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Monopoly Myths: Is Big Tech Creating "Kill Zones"?

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Critics accuse big tech companies of stifling innovation by buying start-ups just to kill them or by exerting such dominance that entrepreneurs don't want to enter their markets. Neither claim holds up to logic or evidence.

KEY TAKEAWAYS

- Concerns that large Internet companies are impeding competition by engaging in "killer acquisitions" or creating "kill zones" through market dominance are vastly exaggerated.
- Although big Internet companies have engaged in hundreds of acquisitions, very few have drawn criticism—and the heavy focus on the few deals that have proven to be highly successful ignores those that have failed.
- Acquisitions serve useful purposes such as motivating investments in new companies, obtaining workers with key skills, and putting technology in the hands of those that can develop and scale it the fastest.
- So-called "kill zones" are overstated, and certainly have not had a negative impact on venture investing, which has grown dramatically in the last decade.
- Antitrust agencies already have the powers they need to stop problematic acquisitions. They should base decisions on a detailed understanding of markets, including current and future sources of innovation, and focus on increasing social welfare.

INTRODUCTION

Large Internet platforms such as Amazon, Apple, Facebook, and Google have attracted increased regulatory attention over the past several years. Most recently, the Democratic majority in the Subcommittee on Antitrust, Regulatory, and Administrative Law of the U.S. House of Representatives Committee on the Judiciary culminated a 16-month investigation of competition in digital markets by issuing a report calling for significantly greater regulation of these companies.

One argument made against large technology companies is that they limit innovation, either by acquiring start-ups in order to terminate the development of innovations that threaten their continued dominance ("killer acquisitions") or by creating areas of the market in which they exert dominance to the extent others won't invest in these areas ("kill zones"). Either way, large tech companies supposedly limit prospective challengers from being able to take root and grow, thereby limiting not only competition but overall U.S. innovation.

In fact, acquisitions may be beneficial, at least to innovation, if they allow the larger firm to benefit from economies of scale or network effects, and enable the smaller firm to reach many more customers much more quickly with a higher quality product. Moreover, the prospect of being purchased by a larger company often motivates founders and venture capitalists to invest. Making it more difficult for them to sell might make it harder for promising firms to find funding.

And rather than looking at so-called kill zones as an innovation deterrent, it is more accurate to view them as an innovation enabler, guiding entrepreneurial resources (talent and capital) to areas that have the best chance of success. Why invest in companies seeking to duplicate usually mature products offered by large firms that benefit from economies of scale or network effects? It is better for society if new companies concentrate instead on other markets they can break into. Indeed, that seems to be occurring as venture capital investment, especially in early-stage deals, has grown significantly over the last decade, indicating that there is no shortage of innovation opportunities. Although the areas of investment have shifted in response to market developments, this reflects the natural evolution of Internet platforms, rather than a pernicious attempt to stifle competition or innovation.

In either case, regulators already have sufficient powers to protect competition. The current focus on consumer welfare adequately incorporates concerns about innovation. While antitrust authorities going forward probably should broaden their review of acquisitions by dominant companies, there is no need to significantly change antitrust statutes or embrace structural remedies such as structural separation or breakups, as these would likely slow innovation and harm consumers.

WORRIES ABOUT KILLER ACQUISITIONS

Large technology-based companies have long used acquisitions as a way to grow and complement their innovation. For example, Between 1993 and 2000, Cisco Systems spent

roughly $9 billion buying more than 50 companies. The technology it acquired allowed it to use some of its remaining resources to focus on its core competencies and gain needed capabilities to expand in global markets.[1] Since 1998, the four major tech companies (Amazon, Apple, Facebook, and Google) have purchased over 500 companies.[2]

In February 2020, the Federal Trade Commission (FTC) issued Special Orders to the five largest tech firms (Amazon, Apple, Facebook, Google, and Microsoft) requiring each to provide the commission with information about past acquisitions that were not previously reported to the government. The commission 's action reflects a broader concern about the effect of acquisitions on competition and innovation within large tech companies.

The majority House Subcommittee on Antitrust, Commercial, and Administrative Law report states:

> [F]irms investigated by the Subcommittee have acquired hundreds of companies just in the last ten years. In some cases, a dominant firm evidently acquired nascent or potential competitors to neutralize a competitive threat or to maintain and expand the firm's dominance. In other cases, a dominant firm acquired smaller companies to shut them down or discontinue underlying products entirely—transactions aptly described as "killer acquisitions."[3]

WORRIES ABOUT KILL ZONES

Others worry that large technology companies deter investment because no one wants to challenge their market. At a recent antitrust workshop organized by the Department of Justice, investor Paul Arnold said:

> Everybody's dissatisfied with LinkedIn. Every founder thinks there's a better thing to be done. And they're probably right. It's not that good. But they have a very powerful network effect. It' s just incredibly hard to overcome that network. And I've never seen something compelling. And so, my choice is investing in a company that's going to try to do that, or has a very clear path for selling something in insurance, easy choice.[4]

In 2018, *The Economist* wrote, "Anything having to do with the consumer internet is perceived as dangerous, because of the dominance of Amazon, Facebook and Google.... Venture capitalists are wary of backing startups in online search, social media, mobile and e-commerce. It has become harder for startups to secure a first financing round."[5] The article predicts kill zones are likely to stay, partly because "the giants have tons of data to identify emerging rivals faster than ever before."[6]

The House Subcommittee on Antitrust, Commercial, and Administrative Law report states:

> Some venture capitalists, for example, report that there is an innovation "kill zone" that insulates dominant platforms from competitive pressure simply because investors do not view new entrants as worthwhile investments. Other investors have said that they avoid funding entrepreneurs and other companies that compete directly or indirectly with dominant firms in the digital economy.[7]

ACADEMIC PAPERS IDENTIFYING KILL ZONES AND KILLER ACQUISITIONS

A number of academic papers have studied both kill zones and killer acquisitions in the tech sector. Economists Sia Kamepalli, Raghuram Rajan, and Luigi Zingales developed a model to measure the prospect that the acquisition of a potential competitor could deter future innovation in a market.[8] In their model, the growth of a platform relies on its adoption by "techies." These early adopters of technology can accurately judge whether a new platform is better than the incumbent. They are willing to incur the switching costs in order to master a new platform provided they 1) judge it to be significantly better than the alternatives; or 2) believe it will eventually become the new standard. Their adoption gives the new technology critical market share in the early stages until others, influenced by early adopters, also join.

They postulate that if new companies are frequently acquired and their technology is sidelined, techies will be less inclined to adopt new technology. But if mergers are discouraged, techies will have more confidence that the new technology will eventually replace the existing standard, thereby justifying their investment in adopting it. In this way, acquisitions of new entrants by incumbents can reduce new entry and investment by reducing the new technology's ability to attract techies.[9]

The authors acknowledged that prohibitions on mergers can also dampen investment by making it harder for entrants to obtain early-stage funding: "[T]he social optimum will not be an outright prohibition or complete laissez faire, but some middle-of-the-road policy, which will trade off the ex-post welfare losses produced by merger restrictions against the ex-ante gains in investments in innovation."[10]

In order to discover whether actual acquisitions deter innovation, the paper looks at acquisitions of software companies for over $500 million. Of the hundreds of deals large Internet companies have done over the last decade, only nine acquisitions met this criteria: seven by Google and two by Facebook. The authors also looked at data from Pitchbook to measure the amount of investment in start-up companies operating in the same "space" as the companies acquired, as well as the total number of venture capital deals funded. From this sample, they concluded that sectors targeted by the two companies exhibit lower investment by venture capitalists. This suggests that Facebook and Google may crowd out investments even before they acquire a company.[11]

However, Mark Jamison of the American Enterprise Institute has argued that the acquisitions Kamepalli et al. used don't fit the assumptions of their model, making any conclusions dubious at best.[12] The Kamepalli paper assumes that each transaction meets five key assumptions, including that the entrant produces the same product as the acquirer, only better; that there is no multi-homing; and that the acquirer never innovates. Jamison alleged that of the nine transactions examined by Kamepalli et al., five fail to meet any of the assumptions, and four meet just one. Given this, it is hard to have much faith in the conclusions.[13]

Ian Hathaway took a similar approach as Kamepalli et al. Using data from Pitchbook, he tracked the change in annual venture capital first financings starting in 2009.[14] Looking at Amazon, Google, and Facebook, the data let him compare historical financing in the specific market each company is in (e.g., for Google, Internet software), the next broadest category excluding the specific market (for Google and Facebook, software, excluding Internet software), and also for the next-highest category (for both companies, information technology (IT) excluding software). The

results allowed him to compare outside investment in the markets primarily occupied by the three companies with investment in markets once and twice removed from them. In each case Hathaway found that investments in the core market increased rapidly up to a point, but that, after a certain date, the rate of increase fell relative to adjacent markets, giving the appearance of killer zones. However, Hathaway also found that investment in immediately adjacent markets continues to grow strongly for several years—in fact, much more strongly than venture capital as a whole, and that despite tailing off, some first fundings continue to occur in the core market. For this reason, Hathaway cautioned:

> A number of factors outside of market power could explain the decline of new startup activity in [core] industries. Even if market power (or the leveraging of that power into adjacent markets) is to blame, that doesn't automatically spell trouble for innovation—and in markets with strong network effects, strong concentration might be the most likely or even preferred outcome.[15]

Other studies have looked at the effect permissive acquisition policy can have on the technology developed by an entrant in an established market. They find that, at least in certain circumstances, merger policy can help a dominant firm create a killer zone within which there is less innovation by new companies. A paper by Kevin A. Bryan and Erik Hovenkamp concludes that if start-up acquisitions are unlimited, a leading incumbent will sometimes acquire new technology partly to keep other companies from catching up. Start-ups will shift innovation to inventions that improve the leader's technology rather than those that help the broader market. Should the market leader acquire a monopoly, its willingness to purchase new technologies will fall, thereby reducing private returns on future innovations.[16]

A model developed by economist Michael Katz of the University of California, Berkeley, cautions that "the competitive effects of mergers can be complex and highly fact specific."[17] His model predicts that the effect of permissive merger policy on the incentive to innovate depends on how superior an entrant's technology is compared with the incumbent's. In certain cases, incumbents will respond by developing rival technology solely to place pressure on the incumbent to sell. However, models such as this, which are divorced from actual data, show what could conceivably happen under certain assumptions—but provide little guidance on what will actually happen.

A study by Etla Economic Research uses Crunchbase data on venture capital deals to measure the actual impact of acquisitions by comparing activity in product markets that experienced acquisitions with markets that have not.[18] The study compares the timing of acquisitions in a particular market with the pattern of market entry and venture capital financing both before and after the event. The authors concluded that buyouts by the large technology companies generally led to substantially lower market-entry rates and less venture capital funding in the relevant market. They reported that this effect grew during the 2010s when the large companies gained access to increasing amounts of user data showing what websites and apps people were using, allowing them to spot new challengers sooner. Acquisitions of platform companies have also decreased entry into markets unrelated to those directly affected by the acquisition.

Finally, a paper by Mark Lemley and Andrew McCreary argues that the heavy dependence on acquisitions as an exit strategy for venture capitalists is problematic.[19] The authors alleged that acquisitions lead to concentration in the tech industry by reinforcing the power of large firms, and preclude the development of the type of disruptive technologies that have traditionally

displaced incumbents. But, although they suggested a number of possible solutions, it is not clear any of them would result in better outcomes on average.

ARGUMENTS AND STUDIES AGAINST THE KILL ZONE AND KILLER ACQUISITIONS THEORIES

Despite the warnings about killer acquisitions and kill zones, many have written and argued that the negative impacts are overstated, and future acquisitions should not be curtailed. Indeed, there are a number of reasons to believe that these concerns are significantly overstated.

The Tech Industry Is Different

As in much of the anti-monopoly movement's criticism of technology industries, the critique of killer acquisitions does not reflect the unique nature of technology industries, wherein continued innovation is key and product platforms are complex and require many different components, often ones that companies simply do not have capabilities in. As Edward Roberts and Wenyun Kathy Liu wrote in 2001:

> The most dramatic change in global technological innovation—the movement toward externally oriented collaborative strategies that complement internal research-and-development investments—began more than a decade ago. Today companies use alliances, joint ventures, licensing, equity investments, mergers and acquisitions to accomplish their technological and market goals over a technology's life cycle.[20]

Unlike most other industries, the large Internet companies have plenty of cash to invest in new research. Their markets also experience rapid technological innovation that threatens to displace them if they do not continue to offer a better service than their rivals. The high capacity for internal investment reduces the need for venture capital. But the dynamic nature of the markets ensures continuous innovation, even without entrants. A market leader that merely buys up companies to protect itself from having to innovate will soon be eclipsed by the next new thing. This is part of the reason these companies spend significantly more on research as a portion of their revenue than virtually any other public companies in the world.[21]

This is why, despite expressing many concerns about the competitive threat posed by large Internet firms, a recent report for the European Commission urges caution in toughening merger policy for digital companies:

> In the digital field, mergers between established firms and start-ups may frequently bring about substantial synergies and efficiencies: while the start-up may contribute innovative ideas, products and services, the established firm may possess the skills, assets and financial resources needed to further deploy those products and commercialise them.[22]

Likewise, economist Luis Cabral argued that several features of digital platforms make acquisitions a more attractive form of technology transfer.[23] First, the evolution of business models is much harder to predict. Partly for this reason, preemptive actions are difficult to judge given the poor definition of markets and the uncertainty in identifying future rivals. Second, intellectual property is more difficult to protect than in markets such as pharmaceuticals. As a result, companies cannot be sure of what they are licensing. Nor can they be confident that a rival will not simply copy their technology for free. Cabral noted that, out of hundreds of mergers completed by these companies over the last decade, only a handful typically attract any

criticism. As an anecdote, he mentioned Alta Vista's refusal of an offer to purchase Google for $1 million. He pointed out that Google's substitutability and superiority was not apparent at the time. In fact, two years later, Alta Vista still had more than double Google's market share.

Also, while the tech industry does use acquisitions as a way to gain needed technology and talent, it does not do so as a substitute for investing in its own innovation. According to the 2019 EU Industrial R&D Scorecard, of the top companies globally with the largest increase in research and development (R&D) expenditures, four were large U.S. tech companies (Apple, Facebook, Google, and Microsoft). And of the top 5,000 companies in the world ranked by R&D spending in 2019, Alphabet (Google's parent) ranked number 1, Microsoft 3, Apple 6, and Facebook 11. And according to the EU, Amazon would have ranked first overall if it had broken out its R&D and content development expenditures. Even with the ability to acquire other firms, these firms seem to have plenty of incentive to invest in R&D. Moreover, it is precisely their size and market power that gives them the ability to invest so heavily in R&D.[24]

So-Called Kill Zones Could Maximize Welfare and Innovation

To the extent established companies are conducting research in a narrow market, it makes sense for entrants to avoid head-on competition and instead exploit complementary markets. This is almost as likely to be true whether the industry is dominated by one firm or five. Breaking into an industry with relatively mature technology dominated by large players is never easy. That is why many industries have gone through periods of heavy investment in the early stages of an industry as companies try to become one of the dominant players. Once the industry has matured to achieve economies of scale or network effects, new entrants tend to focus on complementary technology rather than trying to challenge the larger companies head-on.

Few complained after the 1930s automobile-sector start-ups declined precipitously. By the 1930s, it made little sense to invest in new automobile companies when it was clear the technology system (internal combustion engine) and major players (American Motors, Chrysler, Ford, and GM) had already been established. Investment to create new entrants would have represented a waste of societal resources. Instead, funding went to emerging industries such as radios, chemicals, and machine tools.

Today is no different. The technology and business models for search, social networks, and Internet retailing are relatively mature; society is better off if entrepreneurs and venture capitalists focus on other areas. Indeed, to the extent investors may be focusing their capital outside a few areas where large firms have established positions in what are somewhat mature technologies, it is arguably a good thing because it means there is more capital for other promising areas. Hathaway, in fact, acknowledged the possibility that "venture capital investment may have increased in non-tech sectors too, so that the tech giants have simply diverted the flow of capital to other areas."[25] The is buttressed by an earlier study by Oliver Wyman, which shows that acquisitions by Facebook, Google, and Amazon have not had a negative effect on the amount of venture capital flowing into tech industries.[26] (See figures 1 and 2.)

Acquisitions Often Increase Innovation

There is often an assumption that acquisitions decrease innovation, but a number of studies suggest the opposite. A Dutch study looks at acquisitions in the manufacturing sector, which

includes technology companies, and finds that both acquisitions and divestitures are positively correlated with increased innovation.[27]

Likewise, a paper by Igor Letina, Armin Schmutzler, and Regina Seibel argues that prohibiting killer acquisitions strictly reduces the variety of innovation projects in an industry because it deters innovation.[28] They built a model in which prohibiting acquisitions has a positive effect on consumer surplus only if the bargaining power of the entrant is small and competition in the industry is not too intense, because both raise the incentives for an incumbent to do its own innovation rather than purchasing that of others. They cautioned:

> While prohibiting acquisitions always has a strictly negative innovation effect in the case without commercialization (i.e. for killer acquisitions), it is not necessarily true for acquisitions with commercialization. Thus, even though killer acquisitions may appear to be particularly problematic, the case for prohibiting them is not necessarily stronger than for acquisitions with commercialization if one takes ex-ante innovation incentives into account.[29]

Moreover, Will Rinehart of the Center for Growth and Opportunity wrote that the large majority of acquisitions are motivated by the desire to purchase either the technology or the talent of the specific firm, rather than to stifle a potential rival.[30] Sometimes termed "acqui-hires," these acquisitions refer to when a company is acquired largely as a means to hire its workforce, and the newly hired team is often more productive after acquisition, in part because of economies of scope and increased resources.[31] These acquisitions also often benefit both parties by integrating new technology into a broader network and helping the new firm scale up. They also benefit consumers by disseminating innovations more broadly. Rinehart related how Facebook's purchase of Instagram was frequently mocked at the time. Since the purchase, Facebook has helped Instagram become a widely used platform.

Likewise, when Google purchased the start-up Keyhole, an innovative digital mapping company, (at the request of Keyhole founders), Google invested billions to improve and expand the mapping coverage. Bill Kilday, one of the founders of Keyhole, wrote that Google "gave them zero direction [and] unlimited resources."[32] In Keyhole's early days, Kilday talked with someone who had an idea to do street-level mapping, complete with pictures. He estimated that because of the vast scale of it, coupled with an uncertain business model, it was essentially science fiction, not likely to be seen in his lifetime. Google, with its Street View project, did it in less than five years, providing it to consumers for free. Moreover, by acquiring Keyhole to help it create Google maps, Google disrupted an incumbent duopoly (MapQuest and TeleAtlas) that was charging for their products.

Moreover, the assumption there are many killer acquisitions does not seem to be borne out. One reason is they are seldom profitable. A mathematical model developed by Pehr-Johan Norbäck, Charlotta Olofsson, and Lars Persson predicts that companies will only purchase a new technology in order to kill it if the quality of the invention is small, otherwise the profit from introducing the technology is higher than the value of deterring its use.[33] This incentive to acquire also falls when intellectual property rights are strong, thereby increasing the entrant's commercial value. Likewise, a paper by Axel Gautier and Joe Lamesch that surveyed acquisitions by Google, Amazon, Facebook, Microsoft, and Apple finds that out of 175 acquisitions in the 2015–2017 period the paper surveys, only one qualified for being a potential "killer"

acquisition: Facebook's acquisition of a photo-sharing app called Masquerade, which had raised just $1 million in funding before being acquired.[34]

Acquisitions Often Fail and Do Not Provide a Competitive Advantage

The antimonopoly critics of tech firms assume the firms are all powerful and prescient, and all their acquisitions achieve the companies' goals. It is easy for them to remember successful acquisitions, but failures tend to be forgotten.

Moreover, even successful mergers are unable to protect the acquirer from technological and market changes that erode its competitive advantage. We have seen a number of examples of this. In the late-1990s and early 2000s, Lucent and Nortel were the powerful tech giants of their time. In the quest to get even larger, they invested tens of billions of dollars in acquisitions. In just five years, Lucent acquired nearly 40 companies, including spending over $20 billion for Ascend Communications.[35] Nortel spent $9.1 billion to acquire Bay Networks in 1998.[36] Almost all these acquisitions were subsequently written off or divested at a significant loss. Sun Microsystems acquired numerous companies during its heyday, including StarDivision, StorageTek, Procom Technology, and at least 88 others.[37] In 1997, it bought tech start-up Diba, which created technology for devices that scan television and the Internet. As one article states, "This is just one more of Sun's strategic ventures to stay ahead of competition."[38] At the time, Sun was "big tech" and "ideally positioned with its leadership in network computing and the Internet."[39] But it was for naught because eventually Sun, near failure, was purchased by Oracle, in what is generally seen as a poor decision by Oracle.

Likewise, once-dominant Internet titan Yahoo! purchased over 114 technology companies, many of them start-ups.[40] When it was just five years old, it was worth more than GM, Ford, and Chrysler combined. Indeed, some antimonopolists of the day believed that the Department of Justice would soon bring an antitrust suit against Yahoo! for being a dominant monopoly.[41] But the acquisitions did not enable it to remain ahead of Google in search.

A team led by Mats Holmström pointed out that many acquisitions, which by definition are expected to benefit the acquirer, fail miserably. A long academic literature documents the fact that, in different industries over different time periods, only a fraction of mergers meet their financial goals.[42] That is why the team expressed skepticism that either WhatsApp or Instagram could have become strong competitors to Facebook.

Acquisitions Provide a Needed Exit Route

The knowledge of possibly being acquired can also spur entrepreneurial activity and investment. As the report for the European Commission notes:

> Simultaneously, the chance for start-ups to be acquired by larger companies is an important element of venture capital markets: it is among the main exit routes for investors and it provides an incentive for the private financing of high-risk innovation.[43]

This argument was echoed by James Pethokoukis of the American Enterprise Institute:

> Not every founder starts a company intending for it become Amazon. Often future acquisition is the goal. Then the entrepreneur can go on to start another firm or become an investor in other aspirational startups working on risky new ideas. Same goes for the investors in the acquired firm. What's more, these purchases are often "acquisition-by-

hire" situations where the prize is talent rather than the Next Big Thing. And when an upstart firm has a valuable idea, acquisition can be the fastest way to get it to users.[44]

The Assumption That Small Firms Are Inherently More Innovative Than Large Firms Is Not Borne Out by the Evidence

One core argument made by anti-monopolists who oppose large companies and argue that kill zones and killer acquisitions are real and harmful is that small firms are inherently more innovative than large firms. As FTC Commissioner Christine Wilson argued, "[M]any today believe that small firms are inherently more innovative than large ones, so that the acquisition of a small firm by a large one necessarily reduces innovation."[45] For example, Tim Wu recently testified before Congress that innovation in technology sectors would increase if government imposed greater regulations and increased antitrust enforcement because "[o]ver the last century, competitive, open sectors—ecosystems—have proved themselves superior to those monopolized or dominated by a 'big three' or 'big four.'"[46]

In fact, large companies are as or more innovative than small firms. In a 1996 paper, Wesley M. Cohen and Steven Klepper found that large firms invest more in R&D as a share of sales.[47] The number of patents and innovations produced per R&D dollar decline with increasing firm size. But they argued that this reflects a mismeasurement of innovation outputs. Large firms benefit from "cost spreading," because they can spread the benefits from one innovation across more units and products, leading to a greater overall level of innovation per unit of R&D. They wrote, "Not only does cost spreading provide the basis for explaining the R&D-size relationship, it also challenges the consensus that has emerged from the R&D literature that large firm size imparts no advantage in R&D competition."[48]

More recently, in 2016, business professors Anne Marie Knott and Carl Vieregger estimated that a 10 percent increase in the number of employees increases R&D by 7.2 percent, and a 10 percent increase in firm revenues increases R&D productivity by 0.14 percent. This shows that large firms not only invest more in R&D activities, they also enjoy higher returns on innovation output per dollar invested in R&D.[49]

Other research has found that "small firms prevail in the early stages and innovation tends to concentrate in larger firms as industries evolve towards maturity."[50] In the 1990s, many small firms emerged and competed to be the winners in IT platforms. But only a few firms could emerge as winners, and the ones that did continue to invest in innovation.

Data on Venture Investments Suggests Tech Acquisitions and High Market Share Do Not Hurt Start-Ups

The right measure of the effect of killer zones is not the trend in the specific market wherein large tech firms operate, but in the overall tech innovation ecosystem. Even Hathaway acknowledged that the relative declines he observed in the narrow markets where the big firms are strongest could be offset by investments moving to other, more promising, markets. In fact, that appears to be exactly what has happened. From 2006 to 2019, venture capital investments in IT deals increased steadily and significantly. Although it leveled off in 2019, tech funding was still 54 percent above the 2017 level.

Figure 1. U.S. deal value in total and in tech (2006–2019)[51]

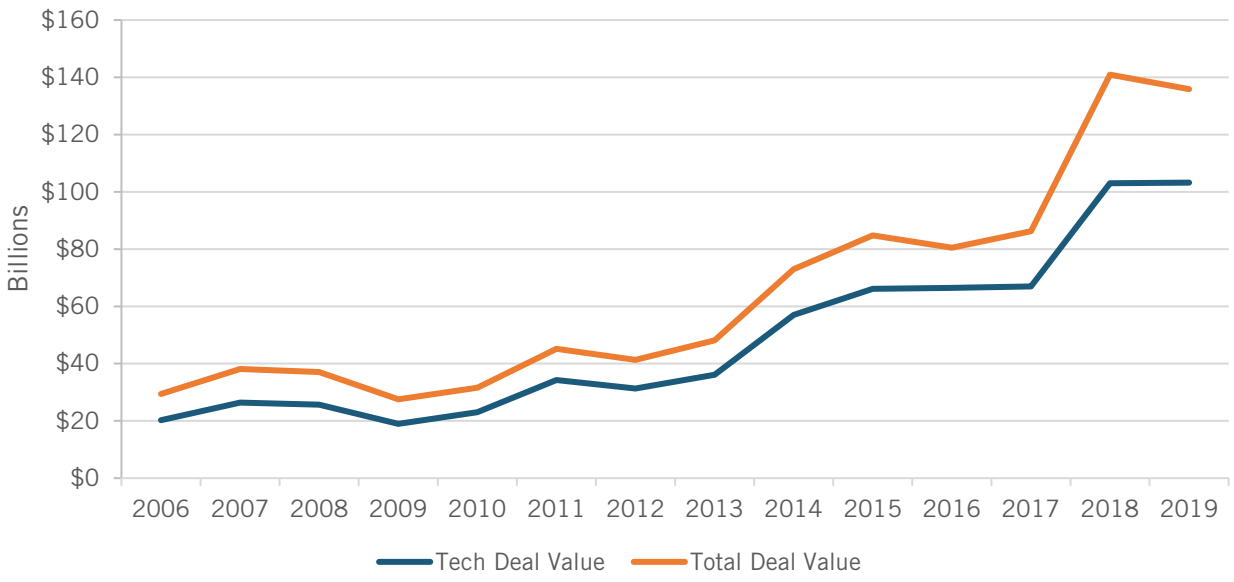
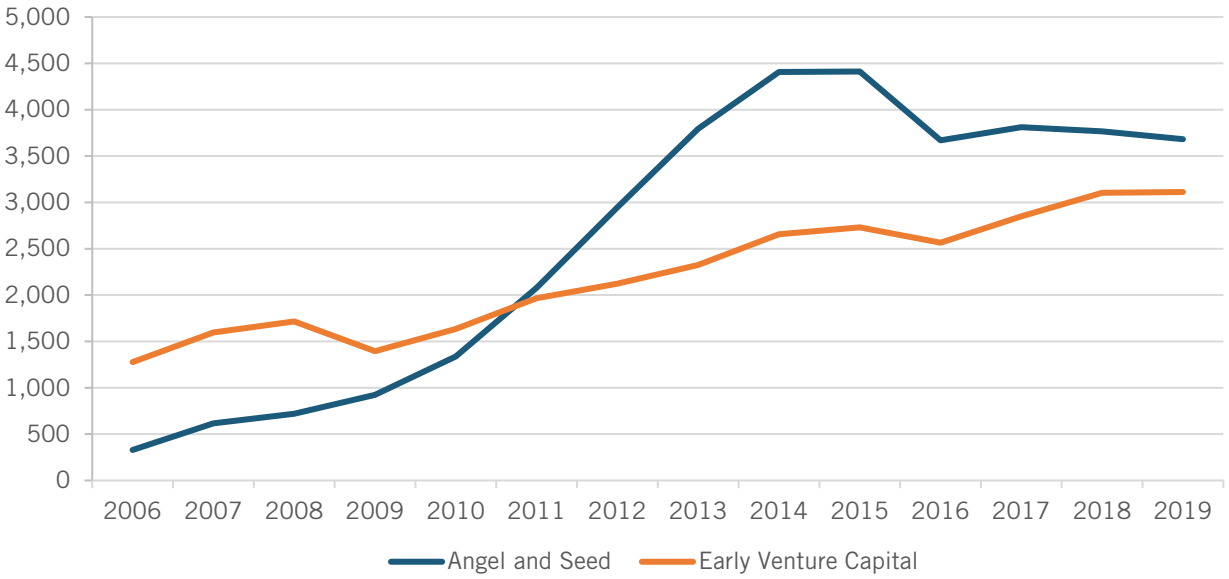


Figure 2 shows the number of technology angel and seed deals as well as the number of early stage deals. The number of angel and seed deals rose by almost six-fold between 2006 and 2019, peaking in 2015. The number of early deals rose by 2.4 times. It is hard to see any sign of investor activity slowing down.

Figure 2. U.S. deal volume in tech (2006–2019)[52]



Regulatory Limits on Acquisitions Should Be Light Touch

Policymakers have proposed several solutions to the purported problems of kill zones and killer acquisitions. One option is to increase the requirements for when a company must give regulators notice of its intent to purchase a company. This gives the government time to review the prospective acquisition and either oppose it or attach conditions to its approval. However,

lowering the threshold for notification or scrutiny of an acquisition merger may overburden a regulator unless it receives a significant increase in resources.

Another option is to shift the burden of proof, requiring the company to show that any anticompetitive effects would be outweighed by efficiency gains such as higher efficiencies of scale, network effects, or the wider deployment of technology. For example, the European Commission report on competition policy for the digital era suggests shifting the burden of proof by requiring the acquirer to show that the transaction would not limit competition.[53] This recommendation was made by two other prominent reports on competition policy and the digital economy.[54]

But lowering the government's burden of showing an anticompetitive effect might inject politics into enforcement decisions as rivals press the government to intervene in ways that favor them over their competitors. It could also substitute regulators' opinions about the best market structure for those of business executives who are much more familiar with the details of each industry. Since different administrations are likely to have different views on market structure, antitrust policy would vary more over time. Antitrust experts have generally thought that the danger of unfounded government restrictions outweighs the danger of not blocking a deal that might be anticompetitive, largely because they believe normal market forces will restore competition. We should think hard about reversing this consensus.

Finally, some have called for retroactively investigating mergers and breaking up deals that have led to greater market power. However, retroactively examining mergers that were either too small to require notice or were already approved by competition authorities would create tremendous uncertainty. This would send a message to companies in all industries that successful, approved deals could later be unwound by regulators. Moreover, regulators would face constant pressure by industry rivals to examine deals by their competitors.

Breaking up companies would be even worse. Given the integration of different business units and the synergies of having a broad set of services on the same platform, such a move would be difficult to accomplish, difficult to oversee, and almost certainly bad for consumers. Moreover, economies of scale and network effects would continue to push the industry toward consolidation.

Nor are such remedies necessary to preserve innovation. In technology industries, the most successful companies usually face constant pressure to innovate in order to remain competitive, especially in those areas that are core to the success of their platform. Virtually all so-called killer acquisitions represent the technologies and capabilities the companies view as critical to their competitiveness. If they purchase a company innovating within this zone, they are far more likely to develop its innovation than to bury it. In doing so, they often make the technology available faster and to more people than would otherwise be possible. If companies are prevented from making acquisitions, they are more likely to copy the products or develop alternative innovations than they are to ignore them. Assuming incumbents don't violate intellectual property laws, this type of competition is both legal and socially beneficial. As a result, these areas become major sources of innovation and foment. An entrant with a valuable innovation is likely to attract a lot of attention. It is also likely to attract resources.

In addition, a ban on acquisitions may merely incentivize an incumbent to duplicate the entrant's research, leading to overall research inefficiency. It may also result in the less-efficient company commercializing the innovation. Instead, governments can increase the social value of acquisitions by strengthening the bargaining power of entrants and ensuring competition between the two parties is intense. The former will increase the incentives for start-ups, while the latter boosts consumer surplus from any innovation. In summary, the decision of whether to approve acquisitions needs to reflect the specifics of an industry.

Finally, we should not forget that the reigning consumer welfare standard allows regulators to consider an acquisition's effect on innovation. Agency guidelines explain that non-price terms also matter when evaluating a merger or acquisition, including "reduced product quality, reduced product variety, reduced service, or diminished innovation."[55] They explicitly address whether a merger is "likely to diminish innovation competition by encouraging the merged firm to curtail its innovative efforts below the level that would prevail in the absence of the merger."[56] Decisions on whether to take action depend on the specific facts:

> A merger between an incumbent and a potential entrant can raise significant competitive concerns. The lessening of competition resulting from such a merger is more likely to be substantial, the larger is the market share of the incumbent, the greater is the competitive significance of the potential entrant, and the greater is the competitive threat posed by this potential entrant relative to others.[57]

CONCLUSION

Competition authorities must always be on the lookout for acquisitions that, by giving the acquirer market power to either raise prices or lower quality and innovation, threaten future competition. The challenge can be especially difficult in digital markets because of the fast pace of technological change, network effects, and the fact that innovative companies can have large market valuations even though they are not making a profit. However, concerns that large Internet companies are impeding competition by engaging in killer acquisitions are exaggerated.

While greater vigilance might be warranted, significant reforms such as banning future acquisitions or breaking up existing companies would be unwise for several reasons. First, although the companies in question have engaged in hundreds of mergers over the last several years, very few have attracted any criticism. The heavy focus on the few deals that have proven highly successful ignores those that have been complete failures, such as Amazon's purchase of Quidsi.

Second, acquisitions serve useful purposes such as motivating investments in new companies, obtaining workers with key skills, and putting technology in the hands of those that can develop and scale it the fastest.

Finally, and perhaps most importantly, many of these acquisitions are procompetitive. The vast majority of the cases mentioned in an *Economist* story on the subject involved either the acquirer copying a technology that was introduced by another firm and thereby giving consumers another product to choose from, or using technology to enter a related market, thereby increasing the number of competitors. Both are procompetitive.[58]

A dramatic expansion in the scope of review would be problematic. Without additional resources, a significant increase in noticed deals could overwhelm the regulator. Significantly raising the bar for acquisitions could also prove ineffective in protecting entrants. Companies are allowed to obtain a monopoly through legitimate competition. If an incumbent firm were prevented from purchasing a promising innovation, it could try to copy it instead. This is relatively easier to do in digital markets than it is in other industries. This could result in roughly the same increase in profits and market share as an acquisition would—but it would provide less of an incentive for venture capitalists.

The antitrust agencies already have the powers they need to stop problematic acquisitions. But that does not mean they will always get it right. Their odds increase when their decisions are based on a detailed understanding of the markets in question, including current and future sources of innovation, and are guided by the goal of increasing social welfare.

ABOUT THIS SERIES

In a series of short reports, the Information Technology and Innovation Foundation (ITIF) is examining many of the key claims behind the argument that a significant change in U.S. antitrust policy is warranted. In most cases, we find that the empirical evidence is weaker than claimed. In other cases, the causal relationships are speculative. Although some of the broader trends, such as a decline in innovation, raise serious social issues, they usually have several causes. Finally, in most cases, it is not clear that antitrust policy is either the cause or an effective cure. Broader social policies need to be enacted for such issues as income inequality and privacy.

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The Information Technology and Innovation Foundation (ITIF) is a nonprofit, nonpartisan research and educational institute focusing on the intersection of technological innovation and public policy. Recognized as the world's leading science and technology think tank, ITIF's mission is to formulate and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress.

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