The Center for Growth and Opportunity at Utah State University

Are 'Killer Acquisitions' by Tech Giants a Real Threat to Competition?

Will Rinehart

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Introduction

The Biden administration's July 2021 executive order (EO) on competition marked a change in its approach to competition policy. The EO marks an increased focus on so-called "killer acquisitions." It directs the Federal Trade Commission (FTC) and the Department of Justice (DOJ) to take a closer look at deals inked by Big Tech companies.[1] As the EO Fact Sheet argues,

> Over the past ten years, the largest tech platforms have acquired hundreds of companies—including alleged "killer acquisitions" meant to shut down a potential competitive threat. Too often, federal agencies have not blocked, conditioned, or, in some cases, meaningfully examined these acquisitions.[2]

While the administration's power to change antitrust law through an EO is limited, its focus on killer acquisitions is notable because it elevates concerns over acquisitions that were unlikely to be challenged under past policy.

The EO cites a research paper by Colleen Cunningham, Florian Ederer, and Song Ma aptly titled, "Killer Acquisitions."[3] This paper has become a lightning rod, especially in Silicon Valley. A dive into its specifics, however, shows that many may be reading the paper and the concept of a killer deal far too expansively.

With the FTC changing the rules for mergers, in part out of concern over killer acquisitions, and leaders in Congress calling for a crackdown on mergers, understanding what is meant by this term is critical. Altogether, the research suggests what is needed is a more measured approach to regulating acquisitions and competition than what is being suggested in the EO. Understanding the purpose of acquisitions will ensure this vibrant part of the economy isn't stifled.

In this brief, I define what is meant by a killer acquisition. I then explain why the Facebook-Instagram merger wasn't a killer acquisition. I use the framework set out by Cunningham, Ederer, and Ma to explain why Zuckerberg decided to buy the app company. Following this, I chart the relationship between killer acquisitions and a concept called "the kill zone." Finally, I review the benefits of acquisitions from the point of the seller.

Killer acquisitions defined

There are two kinds of acquisitions: an *acquisition to kill* and an *acquisition to continue*. A killer acquisition is when an incumbent buys a smaller company to shut down a new product. An acquisition to continue is meant to expand the acquiring company's products.

Cunningham, Ederer, and Ma wrote "Killer Acquisitions" to better understand the conditions that would drive an incumbent firm to buy a company just to eliminate one of its products. According to the paper, firms, especially dominant firms, don't want to cannibalize profits. Only under specific conditions, "an incumbent firm may acquire an innovative start-up simply to shut down the start-up's projects and thereby stem the 'gale of creative destruction' of new inventions (Schumpeter, 1942)."[4] But the bigger company might buy a firm to expand their product lines, as well.

"Killer Acquisitions" fits into a line of research studying acquisitions as options, even though the authors do not explicitly use those terms. Options theory has its origins in finance. It has since been widely adopted in business to describe the investment choices that a company will make in order "to expand, change or curtail projects based on changing economic, technological or market conditions."[5] Every project has a value: all future revenues calculated into one lump sum in today's dollars. Every project also has a degree of risk. It could fail or succeed.

Cunningham, Ederer, and Ma explain that in places where there is clear overlap between products, two incentives tug upon the incumbent company. Acquiring and shutting down the entrepreneur's project yields a profit, *the efficiency effect*. On the other hand, acquisitions might be sought for their marginal profits, what is called *the replacement effect*.[6]

An acquisition is likely meant to kill if the efficiency effect is greater than the replacement effect. Simply stated, a killer acquisition is more likely to happen if the value of shutting down the new project is greater than the value of seeing it to market and reaping the rewards. Conversely, an acquisition to continue occurs if the replacement effect exceeds the efficiency effect. In this case, the value of taking the new project to market is greater than the lost profit in cannibalizing sales.[7]

The authors use data from the pharmaceutical industry to illustrate killer acquisitions. They "show that acquired drug projects are less likely to be developed when they overlap with the acquirer's existing product portfolio, especially when the acquirer's market power is large due to weak competition or distant patent expiration."[8] The results are striking. Drug companies are 23.4% less likely to continue down the development path if there is product overlap. Altogether, the authors estimate that 5.3%–7.4% of acquisitions are killer acquisitions.[9]

The "Killer Acquisitions" paper brings into focus some key questions when considering if an acquisition is a killer:

- Is there clear overlap between the acquirer's current product and a new one that might be developed by the smaller company?
- What are the development costs, including time, that each party will have to incur to bring a new product to the masses?
- Given development costs, what's the value of taking the new product to market as compared to the potential lost profit in cannibalizing sales?
- Since there is uncertainty in all investments, how certain are we that this new product that hasn't been fully developed will eventually disrupt the incumbent's current product lines?[10]

"Killer Acquisitions" generates a lot of useful insights, but there are still serious lingering questions regarding its applicability to large technology companies. One big difference between the pharmaceutical and software industries is the role of patents. Patents grant clear monopoly rents to the rightsholder, a feature that is built directly into the paper's model. While there is always deep uncertainty about an investment in any industry, successfully patented drugs offer a greater potential for a revenue stream, since they are government-granted monopolies over a narrowly defined niche product for a specific time period. Patents offer relatively surefire revenues to the incumbents as well as the nascent project. Additionally, development times for drugs can take decades. This also shifts incentives. Instead of bringing a competing drug to market quickly, there is an incentive to delay.

Big tech differs greatly from pharmaceuticals. Software and services developed by platforms and other Big Tech players usually aren't protected by patents. There are no monopoly rights to the revenue. Pharmaceutical patents have a length and a breadth, which allows for exclusion in the legal process and time to develop the product.[11] In tech, competitors can and often do copy successful products, services, and features. Thus, tech companies face much deeper uncertainty about the revenue streams of any nascent project and how those might conflict with current products.[12]

Additionally, drug patents aren't substitutable for patients. There are often no or very limited options for a needed product. We intuitively understand why a person would only take one heart medication, but that same person might have Facebook, Instagram, TikTok, and Twitter apps on their phone, all at the same time.

To be fair, certain software is patented. But that doesn't mean the idea cannot be reproduced. It just has to be recreated from the whole cloth. That's sometimes a tall order, but it can be done. Google did it with Docs, just as Meta adopted Reels, and Microsoft built Azure.

While "Killer Acquisitions" has its limits, the paper brings attention to the options theory of mergers.

Does option theory explain the Facebook-Instagram merger?

Using the definition laid out in Cunningham, Ederer, and Ma, Facebook's buyout of Instagram was not a killer acquisition, despite often being cited as such.[13] Instagram was not shut down. If Facebook bought Instagram just to stop it from being competitive, the buyout would have been a plain, old horizontal merger, not a killer acquisition.

A tranche of Facebook CEO Mark Zuckerberg's emails released by the House of Representatives explains the reasoning behind the buyout of Instagram.[14] When seen through the lens of option theory, Zuckerberg's reasoning makes sense.

In February 2012, Zuckerberg emailed his chief financial officer, David Ebersman, asking his thoughts on buying a company. Ebersman responded that he had a high bar for those kinds of deals and urged Zuckerberg to explain why.

Ebersman offered up four possible reasons for an acquisition. The deal could

1. neutralize a potential competitor,
2. acquire talent,
3. integrate products to improve service, or
4. do something else.

In response, Zuckerberg gamed out his options,

> It's a combination of (1) and (3). The basic plan would be to buy these companies and leave their products running while over time incorporating the social dynamics they've invented into our core products. One thing that may make (1) more reasonable here is that there are network effects around social products and a finite number of different social mechanics to invent. Once someone wins at a specific mechanic, it's difficult for others to supplant them without doing

> something different. It's possible someone beats Instagram by building something that is better to the point that they get network migration. but this is harder as long as Instagram keeps running as a product. (3) is also a factor, but in reality, we already know these companies' social dynamics and will integrate them over the next 12–24 months anyway. The integration plan involves building their mechanics into our products, rather than directly integrating their products, if that makes sense. By a combination of (1) and (3), one way of looking at this is that what we're really buying is time. Even if some new competitors spring up, buying Instagram, Path, Foursquare, etc. now will give us a year or more to integrate their dynamics before anyone can get close to their scale again. Within that time, if we incorporate the social mechanics they were using, those new products won't get much traction, since we'll already have their mechanics deployed at scale.[15]

Many have interpreted this part of the exchange as being a smoking gun showing that Zuckerberg was trying to shut down competition. Instead, it shows Zuckerberg's complicated reasoning.

Instagram was clearly in the lead in mobile sharing, a position that could have been disruptive in the future. However, Zuckerberg wasn't simply concerned with Instagram or Path growing to compete with Facebook, but also with other companies springing up, chiefly Google, and getting close to the scale of Instagram.

When Zuckerberg wrote those emails in February of 2012, just before the deal with Instagram was struck, Google was six months into its Google+ social network launch. Google+ eventually shuttered, but the rollout was shocking to Facebook. In a move that could never happen today, Google automatically enrolled users from other products into Google+. Over 90 million users were a part of the network by the end of 2011.[16]

The launch of Google+ shifted efforts already underway at Facebook into high gear. Leadership realized the real race was towards high-quality mobile photo sharing. Path, aa rival to Instagram, had turned down Google's buyout offer in the spring of 2011 and was choosing to go on its own.[17] Two weeks before the launch of Google+, it was also reported that Facebook was developing their own photo sharing app, internally called "Hovertown" or "WithPeople."[18] This is likely the project alluded to in the email when Zuckerberg wrote, "We already know these companies' social dynamics and will integrate them over the next 12–24 months anyway." While Facebook's photo sharing app got good reviews, it was never deployed because Facebook bought Instagram instead.

When couched in the framework of Cunningham, Ederer, and Ma, as well as the much broader context of the market, Zuckerberg's "smoking gun" email is much more nuanced and interesting than others would give him credit for. As he explains it, the deal would be "a combination of (1) and (3)." In the language of "Killer Acquisitions," option (1) describes the efficiency effect, making higher profits, while (3) is better understood as the replacement effect, improving a product. Still, Zuckerberg never seems to solve the inequality at the heart of this decision. Indeed, two months later, he wrote again about his uncertainty, "I just need to decide if we're buying Instagram."[19]

So, why buy Instagram? Let's assume for a second that Zuckerberg is deeply uncertain about the prospects for reasons (1) and (3), and is thus deeply unclear about the relative value of Instagram. In the fast-changing social media landscape, it is logical to buy an option to hedge against market uncertainty. In its formal definition, a financial option is an agreement between two parties in which the buyer has the right to buy or sell an asset (like stocks, currencies, or commodities) at a predetermined price and time in the future. [20] Farmers buy options to mitigate against the uncertainty involved in growing crops, like too much rainfall or too little.

Zuckerberg's motive might be better understood as a reduction of market uncertainty that was likely to plague Facebook in the next two years. As he explains it bluntly, "One way of looking at this is that what we're really buying is time." Facebook had a rough summer in 2011 and was facing massive uncertainty in the next 12 to 24 months, the timeframe in which it planned to deploy the features of Hovertown or WithPeople and then scale up. Acquiring Instagram would have been a means of buying out of that uncertainty.

Zuckerberg seems to have been thinking through this deal as an. It was an option that helped to mitigate uncertainty in the near term. Both the "Killer Acquisition" paper and the Instagram deal underscore that option theory could be a powerful method of understanding deals.

While Zuckerberg's emails are fun to probe for their insights into the decision-making process of this deal, ultimately the Instagram deal should be judged for its consumer effects. In this regard, killer acquisitions need to be differentiated from kill zones. As the next section explains, some worry that merger thresholds create a zone of regulatory indifference.

The kill zone and killer acquisitions

In 1954, news broke that the Washington Post had acquired the Washington Herald. Both parties kept all of the negotiations secret until the deal had been worked out and finalized. This strategy of secret mergers became increasingly popular among companies in the 1960s and 1970s. In response to concerns about antitrust violations stemming from these "midnight mergers," Congress passed the Hart-Scott-Rodino (HSR) Antitrust Improvements Act of 1976.[21] This act requires companies to notify authorities if the target company's assets surpass a certain threshold, which as of 2022 is set at $101 million.

Once the deal has been filed with the FTC or the DOJ, the lead agency will conduct a preliminary review and has 30 days to respond.[22] The formal response will be one of three options. The lead agency might terminate the waiting period before its designated end date, thereby granting an Early Termination (ET). Or, the agency may allow the initial waiting period to expire. In both of these cases, the deal is permitted to go through. The third option is the most intrusive and signals the potential for a merger challenge. The agency may issue a Request for Additional Information ("Second Request"). Compliance with this process is notoriously costly. On average, the second request will cost the merging companies $4.3 million.[23]

Some are rightly worried that the HSR threshold has become hard line, creating a zone of regulatory indifference to deals below that threshold. In the past decade, five tech companies, including Alphabet, Apple, Facebook, Amazon, and Microsoft (hereafter referenced as GAFAM), have completed hundreds of deals that each fall under this line. Because these deals never undergo FTC review, the concern is that these Big Tech firms are poaching companies and stopping competition before it has a chance to grow into a serious rival.

"Killer Acquisitions" predicts that the vast majority of deals are going for their economic benefits.[24] And yet when Google, Apple, or any other large tech firm buys a smaller company, there is often a direct synergy between the new company's products or IP and the larger company's network and distribution channels. In one survey conducted by Gautier and Lamesch (2020), it was discovered that the 175 companies acquired by GAFAM from 2015 to 2017 were mainly used to strengthen their core markets.[25] Of these deals, the big five mainly acquired the smaller firm's assets (functionality, technology, talent, or IP) and then integrated them into their ecosystem. As the authors reasoned, "acquisition appears to be a substitute for in-house R&D."[26] But most important for this discussion, the researchers also found that only "just a single [acquisition] in our sample could potentially be qualified as" a killer acquisition.[27]

Parsing the good deals from the anticompetitive ones takes rigor, especially when a company shuts down an acquired firm after integrating its assets. Such a deal might look like an acquisition to kill from the outside, but it was really an acquisition to continue.

In 2020, the FTC compelled GAFAM to provide information about prior acquisitions not reported to the federal antitrust agencies.[28] The follow-on report released in 2021 offers the most expansive view of these deals. Of the 819 transactions, the Big Five bought 350 companies for their patents, assets, licenses, or their people. The single biggest category was a buyout for control of the company at 382 deals.

What's especially interesting about the FTC report is that there isn't a clear clustering just below the HSR threshold.[29] If Big Tech companies were using HSR as a shield, most deals should be struck just below it. And yet, most of the deals cluster around the $10 to $25 million level and then taper off as they approach the HST threshold.

Killer acquisitions are distinct from a related term known as the "kill zone." Much like a dead zone, an area where life cannot grow because the oxygen has been sucked out of the water, a kill zone theoretically forms around technologies and products that conflict with or align too closely with Big Tech companies. Financing is difficult to obtain in a kill zone because investment firms expect higher rates of failure. This inadvertently prevents the rise of potential rivals because there is no funding available for kill zone startups. Some analysts tie the decline in startups and initial public offerings (IPOs) directly to the rise of digital companies like Apple, Google, and Amazon.[30]

The theory is that the mere presence of large tech companies in an area means less attention for startups in the same area. As one

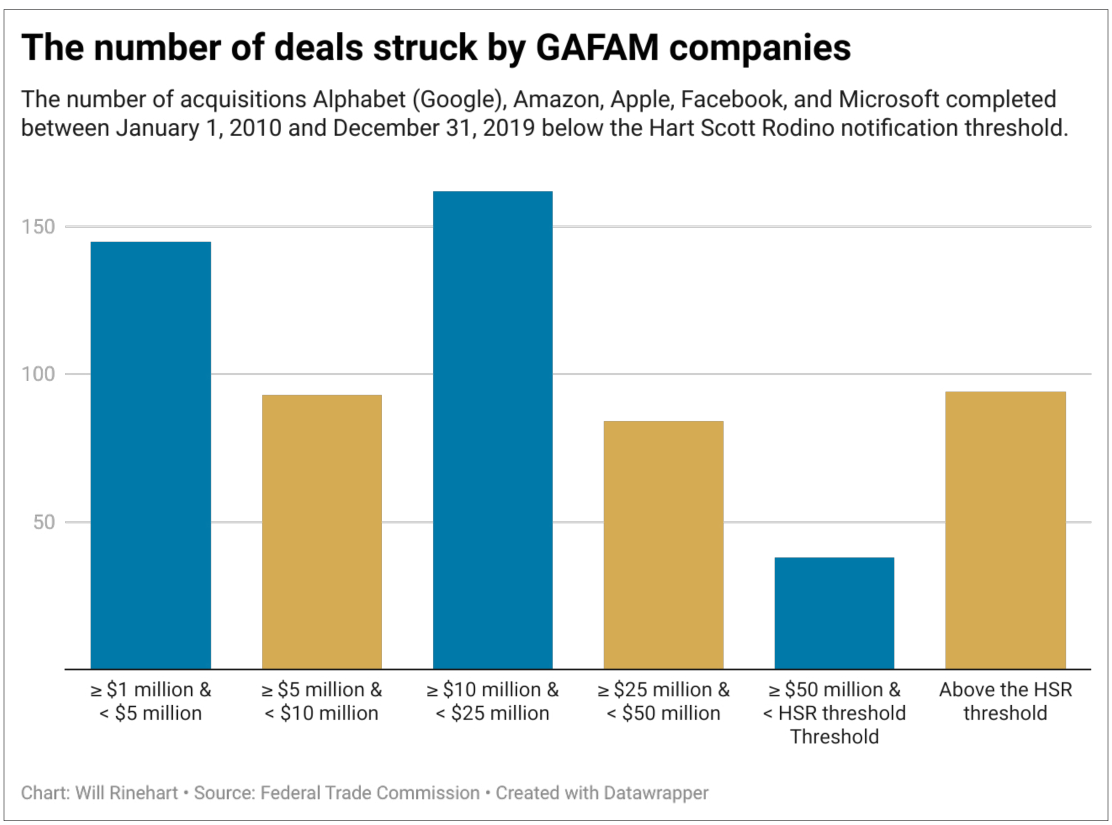

Figure 1: The Number of Deals Struck by GAFAM Companies

advocate of reform explained it, "Startups have found that they are unable to get funding if they are in the 'kill-zone' of the Big Tech companies. If a startup is attempting to operate in an area that is seen as too close or a competitive threat to the biggest tech companies, investors will assume that failure is guaranteed—either because of anti-competitive structures or the likelihood that the Big Tech companies will crush such threats."[31]

Until recently, this aspect of the kill zone debate has been bereft of data. What the recent data suggests is that kill zones don't really exist. Prado and Bauer found when looking at venture capital (VC) deals from 2010 to 2019, "a persistent ***positive*** impact of the Big Tech start-up acquisitions on the appetite of VCs to also invest in start-ups of similar industry segments."[32] This "growth zone" effect isn't permanent, however, as "the findings suggest that the effects are transient and fade away after several quarters."[33]

A slightly longer dataset of 2010 to 2020 similarly found that there is "no evidence suggesting that a GAFAM acquisition in a category, compared to similar categories without GAFAM acquisitions, is correlated with a slowdown in the number of new acquirers acquiring in that category."[34] GAFAM's technology acquisitions do not protect them from possible competition that could come from other GAFAM members or other companies that acquire similar technology.

Acquisition as an exit strategy

Instead of focusing on why large firms buy startups, public policy leaders should be focused on why startups seek to exit or go public. What do startups want to achieve? Is the goal of an entrant to become a superstar company, or are founders looking for an exit, to be bought out by someone who can take their product to market and offer them a big payout?

To reach scale, a firm requires significant funding.[35] As a firm grows and needs to raise capital, it is more likely to transition to public equity markets or to sell its assets to a larger company. It's understandable, then, that many US entrepreneurs never plan on reaching a public market exit. A 2020 survey of founders discovered that 58% were expecting to be acquired while only 17% were expecting to go public. Similar numbers were found for Canada and the United Kingdom as well.[36]

There are good reasons why a founder might prefer being acquired to going public. An IPO isn't a golden ticket. A new company will often sign away 3.5% to 7% of their gross proceeds to an investment bank to underwrite the stock.[37] On top of the underwriting fee, there are legal and accounting costs, as well as Securities and Exchange Commission registration fees, costs to comply with the Financial Industry Regulatory Authority (FINRA), and fees to be listed on an exchange. Then every year after the listing, they will have to fork over another $1 to $2 million for federal compliance. Going through the process of getting listed averages $4.2 million in outlays.[38]

All of the compliance costs add up, taking away from the core business. the Jumpstart Our Business Start-up (JOBS) Act, which eliminated certain disclosure, auditing, and governance obligations, offered a natural experiment to underscore this point. By looking at comparable firms before and after the act took place, researchers found that the reduced compliance burdens tended to prompt the company to invest more and achieve better efficiency after their initial public offering. This was especially seen in innovative investments. It also seems that these companies are less likely to cater to short-term earnings goals. From these findings, we can infer that the costs associated with being a public company can hinder investment and innovation by redirecting resources away from long-term, value-increasing investments.[39]

In addition to avoiding compliance costs, acquisitions help entrepreneurs get their product into the mainstream. Entrepreneurs often have excellent ideas, but lack the marketing and technical resources to get their products widely distributed. Companies with large resources and consumer bases often lack innovative ideas when it comes to developing a new product. A firm's attention is a scarce resource that needs to be allocated efficiently to achieve organizational goals. Exit by acquisition can help firms efficiently allocate their attention.

The attention-based theory of the firm explains how firms allocate their attention or focus on specific tasks or activities.[40] It can also explain why mergers and acquisitions take place. Leaders have limited attention resources, and so some companies focus on research, while others excel at marketing. A merger can bring these two strengths together.

The attention-based theory is especially relevant in the context of knowledge-based industries, where a firm's intellectual assets and intangible resources are critical to its success. In these industries, attention allocation can significantly impact a firm's ability to innovate, respond to market changes, and create value for its stakeholders. Absorbing small companies into larger ones means that consumers benefit as they now have access to innovative products that otherwise wouldn't exist.

There is considerable evidence for an attention-based theory of the firm. Using data of US firms from 1990 to 2012, economists have found that companies with financial analysts tend to cut research and development expenses, invest in corporate venture capital, and buy more startups.[41] As the authors of one study concluded, "Financial analysts encourage firms to make more efficient investments related to innovation, which increases their future patents and citations and influences the novelty of their innovations."[42] As a company matures and formalizes its financial processes, that company will shift its innovation strategy by spending less money on internal research and development and more money on buying innovative companies.

Google's acquisition of Android in 2005 serves as one example of a product going mainstream with the help of a market leader. Today, the deal seems like a smart move, but at the time, Google CEO Eric Schmidt was uncertain where the company would fit into Google.[43] He was skeptical of the purchase orchestrated by founders Larry Page and Sergey Brin. In 2005, Android had no viable product. Yet Page and Brin had a vision for mobile and acquired the company, putting Android's Andy Rubin and Rich Miner at key places within the company. With Google's resources on its side and the talent gained in the deal, Android launched and has since become the largest mobile operating system, a clear win for consumers.

Facebook's acquisition of Instagram also offers a similar lesson. After acquisition, Facebook upgraded Instagram's backend and gave it access to Facebook's ad platform, both of which helped the company to consistently grow its revenues and user base.[44] In contrast, Instagram's primary competitor, Snapchat, has struggled on its own. Snapchat's parent company, Snap, went public in March of 2017 and built its own advertising platform to compete with the likes of Facebook and Google. Snap is a successful company today, but it had lackluster revenues for years, causing the company to lay off personnel and reorganize.[45] Even today, the stock sits below its initial IPO price.[46] While Instagram doesn't have independence, it boasts over a billion monthly active users compared to Snapchat's 360 million.[47]

While being part of a startup looks good on a resume, startups pay less and workers often clock in longer hours.[48] Exits offer a large payout for everyone involved, especially if staff has taken equity shares in the company in lieu of higher salaries. Estimates suggest that earnings increase by 12.6% by going to an incumbent over a comparable startup.[49] WhatsApp cofounder Brian Acton explained a couple years after selling to Facebook, that "I had 50 employees, and I had to think about them and the money they would make from this sale. I had to think about our investors, and I had to think about my minority stake."[50]

Buyouts also might be a preferred exit for financial backers. Acqui-hires, as they are called, are common ways of bringing talent into a firm that has both a tax benefit and makes investors happy.[51] Jane Ross, partner with Hogan Lovells' Silicon Valley group noted that, when companies consider acquiring a whole team, "The proven track record of working well together and over an extended period of time makes them a very attractive asset in an environment of fierce competition for technical expertise and talent."[52] In tight labor markets where talent is difficult to acquire, buying out a company can be a proven way to bring the entire team.

Still other companies may have always planned to be acquired, so a buyout would align with their long-term objectives. Economist Eric Rasmusen's seminal paper on the topic, "Entry for Buyout," highlights that entry can be a form of rent-seeking behavior.[53] Entrants may leverage the threat of lowering prices to entice their larger competitors to acquire them. However, it is not evident that consumers are significantly impacted in this situation.[54]

Sometimes, however, startups must exit because they don't have any more runway. Zappos, for example, sold to Amazon because it was struggling to raise cash during the 2007 economic downturn. As Zappos co-founder and CEO Tony Hsieh explained, he wanted to grow the business, but the recession and the credit crisis forced Zappos to reconsider its strategy.[55] Limiting exit under such conditions could lead startups to fold entirely.

Limiting the options of entrepreneurs to exit their startups would have a clear impact on innovation, too. Serial entrepreneurs, who open more than one business in their lifetime, create more productive businesses.[56] Indeed, research finds that "a large component of success in entrepreneurship and venture capital can be attributed to skill."[57] Exits give executives the ability to start a new company and take a chance on a new idea, creating further value and jobs for the economy. Peter Thiel, Marc Andreessen, Steve Case, and Mark Cuban have all had successful second acts.[58]

Conclusion

The July 2021 EO signaled a significant shift in the government's approach to promoting competition and regulating corporate power. However, the academic paper on which these changes were built, "Killer Acquisitions," has been interpreted too expansively.

The paper gives us a language and a framework to better understand mergers and acquisitions. Still, the vast majority of acquisitions aren't killer acquisitions. They aren't done to stop competitors, but to buy innovative ideas and talent, which has the end effect of being pro-consumer. Companies could try to strike anticompetitive deals to kill competition, which means there is an important role for agencies to police bad actors. But those agencies must take a nuanced and targeted approach.

Policymakers need to be careful. Killing acquisitions could maim startups, investors, and the economy's overall ability to innovate.

Will Rinehart is a senior research fellow at the Center for Growth and Opportunity at Utah State University.

Endnotes

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