online consumers. Like app stores, this intermediation process is governed by a set of rules, which advertisers need to accept and respect at all times. Even though not respecting these rules can lead to serious consequences (e.g. suspension), the FCA found that they are drafted imprecisely, which gives Google broad discretion in their interpretation.¹⁹⁸ Moreover, the FCA considered that the rules are applied in a way that is both unpredictable and unfair (in particular, they discriminated between advertisers in comparable

¹⁹⁰ They can be said to be indirectly interested in the presence of other app developers, as a multitude of app developers helps drawing consumers to the app store.

¹⁹¹ See e.g. Samsung Galaxy Store Seller Portal, ‘Terms and conditions’, section 6 (30% commission fee) <<https://seller.samsungapps.com/help/termsAndConditions.as>>.

¹⁹² Aptoide, ‘Developers’ <<https://www.aptoide.com/developers>>. For the exact commission fee calculations, see Catapult, ‘Certified Developer Distribution Agreement’, section 4 and annex, available via <<https://catapult.io/distribution>>.

¹⁹³ If a game earns \$10 million in sales, the fee is reduced to 25%; if it earns \$50 million, the fee is further reduced to 20 percent.

¹⁹⁴ Similarly to Aptoide, however, Epic is said to provide developers with fewer tools.

¹⁹⁵ Quality does not only compass the availability of developer tools and APIs, but also the general governance of the store (and thus the presence of unsafe apps). For an interesting analysis arguing that Apple is actually just providing payment processing and related services, and other payment services thus constitute the right point of comparison, see Damien Geradin and Dimitrios Katsifis, ‘The antitrust case against the Apple App Store’ (2020), 18-26 and 34-8, available via <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3583029>.

¹⁹⁶ See e.g. Case C-127/73 *Belgische Radio en Televisie and société belge des auteurs, compositeurs et éditeurs v SABAM and Fonior* EU:C:1974:25 [1974] ECR 313 and Case 247/86 *Société alsacienne et lorraine de télécommunications et d’électronique (Alsatel) v Novasam* EU:C:1988:469 [1988] ECR 5987.

¹⁹⁷ Autorité de la concurrence, Décision n°19-D-26, *Gibmedia v Google*, 19 December 2019.

¹⁹⁸ Moreover, that interpretation changed over time.

situations). The FCA thus qualified them as ‘unfair terms and conditions’ under both EU and French competition law, and ordered Google to clarify the rules and duly notify advertisers of them.¹⁹⁹

Finally, national laws on unilateral conduct are allowed to be stricter than their EU counterpart²⁰⁰—a power that some Member States have used to adopt provisions prohibiting abuses of *relative* market power or economic dependence.²⁰¹ Based on such a law, the French government is currently pursuing a case against Apple for its ‘abusive commercial practices’, which likely include the level of commission fees.²⁰² As the standard of proof in these cases is lower, the odds of a positive decision are significantly higher; its consequences would accordingly be more minimal.

3.2.5 *Tying*

Lastly, Spotify’s complaint about Apple’s high fees can also be analyzed based on the strategy that enables Apple to charge such fees, namely some form of tying.²⁰³ Developers that wish to develop and offer their apps to iOS users must do so via the App Store. This relationship between access to OS operability and app distribution can be seen as a tie between iOS and the App Store. For apps that are offered for free or are designed to offer physical goods or services, this is the essence of Apple’s distribution obligation. For apps that offer in-app (premium) content or subscriptions, Apple’s adds another condition to the deal, namely the obligation to use Apple’s IAP system. By doing so, Apple is able to monitor all transactions between iOS users and app developers, which are then subjected to the 30% commission fee.

Observing the conditions imposed by Apple on app developers one could argue that such actions meet the criteria of tying or (pure) bundling in the context of EU competition law. The legal test for finding a tying abuse requires evidence that: (i) the undertaking has a dominant position in the tying market or the market of the bundle products; (ii) the undertaking must be tying or bundling (at least) two separate products; (iii) customers experience an element of coercion; (iv) the tie has a foreclosure effect; and (v) there is no objective justification for the practice.²⁰⁴

¹⁹⁹ On the legal qualification in particular, see Autorité de la concurrence, Décision n° 19-D-26, *Gibmedia v Google*, 19 December 2019, paras 345-53.

²⁰⁰ Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty [2003] L1/1, Article 3.2.

²⁰¹ See notably Article 20§2 of Germany’s Act against Restraints of Competition and Article L420-2(2) of the French Code of Commerce.

²⁰² See Malcolm Owen, ‘Apple denies French government’s “abusive commercial practices” accusation’ (*Apple Insider*, 15 March 2018) <<https://appleinsider.com/articles/18/03/15/apple-denies-french-governments-abusive-commercial-practices-accusation>>. The case shows a lot of parallels with an earlier case that the French government won (at first instance) against Amazon, see Tribunal de commerce de Paris, Case 2017050625, *Ministre de L’Economie et des Finances v Amazon*, 2 September 2019. For a discussion of the case in English, see Friso Bostoën, ‘Abuse of relative dominance in the platform economy: a French court finds Amazon’s contracts with third-party sellers significantly imbalanced’ (*CoRe Blog*, 12 November 2019) <<https://coreblog.lexxion.eu/amazon-case-france/>>.

²⁰³ For an analysis of Apple’s conduct as tying under US antitrust law, see Babu Kotapati, Simon Mutungi, Melissa Newham, Jeff Schroeder, Shili Shao and Melody Wang, ‘The antitrust case against Apple’ (2020) Digital Platform Theories of Harm Paper Series: Paper 2, 9-14, available via <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3606073>. Note that reduced/limited interoperability can also be assessed as a form of technical tying, see Damien Geradin and Dimitrios Katsifis, ‘The antitrust case against the Apple App Store’ (2020), 59-60.

²⁰⁴ Case T-201/04 *Microsoft v Commission* EU:T:2007:289 [2007] ECR II-3601, paras 850-69; Jonathan Faull and Ali Nikpay (eds), *The EU Law of Competition* (3rd ed.) (Oxford University Press 2014), 440-50.

Moving beyond dominance, discussed above (section 2.1),²⁰⁵ let us turn to the condition of separability. It can be maintained that iOS, the App Store and the IAP system are separate products tied or bundled together only by virtue of Apple's will. In the case of iOS and the App Store it is evident that the two are separate products each offering different functionalities and serving a different purpose. Furthermore, in light of the many complaints and demands for alternatives by *app developers* it is evident that there is independent demand for an independent iOS app store (the tied product).²⁰⁶ Such demand can be observed also with regard to *iOS users*, which go to extreme measures such as 'jailbreaking' their iOS mobile devices in order to bypass the App Store despite the negative consequences such actions have in terms of product warranty and security.²⁰⁷ Accordingly, if given the chance, a substantial number of app developers and iOS users would probably be happy to have additional outlets for their apps.

Similarly, it can be maintained that IAP constitutes a product separate from the App Store as the two are not technically interdependent nor do they have to be linked *per se* on the basis of commercial usage. When Apple's App Store was opened up for third-party developers in 2008, it happened without IAP, which was only introduced in 2009 for paid apps and applied to subscription-based apps (like Spotify) from 2011 onwards.²⁰⁸ Separate demand appears present as app developers prefer having more choice in the payment processing system used for their transactions. This demand has been (partly) met by alternative payment systems implemented by applications that facilitate transactions for physical products or services in Apple's App Store and Google's Play Store.²⁰⁹ Accordingly, there is not only evidence of separate demand but also supply for IAP alternatives.

It would appear that the main hurdle standing in the way of utilizing such separate payment solutions is Apple's demand to use IAP instead.²¹⁰ The strictness of Apple's ecosystem governance can then be seen as a form of coercion as there is simply no other feasible way for app developers to distribute their iOS apps other than complying with Apple's demand to use the App Store and IAP.

The potential competitive harm of this demand is in line with the concerns identified in economic literature, i.e. preventing or making more difficult entry in the market for the tied product.²¹¹ In the

²⁰⁵ For the time being it can be assumed that the matter of dominance by Apple and Google with regard to their respective ecosystem is unlikely to pose any difficulties given the EC's findings in *Google Android* as well the ACM's study. Accordingly, it can be assumed that Apple has a dominant position with regard to both iOS and the App Store.

²⁰⁶ The Commission's Guidance paper on Article 102 enforcement priorities, para 51 ('Whether the products will be considered by the Commission to be distinct depends on customer demand.').

²⁰⁷ See e.g. Zack Whittaker, 'Hackers release a new jailbreak that unlocks every iPhone' (*TechCrunch*, 24 May, 2020) covering the latest release of jailbreak software, which has been used by iPhone owners since the device's emergence <<https://techcrunch.com/2020/05/23/hackers-iphone-new-jailbreak/>>.

²⁰⁸ See Apple, 'Apple Launches Subscriptions on the App Store' (press release, 15 February 2011)

<<https://www.apple.com/newsroom/2011/02/15Apple-Launches-Subscriptions-on-the-App-Store/>>.

²⁰⁹ For an overview of currently available payment services, see The App Solution, 'How to integrate payment system into the existing app' <<https://theappsolutions.com/blog/development/payment-systems-for-the-app/>>. Aptoide's own billing system works with the cryptocurrency 'AppCoins', see AppCoins, 'Using Aptoide app to purchase in-app items with AppCoins' (Medium, 22 November 2017) <<https://medium.com/@appcoins/proof-of-concept-using-aptoide-app-to-purchase-in-app-items-with-appcoins-b3bd0e398ef8>>.

²¹⁰ App Store Review Guidelines, section '3.1.1 In-App Purchase'.

²¹¹ See Michael Whinston, 'Tying, foreclosure and exclusion' (1990) 80 *The American Economic Review* 837; Dennis Carlton and Michael Waldman, 'The strategic use of tying to preserve and create market power in evolving industries' (2002) 33 *The RAND Journal of Economics* 194.

case of tying the App Store to iOS, the practice can prevent entry in the tied market, i.e. that for iOS compatible app stores. This is particularly evident in this case since there is no way of bypassing the tie if an undertaking wants to enter the market for iOS app distribution due to the fact the Apple is also the ‘gatekeeper’ of the iOS ecosystem. By contrast, in the case of Google, which does not prohibit app distribution via other routes, alternative app stores like the Amazon app store can be used by both users and developers for their transactions.²¹²

The tying of the App Store and IAP for subscriptions and other paid applications comes with a similar concern for leveraging, which formed the initial basis for antitrust scrutiny in tying cases.²¹³ By adding this second layer of tying, Apple is able to leverage its market power from iOS to the market for iOS compatible app stores, where it is then able to charge (potentially) supra-competitive prices (see section 3.2.4), which in turn may also give rise to exclusionary concerns (see section 3.2.1-3.2.3). Furthermore, this tie also restricts competition among mobile payment services that would otherwise be more intense if developers (and users) would be able to choose their preferred payment method in the App Store.

What remains to be considered of course is whether such practices could be objectively justified under art. 102 TFEU (on which we expand in section 4). The tying of the App Store to iOS is likely to be countered by an argument of software security and user protection as these actions allow Apple to strictly monitor and filter any potential security threats. Establishing whether this argument suffices to legitimize these tying practices will require assessing whether these actions are proportionate to their aim and effect in practice. For now it is evident that this system works, as Apple is often praised (and even challenged by authorities) for its software security, which has become one of its selling points.²¹⁴ At the same time, when considering the proportionality of such actions, one cannot but ask: is Android so unsafe that a complete ban on compatible app stores or alternative distributions channels is strictly necessary? Google remedies security concerns through OS actions (e.g. flagging, hiding and suspending),²¹⁵ rather than by banning all alternative distribution channels for apps and thus interfering with competition on at least two markets.

Tying IAP to the App Store, on the other hand, allows Apple to reliably monitor and ‘tax’ the transactions made possible via the App Store in the most practical manner. It is unclear, however, to which extent imposing its payment system on app developers is necessary for Apple to monetize its App Store and proportionate to the competitive concerns it raises.

²¹² Due to the more open character of Android the Amazon App Store can be downloaded directly via the web browsers of smart mobile devices without having to go via the Play Store, from which this app was excluded. See the download link at <<https://www.amazon.com/gp/mas/get/amazonapp>>.

²¹³ See e.g. Ward Bowman, ‘Tying arrangements and the leverage problem’ (1957) 67 *Yale Law Journal* 19.

²¹⁴ See e.g. Rea Hodge, ‘iOS 13 vs. Android 10: Which OS is more secure?’ (*CNET*, 2 March 2020) <<https://www.cnet.com/news/ios-13-vs-android-10-which-os-is-more-secure/>>; Joseph Menn, ‘Apple dropped plan for encrypting backups after FBI complained’ (*Reuters*, 21 January 2020) <<https://www.reuters.com/article/us-apple-fbi-icloud-exclusive/exclusive-apple-dropped-plan-for-encrypting-backups-after-fbi-complained-sources-idUSKBN1ZK1CT>>.

²¹⁵ See e.g. Natasha Lomas, ‘Aptoid, a Play Store rival, cries antitrust foul over Google hiding its app’ (*TechCrunch*, 4 June 2019) <<https://techcrunch.com/2019/06/04/aptoide-a-play-store-rival-cries-antitrust-foul-over-google-hiding-its-app/>>.

3.3 Conclusion

Under the previous section, we examined in depth how various theories of harm can apply to the conduct of app stores that the developer community singles out as anticompetitive, i.e. self-preferencing behaviour, the level of commission fees, and lack of transparency.

In *Google Search*, the EC presented **self-preferencing** as an independent form of abuse (or at least an instance of the independent abuse of leveraging). The statement is questionable as a matter of positive law, and has yet to pass judicial review, but it could very well *become* positive law. The discrimination prohibition of Article 102(c) TFEU offers an alternative, more clearly defined and thus legally certain basis for the assessment of self-preferencing, although it remains untested in a platform (let alone app store) context. However, we have also shown that established theories of harm, in particular essential facilities and margin squeeze, may apply. Even though these forms of abuse are often (considered) confined to specific circumstances, the current constellation of the app economy leaves room for the fulfilment of their legal tests.

The **commission fees** charged for app distribution are undeniably high—accordingly, so are the profit margins of app stores.²¹⁶ This 30% fee undoubtedly constitutes the most difficult issue of the app economy. Firstly, only a small percentage of developers (16% in case of the App Store) actually pays this fee—and thus finances the operation of the app store. Secondly, the effect of the fee on the profitability of developers varies. While a music streaming app faces significant marginal costs, for example, a gaming app does not. It is no surprise, then, that music streaming apps (in particular Spotify), but also video streaming apps (e.g. Netflix and YouTube TV) have most strongly opposed the fee and disabled IAP.²¹⁷ Thirdly, it happens to be exactly those apps that compete with the app store operators' own apps (e.g. Apple Music and Apple TV+). While app store operators could long point to the fact that they treat all apps equally (at least in terms of commission fees), this too is starting to change (e.g. Amazon's deal discussed above). Some have put forward proposals based on all these variables. Phillip Shoemaker (who oversaw Apple's app approval process between 2009-2016), for example, suggests that Apple add the following provision to the developer guidelines: 'Apps that *directly compete* with Apple in *low margin* areas (specifically: news services, books, movies, music and cloud storage) may provide metadata or App functionality that includes an external link to learn more about purchase mechanisms.'²¹⁸ This exception to the App Store's anti-circumvention rule may indeed appease some of its most ardent critics, although it would also invite interpretation disputes (when it competition *direct* and when is a margin *low*?).

²¹⁶ See e.g. Apple Inc., Form 10-K Annual Report to the Securities and Exchange Commission for the fiscal year ended 28 September 2019, 21. Apple only reports the gross margin on its complete 'services' category, which include not only its app store but also streaming services, AppleCare, licensing and other services. That gross margin hovers around 60%, but analysts put the App Store's margin at around 90%, see e.g. Adam Levy, 'Apple's App Store revenue growth is accelerating' (*The Motley Fool*, 9 September 2019) <<https://www.fool.com/investing/2019/09/09/apples-app-store-revenue-growth-is-accelerating.aspx>>.

²¹⁷ Spotify's operating margin stood at -1% by the end of 2019; that of Netflix stood at 13% (see <<https://www.macrotrends.net/>>).

²¹⁸ Phillip Shoemaker, 'Apple v. everybody' (*Medium*, 29 March 2019) (own emphasis) <<https://medium.com/@phillipshoemaker/apple-v-everybody-5903039e3be>>.

In the absence of voluntary changes, some theories of harm (e.g. unfair terms and conditions, as well as margin squeeze) may apply. However, competition authorities are generally reluctant to rely on them given their (perceived) inability and related unwillingness to act as price regulators. Further, even the abuse of tying—which goes to the root of the commission fees, as they can only be maintained because of the app stores’ obligations to use their billing system—comes with difficulties. The remedy for this abuse would be to allow app developers to use external payment services. This choice between payment services would lead to lower prices (for app developers, and for consumers when the lower fees are passed on), which may in turn spur innovation in the app economy. However, they also come with inefficiencies. For example, centralized payment through a user’s Apple ID would be replaced by a multitude of payment services requiring credit card details. Further, while an external payment service could handle billing, app stores provide other services (secure distribution, including the technical infrastructure and the approval process). Would a separate distribution fee be charged, in addition to a billing fee by an independent payment service? Or would app stores have to compensate by increasing the price of their other sources of revenue (i.e. developer membership fees and in-store advertising)?

These many questions go to the heart of the app store business model, which one should be careful to tinker with. In case of Apple, where this is not yet the case, it could thus be argued that remedying commission fee complaints can be better achieved by untying the App Store from iOS for app distribution. By enabling the existence of iOS compatible app stores and/or direct downloads (or still other means of distribution), competing distribution routes with alternative financing models that may offer better terms for app developers (and users) could emerge. Accordingly, scrutinizing the ‘closedness’ of the iOS system is likelier to lead to a more competitive outcome than simply intervening in the fee charges of Apple, which it considers necessary to keep the App Store financially viable. Of course, such untying also implies tinkering with the app store business model, albeit primarily in terms of security rather than financially. Then again, no one is suggesting that Apple should grant every app and/or iOS compatible app store access to iOS given that a degree of exclusion is an inherent part of legitimate platform governance actions (see section 4). However, the necessity of exclusion in the general context of platforms may not go so far as to justify a complete ban on alternative distribution routes for apps.

In the end, high commission fees *and* a complete ban of alternative distribution methods appears unsustainable in the long-run (something Apple already recognized to some extent by lowering the commission fee on one-year-plus subscriptions). The balance is one between financial viability and security. Despite its push into services, Apple’s financial results are still heavily dependent on device sales, which means device security may take the upper hand over app store profits if it comes to it. In section 4, we delve deeper into financial viability and security.

A **lack of transparency**, e.g. when removing apps that conflict with developer guidelines, fits awkwardly within the EU competition law framework. As (part of) an exploitative abuse, such non-transparency does not generally constitute a priority, although the French competition authority’s *Google Ads* decision shows it can be qualified as such. More often, a lack of transparency obscures a potentially exclusionary abuse. This developer complaint is thus more likely to surface in the context of a broader investigation of exclusion. However, the recent Platform-to-Business Regulation, which

imposes a variety of transparency obligations, should at least in part obviate the need for such investigations (see section 5).

4 JUSTIFYING *PRIMA FACIE* ANTICOMPETITIVE CONDUCT: PLATFORM GOVERNANCE

The fact that app stores are embedded in an intricate layer cake of hardware and software has a flip side: not unlike biological ecosystems, mobile ecosystems are fragile. Unless managed carefully, there is a risk that unwelcome elements disrupt the ecosystem. While biological ecosystems need to be guarded against invasive species, mobile ecosystems—and platforms more generally—need to avoid the presence of too many low-quality or even dangerous actors (‘bad actors’). Such actors generate *negative*—rather than positive—indirect network effects; their presence makes the platform *less* attractive for users on the other side. In the presence of too many bad actors, users may start leaving the platform in droves as the positive feedback loop reverses into a death spiral.²¹⁹ While carefully managing its audience, platforms also need to ensure their financial viability by making sure every user contributes its fair share rather than free-riding.²²⁰

Platform operators must therefore manage their ecosystem as ‘private regulators’, limiting access to new users and interactions between existing users.²²¹ An analogy can be made with nightclubs, which need to maintain a door policy and collect entry fees; occasionally, they even need to kick drunken or rowdy guests out.²²² In the same sense, app stores need to charge commission fees and may sometimes need to refuse or remove low-quality or unsafe apps. In keeping with the nightclub analogy, David Evans terms this possibility (and sometimes necessity) for platforms to exclude bad actors a ‘Bouncer’s Right’.²²³ While the use of this bouncer’s right is often at the heart of complaints of anticompetitive app store conduct, the need for effective platform governance may provide a valid justification.

There are thus at least three justifications that platforms may offer for certain kinds of seemingly anticompetitive conduct: the need to ensure their financial viability, the need to ensure the quality of users, and the need to safeguard the security of their users.

Before we delve into each of these justifications in turn, let us stress that the justifications are no get out jail free cards. Firstly, the burden of proof lies on the dominant undertaking relying on the justification.²²⁴ Secondly, the dominant undertaking can justify its *prima facie* anticompetitive conduct

²¹⁹ Marshall Van Alstyne, Geoffrey Parker and Sangeet Choudary, ‘Pipelines, platforms, and the new rules of strategy’ (*Harvard Business Review*, April 2016) <<https://hbr.org/2016/04/pipelines-platforms-and-the-new-rules-of-strategy>>.

²²⁰ The free-rider argument is one of Apple’s defenses against Spotify’s allegations of anticompetitive conduct, see below.

²²¹ Kevin Boudreau and Andrei Hagiu, ‘Platforms rules: multi-sided platforms as regulators’ in Annabelle Gawer, *Platforms, markets and innovation* (Edward Elgar 2009), 163-191; Daniel Mândrescu, ‘Business users vs. platforms – a (not entirely) new battle frontier’ (*CoRe Blog*, 21 March 2019) <<https://coreblog.lexxion.eu/online-platform-governance-and-competition-law-a-not-entirely-new-battle-frontier/>> (‘Platform governance rules are key to the platforms’ existence and economic success.).

²²² See Hano Kaiser, ‘Are “closed systems” an antitrust problem?’ (2011) 7 *Competition Policy International* 91, 98.

²²³ David Evans, ‘Governing bad behavior by users of multi-sided platforms’ (2012) 27 *Berkeley Technology Law Journal* 1201.

²²⁴ Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, paras 28 and 31. Evans suggests shifting this burden proof as follows: If the platform can show it has an established governance system, the burden of proof shifts to the complainant to show that ‘that the governance system is not reasonably related to enforcement of the goals the governance mechanism is designed to achieve.’ If the complainant can’t ‘demonstrate that the practice is inconsistent

by demonstrating either its objective necessity or that it produces substantial efficiencies that outweigh any anticompetitive effects.²²⁵ While financial viability, quality of users and privacy fit better under the ‘efficiency’ heading, security may be qualified as an objective necessity. Thirdly, the justification—in particular the efficiency-based one—must fulfil conditions that mirror those of Article 101(3) TFEU, i.e. the efficiencies are conduct-specific, cannot be achieved by a less restrictive alternative (proportionality), outweigh any anticompetitive effects, and do not eliminate effective competition.²²⁶

Assessing the validity of a justification requires a fairly clear view of alternative business methods or even models (to check proportionality) and the magnitude of anticompetitive effects (to check whether they are outweighed), which we cannot—and do not aim to—give in this article. Rather, we present a framework for analysis. Note, finally, that ‘the two-stage analysis suggested by the distinction between abuse and its objective justification is ... somewhat artificial.’²²⁷ Therefore, some of the considerations that were central in assessing the abuse (in particular financial viability and security, see section 3.3) will return here in a slightly different form and more elaborately.

4.1 Financial viability of the platform

Disputes concerning the fees levied by digital platforms on their participants inevitably raise questions regarding the freedom of platform owners to make strategic business decisions—including on pricing—as they see fit. Although complaints about the level of fees charged should be taken seriously, so should the notion that nothing can be both truly free *and* financially viable. The facilitation of interactions between separate user groups by multisided platforms, such as app store, entails significant costs. In some cases, operating a platform requires deep pockets and a long-term strategy aimed at becoming the market leader (or last survivor).²²⁸ However, even aside from such extreme examples, platforms—like any other business—need to introduce pricing schemes which increase the demand for the service they provide while allowing them to conduct and grow their business. Maintaining and increasing the demand for their services requires platforms to bring on board two or more separate user groups that want to interact with each other—in case of app stores: developers and consumers. In order to be appealing to both groups, app stores must offer both groups an appealing service *and* price proposition. Platform pricing decisions are based on a complex combination of the price elasticity of each user group, the relative strength of indirect network effects

with the mitigation of negative externalities’, its claim should be rejected. If it can, a rule of reason analysis of the practice is carried out. See *ibid*, 1243-9.

²²⁵ See further Tjarda van der Vijver, ‘Objective justification and Article 102 TFEU’ (2012) 35 *World Competition* 55, 65-9.

²²⁶ Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para 30 and *ibid*, 69-75 (in particular on proportionality).

²²⁷ Case C-53/03 *Synetairismos Farmakopoiou Aitolias & Akarnanias (Syfait) v GlaxoSmithKline* EU:C:2004:673 [2005] ECR I-4609 (AG Opinion), para 72.

²²⁸ E.g. Uber’s platform business, despite its maturity and popularity, is still running at a loss and will continue to do so for the coming years while it relies on investor capital with the aim of becoming the leading/surviving platform in the market for transport services. See e.g. Ben Thompson, ‘Neither, and new: lessons from Uber and Vision Fund’ (*Stratechery*, 25 September 2019) <<https://stratechery.com/2019/neither-and-new-lessons-from-uber-and-vision-fund/>> (“The only way this company works is if it grows to a truly mammoth size such that it has sufficient gross margin to cover fixed costs”).

and the users' ability to multi-home.²²⁹ The skewed price structure that often results is indispensable to solve coordination problems between user groups, and thus for the very existence of platforms. In any case, no matter how skewed the pricing structure of the platform is, the price level needs to at least cover the costs incurred by the platform for providing its service (and a reasonable profit).

In the case of app stores, the pricing strategy resulted in a zero-priced offer for consumers and a transaction fee of 30% for app developers, which has yielded phenomenal results given the popularity of the App Store and Play Store among consumers and app developers. Challenging the price setting strategy of app stores is thus problematic, particularly if this entails making changes to their pricing *structure*: shifting some of the costs (and profits) currently covered by app developers to consumers runs the risk of driving them away from the app store, thus reversing the nature of the indirect network effect and driving the app store into a death spiral. Courts do not have the necessary expertise to mandate such changes; app stores can be considered in the best position to determine their prices. At the same time, there may be more flexibility in the price structure than Apple and Google currently offer developers. Just like app stores are not cost-free to run, neither are apps. Accordingly, even the apps that are offered for free on the app stores monetize their service one way or another (e.g. through advertising), meaning they are also able to cover some of the costs involved in running the app store (e.g. through a membership fee instead of a commission).²³⁰ Furthermore, to the extent that all the costs and reasonable profits of the app stores are covered by developers, the price *level* imposed by the app store should at all times be subject to renegotiation and adjustment.

The relation between commission fees and the financial viability of the platform raises another question, namely that of free-riding. In a platform context, free-riding implies making use of a platform without paying (enough) to support its operation. Free-riding arguments have surfaced in platform cases before: in the hotel booking cases, for example, a concern for free-riding justified imposing narrow most-favoured-nation clauses.²³¹ In response to Spotify's allegations of anticompetitive conduct, Apple has also made a free-riding argument. Specifically, Apple describes how it provides an app distribution platform, critical software development tools and a secure payment system, and accuses Spotify of 'seek[ing] to keep all the benefits of the App Store ecosystem ... without making any contributions to that marketplace.'²³² Spotify has anticipated this argument and maintains that it doesn't 'want a free ride, [just] a fair ride', which includes the possibility to use external payment

²²⁹ David Evans, 'The antitrust economics of multi-sided platform markets' (2003) 20 *Yale Journal on Regulation* 325, 343-7; Jean-Charles Rochet and Jean Tirole, 'Two-sided markets: a progress report' (2006) 37 *RAND Journal of Economics* 645, 658-60; Mark Armstrong, 'Competition in two-sided markets' (2006) 37 *RAND Journal of Economics* 668, 668-70; Mark Rysman, 'The economics of two-sided markets' (2009) 23 *Journal of Economic Perspectives* 125, 129-31.

²³⁰ Such a membership fee exists already (Apple's fee is \$99/year, while Google charges a one-time fee of \$25), but their level appears to be set too low to contribute significantly to the financial viability of the app store.

²³¹ In the case of hotel booking platforms, the fear was that consumers would visit the platform to see what is on offer, but would subsequently visit the hotels' own website book, thus avoiding the platform commission fee. It was therefore justified for hotel booking platforms to prohibit hotels from charging lower prices on their website, see *Bundeskartellamt, Case B9-66/10, HRS-Hotel Reservation Service*, 20 December 2013, paras 217-22; *Bundeskartellamt, Case B 9-121/13, Booking.com*, 23 December 2015, paras 286-98. For a discussion, see Friso Bostoën, 'Most favoured nation clauses: towards an assessment framework under EU competition law' (2017) 1 *European Competition and Regulatory Law Review* 223, 232.

²³² Apple, 'Addressing Spotify's claims' (Statement, 14 March 2019) <<https://www.apple.com/newsroom/2019/03/addressing-spotifys-claims/>>.

systems rather than IAP.²³³ If all Spotify subscribers on iOS would make use of that possibility, however, Spotify would no longer contribute to the App Store, which is not sustainable.

4.2 Quality of users on the platform

In its *Hilti* judgment, the General Court held that a dominant firm ‘may not argue that the allegedly dangerous nature or inferior quality of its competitors’ products intended to be used with a tool manufactured and sold by it justify abusive practices which seek to eliminate those products from the market in order to protect its commercial position.’²³⁴ The ‘tool’ here was a nail gun, and Hilti—accused of using its market power in the market for cartridge strips to exclude competitors in the adjacent nail market—justified its actions by referring to the inferior quality of competing nails. The Court did not accept this justification, as there are laws (e.g. on product liability) that solve this kind of issue.

Analogously, one could argue that platform operators should also not be the ones to decide who to exclude from their platform (i.e. that app stores should not have discretion in choosing which apps to refuse or remove). However, this analogy would be mistaken, as platforms differ in important respects from more traditional tools such as nail guns. Most importantly, one has to consider—once more—the multisided nature of app stores. The quality of the services provided by app stores is not only determined by their ability to get consumers and app developers to interact with each other; app stores must get the ‘right’ kind of consumers and app developers on board, prevent them from misbehaving, and balance their ratio, all the while improving the service they provide. Inevitably, ensuring the long-term health of the platform in this way requires refusing or later removing certain apps. In the absence of such actions, the platform’s reputation will suffer as *it*—rather than developers—is blamed for a sub-par selection of apps.²³⁵

Refusals and removals are carried out within the framework of the app stores’ governance rules, which are set out in extensive documents containing the dos and don’ts for developers.²³⁶ If the app store governance is not on point, the indirect network effects that helped the platform scale up may reverse and accelerate its fall rather than its rise. The difference between justified and anticompetitive exclusion lies in the underlying motive of such actions.²³⁷ Exclusion for the purpose of protecting

²³³ Spotify ‘Time to Play Fair – Frequently Asked Questions’ <<https://www.timetoplayfair.com/frequently-asked-questions/>>. Spotify continues that it isn’t ‘seeking special treatment, but the opportunity to compete on a level playing field’ and turns the tables by holding that the ‘App Store is the success it is today in large part because of third-party apps such as Spotify.’

²³⁴ Case T-30/89 *Hilti v Commission* EU:T:1991:70, para 6 of the introductory summary. See also Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings [2009] OJ C45/7, para 29.

²³⁵ Gregory Sidak, ‘Do free mobile apps harm consumers?’ (2015) 52 San Diego Law Review 619, 629 (paper commissioned by Google); Patrick Todd, ‘Digital platforms and the leverage problem’ (2019) 98 Nebraska Law Review 486, 518. This blame would not be undeserved: compared to nail gun (cartridge strip) makers, app stores have a much greater ability to screen and exclude users (which are not just complements but rather participants).

²³⁶ For Apple’s App Store Review Guidelines (plus its additional Development Guidelines, Design Guidelines, and Brand and Marketing Guidelines) and Apple Developer Agreement, see <<https://developer.apple.com/terms/>>; for the Google Play Developer Content Policy and Developer Distribution Agreement, see <<https://play.google.com/about/developer-content-policy-print/>>.

²³⁷ The concept of abuse is an objective concept, but intention does play a role, both in the assessment of the abuse and in its objective justification, see Jan Blockx, ‘Revaluing the role of intent evidence in EU antitrust law’ (2019) 3 European Competition and Regulatory Law Review 354.

the quality of the app store and its business model should in principle be accepted. The removal of Disconnect²³⁸ and Grooveshark²³⁹ from the Google Play Store are examples of such situations. In these cases, the removed apps interfered with the success of the Play Store *itself*: Disconnect allowed users to block advertisements and tracking activities by other applications, thus interfering with the business models of most apps offered for free in the Play Store; Grooveshark was facing IP rights claims.

This is not to say that the refusal or removal of every app that is not competitively advantageous for the app store operator should simply be accepted. When such actions concern apps that compete with the app store on an *adjacent* market, additional scrutiny is warranted. Examples of such removal include the removal of Unlocked (which competed with Google's advertising business), and the removal of parental control apps (which competed with Apple's Screen Time).²⁴⁰ In those cases, the platform governance rules may become a pretext for the exclusion of competitors. However, the challenge of distinguishing between justified and anticompetitive instances of exclusion is considerable. A guiding question should be whether the exclusion is 'reasonably related to enforcement of the goals the governance mechanism is designed to achieve.'²⁴¹ If it is not (e.g. a clearly qualitative app that has been in the app store for years is suddenly excluded), an anticompetitive motive is likely.

The above guidance can become a bit murky, in particular when it comes to the removal of competing app stores. Google, for example, removed Amazon's Appstore from the Play Store.²⁴² Amazon's app allowed for the purchase of other apps through it, thus diverting users from the Play Store to Amazon's store and consequently undermining or at least competing with the Play Store through which it was distributed. It is therefore unsurprising that Google would not allow for Amazon to use its own Play Store against it. Although this removal may indeed limit the availability of other app stores to consumers,²⁴³ obliging Google to give other app stores such access goes a step too far. The reason lies in the logic behind the essential facilities doctrine that would, theoretically, be applied in such a scenario in order to find an abuse of dominance by Google. In the context of this doctrine, the owner is required to grant access to its facility in order to allow for competition on an *adjacent* market that is dependent on such access. However, the Amazon Appstore is active on the *same* market as Google Play. Mandating access in such cases would *de facto* entail forcing Google to enable competitors to replace the Play Store as the main distribution channel for Android apps that Google has legitimately

²³⁸ See Kannon Yamada, 'Google just banned this privacy tool: how to use disconnect' (*Make Use Of*, 9 July 2015) <<https://www.makeuseof.com/tag/google-just-banned-privacy-tool-use-disconnect/>>.

²³⁹ See Lance Whitney, 'Grooveshark app yanked from Google Play yet again' (*CNET*, 31 August 2012) <<https://www.cnet.com/news/grooveshark-app-yanked-from-google-play-yet-again/>>.

²⁴⁰ See Daniel Mândrescu, 'Online platforms and refusal to deal – *Unlocked vs. Google* – a seminal case in the making?' (*CoRe Blog*, 18 May 2018 <<https://coreblog.lexxion.eu/online-platforms-and-exclusionary-abuses-unlockd-vs-google-a-seminal-case-in-the-making/>>); Daniel Mândrescu, 'App stores and (potential) abuses of dominance – an opportunity to reshape competition law enforcement in digital markets' (*CoRe Blog*, 14 May 2019) <<https://coreblog.lexxion.eu/app-stores-and-potential-abuses-of-dominance-an-opportunity-to-reshape-competition-law-enforcement-in-digital-markets/>>.

²⁴¹ David Evans, 'Governing bad behavior by users of multi-sided platforms' (2012) 27 *Berkeley Technology Law Journal* 1201, 1248.

²⁴² See Chris Burns, 'Amazon app kicked out from Google Play' (*Slash Gear*, 11 December 2014) <<https://www.slashgear.com/amazon-app-kicked-from-google-play-11359190/>>. Apple also has a rule against competing app stores, see App Store Review Guidelines, section '3.2.2 Unacceptable' ('Creating an interface for displaying third-party apps, extensions, or plug-ins similar to the App Store').

²⁴³ Amazon's Appstore can still be sideloaded via <<https://www.amazon.com/androidapp>>.

created. Such an action would go far beyond preventing the monopolization of adjacent markets as foreseen by the essential facilities doctrine and would significantly undermine the incentive to invest in the creation of such an ‘essential facility’ to begin with.

By contrast the hiding of the Aptoide app by Google through its Android security management tools may justify intervention.²⁴⁴ In this scenario, the refusal of access is no longer linked to the Play Store (as Aptoide can be downloaded outside the Play Store) but to the Android OS that Google uses to suppress Aptoide. By taking such actions Google hampers competition between Aptoide and the Play Store through the upstream ‘essential facility’ Android. Intervention in that case is therefore more likely to be justified as such situations are precisely what the case law on refusal to supply intends to prevent. Nevertheless, it remains possible to justify such a refusal if the Aptoide app store would put the platform (Android) in danger by not being sufficiently secure, as claimed by Google.

4.3 Security and privacy of users on the platform

The final justification ground discussed in this (non-exhaustive) list concerns the security and privacy of users on the platform. Guaranteeing the security of consumers that download apps is one of the—if not *the*—main task of app stores. To fulfil this task, they have drafted detailed guidelines for developers and have established an approval process to check compliance with these guidelines. While not always successful,²⁴⁵ the approval process roots out a great majority of apps that contain malware (including adware) that affect the integrity of mobile devices. Most of these refusals (as well as later removals) on grounds of security are uncontroversial—indeed, strict standards in this regard should be applauded. Still, there are more difficult cases. Think back, for example, of the developers of digital wallet apps that do not get access to Apple’s NFC chip, while Apple Pay does make use of the chip (section 3.1). Google, on the other hand, does open up its NFC-chip to developers, but doing so has been linked to security concerns.²⁴⁶ Apple can rely on such concerns to justify keeping its NFC chip to itself, although this justification has to be balanced against the potential anticompetitive effects.

App stores are also expected to protect the privacy of their users and Apple in particular has made a point of doing so.²⁴⁷ Accordingly, it has banned certain apps because of privacy concerns—a justification that is beyond reproach, at least in principle. When it removed several parental control apps from its store, for example, Apple stated it did so because these apps ‘were using a highly invasive technology called Mobile Device Management’, which ‘gives third parties control and access over a device and its most sensitive information’, thus putting the users’ privacy at risk.²⁴⁸ However, some of

²⁴⁴ Natasha Lomas, ‘Aptoide, a Play Store rival, cries antitrust foul over Google hiding its app’ (*TechCrunch*, 4 June 2019) <<https://techcrunch.com/2019/06/04/aptoide-a-play-store-rival-cries-antitrust-foul-over-google-hiding-its-app/>>.

²⁴⁵ See e.g. ‘172 malicious apps with 335M+ installs found on Google Play’ (*The Next Web*, 1 October 2019) <<https://thenextweb.com/apps/2019/10/01/google-play-android-malware-2/>>.

²⁴⁶ ACM, ‘Market study into mobile app stores’ (Report ACM/18/032693) 2019, 83.

²⁴⁷ See Apple, ‘Privacy’ <<https://www.apple.com/privacy/>> and Apple, ‘App Store – Principles and practices’ <<https://www.apple.com/ios/app-store/principles-practices/>>. Note that the degree of privacy protection can also be conceptualized as a quality parameter, see e.g. Samson Esayas, ‘Privacy-as-a-quality parameter of competition’ in Björn Lundqvist and Michal Gal (eds), *Competition Law for the Digital Economy* (Edward Elgar 2019), 126-172—in this sense, the justification ground overlaps with the previous one.

²⁴⁸ Apple, ‘The facts about parental control apps’ (Statement, 28 April 2019) <<https://www.apple.com/mg/newsroom/2019/04/the-facts-about-parental-control-apps/>>.

those apps claim to be removed because of functionalities that are essential for their operation—and that Apple’s own app Screen Time does incorporate.²⁴⁹ As with other justifications, competition authorities are thus tasked with ascertaining the underlying motive of app stores’ actions, and to balance any anticompetitive effects against efficiencies such as effective privacy protection.

4.4 Beyond justifications: incentives to distort competition within the ecosystem

Beyond justifications, there is a broader question of the underlying incentives for anticompetitive conduct by app store. Important in this regard is the ‘internalizing complementary efficiencies’ (ICE) argument, which holds that platforms generally benefit from the presence of third-party suppliers (‘complementors’) as they internalize their efficiencies (amongst others through commission fees). Accordingly, ‘even a monopolist has incentives to provide access to its platform when it is efficient to do so, and to deny such access only when access is inefficient’.²⁵⁰ For that reason, we described earlier how app stores only have an incentive to preference the distribution of their own apps over those of competing suppliers only when the gains from supplying their own app exceed the losses from not facilitating the distribution of competing apps.

However, this conception of ‘losses’ as foregone commission fees is too narrow as it does not consider ripple effects. In fact, if the restrictive/exclusionary conduct of an app store operator concerns an app that (some) consumers value more than the app store’s own substitute, it may decrease the quality of the app store *as a whole*. Consumers may turn to alternatives (insofar as those exist) if they cannot find their favourite apps in the store. And not only the affected app developer but others too may be discouraged from being active on a platform where they may be ‘expropriated’.²⁵¹ Moreover, if the app store operator is vertically integrated into OS and/or devices, it has to worry about decreased demand not only for its store but also the other layers of the ecosystem, which may be more profitable. The app store is an important component of a smart mobile device, so when its quality suffers, consumers may turn to other devices. In sum, the exclusion of a competing app may decrease the platform’s surplus by more than simply the commission fees lost on the sales of that app. There is thus a sizeable disincentive to restrict/exclude (business) users of the platform.²⁵²

Apple has defended itself in line with the above:

²⁴⁹ ‘Kaspersky’s antitrust complaint against Apple in Russia’ (*Kaspersky Daily*, 8 August 2019) <<https://www.kaspersky.com/blog/apple-fas-complaint/26017/>>.

²⁵⁰ For versions of this ‘internalizing complementary efficiencies’ (ICE) argument, see Barbara van Schewick, *Internet Architecture and Innovation* (MIT Press 2010), 223; Joseph Farrell and Philip Weiser, ‘Modularity, vertical integration, and open access policies: towards a convergence of antitrust and regulation in the internet age’ (2003) 17 *Harvard Journal of Law & Technology* 85, 89 (quoted here). For a critical review, see Lina Khan, ‘The separation of platforms and commerce’ (2019) 119 *Columbia Law Review* 973, 1092-8.

²⁵¹ Hye Kang, ‘Intra-platform envelopment: the cooperative dynamics between the platform owner and complementors’ (2017), 4, available via <<https://pdfs.semanticscholar.org/0dc3/ad6dd8fa88b99ff696cc41475040415d9620.pdf>>.

²⁵² However, as Hal Singer notes, ‘that calculus goes awry when a platform enjoys monopoly power and can take its customers for granted.’ See FTC, ‘Hearing #3: Multi-Sided Platforms, Labor Markets, and Potential Competition’ (Hearings on Competition and Consumer Protection in the 21st Century – transcript, 17 October 2018), 93 <https://www.ftc.gov/system/files/documents/public_events/1413712/ftc_hearings_session_3_transcript_day_3_10-17-18_0.pdf>.

*[I]t would not be rational to discriminate unfairly against third-party apps. If the third-party app offers better quality, Apple has no incentive to hinder the app in any way. Apple ... wants to have the most popular apps available on its platform so that consumers will use its devices. After all, Apple earns the vast majority of its revenues from devices, and therefore wants to offer the best services possible to its users. As such, it treats all developers equally, including competing apps.*²⁵³

Of course, the validity of this defence depends on weighing the relative gains and losses from removing or otherwise restricting a (more) qualitative app in the case at hand, and certainly doesn't mean that anticompetitive exclusion is *a priori* irrational and thus unlikely.

5 *EX ANTE* REGULATION OF APP STORES

Under this final section, it is worth taking a short look at a number of regulatory initiatives beyond competition law that (seek to) discipline the conduct of platforms, and app stores in particular. Most importantly, the EU legislature adopted a Regulation 'promoting fairness and transparency for business users of online intermediation services' (the Platform-to-Business or P2B Regulation), which applies from July 2020 onwards.²⁵⁴

The P2B Regulation applies to 'online intermediation services', of which the definition aligns with that of online platforms.²⁵⁵ Those intermediation services must draft their terms and conditions (T&Cs) in 'plain and intelligible language', which means they cannot be 'vague, unspecific or lack detail on important commercial issues and thus fail to give business users a reasonable degree of predictability on the most important aspects of the contractual relationship.'²⁵⁶ Further, the T&Cs must set out the grounds based on which the platform may demote or delist its business users.²⁵⁷ Any changes to the T&Cs must be notified at least 15 days in advance.²⁵⁸ When a platform ends up removing a business user, it must provide a statement of reasons (referring to the grounds for its decision, which are set out in the T&Cs) as well as a notice period of 30 days.²⁵⁹ Discrimination (or 'differentiated treatment') between the platform's own service and those of competing business users remains allowed. However, the platform must describe such differentiated treatment (e.g. in terms of access to data, ranking and commission fees) in its T&Cs.²⁶⁰ Finally, platforms must set up internal systems to handle the complaints from business users (e.g. regarding removals) in a timely manner.²⁶¹

App stores explicitly fall under the definition of 'online intermediation services'.²⁶² They have to vet their T&Cs (set out in developer agreements, review guidelines, etc.) carefully in order to comply with the variety of transparency obligations. The process for app removals—a recurring complaint (see section 3.1)—should look different once the Regulation is in force: developers are notified 30 days in

²⁵³ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 83-4.

²⁵⁴ Regulation (EU) 2019/1150 of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services [2019] OJ L186/59.

²⁵⁵ *ibid*, art 1 (scope) and art 2 (definition).

²⁵⁶ *ibid*, art 3.1(a) and recital 15.

²⁵⁷ *ibid*, art 3.1(c) and recital 22.

²⁵⁸ *ibid*, art 3.2, see also the exceptions in art 3.4.

²⁵⁹ *ibid*, art 4 and recitals 22-3.

²⁶⁰ *ibid*, art 7 and recital 30 (further on access to data, see art 9 and recital 33).

²⁶¹ *ibid*, art 4.3 and 11, and recital 37.

²⁶² *ibid*, recital 11.

advance, with a clear reference to the app store governance rule not complied with and how, they can turn to the app store's complaint-handling system for clarification, and they must be reinstated without undue delay when their app is compliant again. Discrimination by app stores against apps competing with their own offering may continue, although the obligation of transparency in that regard may have a dissuasive effect.

The Regulation states that the EC shall review it by January 2022.²⁶³ Should the Regulation 'prove to be insufficient to adequately address imbalances and unfair commercial practices persisting in the sector' (e.g. 'in the relationships between providers of operating systems and their business users'), the EC 'shall take appropriate measures, which may include legislative proposals.'²⁶⁴ However, long before the evaluation deadline (and even before the Regulation applied), the EC released two impact assessments for new regulatory tools (a 'New Competition Tool' and an '*ex ante* regulatory instrument'). Both assessments describe how a few online platforms have become 'gatekeepers' for a variety of (digital) goods and services.²⁶⁵ These platforms, which manage complete ecosystems, can leverage their market power to adjacent markets. Keeping ecosystems fair and contestable, and 'leveling the playing field' between platforms and their business users, may require one or more new regulatory tools. The options currently on the table are wide-ranging and many questions remain. Will the 'New Competition Tool' apply horizontally or only to digital markets, and will it be based on dominance or rather the structure of the market? Will the '*ex ante* regulatory instrument' expand on the P2B Regulation or will it be independent, and would such an independent tool apply horizontally or only to gatekeeper platforms? Whichever form the instrument may take, it appears that a prohibition on self-preferencing is under serious consideration.²⁶⁶ Such a prohibition could be modelled after the EU's Net Neutrality Regulation²⁶⁷—an idea that is supported by the Dutch competition authority.²⁶⁸ On the other side of the Atlantic, even more far-reaching proposals (e.g. the structural separation of platforms and downstream markets) are being put forward.²⁶⁹

²⁶³ *ibid*, art 18.

²⁶⁴ *ibid*, art 18 and recital 49. Having carried out its own evaluation, see Austrian Regulatory Authority, 'The open internet: OS, apps and app stores' (Report – English summary) 2019, 3 ('It is already now evident that the existing regulations [including the P2B Regulation] will not sufficiently prevent anticompetitive behaviour or abuse of market power, and core issues will not be resolved.').

²⁶⁵ EC, 'New Competition Tool' (Inception Impact Assessment) Ref. Ares(2020)2877634 and EC, 'Digital Services Act package: *Ex ante* regulatory instrument for large online platforms with significant network effects acting as gatekeepers in the European Union's internal market' (Inception Impact Assessment) Ref. Ares(2020)2877647.

²⁶⁶ EC, 'Digital Services Act package: *Ex ante* regulatory instrument' (Inception Impact Assessment) Ref. Ares(2020)2877647, 3-4. Issue-specific substantive rules, e.g. for operating systems, are also being considered. For earlier proposals of a non-discrimination rule (i.e. self-preferencing prohibition), see Kevin Caves and Hal Singer, 'When the econometrician shrugged: identifying and plugging gaps in the consumer welfare standard' (2018) 26 *George Mason Law Review* 395.

²⁶⁷ Regulation (EU) 2015/2120 of the European Parliament and of the Council laying down measures concerning open internet access [2015] OJ L310/1.

²⁶⁸ ACM, 'Market study into mobile app stores' (Report ACM/18/032693) 2019, 108; Henk Don, Michiel Van Dijk and Femke Nagelhoud-De Jong, 'Taking stock of app stores' (2019) 47 *InterMEDIA* 33, 36. More generally, see ACM, 'Extension of enforcement toolkit to increase effectiveness in dealing with competition problems in the digital economy' (Discussion Paper) 2019.

²⁶⁹ Lina Khan, 'The separation of platforms and commerce' (2019) 119 *Columbia Law Review* 973; Senator Warren committed to 'passing legislation that requires large tech platforms to be designated as "Platform Utilities" and broken apart from any participant on that platform', see Elizabeth Warren, 'Here's how we can break up Big Tech' (*Medium*, 8 March 2019) <<https://medium.com/@teamwarren/heres-how-we-can-break-up-big-tech-9ad9e0da324c>> and Nilay Patel, 'Elizabeth Warren wants to break up Apple, too' (*The Verge*, 9 March 2019) ('Either they run the platform [the

While the above survey of the debate on platform regulation should show where it may lead, it is outside the scope of this paper to evaluate the proposals here. Rather, it is worth repeating that the perceived effectiveness of *ex post* competition law enforcement is inversely correlated with calls for *ex ante* regulatory tools. As solving an issue with the least restrictive option—in this case, the application of competition law—is always preferable over more interventionist measures, getting the assessment of abuse of dominance by online platforms right is all the more important.

6 CONCLUSION

Apple's iOS and Google's Android are two ecosystems with different business models and even philosophies. As Apple itself indicates, its strategy is based primarily on the sale of premium devices, while Google is focused on (search) advertising (indeed, it acquired and developed Android to avoid disintermediation of its search engine). Apple's ecosystem is *more* closed than Google's, even though calling the latter 'open' would disregard the important (and increasing) restrictions of Android. These different degrees of closedness are reflected in the fact that iOS is vertically and exclusively integrated in iPhones, while Android is licensed freely to OEMs.

Given these differences, the EC considered Android and iOS to operate in different markets for antitrust purposes, even though it did recognize the constraint these operating systems exerted on each other (through competition between iPhones and Android devices). App stores are, in turn, aftermarkets of these mobile ecosystems (which are already something of an aftermarket of mobile devices). Given the lack of alternative distribution channels for apps (there are practically none within iOS, while sideloading offers a limited alternative in Android), a finding of dominance is almost assured.

While the 'gatekeeper' epithet is sometimes used too liberally when it comes to the large online platforms, app stores may indeed qualify as such, which is why they make for an excellent case study. Like many platforms, app stores are also vertically integrated, into the distribution of apps, which leads to various allegations of self-preferencing (by removing or restricting competing apps)—the quintessential platform complaint. Given that app stores are not only in charge of the agreements with and guidelines for developers, but also the complete technical architecture those developers are embedded in, the possibilities for self-preferencing are manifold. In addition to the *exclusionary* concern for self-preferencing, developers complain about the *exploitative* level of commission fees, which app stores can charge due to a lack of viable alternatives. A final category of complaints concerns the general lack of transparency, in particular when being refused or removed from an app store.

Depending on their exact shape and form, self-preferencing, high commission fees and non-transparency can be categorized under a variety of forms of abuse. Self-preferencing (also when implemented through commission fees) can fit the legal tests of the essential facilities, margin squeeze and tying doctrines. An important outstanding question is whether leveraging or perhaps even self-preferencing can be considered an independent form of abuse. The high level of commission fees in itself is difficult to qualify as an exploitative abuse (i.e. unfair terms and conditions and in particular excessive prices) and competition authorities, in particular the EC, are in any case reluctant to pursue

App Store] or they play in the store. They don't get to do both at the same time.)
<<https://www.theverge.com/2019/3/9/18257965/elizabeth-warren-break-up-apple-monopoly-antitrust>>.

such cases. However, a margin squeeze or tying case could have an indirect effect on the level of commission fees. Finally, a lack of transparency is, in terms of competition law, the most unconventional complaint, which helps explain why the P2B Regulation was specifically adopted to remedy this problem. It bears repeating that it is not our aim (nor do we have the resources) to fully carry out each legal test—in particular when it comes to the extent of anticompetitive effects, a deeper economic analysis is indispensable.

Even when the legal tests of these forms of abuse may be fulfilled, such *prima facie* abuses may still be justified. Platform governance is a crucial part of a healthy ecosystem, and removing or restricting users to safeguard its quality and security is therefore essential in certain cases. The challenge is to distinguish between procompetitive governance and anticompetitive practices under the guise of governance. Making this distinction requires verifying the practice's underlying motive: is it reasonably related to the goal of the governance mechanism, or does it serve to restrict competition in an adjacent market? The different business models and philosophies have to be taken into account in doing so. And the proportionality of the governance practice in comparison to its ends is another key factor. Further, besides quality and security, app stores need to remain financially viable—and indeed, need to be rewarded for the ecosystems they have built. This acknowledgement also puts a limit to excessive, top-down tinkering with app store business models.

Finally, there is a question of remedies. Some theories of harm (e.g. margin squeeze) lead to a fairly straightforward remedy (i.e. lowering commission fees until an equally efficient competitor can be profitable); others (e.g. essential facilities) less so (*how much* access must be given?). Given the complexities of the platform business model, app stores should be given sufficient freedom to choose their method to achieve a certain result, although the *Google Shopping* remedy saga cautions against insufficiently prescriptive decisions. Remedies also force us to address a question that underlies theories of harm and justifications as well: *how much* of a competitive advantage is an app store operator allowed to enjoy from its control over the technical architecture and agreements with/guidelines for developers? The answer to that question cannot be given in the abstract, but will depend on the circumstances (and in particular the degree of anticompetitive effects) of the case. However, the answer practically cannot (and theoretically should not) be 'none'.

We expect the next 'wave' of platform cases to target app stores. Given that many of the aspects of the platform economy that cause concern (e.g. gatekeeper ecosystems, self-preferencing conduct) are amplified in the app store economy, we are almost surprised authorities did not take an interest earlier. Cases regarding app stores, with all their intricacies and trade-offs, are a unique opportunity to clarify the application of Article 102 TFEU in the broader economy, and hope that this article can help lead the way.