

UPWARD PRICING PRESSURE FROM DIGITAL PLATFORMS' IMPOSITION OF TAKE RATES ON APP DEVELOPERS



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The vertical relationship between digital platforms and the app developers that ply their wares on such marketplaces (e.g. App Store, Play Store, Oculus Store) imposes a largely ignored upward pricing pressure on prices. Digital platforms aim to create walled gardens, leveraging lock-in to cabin consumer substitution within the platform's boundaries. Digital marketplace owners are largely agnostic to intra-platform substitution, because they collect a platform fee, or "take rate" regardless of its destination. This article discusses the attendant effects: (1) upward pricing pressure on apps and in-app purchases as platforms benefit from eliminating price competition within their marketplaces, (2) limited usefulness of diversion ratios, and (3) recognition that in the event of the platforms acquires an app purchaser, the upward pricing effects are likely to overwhelm any countervailing elimination of double marginalization, even if EDM were shown to be merger-specific.

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I. INTRODUCTION

The potential anticompetitive effects attendant to horizontal shareholding have drawn increasing scrutiny in recent literature. Economists define horizontal shareholding as ownership of substantial shares by entities that compete with each other in horizontal markets.² Of course, such conduct may occur for innocuous reasons such as the establishment of a joint venture that enhances innovation or increases output. However, such examples appear more as exceptions rather than the rule.

Instances of horizontal shareholding that could harm competition are legion. Private equity behemoths BlackRock and Vanguard figure among the top shareholders of every major airline in the United States.³ Horizontal shareholding has characterized defendants in various antitrust matters. The Writers' Guild of America recently ended a bitter standoff against talent agencies WME, CAA, ICM, and UTA over the agencies' practice of extracting packaging fees rather than charging commissions. Such fees included ten percent of syndicated or gross syndication fees that a show may receive; to the extent agencies contributed to packaging talent, they would effectively share such fees, becoming *de facto* horizontal shareholders of common assets.

Horizontal shareholding also features prominently in collegiate athletics in the United States, an economic model characterized by a cartelized collusive wage-fixing agreement. Individual conference members each share in the aggregate winnings, including football bowl games and post-season basketball tournaments. Members also share in media deals and major conferences such as the "Power Five" now broadcast games on their own channels.

Shareholding by digital platforms can exhibit both horizontal and vertical characteristics. These entities often extract platform fees, or a "take rate" of sellers' revenues from transactions consummated within the platform. For many digital platforms, such rates have synchronized (with modest exceptions) at 30 percent, the nearly identical take rate charged by Apple on its App Store (for distribution of mobile apps on the iPhone), by Google on its Play Store (for distribution of mobile apps on Android-based phones), and by Meta on its Oculus Store (for distribution of VR apps on the Oculus headset).

Amazon also imposes a take rate, known as a "referral fee," on a merchant's sales on its e-commerce site, ranging from as low as 6 percent (personal computers) to as high as 45 percent (Amazon device accessories).⁴ One estimate places Amazon's combined take rate, after including advertising and fulfillment fees, at over half a merchant's revenues by 2022.⁵ Whether similarities between the take rates that Apple, Facebook, and Google charge developers are the product of circumstance, collusive agreement, or perhaps mere conscious parallelism bears no relevance to the issues raised herein. The matter of import lies with the effects that these fees have on pricing and competition.

Dominant platforms, by charging such fees tethered to vendors' revenues, become *de facto* shareholders of third-party input providers. The platform extracts a share from every provider regardless of whether the platform even offers any other service beyond controlling the marketplace itself. This fact distinguishes digital platforms that impose a take rate on input providers from acquiring entities in other economic sectors that do not impose a take rate on the other. The take rate allows the platform to internalize substitution among products, including in response to price hikes, that it does not own. All things equal, the platform would prefer higher app prices to lower prices, particularly free apps, as a 30 percent share of a larger revenue base is worth more than a 30 percent share of a smaller revenue base.

Diversion ratios, metrics of particular interest within a merger or acquisition context, capture the percentage of the consumers who switch to substitute products ($j=1\dots n$) in response to a price increase on a product k . The diversion ratio between k and j reflects the percentage of those who rejected the price increase and ceased purchasing product k and who switched to substitute product j . The diversion ratio informs the ability of the merging entity to retain sales that would have gone to one of the merging partners in response to a price increase imposed by the other. In other words, to the degree that consumers substitute between the merging parties' products, the merged entity can retain such sales in the event of a price increase.

2 . Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, Mar. 10, 2016, available at <https://harvardlawreview.org/2016/03/horizontal-shareholding/>.

3 . José Azar, Martin C. Schmalz & Isabel Tecu, *Anti-Competitive Effects of Common Ownership*, 73(2) J. FINANCE (2018) at Table 1. Other economists have developed a theoretical framework for upward pricing pressure in vertical mergers. See, e.g. Serge Moresi & Steve Salop, *vGUPPI: Scoring Unilateral Pricing Incentives in Vertical Mergers*, 79(1) Antitrust Law Journal 185-214 (2013). The contribution to the literature offered herein is agnostic to the vertical or horizontal positioning of the merging firms and focuses on the profit-maximizing incentives of dominant digital platforms.

4 . *What It Costs to Sell on Amazon in 2023*, Repricer.com, Dec. 13, 2022, available at <https://www.repricer.com/blog/amazon-seller-fees/>.

5 . Spencer Soper, *Amazon Is Taking Half of Each Sale From Its Merchants*, BLOOMBERG, Feb. 13, 2023 (citing Marketplace Pulse), available at <https://www.bloomberg.com/news/articles/2023-02-13/amazon-amzn-takes-half-of-each-sale-from-2-million-small-businesses?leadSource=verify%20wall>.

Notably, the control of the marketplace that permits the imposition of a take rate relieves the platform from this substitution restriction. The destination product need not be a substitute or even related in any economically meaningful way to product *k*. The platform captures any consumer budgetary realignment, whether in response to a price increase on one product or otherwise. As a result, diversion ratios in the case of digital platforms may provide limited insight into the nature of product substitution for purposes of defining a relevant antitrust market.

Consider the following example. Suppose a digital platform acquires an app currently priced at \$19 per month. The platform then imposes a subscription price increase from \$19 to \$20 per month. Prior to the price increase, the app enjoyed 100,000 subscribers, but after the price increase, the number falls to 95,000, a 5 percent unit loss. Suppose further that rivals' apps on the platform capture some portion of the going-forward expenditures associated with those lost 5,000 units. Prior to the acquisition, a non-platform entity ("NPE") priced the app in a way to maximize the standalone profit of the app. After the acquisition, the platform-owning entity ("POE") faces a new pricing calculus. While the NPE would lose the entirety of those 5,000 units if it were to raise prices, because the captured sales by rival apps remain on the platform, the POE retains its take rate on those expenditures. This suggests the profit-maximizing app price for the POE exceeds that for the NPE. Thus, while the NPE concerns itself with consumer spending on its own product(s), the ambit of the POE's concern extends to consumer spending across all products within its platform. These NPE and POE strategies can be distinguished as product-based and budget-based, respectively.

II. NON-ACQUISITION SCENARIO

To the extent any switching occurs *between* products on the platform, the platform's profits depend on the change in the consumer's spending. Let us consider the possible scenarios subsequent to a price increase, beginning with the non-acquisition scenario with the POE and the NPE app developer as independent entities. In this case, both the platform and the app developer look to benefit when the app developer raises its price and the inelastic or inframarginal consumers accept the increase.

However, multiple possible paths appear when certain consumers decide to reject the price increase. In the first case, suppose the consumer spends the same total amount on the platform, but does so on different products; in this scenario, the platform owner remains unaffected (with limited exceptions). Indeed, the platform owner may become even better off to the extent that the consumer, instead of purchasing a single higher-priced application, uses the funds to purchase multiple lower-priced applications. In this case, to the extent that the consumer more willingly accepts a price increase (i.e. exhibits greater price elasticity) at lower prices, the platform may be even better off in the long-term.

Of course, this observation begs the question of why users would switch to unrelated products in response to a price increase on a specific app. In response, one might find it useful to distinguish between exploratory substitution and functional substitution. In an antitrust context, the latter would refer to the traditional use of cross-price elasticities to determine the substitute products used to define a relevant antitrust market. Exploratory substitution would factor into the consumer decision particularly under limited information, such as a novel platform or one undergoing rapid change and innovation. In this scenario, one might expect consumers, particularly price elastic ones, to "test the waters" among various products available on the platform. Failing to acknowledge the information deficit prompting the consumer to explore a broader range of products that she would have under full information. Thus, by conflating exploratory and functional substitution, an analysis of market shares in developing market risks understating the ability of a dominant firm to raise prices.

In the second, case, suppose the consumer explores off-platform options. In this event, both the POE and the app developer are worse off. The POE aims to transform its platform into a walled garden and cabin product substitution and consumer churn within its walls, but not beyond. The POE benefits from lock-in or other factors that inhibit inter-platform switching; the walled-garden scenario allows a POE to benefit from higher prices across the entirety of its platform. POEs have little appetite for price competition among platform app developers, as consumers cannot easily switch across platforms anyway and lower prices to consumers mean lower revenues from take rates. Of course, app developers face a different consideration, as any defection in response to the price increase, regardless of whether the departing customers remain on the platform, reflects a complete loss.

III. ACQUISITION SCENARIO

Suppose that the POE acquires the app developer. In doing so, it now captures 100 percent ownership share compared to the previous 30 percent it withheld in the form of a take rate. The question relevant to assessment of merger effects rests with whether the platform's incentives change in favor of lowering the app price.

Further, as observed above, the POE has little to no incentive to engage in price competition within its domain. It must consider not only the signal that it sends to apps that compete with its own acquired entity but also the overall purchase or in-app pricing. Again, the POE profit maximizes across the platform, not just across its owned apps.⁶ As explained above, vertical integration by a POE puts upward pricing pressure on the price of the app, as some portion of the departing customers and expenditures can be recaptured through the take rate.

But vertical integration could also put downward pressure on the price by virtue of avoiding the imposition of the take rate entirely. As the theory goes, the consumer price reflects the marginal costs of both the developer and the platform. The acquisition removes the former, so this elimination of double marginalization (“EDM”) “theoretically” incentivizes the platform to pass on the savings to the consumer. Put differently, a standalone app presumably sets its price to accommodate the 30 percent take rate imposed by the platform owner (assuming it faces marginal costs such as music licensing fees). Because the acquired app would now pay its POE parent for the take rate post-merger — an internal transfer — the POE would no longer consider this fee when pricing the app. To understand the economic significance of this downward effect one would consider the pass-through rate of the app.

The pass-through rate will turn on the shape of the demand faced by the app. For example, linear demand prescribes a pass-through rate of 50 percent of the incremental costs attributable to the take rate. When the acquired app is dominant in its market, economic theory predicts that the pass through of incremental costs owing to the take rate would be mitigated. For example, logit demand predicts that a firm will pass through one minus its market share; an app with nearly say 80 percent share would thus pass through only 20 percent of the cost decrease owing to the avoidance of the take rate. Moreover, if the POE were to drop the price of the newly acquired app, it would invite rival apps to drop prices in response, lowering the value of the POE’s 30 percent equity stake in all apps. As explained above the POE’s profit-maximizing interests militate against such a price war. For these two reasons, the upward pricing pressure identified above would likely overwhelm the downward pricing pressure of any EDM.

One factor does militate against raising prices for subscriptions compared to one-time in-app purchases (“IAPs”). Moderating price increases on subscriptions allows app developers to attract consumers for a longer period, cutting down on acquisition costs (i.e. effective cost per acquisition or “eCPI”).⁷ But such motivations do not extend to one-time IAPs. Recent analysis has shown that price increases in one-time IAPs (36 percent increase) have far outpaced those on annual or monthly subscription IAPs (19 percent).⁸ These findings motivate two conclusions: (1) evaluations of EDMs should draw a distinction between these two categories with respect to digital platforms that involve the sales of such products, and (2) declines in the growth of subscription prices should not be attributed to EDM to the extent they reflect strategic pricing that would have occurred in the absence of the acquisition. Attendant to the latter, judiciary analysis of any EDM arguments should not only require specificity and support for any EDM arguments, but also verify that such claims are merger-specific.

Finally, the cost of acquisition should figure in any evaluation of pricing pressures that accompany a merger or acquisition. When purchasing an app developer, a platform incurs a lump-sum cost and must recoup it over time. While, relative to the app developer, the POE enjoys a higher margin because it does not incur the platform fee, the POE has already paid for doing so. Lowering the price only extends the period required to recoup its investment.

IV. LESSONS FOR FUTURE POTENTIAL COMPETITION CASES

Potential competition cases rest on the threshold issue of whether the acquiring firm has a reasonable probability of entering the market *de novo* absent the acquisition. As a general matter, no apparent reason exists to restrict the ambit of harms to the potential, particularly if certain competitive harms accrue regardless of whether the acquiring firm would have entered. For example, the price effect that identified *supra*, owing to the internalization of a former pricing externality made possible by a take rate, does not depend on *de novo* entry in the absence of the merger. Regulatory agencies, plaintiffs, and fact finders should recognize the upward pricing pressure that a POE can impose by virtue of platform ownership, even when potential competition represents the dominant theory of harm in a case involving a POE as the acquiring firm.

Conceptually, other possible harms hinge on but-for *de novo* entry of the acquiring firm. For example, an economist might show that, when the POE entered *de novo*, its entry caused greater disruption among incumbent apps compared to when the POE entered via acquisition. The “disruption differential” across the two entry paths could constitute a merger-specific harm. Such harm would occur to the extent that the

⁶ A platform’s profit maximizing calculus includes any owned hardware required to access the platform itself (e.g. Meta’s ownership of the Oculus headset).

⁷ . Adam Blacker, *The average price of in-app purchases have increased 40% on iOS and 9% on Google Play since last year*, APPTOPIA, Sept. 13, 2022, available at <https://blog.apptopia.com/app-store-iap-prices-are-increasing>.

⁸ . *Id.*

POE acquires the leader in an app category, cementing its lead and rendering other competitors unable to mount a meaningful challenge despite potentially offering a superior product or despite greater innovative ability. To the extent the POE owns the dominant app in a category, entrants may view challenging its dominion a lost cause given the disparity in financial wherewithal.

The competitive benchmark would occur if the POE were instead to enter *de novo*, atomizing the market shares of the existing firms and spurring competition. Given the litany of acquisitions by dominant platforms, one suspects that the historical record could inform the existence of such harm, which would fall directly under the ambit of the potential competition doctrine.



