Unveiling Adobe's Dominance: A Study on Predatory Acquisitions and Innovation Suppression in the Digital Design Software Market

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This paper investigates the impact of Adobe's aggressive acquisition strategy on the digital design software market between 2015 and 2023. Utilizing regression analysis from gathered data[1], the paper examines general market trends and then delve into specific firm behaviors over the designated period. Employing Salop's Circle, a variation of the Hotelling Model, this paper highlights the detrimental consequences of Adobe's predatory practices on market competition and consumer welfare. Our analysis reveals a pattern of innovation suppression and market stagnation resulting from Adobe's monopolistic tendencies. Furthermore, this analysis provides theoretical insights into the blocked acquisition attempt of Figma in 2022, illustrating the potential harm it could have inflicted on market dynamics and consumer choice. Through this comprehensive examination, this study underscores the importance of regulatory intervention to safeguard market competition and foster innovation in the digital design software industry.

INTRODUCTION

In 2015, the digital design software market was quite small–in total earning a meager $5.46 billion between a few operating firms[1]. For the purposes of this paper, this market is defined by firms which sell software products developed for the use of designing digital media, which includes images, videos, 3-D renderings, and other creative diagrams.

Off the heels of a 2013 switch in business model, in which they had ditched priority licenses in favor of a Software-as-a-Service model, Adobe Inc. was primed to capitalize on this growing market. Racking up subscriptions from both businesses and individual users attracted to an innovative Creative Cloud–a suite of applications such as Photoshop, Illustrator, Premiere Pro, and InDesign[2]–Adobe was able to garner nearly half the market by 2015. Earning much of the other half was Autodesk, a firm more honed in on film and television visual effects, animation editing, and game design renders. 2015 was also a hallmark year for Autodesk, as they had just announced their 3-D Animation Software[3] in a push to capitalize on a growing gaming industry 1.

Over the next few years, as Autodesk sought more niche consumers in the film and gaming industries, Adobe became the de-facto established leader in this industry for individuals or businesses looking to accomplish nearly any type of media design. With the skyrocketing increase in tech startups following the widespread adoption of the Software-as-a-Service business model, many new firms viewed the digital design software market as an untapped opportunity for profit and innovation.

As a result, Adobe saw a meteoric rise in smaller competitors seeking to siphon off profits earned from their widely-used Creative Cloud suite. Many of these growing firms cemented themselves due to offering niche services, one example being Allegorithmic–a firm that developed a pioneering software for 3-D texture designs[4]. Several other firms aimed to offer more lightweight design solutions tailored to less tech-savvy designers and at lower prices.

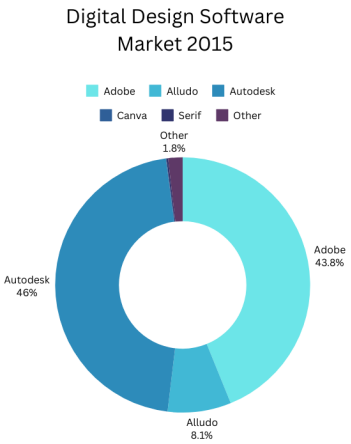

FIG. 1. Digital Design Market 2015[1]

Interestingly, between the years 2015 and 2023, rather than cultivating more innovative app experiences in-house, Adobe opted to combat its competition through a steady series of acquisitions that would absorb new technologies into its Creative Cloud. We can see such patterns illustrated in Table I.

[5]

This paper thus seeks to understand the implications of Adobe's practice of acquiring smaller, growing firms to maintain its very high market share. Analysis of the market, as well as of some key firms throughout this period, will generate key insights regarding innovation trends and firm behaviors as a result of Adobe's behaviors. Moreover, by placing our analysis in the backdrop of the Hotelling Model and Salop's Circle–two interlinked models that help to explain market power between firms selling non-homogeneous products–we will be able

TABLE I. Adobe Acquisitions, 2015-2022[5]

Year	Firm	Technology	Acqu. Price
2015	Fotolia	Royalty-free images & videos	$800 Million
2016	TubeMogul	Brand design & advertising	$500 Million
2018	Magento	Online store design	$1.7 Billion
2018	Marketo	Account-based marketing	$4.7 Billion
2018	Sayspring	Voice interfaces	Undisclosed
2019	Allegorithmic	3-D Textures	$159.7 Million
2020	Workfront	Project Management	$1.5 Billion
2021	Frame.io	Collaborative Video Editing	$1.3 Billion
2021	Abstract Notebooks	Design Collab Interface	Undisclosed
2022	Figma	Hi-Fi UX/UI Mockups	$20 Billion

to break down and explain on a theoretical level why E.U. regulators decided to block Adobe's 2022 acquisition of Figma.

For our market analysis, this paper considers the following firms for the time period 2015-2022 as participating members of the digital design software market:

- Adobe Inc.
- Alludo (formerly Corel Corporation)
- Autodesk Inc.
- Canva Inc.
- Serif Group Ltd.
- Figma Inc.
- Other

MARKET ANALYSIS

In this section, we aim to capture several market dynamics occurring over the time period 2015-2023 in order to break down the effects of Adobe's acquisitions on the overall digital design software market.

The first model we will take a look at is a multiple linear regression model intended to relate the total market growth rate to several independent variables, including Adobe acquisitions and market revenue. The variables GDP growth rate, inflation rate, and unemployment rate are each used as control variables to account for overall economic effects that may influence the market growth rate (but are not main variables of interest). The formula for the model is as follows:

TABLE II. Effects on Market Growth Rate

Coefficients	Estimate	Std. Error	t value	Pr($\geq \mid t \mid$)
(Intercept)	0.056263	0.055486	1.014	0.3853
AdobeAcquisitions	-0.053043	0.009122	-5.815	0.0101 *
MarketRevenue	-0.002558	0.002674	-0.956	0.4095
GDPGrowthRate	-0.231219	0.645379	-0.358	0.7439
InflationRate	2.211399	0.630597	3.507	0.0393 *
UnemploymentRate	4.073826	0.873714	4.663	0.0186 *

$$\begin{aligned}\text{MarketGrowthRate} &= \beta_0 + \beta_1 \times \text{AdobeAcquisitions} \\ &\quad + \beta_2 \times \text{MarketRevenue} + \beta_3 \times \text{GDPGrowthRate} \\ &\quad + \beta_4 \times \text{InflationRate} + \beta_5 \times \text{UnemploymentRate} + \epsilon \end{aligned} \tag{1}$$

Given a multiple R^2 of 0.9685, as well as an F-statistic of 18.47 with a corresponding p-value of 0.01841, we conclude that this model is statistically significant. As observed in Table II, the coefficient estimate of -0.053043 is statistically significant (p-value ≤ 0.05), suggesting that there is a significant negative relationship between Adobe's acquisitions and the market growth rate. This negative coefficient implies that as Adobe makes more acquisitions, the overall market growth rate tends to decrease. Thus, Adobe's acquisition strategy appears to hinder the expansion of the digital design software market.

We also observe a statistically significant positive relationship between inflation rate and market growth rate, which suggests that higher inflation rates may coincide with higher market growth rates. In terms of broader economic context, inflation usually accompanies periods of higher demand; therefore, this coefficient could reflect increased demand for the digital design software market in times of inflation.

Moreover, this model suggests that higher unemployment rates may arrive with higher market growth rates. Increased entrepreneurial activity or a greater pool of available talent during economic downturns could account for this. We also observed the global pandemic in 2020, which generated enormously high unemployment while this digital industry continued to grow–so this anomaly could account for this trend in the model.

Next, it is crucial to assess the impact of Adobe's acquisitions on innovation in the market. In order to measure innovation, this model uses patents filed as a proxy variable to account for new ideas and methodologies being applied by firms in this industry. Thus, the formula

TABLE III. Effects on Patents Filed

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	906.076	121.924	7.431	0.0176 *
AdobeAcquisitions	-117.457	17.923	-6.554	0.0225 *
MarketRevenue	-4.818	7.539	-0.639	0.5882
MarketGrowthRate	344.144	289.292	1.190	0.3563
GDPGrowthRate	-55.713	1353.489	-0.041	0.9709
InflationRate	-2348.071	1191.062	-1.971	0.1875
UnemploymentRate	202.974	1773.692	0.114	0.9193

used for this model is as follows:

$$\begin{aligned} \text{PatentsFiled} = \beta_0 + \beta_1 \times \text{AdobeAcquisitions} \\ +\beta_2 \times \text{MarketRevenue} + \beta_3 \times \text{MarketGrowthRate} \\ +\beta_4 \times \text{GDPGrowthRate} + \beta_5 \times \text{InflationRate} \\ +\beta_6 \times \text{UnemploymentRate} + \epsilon \end{aligned} \tag{2}$$

Given a multiple R^2 of 0.994, as well as an F-statistic of 54.83 with a corresponding p-value of 0.01802, we also conclude that this model is statistically significant. We observe in Table III that the coefficient for AdobeAcquisitions is -117.457 with a p-value of 0.0225, indicating statistical significance at the 95% confidence interval. This negative coefficient indicates that for every additional acquisition done by Adobe, the market sees a decrease of approximately 117.457 patents filed.

This finding is crucial as it implies that Adobe's acquisition strategy has a significant negative impact on the innovation and filing of patents within the market. It aligns with the hypothesis that Adobe's acquisitions could stifle innovation or competition. From these two models, we can conclude from the market data that as Adobe keeps acquiring more firms in the digital design software market, the market experiences a lower overall growth rate and a decrease in total patents filed. This evidence is indicative of predatory behavior from Adobe, where innovative new companies are purchased before they can grow large enough to become an industry titan capable of rivaling Adobe.

As we observe Adobe scrounging for firms to maintain its market share at the expense of market growth and innovation, it is interesting to take a closer look at the Herfindahl-Hirschman Index (HHI). This index is used by major anti-trust regulatory bodies such as the DOJ and FTC, as it is a measure of market concentration. The HHI is calculated by squaring the market share of each participating firm in the market and then summing each of these values. Because of the exponential nature of each summed term, markets with a few firms boasting high market shares will yield a higher HHI than more competitive markets–where modest market shares are split more equally among firms.

Considering the importance of this index for the purpose of anti-trust regulation, we run a regression to assess which factors are important in determining this index for the digital design software market. The independent variables included in this model are accumulated Adobe acquisitions, the market growth rate, and the inflation rate; thus, the model appears as the following:

$$\begin{aligned} \text{HHI} = \beta_0 + \beta_1 \times \text{AccumAdobeAcquisitions} \\ +\beta_2 \times \text{MarketGrowthRate} + \beta_3 \times \text{InflationRate} + \epsilon \end{aligned} \tag{3}$$

With a multiple R^2 of 0.8371, as well as an F-statistic of 8.565 with a corresponding p-value of 0.0205, we conclude that this model is statistically significant. We can see from Table IV that The coefficient for AccumAdobeAcquisitions is -143.47 with a p-value of 0.00691, indicating statistical significance. The negative coefficient suggests that for every unit increase in the accumulation of Adobe's acquisitions, the HHI decreases by approximately 143.47 points. This could at a surface level seem to indicate that additional acquisitions by Adobe are associated with a decrease in market concentration–but there is more to this story. We have observed previously that Adobe's acquisitions have stifled both market growth and innovation, exhibited by a pattern of attempting to buy out their competition. How, then, is Adobe's increasing acquisition count associated with a decrease in HHI?

The answer lies in Adobe's own decreased innovation occurring in tandem with these acquisitions. Essentially, Adobe purchases these smaller companies and adds the new technology to their preexisting Creative Cloud suite–but these are the only meaningful iterations used to improve these applications. The result of such a practice is a Photoshop service characterized by bugs and a slow, unresponsive user experience–a far cry from the innovative app it was in 2015.

In short, even though adding new 3-D skin rendering technology to an app is a technical improvement, it does little to outshine the slow and outdated user experience that results from a lack of attention from an in-house engineering team. As a result, new competitors enter the market with sleek, modern takes on many of these applications; beating Adobe on both price and function. Therefore, although Adobe maintains a high market share for the period 2015-2023, we see the market concentration fall alongside increased acquisitions. It's "zombified" app experiences that are a messy conglomeration of old and new technologies begin to struggle against new offerings from Figma and Canva, for example. And frankly, Adobe cannot buy everyone.

TABLE IV. Effects on HHI

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	4844.04	283.19	17.105	1.25e-05 ***
AccumAdobeAcqu.	-143.47	32.48	-4.417	0.00691 **
MarketGrowthRate	-1236.22	1174.67	-1.052	0.34080
InflationRate	13340.79	6469.53	2.062	0.09418 .

TABLE V. Effects on Adobe Market Share

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	-6.134e-01	8.405e-02	-7.298	0.01826 *
Revenue	2.817e-02	5.440e-03	5.178	0.03533 *
MarketGrowthRate	3.646e-02	5.776e-02	0.631	0.59234
HHI	1.683e-04	1.454e-05	11.576	0.00738 **
PatentsFiled	2.239e-04	2.077e-05	10.783	0.00849 **
AccumAdobeAcquisitions	1.187e-02	2.757e-03	4.304	0.04997 *
UnemploymentRate	2.512e+00	4.054e-01	6.196	0.02507 *

TABLE VI. Effects on Autodesk Market Share

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	8.386e-01	2.330e-01	3.598	0.0368 *
Revenue	5.089e-02	2.365e-02	2.151	0.1206
MarketGrowthRate	-2.435e-01	1.841e-01	-1.322	0.2778
HHI	-1.056e-04	5.148e-05	-2.051	0.1326
AccumAdobeAcquisitions	-3.143e-02	6.514e-03	-4.824	0.0170 *
GDPGrowthRate	7.996e-01	9.816e-01	0.815	0.4750

FIRM ANALYSIS

Due to how young this market is, having not really taken off until the revolution of the Software-as-a-Service business model, panel data analysis did not yield any statistically significant results due to a lack of historical data. As a result, this section will consist of an analysis of the effects of the individual market shares of four firms: Adobe, Autodesk, Canva, and Figma. By assessing each of these firms and understanding the factors that enhance and detract from their market shares, we will gain some key insights about market dynamics not captured in the previous section.

Adobe

First and foremost, we will assess the factors contributing to Adobe's market share, primarily focusing on how HHI, total market patents filed, and accumulated acquisitions impact this firm's market share. We again employ a multiple linear regression, given by the formula:

$$\begin{aligned}\text{AdobeMarketShare} = \beta_0 + \beta_1 \times \text{Revenue} \\ +\beta_2 \times \text{MarketGrowthRate} + \beta_3 \times \text{HHI} \\ +\beta_4 \times \text{PatentsFiled} + \beta_5 \times \text{AccumAdobeAcquisitions} \\ +\beta_6 \times \text{UnemploymentRate} + \epsilon\end{aligned} \tag{4}$$

We can see that with a multiple R^2 of 0.9942, as well as an F-statistic of 57.6 with a corresponding p-value of 0.01716, it is safe to conclude that this model is statistically significant.

Looking at Table V, we observe that coefficient for HHI is 0.0001683 with a standard error of 1.454e-05 and a t-value of 11.576. This coefficient is highly significant (p ¡ 0.001), indicating a strong relationship between market concentration and Adobe's market share. As the HHI increases, indicating higher market concentration, Adobe's market share also increases. This essentially is a proxy for Adobe's market power in a way; if a higher HHI is associated with a higher market share for Adobe (and vice versa), then we can reasonably conclude that Adobe does dominate this concentrated market in terms of market power.

This regression also yields a coefficient for PatentsFiled of 0.0002239 with a standard error of 2.077e-05 and a t-value of 10.783. This coefficient is highly significant (p $\leq$ 0.001), indicating a positive relationship between the number of patents filed and Adobe's market share. Alongside this coefficient, we additionally see a coefficient for AccumAdobeAcquisitions of 0.01187, which is significant at the 95% confidence interval; this is an indicator that Adobe's accumulated acquisitions have a positive impact on its market share. When thinking about these two coefficients together, we can consider that when smaller, more innovative competitors enter the market, they are likely to file patents to protect their intellectual property and proprietary products. Those firms which file more patents are more likely to threaten Adobe, which make them more desirable targets for acquisition. Thus, over time, we observe Adobe acquiring the most innovative companies–and when this occurs, Adobe's market share naturally increases.

Autodesk

It's interesting to get a better grasp of Autodesk's market share over this time period, particularly since it practically split the market with Adobe in 2015. To get a better sense of factors determining this firm's market share, we used the below regression:

$$\begin{aligned}\text{AutodeskMarketShare} = \beta_0 + \beta_1 \times \text{Revenue} \\ +\beta_2 \times \text{MarketGrowthRate} + \beta_3 \times \text{HHI} \\ +\beta_4 \times \text{AccumAdobeAcquisitions} + \beta_5 \times \text{GDPGrowthRate} \\ +\epsilon\end{aligned} \tag{5}$$

We can see that with a multiple R^2 of 0.924, as well as an F-statistic of 7.293 with a corresponding p-value of

0.06636, it is safe to conclude that this model is statistically significant at the 90% confidence interval.

Per Table VI, we observe that the coefficient for AccumAdobeAcquisitions is -0.03143 and is statistically significant at the 0.05 level. This coefficient tells us that Autodesk's market share is negatively impacted by the accumulated acquisitions made by Adobe Inc. This does make sense when we observe that by the end of 2023, Autodesk's market share had fallen from 46% in 2015 to only 24.23%. Two factors likely explain this occurrence; first, Autodesk did not convert into a subscription-based Software-as-a-Service business model until 2017. In this respect, it lagged behind its peers in terms of extracting profits from a subscription source as opposed to from priority licenses. Another factor we should consider is that Autodesk decided to focus more on niche consumers in the film and gaming industries, making it more sensitive to trends in those particular applications. Moreover, when Adobe was racking up acquisitions over this period, it was able to build out its Creative Cloud into a laundry list of apps–many of which could afford similar functionality to many of Autodesk's apps. As a result, in making its offerings so robust via acquisitions, Adobe likely actually began luring consumers away from Autodesk over this period.

Canva

In 2015, Canva had just launched, only earning less than half of a percent of the market share; but by 2023, Canva had garnered 8.22% of the market after steadily rising through the digital design software market over the nine-year period[1]. Thus, it is paramount to break down the factors contributing to this growth in market share. Again, we use a multiple linear model, using this formula:

$$\begin{aligned}\text{CanvaMarketShare} &= \beta_0 + \beta_1 \times \text{Revenue} \\ &+\beta_2 \times \text{MarketGrowthRate} + \beta_3 \times \text{HHI} \\ &+\beta_4 \times \text{AccumAdobeAcquisitions} + \beta_5 \times \text{GDPGrowthRate} \\ &+\beta_6 \times \text{UnemploymentRate} + \epsilon \end{aligned} \tag{6}$$

Our model yielded a multiple R^2 of 0.9995, as well as an F-statistic of 703.9 with a corresponding p-value of 0.001419, so it is safe to conclude that this model is statistically significant at the 95% confidence interval.

Interestingly, per Table VII, we observe a coefficient for HHI of -2.121e-05, which is significant at the 95% confidence interval. At the same time, we also find a coefficient for AccumAdobeAcquisitions of 0.001798, also statistically significant at the 0.05 level. At a glance, it appears that Canva is both negatively impacted by market concentration yet positively associated with acquisitions from Adobe. These trends initially seem at odds with one another, but they make sense from Canva's point of view. As this firm has grown from a tiny entrant to taking up over 8% of the industry, Canva itself has helped to reduce the market concentration heavily dictated by Adobe. Therefore, as Canva's market share went up, the market saw a reduced concentration metric. Moreover, as Canva continued to grow, it appears as though Adobe's acquisitions actually helped to eliminate some of Canva's competition and grant it some more market share. As Canva is characterized by its lightweight, user-friendly platform; it is more differentiated from Adobe's services and thus was able to garner more market share as Adobe was acquiring firms over this period.

TABLE VII. Effects on Canva Market Share

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	6.820e-02	1.698e-02	4.016	0.0568 .
Revenue	1.976e-02	2.236e-03	8.839	0.0126 *
MarketGrowthRate	6.554e-02	9.771e-03	6.708	0.0215 *
HHI	-2.121e-05	3.369e-06	-6.296	0.0243 *
AccumAdobeAcquisitions	1.798e-03	4.029e-04	4.462	0.0467 *
GDPGrowthRate	4.187e-01	4.385e-02	9.549	0.0108 *
UnemploymentRate	-6.312e-02	7.519e-02	-0.840	0.4895

Figma

Figma is another firm that was only finding its bearings in 2015, but by 2022 it had agreed to a $20 billion deal to be acquired by Adobe[6]. Not only does this reflect remarkable growth over this time period for the company–but it also highlights an interesting competitive relationship with Adobe. We run another linear regression for Figma's market share, using the formula:

$$\begin{aligned}\text{FigmaMarketShare} &= \beta_0 + \beta_1 \times \text{Revenue} \\ &+\beta_2 \times \text{MarketGrowthRate} + \beta_3 \times \text{HHI} \\ &+\beta_4 \times \text{AccumAdobeAcquisitions} + \beta_5 \times \text{UnemploymentRate} \\ &+\epsilon \end{aligned} \tag{7}$$

We can see that with a multiple R^2 of 0.98, as well as an F-statistic of 1.453e+04 with a corresponding p-value of 0.006299, it is safe to conclude that this model is statistically significant at the 95% confidence interval.

Per Table VIII, with a statistically significant coefficient of 0.001521 for AccumAdobeAcquisitions, we see Figma behaving similarly to Canva in terms of benefiting from Adobe's acquisitions over this time period; it again appears that in purchasing some of Figma's competitors, Adobe may have cleared more room in the market for Figma. But unlike Canva, Figma's market share

TABLE VIII. Effects on Figma Market Share

Coefficients	Estimate	Std. Error	t value	Pr(≥| t |)
(Intercept)	-3.497e-02	1.359e-03	-25.72	0.02474 *
Revenue	3.567e-02	4.632e-04	77.00	0.00827 **
MarketGrowthRate	1.055e-02	6.465e-04	16.32	0.03897 *
HHI	5.032e-06	2.298e-07	21.89	0.02906 *
AccumAdobeAcqu.	1.521e-03	4.287e-05	35.47	0.01794 *
GDPGrowthRate	6.264e-02	5.549e-03	11.29	0.05625

is increasing in HHI; this is the case because while Canva was a more differentiated product from Adobe's Creative Cloud (as it catered to a less tech-savvy user), Figma was directly competing with Adobe XD–Adobe's UX/UI design application[7]. Therefore, considering HHI as a proxy for Adobe's market share, it makes sense that if HHI were to increase–indicating more success for Adobe XD–then Figma's market share would decrease.

Because we see Figma's market share steadily rising to almost 3% by 2022[1], we could then assume that it was beginning to win over many Adobe XD users–and data backs up this hypothesis. In fact, Adobe XD had lost over $25 million[6] over the three years leading up to the attempted acquisition of Figma, due to Figma's skyrocketing success. It makes sense, then, that Adobe would want to engage in further predation in attempting to acquire Figma as a direct competitor to its service.

APPLYING SALOP'S CIRCULAR MODEL

To get a better idea of how Adobe's predatory acquisition patterns for the period 2015-2023 harm consumers, it is helpful to consider an interesting Microeconomic model that helps explain how firms choose price and product differentiation features to maximize profits.

Thus, we can think about the digital design software market in terms of Salop's Circular Model, which is a slight variation of the 1929 Hotelling Model[8]. Consider for now Figure 2, which shows a snapshot of the digital design software market in 2019. We consider a consumer as being located somewhere on the perimeter of this circle; their position is indicative of their specific preferences. A consumer interested in 3-D video game rendering software would be located by the Autodesk offerings; a consumer interested in a lightweight logo design software would be located by the Canva offerings; etc. The triangles positioned by each of the company logos represents how much revenue a respective firm can extract from consumers that fall on this circle. (Note that gaps, or locations on the circle's perimeter that are not covered by a triangle, represent preferences not captured by any firm in this market.) The area beneath each triangle represents the difference between the consumers' utility and the price that they pay for the service; as a firm's offerings match less and less of a consumer's preferences,

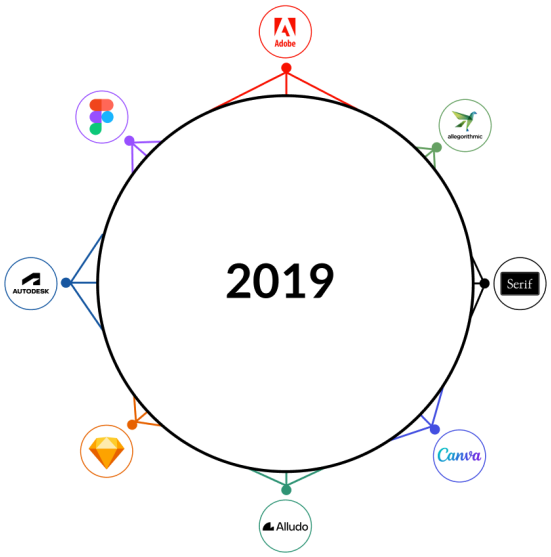

FIG. 2. Salop's Market Model 2019

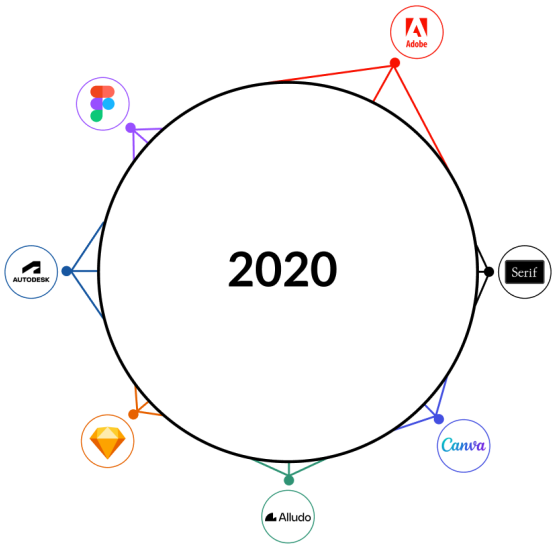

FIG. 3. Salop's Market Model 2020

this difference gets smaller–which is why we get this triangular shape for each firm.

It is clear that Adobe is deriving a relatively large revenue in 2019, as the area beneath the firm's red triangle is quite substantial. Referring to Table I , we know that Adobe acquired Allegorithmic in 2019, a company that had produced proprietary software for 3-D digital textures. Therefore, in 2020, the market would now look like Figure 3.

Looking at 2020, it is evident that in capturing Allegorithmic's preference location on the circle, Adobe has managed to extract much more revenue since it serves

more consumer tastes. Over time, we can consider that small innovative firms pop up in gaps on this circle–serving niche tastes–and Adobe acquires these firms to cover more of the market. At face value, this may not look like such a malicious practice, as you might expect Adobe to maintain the same price for the new product offering they've acquired–but this is not the case. Adobe now knows that it's captured a higher utility for its average consumer, so it increases its price to extract more revenue from its consumers.

This is evident in practice when considering Adobe's Creative Cloud pricing plans. For businesses, Adobe charges $89.99/mo per license for access to all 20+ Creative Cloud applications, and it charges $37.99/mo per license for access to just a single one of those apps[2]. In other words, unless your business needs only two or fewer apps–which is rarely the case–you are forced to shell out a much higher amount of money despite not needing to nearly even close to all of the 20+ apps housed in the Creative Cloud.

Going back to our Salop's Market Mode example, Adobe is now able to extract much more value out of its average consumer after acquiring Allegorithmic. The startup's pre-acquisition monthly product cost was a meager $20/mo[4]. Now, if a business was strictly interested in this one application, it would have to pay $37.99/mo to access the same software. Moreover, Adobe understands that because of this model, its average consumer–which purchases the entire Creative Cloud subscription–gets more utility out of this subscription due to the availability of this new software, so Adobe jacks up the price of its Creative Cloud subscription as well. In doing this, Adobe knows it will lose many potential consumers that used to purchase the Allegorithmic software before the acquisition (and potentially even render the software unused), but that doesn't matter–since they know that they can charge their average user a higher price.

Eventual Regulation

Given the previous example, it's not difficult to imagine how Adobe could gradually work its way around Salop's circle and acquire almost any small firm producing for a niche consumer preference in this market *in the absence of regulation*. In December 2023, anti-trust regulators finally began to step in to disrupt the pattern of harmful acquisitions from Adobe.

This paper has alluded to the $20 billion acquisition of Figma several times previously, but this deal was eventually blocked by E.U. Regulators and Britain's Competition and Markets Authority (CMA)–citing the anti-competitive nature of the deal[6]. Per Figure 4 , regulators express major concern for deals that cause increases in the HHI by more than 100 units, and for deals that result in an HHI greater than 1800 units.

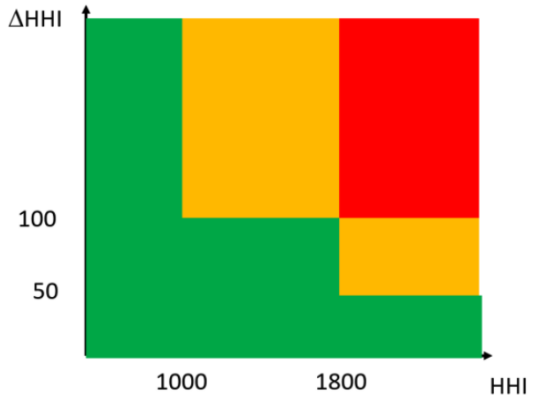

FIG. 4. HHI Guidelines[9]

Calculating these values, this paper estimates the ΔHHI to be 72.5073, and the resulting HHI to be 3455.779[1]. Considering that the resulting HHI would have been so enormous, coupled with the fact that the ΔHHI is already high enough for some concern–it is no surprise that regulators struck down this acquisition.

Still, there is one more interesting aspect of the deal that seems quite odd from a financial standpoint. News of this acquisition was publicly announced in September 2022, and Figma had earned just over $200 million in revenue the previous year. At the time of the announcement, analysts valued Figma at a generous $10 billion. Why, then, did Adobe offer double that amount in order to buy the company? This paper argues that the additional $10 billion was a predation tax.

CONCLUSIONS

We presented findings and analysis to help shed light on the dynamics of market competition and the factors influencing the market shares of digital design software companies–setting particular focus on the impact of Adobe's predatory acquisitions within the market over the time period 2015-2023.

Our results underscore how Adobe's acquisition strategy hinders the expansion of the digital design software market, as well as this strategy's dampening effect on innovation, by proxy of patent filings, within the market. Our analysis also uncovers a market HHI that decreases in accumulated Adobe acquisitions, indicating that Adobe could be struggling to keep up with new firms entering the market.

We then honed in on specific firms to get a closer look at intra-market dynamics, yielding some interesting insights. We learned that Adobe tended to acquire firms exhibiting the most innovation, that Autodesk struggled

to compete as Adobe cut into its market share, that Canva was able to compete with Adobe by differentiating its end user, and that Figma has been successful in converting users from Adobe XD onto their own platform.

Following this analysis, we applied Salop's Circular Model to gain a better understanding of how consumers are impacted by Adobe's pattern of predation. We used the 2019 acquisition of Allegorithmic to illustrate how acquisitions in markets with differentiating products can promote increased prices and lower consumer surplus. Moreover, this model helped put Adobe's pricing plans into greater context.

We concluded our analysis by discussing the blocked acquisition of Figma by Adobe, calculating key HHI figures and highlighting a strange evaluation on Adobe's part.

Overall, this study seeks to gain a deeper understanding of the inner-workings of a young but complex digital design software market–seeking the best interest of entering firms and consumers alike. As this market continues to grow and evolve, we expect regulators to watch dominating firms more closely for predatory market behavior. This paper's application of Salop's Circular Model could also be more closely analyzed and made more complex; the author hopes such a paper could enrich the findings analyzed in this paper.

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