

Mergers, Antitrust, and the Interplay of Entrepreneurial Activity and the Investments That Fund It

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ABSTRACT

This paper addresses the potentially negative implications of proposed antitrust legislation on the entrepreneurial ecosystem in general and particularly focuses on the Venture Capitalists (VCs) that fund them. First, it offers a review of how antitrust merger law currently works and how proposed legislative changes to antitrust may threaten the innovative VC-backed ecosystem that has made the United States the center of global innovation across many different industries. Accompanying this review are some empirical observations. Second, recognizing that understanding innovative entrepreneurial activity calls for a deep appreciation of those who back it, the paper provides an overview of the entrepreneurial ecosystem and the motivations of VCs. In so doing, it identifies the drivers of entrepreneurial innovation and explain why changes to merger law may threaten these models of facilitating innovative growth-orientated entrepreneurs. Lastly, the paper concludes that changes to merger law may have negative effects on the entire entrepreneurial ecosystem and hinder US innovation.

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Proposed antitrust legislation focused on mergers threatens the entrepreneurial ecosystem that is a significant driver of innovation. US Senators Amy Klobuchar and Josh Hawley have introduced antitrust legislation that would change decades of antitrust practice, as embraced by antitrust agencies and courts, with a set of proposals. Both bills would alter merger presumptions and burdens of proof in court and create outright prohibitions for some mergers. We anticipate that additional antitrust legislation will be introduced covering the area of merger enforcement.

Proposed legislation would affect not merely horizontal mergers, but also non-horizontal mergers, which courts and agencies have viewed as less problematic from a competition perspective. The result is that certain potential deals will never leave the boardroom and others will be abandoned because the risks of antitrust intervention are too high. For deals that move forward, many more will be challenged under these lower standards, with merging parties required to prove efficiencies to overcome a presumption that the deal is anti-competitive. For certain industries and business models built upon acquisitions such as hardware, software, biotech, finance, and various industrial applications, such a change fundamentally alters the ability to innovate.

Altering this ecosystem creates significant costs to innovation and adjusts the incentives for firms to exit via acquisition. The danger of the proposed legislative changes is that these regulatory interventions may destroy entrepreneurial value as well as innovation (with different forms of innovation described later in this paper) in the economy more broadly.¹

This paper addresses the potentially negative implications of proposed antitrust legislation on the entrepreneurial ecosystem in general and particularly focuses on the Venture Capitalists (VCs) that fund them. First, it offers a review of how antitrust merger law currently works and how proposed legislative changes to antitrust may threaten the innovative VC-backed ecosystem that has made the United States the center of global innovation across many different industries. Accompanying this review are some empirical observations. Second, recognizing that understanding innovative entrepreneurial activity calls for a deep appreciation of those who back it, the paper provides an overview of the entrepreneurial ecosystem and the motivations of VCs. In so doing, it identifies the drivers of entrepreneurial innovation and explain why changes to merger law may threaten these models of facilitating innovative growth-orientated entrepreneurs. Lastly, the paper concludes that changes to merger law may have negative effects on the entire entrepreneurial ecosystem and hinder US innovation.

I. Antitrust merger law

Under Clayton Act Section 7, plaintiffs, whether the government or private parties, can enjoin a merger that may result in anti-competitive effects. Both case law and Department of Justice Antitrust Division (DOJ) and Federal Trade Commission (FTC) Horizontal Merger Guidelines (HMG)

¹ Paul Gompers et al., *How Venture Capitalists Make Decisions*, HARV. BUS. REV. (Mar.-Apr. 2021), <https://hbr.org/2021/03/how-venture-capitalists-make-decisions> (“[P]ublic companies that had received VC backing accounted for 20% of the market capitalization and 44% of the research and development spending of U.S. public companies.”).

establish the parameters of merger law based on economic analyses of a particular transaction.² Recently, the DOJ and FTC promulgated Vertical Merger Guidelines (VMG) which adopt a similar economics-based approach.³

We focus on an analysis of case law, as proposed legislation seeks to override long-standing cases. Courts in the United States use the burden-shifting framework first articulated in *United States v. Baker Hughes, Inc.*⁴ for horizontal mergers. This framework was first applied to vertical mergers in *United States v. AT&T, Inc.*⁵ In merger cases, as far back as *Brown Shoe*, “the government must show that the proposed merger is likely to substantially lessen competition, which encompasses a concept of ‘reasonable probability.’”⁶ As part of this burden-shifting framework, the plaintiff bears the initial burden to establish a prima facie case that the merger is anticompetitive. As courts recognize, “[t]o establish a prima facie case, the Government must (1) propose the proper relevant market and (2) show that the effect of the merger in that market is likely to be anticompetitive.”⁷

If the plaintiff has met its *prima facie* burden, the defendants may rebut by providing “sufficient evidence that the prima facie case ‘inaccurately predicts the transaction’s probable effect on competition.’”⁸ This is, for example, where defendants address and substantiate potential efficiencies for the transaction⁹ and cast doubt on future anti-competitive harms due to the merger.¹⁰ If the defendant is able to successfully rebut the prima facie case, the burden of production shifts back to the plaintiff.¹¹

The proposed Klobuchar legislation (CALERA) would change the current legal standard in two ways. First, it would replace the “substantially lessen competition” standard under Clayton Act Section 7 (such as the elimination of competition between two firms) and create in its place an “appreciable risk of materially lessening competition” standard. In this new standard, the bill defines “materially” as “more than a de minimus amount.”¹² This would be a lower standard for the government to meet under the current burden shifting framework. Indeed, most mergers would seem to be captured under such a standard.

Further, for a significant portion of these transactions, the proposed Klobuchar bill would shift the burden on merging parties to overcome a presumption of anti-competitive effect. Mergers that fall within the following categories would be held to this standard of proving the efficiency of the transaction:

² *Horizontal Merger Guidelines*, DOJ (last updated Aug. 19, 2010), <https://www.justice.gov/atr/horizontal-merger-guidelines-08192010> [hereinafter *Horizontal Merger Guidelines*].

³ *Vertical Merger Guidelines*, DEP’T OF JUST. & FED. TRADE COMM’N (June 30, 2020), <https://perma.cc/389K-H8FP>; Roger D. Blair et al., *Analyzing Vertical Mergers: Accounting for the Unilateral Effects Tradeoff and Thinking Holistically About Efficiencies*, 27 GEO. MASON L. REV. 761 (2020).

⁴ *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 991-92 (D.C. Cir. 1990).

⁵ *United States v. AT&T Inc.*, 310 F. Supp. 3d 161, 191 (D.D.C. 2018).

⁶ *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962).

⁷ *FTC v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 337-38 (3d Cir. 2016).

⁸ *United States v. Anthem, Inc.*, 855 F.3d 345, 349 (D.C. Cir. 2017) (quoting *Baker Hughes*, 908 F.2d at 991).

⁹ *United States v. H&R Block, Inc.*, 833 F. Supp. 2d 36, 89 (D.D.C. 2011) (“[I]t is incumbent upon the merging firms to substantiate efficiency claims”).

¹⁰ *Baker Hughes*, 908 F.2d at 982-83.

¹¹ *Id.*

¹² Competition and Antitrust Law Enforcement Reform Act, S. 225, 117th Cong. § 3 (2021).

1. Mergers that significantly increase market concentration;
2. Mega-mergers valued at more than \$5 billion;
3. Acquisitions of competitors or nascent competitors by a dominant firm (where the bill defines dominance as a 50% market share or possession of significant market power); and
4. Any acquisition valued over \$50 million by a company valued at or more than \$100 billion in market capitalization.

The Hawley bill (Trust-Busting for the Twenty First Century Act) also would prohibit mergers by companies with a market capitalization greater than \$100 billion and make acquisitions by a “dominant digital firm” valued at over \$1 million presumptively unfair, and remove the presumption that vertical mergers are typically not anti-competitive.

We are particularly concerned about the acquisitions-of-nascent-competitors language because of the potential chilling effect that it may have upon the VC ecosystem. In addition, many acquisitions of VC-funded startups surpass the \$50 million threshold, while not necessarily rising to the level of a mega-merger. As the next section illustrates, the stakes are significant to changing the current entrepreneurial ecosystem. This ecosystem largely relies upon exit through acquisition.¹³ The proposed legislation by Klobuchar and Hawley would significantly limit such acquisitions.

II. Why does exit via merger matter to entrepreneurship?

The ability to realize returns on their investment and effort, commonly referred to as “exit from entrepreneurial ventures,” is important for both investors and founders. Without the ability to exit as well as having that ability reduced by having one major off-ramp closed off (i.e., acquisition), neither founders nor investors will be able to reap the gains of the appreciation in the valuation of the business. And without appropriate incentives to form new businesses (because the proposed legislation may foreclose many M&A exits), the incentives for founding and growing a business lessen.¹⁴ Increasing difficulty in entrepreneurial exits for founders and investors makes future investment in such ventures less likely, since founders and investors cannot reap the rewards of a timely exit at acceptable valuations. When certain potential acquirers can no longer make bids for such VC-backed startups and acquisitions dry up, the prospect of VCs making necessary returns on their investment decreases and limited partners¹⁵ are less willing to invest their money with VCs.

To explain this negative scenario, it is important to first explore the structure of the entrepreneurial ecosystem since the tech boom of the late 1990s. The nature of most entrepreneurial exits is different

¹³ Written Testimony of Patricia Nakache before the US Senate Judiciary Committee, *Hearing on Competition in Digital Technology Markets: Examining Acquisitions of Nascent or Potential Competitors by Digital Platforms* (Sept. 24, 2019), <https://nvca.org/wp-content/uploads/2019/09/Testimony-of-Patricia-Nakache-SJC-as-submitted-9-23-19.pdf> (“If the government makes it more challenging for incumbents to acquire these companies, this will have the devastating effect of making it less attractive to launch a new enterprise and for people like myself to fund and partner with those companies. The end result will be harm to the American innovation economy.”).

¹⁴ D. Daniel Sokol, *Vertical Mergers and Entrepreneurial Exit*, 70 FL. L. REV. 1357 (2018). There is also an important “recycling effect” for venture-capital investors. VC-backed entrepreneurs who sell companies often go on to found new/different/innovative companies, or become angels or VCs and invest in other companies. Money based on exits often get redeployed into new endeavors, which propels innovation.

¹⁵ See *What is VC?*, NVCA (last visited on June 1, 2021), <https://nvca.org/about-us/what-is-vc/#toggle-id-2>. We offer more discussion of limited partners and their relationship with venture capitalists in Section III.

in the current post-Great Recession financial ecosystem than in the late 1990s. In the late 1990s, the focus in the business press regarding entrepreneurial exits was on initial public offerings (IPOs).

Entrepreneurial exits in the current post-Great Recession era are largely a function of acquisitions rather than IPOs.¹⁶ Perhaps more importantly, the reality is that most exits are not based on IPOs at all but on acquisitions. Indeed, a recent study suggests that 58 percent of US start-up founders and executives expect to be acquired.¹⁷ We explore the development of the modern entrepreneurial ecosystem in greater detail in a later section.

Why do larger firms acquire smaller firms? There are many reasons why larger firms acquire smaller firms, but the primary motivation is that the nascent firm will allow the acquiring firm to create efficiencies that otherwise would not be possible merely by utilizing various strategies short of a merger, such as bilateral contracts (integration via contract), strategic alliances, or joint ventures.¹⁸ Because the target firm is often a strategic complement to the acquiring firm, the merger may lead to reduced transaction costs and asymmetric risk. The merger may also enable learning by doing, encourage knowledge transfers, reduce information leakages, improve investment coordination, or create R&D synergies.¹⁹ It is also important to be able to adapt quickly to competitive threats from other larger firms (e.g., adding new products or features through acquisition can be less costly and time consuming compared to build outs from scratch) In a later section, we explore in greater detail the importance of complementary assets.

Both the large firm and the small firm bring different potential value to a merger. We provide a number of such value creation justifications for mergers. The value of the larger firm includes scale and scope for better investment and marketing of the acquired firm's assets. The very process of integration may introduce increased process innovation into the acquired firm. Various routines and processes allow the larger firm to integrate the acquired firm to reduce search costs and information costs.²⁰

Smaller companies also win from being acquired. Such acquisitions allow VCs and founders to exit the opportunity at valuations of multiples of the investment. Given uncertainties in scaling up, exit through an acquisition allows the smaller firm a viable exit strategy that benefits both founders and investors.

Finally, entrepreneurial exit via merger provides an important signaling mechanism to the market. When larger publicly traded companies acquire smaller companies, the market incorporates the information into the pricing of other deals. Pricing of deals and of entrepreneurial rounds of financing

¹⁶ Xiahoui Gao et al., *Where Have All the IPOs Gone?*, 48 J. FIN. & QUAN. ANAL. 1663, 1663 (2012).

¹⁷ 2020 Global Startup Outlook, SILICON VALLEY BANK (last visited June 1, 2021), <https://www.svb.com/startup-outlook-report-2020>.

¹⁸ See generally Jaideep Shenoy, *An Examination of the Efficiency, Foreclosure, and Collusion Rationales for Vertical Takeovers*, 58 MGMT. SCI. 1482 (2012).

¹⁹ Roger D. Blair et al., *Analyzing Vertical Mergers: Accounting for the Unilateral Effects Tradeoff and Thinking Holistically About Efficiencies*, 27 GEO. MASON L. REV. 761 (2020).

²⁰ Gatum Ahuja & Riittaa Katila, *Technological Acquisitions and the Innovation Performance of Acquiring Firms: A Longitudinal Study*, 22 STRAT. MGMT. J. 197 (2001).

becomes easier because there is a larger number of similar deals that aid in more accurate pricing for a proposed deal that can be benchmarked against these prior acquisitions.²¹

These motivations for why acquisitions occur should be put into context of entrepreneurial activity overall and the model of VCs.

III. A brief explanation of the business model of venture capital investors

Venture capital (VC) is independently managed, dedicated capital focusing on equity or equity-linked investments in privately held, high-growth companies. Typically, these funds are raised from institutional and wealthy individual investors through partnerships with a decade-long duration. These funds invest in young firms, usually in exchange for preferred stock with various special privileges. Ultimately, the venture capitalists sell these firms to corporate acquirers or else liquidate their holdings after taking the firms public or by being bought out.²²

Venture capital funds have a notable impact on innovation. Academic work suggests that, through their backing of entrepreneurial technology-based ventures, VCs have stimulated innovation. For example, the influx of capital into VC funds during the decade following the 1979 “prudent man” change in pension fund rules has been associated with increases in venture capital investments and also subsequent patenting rates.²³ Similar evidence of VC-driven innovation has been documented in Europe.²⁴ A recent analysis of patenting outcomes in the USA during the 1976-2017 period finds that VC-backed ventures were between two and four times as likely to have impactful patents as measured by various measures, including citations, originality, generality, and closeness to science.²⁵ Relatedly, other work illustrates that, as the accessibility of venture capitalists to a specific region increases, so does the innovation and financial outcomes of the entrepreneurial ventures VCs backed in that region.²⁶

The impact of venture capital investment on patents and innovation is also reflected in VC-backed companies’ commitment to research and development activities. A recent study compared the performance of VC-backed companies that were publicly listed as of the end of 2019 to other publicly listed companies that were not VC-backed. While the two groups of companies are similar in terms of aggregate levels of revenues and profits, the former group accounts for the lion’s share (89%) of the recorded R&D expenditures that year.²⁷ Taken together, these patterns highlight the role of venture capital in stimulating novel technologies over the span of many decades. VC funding has stimulated semiconductor and mainframe computing ventures in the 1960s; pioneering biotechnology

²¹ Paul Gompers et al., *Venture Capital Investment Cycles: The Impact of Public Markets*, 87 J. FIN. ECON. 1 (2008).

²² Bronwyn H. Hall and Josh Lerner, *The Financing of R&D and Innovation in Handbook of the Economics of Innovation* 1 HANDBOOK OF THE ECON. OF INNOV., 609-39 (2010).

²³ Samuel Kortum and Josh Lerner, *Assessing the Impact of Venture Capital on Innovation*, 31 RAND J. ECON. 674–92 (2000).

²⁴ Ana Faria and Natália Barbosa, *Does Venture Capital Really Foster Innovation?*, 122 ECON. LETTERS 129-131 (2014).

²⁵ Sabrina T. Howell et al. *Financial Distancing: How Venture Capital Follows the Economy Down and Curtails Innovation*, NAT’L BUR. OF ECON. RES. 1 (2020).

²⁶ Shai Bernstein et al., *The Impact of Venture Capital Monitoring*, 71 J. FIN. 1591-1622 (2016).

²⁷ Josh Lerner and Ramana Nanda, *Venture Capital’s Role in Financing Innovation: What We Know and How Much We Still Need to Learn*, 34 J. ECON. PERSPECTIVES 237-61 (2020).

ventures in the 1980s; internet and e-commerce innovators in the 1990s; and a host of novel services and business models over the 2010s.²⁸

The funding to support and stimulate entrepreneurial activity often originates from VC investors. To recognize how venture capitalists support innovative ventures, it is important to understand VC structures and objectives. Typically, a venture capital firm will create a Limited Partnership with the investors as limited partners (LPs) and the firm itself as the General Partner. Examples of LPs include public pension funds, corporate pension funds, insurance companies, family offices, university endowments, and foundations.

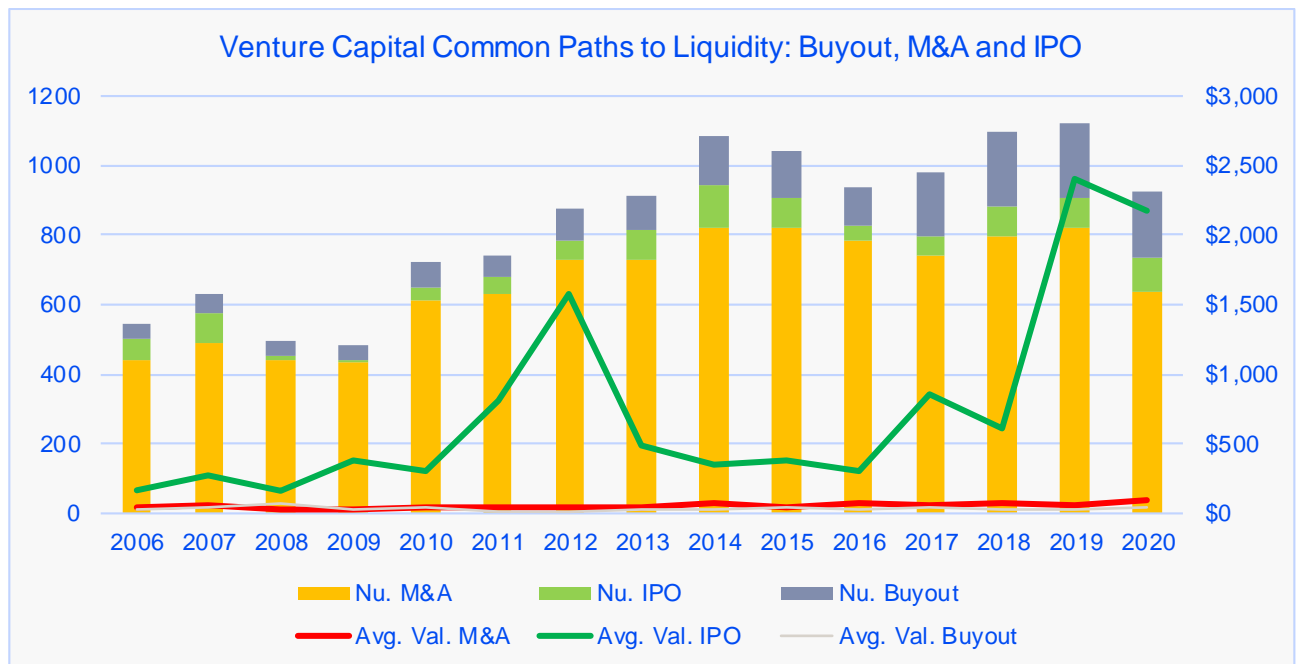
A new fund is established when the venture capital firm obtains necessary commitments from its investors, say \$100 million. A fund is usually structured as a closed-end fund with a duration of eight to ten years, at the end of which the capital, and gains, if applicable, are returned to the LPs. During the first few years, the venture firm seeks out and invests in innovative startups and spends the remaining years working with the founders to grow their ventures. The ultimate payoff to the founders, LPs, and the VCs is in the form of a “liquidity event,” where shareholders can turn their equity stake into cash either when the venture is acquired or goes public.²⁹ Fewer mergers mean fewer opportunities for a liquidity event.

A closer look at liquidity events since the Great Recession offers complementary insights (Figure 2). First, we have seen growth in the number of liquidity events over the past fifteen years, partially reflecting the overall increase in investment activity during the time period. Moreover, the number of Mergers & Acquisitions (M&A) significantly outnumbers that of IPOs each year. In any given year, there are at least fivefold more M&A events than there are IPOs. While less frequent, IPOs tend to take place at higher valuations, with the average IPO valuation hovering below \$0.5B through most of the period and peaking above \$2B more recently. Average M&A activity involves much lower valuations. Insights into the frequency and valuations at different liquidity events are developed in the next section and Figures 5 and 6.

Figure 1: Venture Capital Common Paths to Liquidity.

²⁸ *Id.*

²⁹ *See supra* note 15. We offer more discussion of this issue in Section III.



Source: PB/NVCA – authors’ analysis (“G&S Exit”)

These patterns govern the success of the VCs, namely their compensation and longevity. The compensation of a VC fund is usually comprised of two parts: an annual management fee (often 2% of assets under management) and carried interest (broadly speaking, about 20% of the returns it generated on assets under management). An important part of a VC’s success is shaped by its longevity and its ability to launch subsequent funds. The venture capital firm is likely to raise several funds; as each fund approaches its pre-determined end date, the firm engages in fundraising for its subsequent fund.

The public listing of a portfolio company (a company in which a VC holds an interest) represents a successful event for the venture capitalists who funded it:³⁰ not only do they stand to profit through their carried interest in the current VC fund, but they have also increased the likelihood of securing LP commitments for the next fund. At the same time, IPOs are less common than M&A events, and although the latter usually occur at lower valuations, they may represent a substantial return on assets under management for smaller VC funds.

This primer on VCs helps to explain the current phase of entrepreneurial activity in the United States since the Great Recession.

IV. VC-backed entrepreneurial activity is at a record high

Entrepreneurial growth plays a significant role in US innovation in terms of new ideas that can be commercialized. For this analysis, we focus on technology-based entrepreneurship that is backed by

³⁰ Because VC funds are limited in duration, VCs seek to maximize their investments during the life of the fund. VCs have a choice of exit via IPO or acquisition. In principle, the motivation as between the two is the same, namely, to maximize returns for the investors of each IPO fund. Hence, one form of exit is not superior to the other. Both are merely vehicles to achieving returns for VC investors.

VCS, which requires the appropriate mix of legal institutions, capital, and ideas.³¹ When the mix of legal institutions create certain barriers to entrepreneurship, entrepreneurial investment and innovation suffer.³² In this context, the question of what might happen due to a change in merger law is a question best understood when applied to the current environment of entrepreneurial growth in the United States.

First, we identify the current trends in new start-ups. The US entrepreneurial ecosystem has risen to new heights since the end of the Great Recession. As the chart below shows, entrepreneurship, with a system of acquisitions of smaller companies by larger ones as the most common form of exit, exhibits significant growth in the number of startups founded since the financial crisis.

In Table 1, we provide data with regard to both the number of deals and deal value in the United States at an annual basis from 2006-2020. We further break down the data into different stages of investment—angel and seed investment, early-stage VC, and later-stage VC. A number of factors drive these investment decisions. They include, among others, technological advancement (technology), disruption to business models and organizational structures and routines (strategy), employment opportunities (economics), and the increasing focus on sustainability, diversity, and overall societal impact (social).

Table 1: Start Up Snapshot in the United States 2006-2020

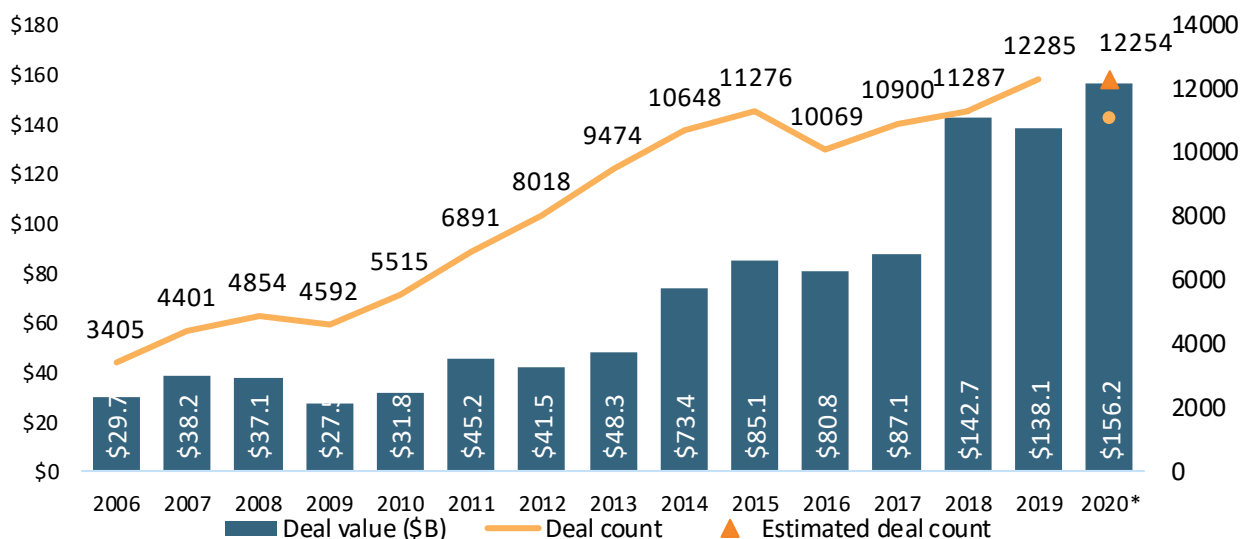
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*	
Deal value (\$B)	\$29.7	\$38.2	\$37.1	\$27.5	\$31.8	\$45.2	\$41.5	\$48.3	\$73.4	\$85.1	\$80.8	\$87.1	\$14.2	\$13.8	\$15.6	
Deal count	3405	4401	4854	4592	5515	6891	8018	9474	10648	11276	10069	10900	11287	12285	11024	
Estimated deal count															1230	
Actual + estimated deal count															12285	12254
Angel & Seed	461	792	937	1232	1746	2587	3512	4603	5237	5702	4840	5117	4907	5244	4650	
Early VC	1770	2148	2317	1871	2146	2507	2669	2923	3216	3361	3132	3487	3742	4000	3195	
Later VC	1174	1461	1600	1489	1623	1797	1837	1948	2195	2213	2097	2296	2638	3041	3179	
Angel & Seed	13.5%	18.0%	19.3%	26.8%	31.7%	37.5%	43.8%	48.6%	49.2%	50.6%	48.1%	46.9%	43.5%	42.7%	42.2%	
Early VC	52.0%	48.8%	47.7%	40.7%	38.9%	36.4%	33.3%	30.9%	30.2%	29.8%	31.1%	32.0%	33.2%	32.6%	29.0%	
Later VC	34.5%	33.2%	33.0%	32.4%	29.4%	26.1%	22.9%	20.6%	20.6%	19.6%	20.8%	21.1%	23.4%	24.8%	28.8%	

³¹ Ronald J. Gilson, *Engineering a Venture Capital Market: Lessons from the American Experience*, 55 STAN. L. REV. 1067 (2003); Joseph Bankman & Ronald J. Gilson, *Why Start-Ups?*, 51 STAN. L. REV. 289 (1999).

³² Philippe Aghion, Antonin Bergeaud, and John Van Reenen, *The Impact of Regulation on Innovation*, NBER (Jan. 2021), <https://www.nber.org/papers/w28381>.

Figure 2 provides a graphic illustration of the data in Table 1. It charts both deal count and deal value over time from 2006 to 2020.

Chart 1: Start-Up Deal Value and Deal Count in the United States 2006-2020



Source: PB/NVCA – “Deal Activity”

V. The catapult-ers: Driving entrepreneurial innovation at scale

What has caused the rapid expansion in entrepreneurial activity? Based on an examination of the academic literature, we identify two drivers—the 2 Cs. These have been missing from the antitrust debate. The “C”atapult-ers are: a. Capital and b. Complementary assets

A. Capital

Venture capital funds finance innovative ventures with the goal of monetizing their proceeds and delivering returns to their LPs. The ultimate payoff to the founders, LPs and the VCs, is in the form of a “liquidity event” (also known as an “exit”), where shareholders can turn their equity stakes into cash when the venture is acquired or goes public. It follows that the health of the VC model and the model’s support of innovative ventures is largely contingent on the health of the market for liquidity events. As noted above, the ability to monetize their portfolio companies is key to VCs’ compensation and longevity.

An extensive survey of venture capitalists conducted during the first half of the previous decade reveals that about a third of the ventures they funded are an outright failure, about half are acquired, and 15% go public. The analysis further notes that the acquisitions are usually at valuations that are

substantially lower than IPO valuations, and some are ‘disguised failures’ in the sense that they do not even return the risk-adjusted investment amount.³³

B. Going public is one source of liquidity events.

Figure 3 records historical patterns of IPO activity for the period 1980 through 2020. It highlights a stark change in this important liquidity event: the number of IPOs has grown dramatically through 2000, suffered a precipitous drop coincidental with the burst of the dot-com bubble, and has remained low ever since. Moreover, the age of companies at IPO also changed pre/post-2000. Whereas the average age of a company at IPO was, on average, eight years during the period leading up to the year 2000, the average age is usually over ten years for post-2000 IPOs.

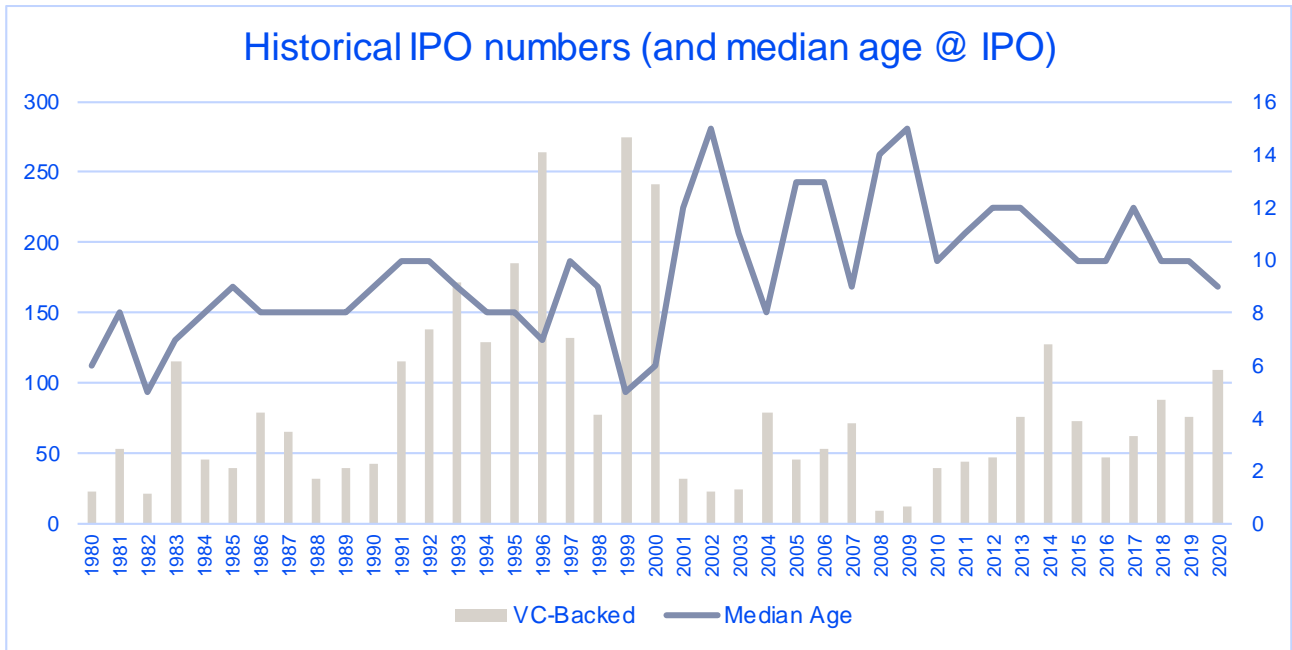
There are several reasons for the marked change in the frequency and nature of IPOs over the past few decades. A few explanations focus on a problem of regulatory overreach.³⁴ The first explanation concerns the Sarbanes-Oxley Act of 2002 (SOX). Section 404 of the SOX Act imposed additional compliance costs on publicly traded firms. These costs have been especially onerous for small firms because they constitute a large fraction of IPO proceeds. The second explanation underscores the decline in the number of underwriters that provide analyst coverage of smaller firms. Various other explanations abound. One focuses on the SEC’s Regulation Fair Disclosure (FD) in 2000 and the 2003 Global Settlement as a source of the decline.³⁵ Another explanation is that, in recent years, a large fraction of the “public” exits is in the form of Special Purpose Acquisition Companies (SPACs). Finally, mergers may be a priority because it also takes longer to reach IPO maturity and some investors need an earlier payoff since their time horizon is a function of when their fund closes. Hence, the M&A route remains a viable exit window. This may be particularly important for first-time managers or those who back non-traditional companies.

Figure 3 provides historical IPO numbers and the median age of the firm at IPO.

³³ Paul A. Gompers et al., *How Do Venture Capitalists Make Decisions?*, 135 J. FIN. ECON. 169 (2020).

³⁴ See *supra* note 17.

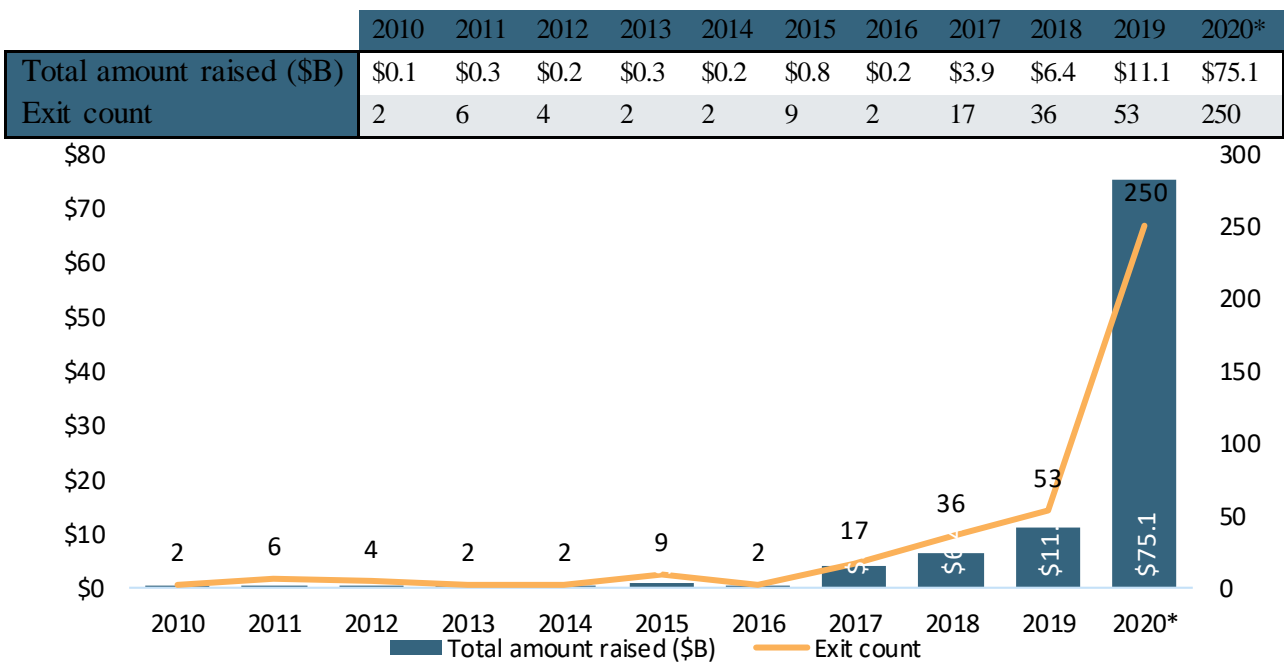
³⁵ Narasimhan Jegadeesh and Woojin Kim, *Do Analysts Herd? An Analysis of Recommendations and Market Reactions*, 23 REV. FIN. STUD. 901 (2010); J. Zweig, *The Demise of the IPO Market—and Ideas on How to Revive It*, WALL ST. J. (June 25, 2010), <https://www.wsj.com/articles/SB10001424052748704569204575328784069347058>; PWC Costs of an IPO Report (2021).



Source: PB/NVCA – authors’ analysis (“G&S IPO”)

Although the number of IPOs has been significantly lower over the past couple of decades, it is still the case that some innovative ventures follow this route and list on public markets. Two observations follow: The first is that there are more diverse routes to public markets, including the traditional IPO route, direct listing, and most recently, special purpose acquisition companies (SPACs). Figure 4 records the dramatic rise in the number and aggregate valuation supported under the latter approach.

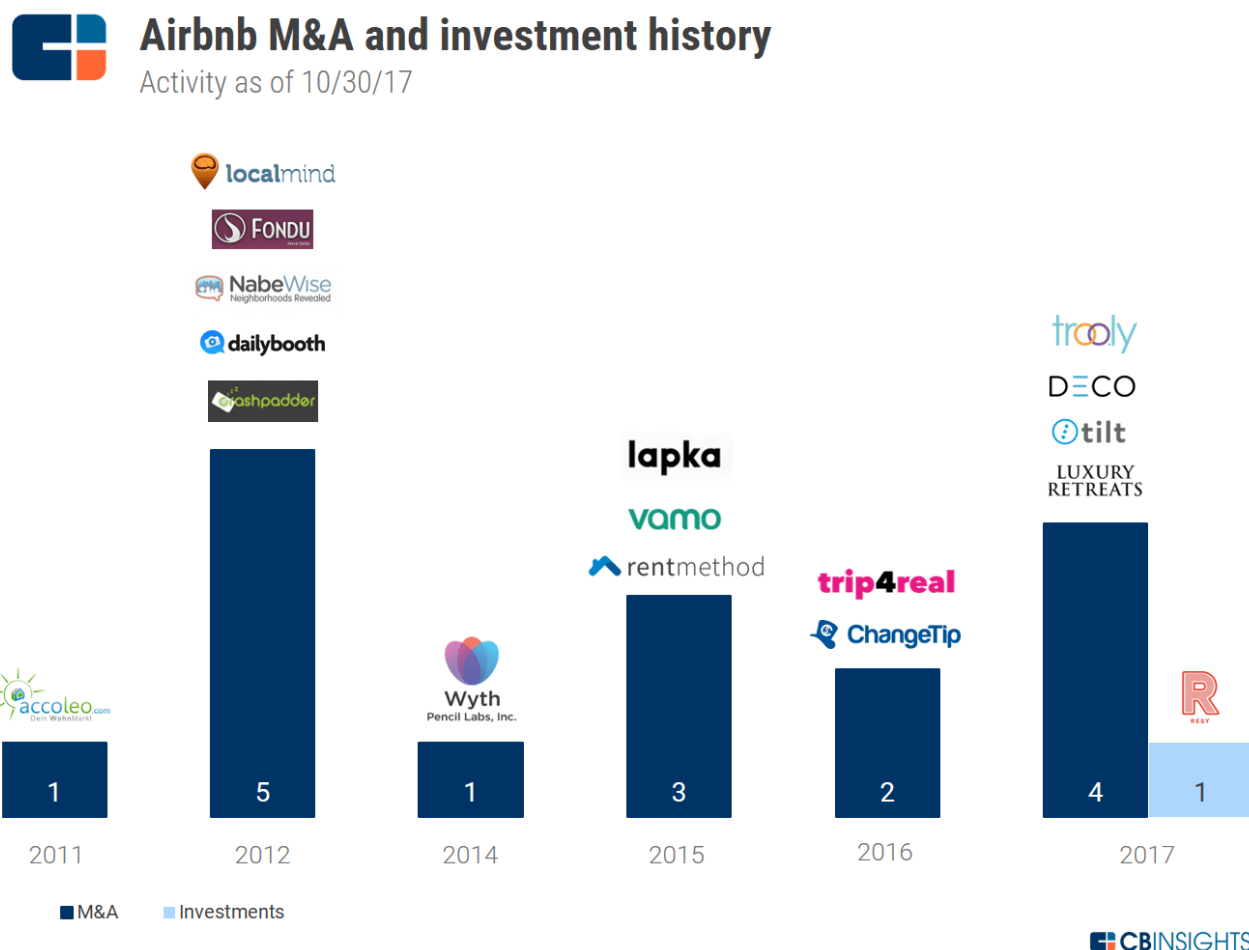
Figure 4 below provides the number of exits and the amount raised as well as historical SPACs numbers and total amount raised.



Another observation is that the scale and value creation behind many of the innovators that have gone public traces back to an active M&A activity. Consider the lodging innovator, Airbnb, which debuted on NASDAQ on December 10, 2020. As illustrated by Figure 5, the company has engaged in over a dozen acquisitions of companies in related spaces during the decade leading to its IPO. This trend is more significant. For example, Unity Software acquired over a dozen companies prior to its September 2020 IPO. It includes the \$53M acquisition of Artomatix (March 2020) and \$25M acquisition of Multiplay (November 2017). Similarly, Palantir engaged in about a half dozen acquisitions prior to its September 2020 IPO. Snowflake also acquired Numeracy (March 2019) and CryptoNumerics (July 2020) prior to its IPO (September 2020).³⁶

Figure 5 provides a graphical illustration of Airbnb’s M&A investment history.

Figure 5: Airbnb M&A and Investment History



Source: <https://www.cbinsights.com/research/airbnb-strategy-teardown-expert-intelligence/#acquisitions>

A. Trade sales

Acquisitions constitute the most common liquidity event for VC-backed companies. Not only do acquisitions account for the larger number of liquidity events, but they also cover a wide range of

³⁶ M&A information sourced from Pitchbook.

exits at low and medium valuations. Figure 2 above, as well as Figure 6 below, offer insights into M&A activity over the past 15 years. It underscores that *most* exits are at a low valuation.

To complement the discussion, we touch below on the role of M&A activity for VC funds. Figure 6 shows that M&A plays a sizable role in entrepreneurial exit. There are numerous explanations for the number and impact of M&A activity over the past decade. Abundant academic work explored the relationship between M&A and innovation, often with conflicting findings.³⁷ Extant explanations range from the value-creating view, by which M&A is an efficient way to realize economics of scope through value-destroying arguments, whereby acquisitions are motivated by an attempt to shelf the innovation of the acquired startup (i.e., a killer acquisition) or stifle other startups from operating and innovating in the space (i.e., a kill zone).³⁸ It is noteworthy that latter arguments do not criticize all M&A activity. For example, the work on killer acquisitions focuses on the pharmaceutical industry, reporting that over 90% of the M&A deals analyzed do not exhibit such a pattern. Case by case analysis allows for a more nuanced approach to address particular potentially problematic deals in such settings.³⁹ Similarly, the recent work on kill zones focuses on multi-sided software platforms, even if taken in its most favorable light, suggests the propositions is limited to M&A activity by two software companies but does not characterize the universe of software M&As.⁴⁰

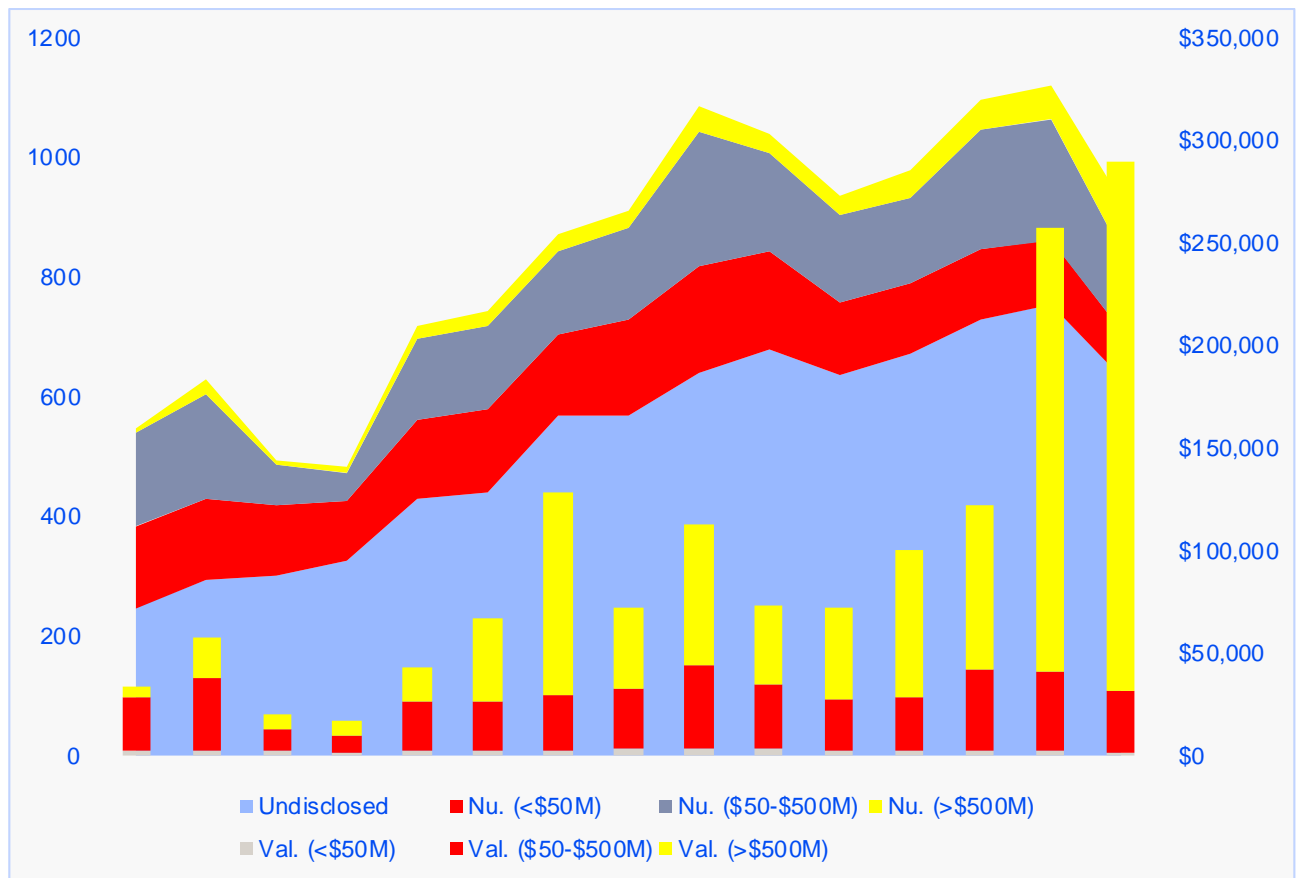
Figure 6 M&A Activities by VC Funds

³⁷ Phillips and Zhdanov (2013) find that an active M&A market is associated with innovation in smaller firms, whereas Seru (2014) reports that those acquired are less innovative in comparison to non-acquired firms. See Gordon Phillips and Alexei Zhdanov, *R&D and the Incentives from Merger and Acquisition Activity* NAT'L BUR. OF ECON. RES. 34-78 (Aug. 2012); Amit Seru, *Firm Boundaries Matter: Evidence from Conglomerates and R&D Activity*. 111 J. OF FIN. ECON. 381-405 (Feb. 2014).

³⁸ See *supra* note 17; Sai Krishna Kamepalli, Raghuram Rajan and Luigi Zingales, *Kill Zone*, NAT'L BUR. OF ECON. RES. 2021 (May 2020), <https://www.nber.org/papers/w27146>; Colleen Cunningham, Florian Ederer, and Song Ma, *Killer Acquisitions*, 3 J. POL. ECON. 129 (2021) (forthcoming).

³⁹ D. Daniel Sokol, *Merger Law for Biotech and Killer Acquisitions*, 72 FLA. L. REV. 1 (2020).

⁴⁰ See Sai Krishna Kamepalli et al., *supra* note 39.



Source: PB/NVCA – authors’ analysis (“G&S Exit”)

B. Complementary assets

Growth and successful commercialization often require more than just money; they call for complementary assets. This includes things such as manufacturing, regulatory expertise, marketing, and distribution that typically are held downstream in the firm’s value chain.⁴¹ That is, startup success calls not only for the development of a novel product or a service, but also for complementary assets that are key to speeding and successfully introducing innovation in the market.⁴² The role of complementary assets in successfully commercializing innovation has been demonstrated in academic studies numerous industries, from the traditional typesetter industry, through biotechnology, and the solar photovoltaic industry.⁴³

The growth in the number of M&A deals, and their fraction of all liquidity events, has been attributed to the need to speed and strengthen commercialization efforts. The gradual decrease in the number of

⁴¹ David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RES. POL’Y 285 (1986).

⁴² Joshua S. Gans & Scott Stern, *The Product Market and the Market for “Ideas”: Commercialization Strategies for Technology Entrepreneurs*, 32 RES. POL’Y 333 (2003).

⁴³ Rahul Kapoor & Nathan R. Furr, *Complementarities and competition: Unpacking the Drivers of Entrants’ Technology choices in the solar photovoltaic industry*, 36 STRAT. MGMT. J. 416 (2015); Gary P. Pisano, *The Governance of Innovation: Vertical Integration and Collaborative Arrangements in the Biotechnology Industry*, 20 RES. POL’Y 237 (1991); Mary Tripsas, *Unraveling the process of creative destruction: Complementary assets and incumbent survival in the typesetter industry*, 18 STRAT. MGMT. J. 119 (1997).

small company IPOs is consistent with the rise in the efficiency of scaling through merging with an incumbent firm.⁴⁴

The argument holds specifically for specialized complementary assets. Whereas generic complementary assets are commodity-type assets that are available on the open market and thus do not endow their owners an advantage, specialized complementary assets are frequently built over long periods and thus are path-dependent and often idiosyncratic.⁴⁵ The property rights theory of the firm suggests that when contracts are incomplete, the novel innovation and complementary assets should be owned by the same firm to minimize the negative effect of the hold-up problem.⁴⁶ It follows that incumbent firms, who possess complementary assets developed over years or decades, offer an opportunity to speed time to market and profit from the entrepreneurial innovation.⁴⁷ Further, acquisitions of nascent firms may allow the larger firm to replenish its basic R&D with new approaches that may be encumbered more if a large firm tries to innovate itself. Finally, because it is likely easier to acquire that complementary asset rather than develop it, it can become easier for an acquiring firm to be more competitive vis-a-vis its competition. The proposed legislation makes pro-competitive acquisitions by firms harder and more costly. This limitation on acquisitions also has geo-political implications if a market leader in a particular industry is a non-US firm. The VC based entrepreneurial environment is critical to US-based companies remaining not just innovative, but more so relative to rising non-US competitors.

VI. Maintaining the health of the entrepreneurial ecosystem

We have presented the discussion of liquidity events, with a focus on M&A activity, through the lens of founders, customers, and their ability to deliver and benefit from consistent innovation. As this is an important topic, one should carefully take stock of multiple issues that are at play, including some that may have received less attention to date. The focus of the current discussion is on the entrepreneurial ventures being acquired and the viability of their innovation. Below, we highlight a related view that has received less attention to date. It has to do with the health of the VC model as a whole, shifting attention for the specific ventures that are to be acquired and taking the broader view of the VC firms that funded those ventures and the firms' ability to back other innovative ventures. This hurts a number of traditional LPs investing in venture capital funds such as public pensions and universities, which use venture capital investment to increase the returns on their assets.

First-time funds: The view pertains specifically to first-time VC funds. Figure 7 reports median fund size for first-time VCs and further compares it to the median M&A size. Because the former is in the sub-\$50M range, on average, such funds can be significantly sensitive to even a single M&A,

⁴⁴ See *supra* note 17.

⁴⁵ David Teece et al., *Dynamic Capabilities and Strategic Management*, 18 STRAT. MGMT. J. 509 (1997).

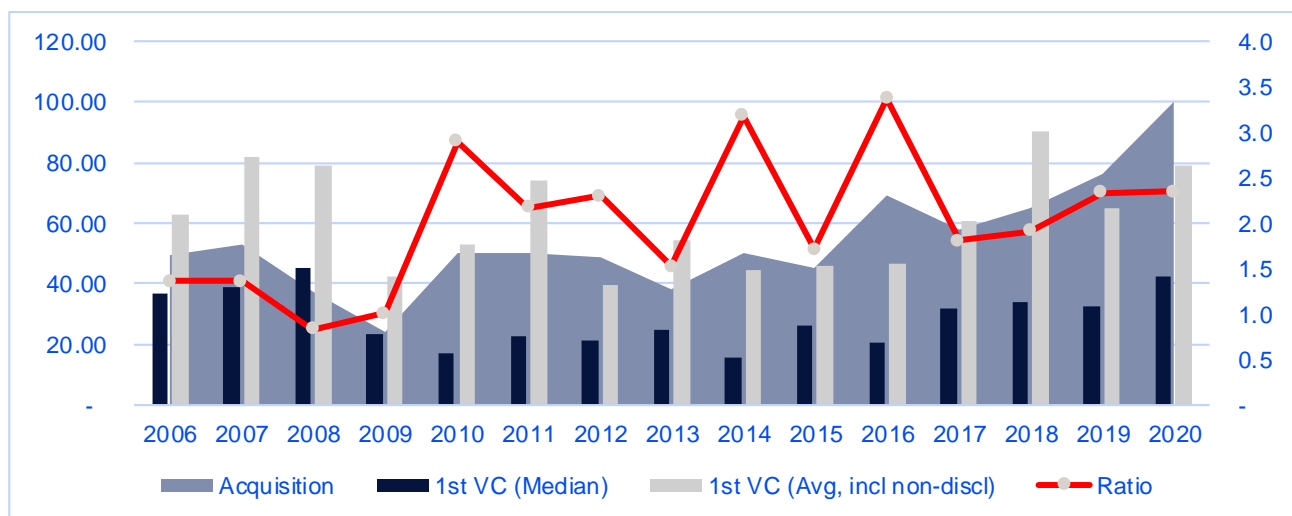
⁴⁶ Sanford Grossman and Oliver Hart, *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, 94 J. POL. ECON. 691 (1986); Oliver Hart and John Moore, *Property Rights and the Nature of the Firm*, 98 J. POL. ECON. 1119 (1990).

⁴⁷ Gatum Ahuja & Riittaa Katila, *Technological Acquisitions and the Innovation Performance of Acquiring Firms: A Longitudinal Study*, 22 STRAT. MGMT. J. 197 (2001); Elisa Alvarez-Garrido and Gary Dushnitsky, *Are Entrepreneurial Venture's Innovation Rates Sensitive to Investor Complementary Assets? Comparing Biotech Ventures Backed By Corporate and Independent VCs*, 37 STRAT. MGMT. J. 819 (2016).

which falls in the \$50M-\$100M range. The “ratio” line in the figure divides the latter by the former and shows that a single M&A deal represents, on average, a 2x return on the size of a first-time fund.⁴⁸ Moreover, as Figure 8 below illustrates, the time to a liquidity event is usually faster under the M&A track (in comparison to IPO track). Taken together, these observations suggest that the viability of first-time funds is particularly sensitive to the market for sub \$100M M&As. One or two M&A deals can make a substantial contribution to the compensation of a first-time fund. Crucially, it also plays an instrumental role in the longevity of the VC firm by allowing it to raise successfully follow-on funds. In summary, these figures suggest that M&As play a crucial role in the health of the VC ecosystem.

This observation is important not least because many of the first-time funds launched in the last couple of years particularly focus on inclusion and diversity. Many first-time funds are raised by investors of more diverse backgrounds. Moreover, the new cadre of investors make it their mission to support founders of diverse backgrounds. As a result, smaller new funds often pursue innovation in sectors or geographies that have been neglected in the past. Taken together, these figures suggest that M&As play a crucial role in the health of the VC ecosystem. This may be particularly so for first-time funds where the time and ability to execute a median-sized M&A can unlock the ability to raise a follow-on fund and further advance diversity and inclusion in the entrepreneurial ecosystem. Thus, a change in merger law may threaten such inclusion and diversity efforts.

Figure 7 Median fund size for first-time VCs and median M&A size

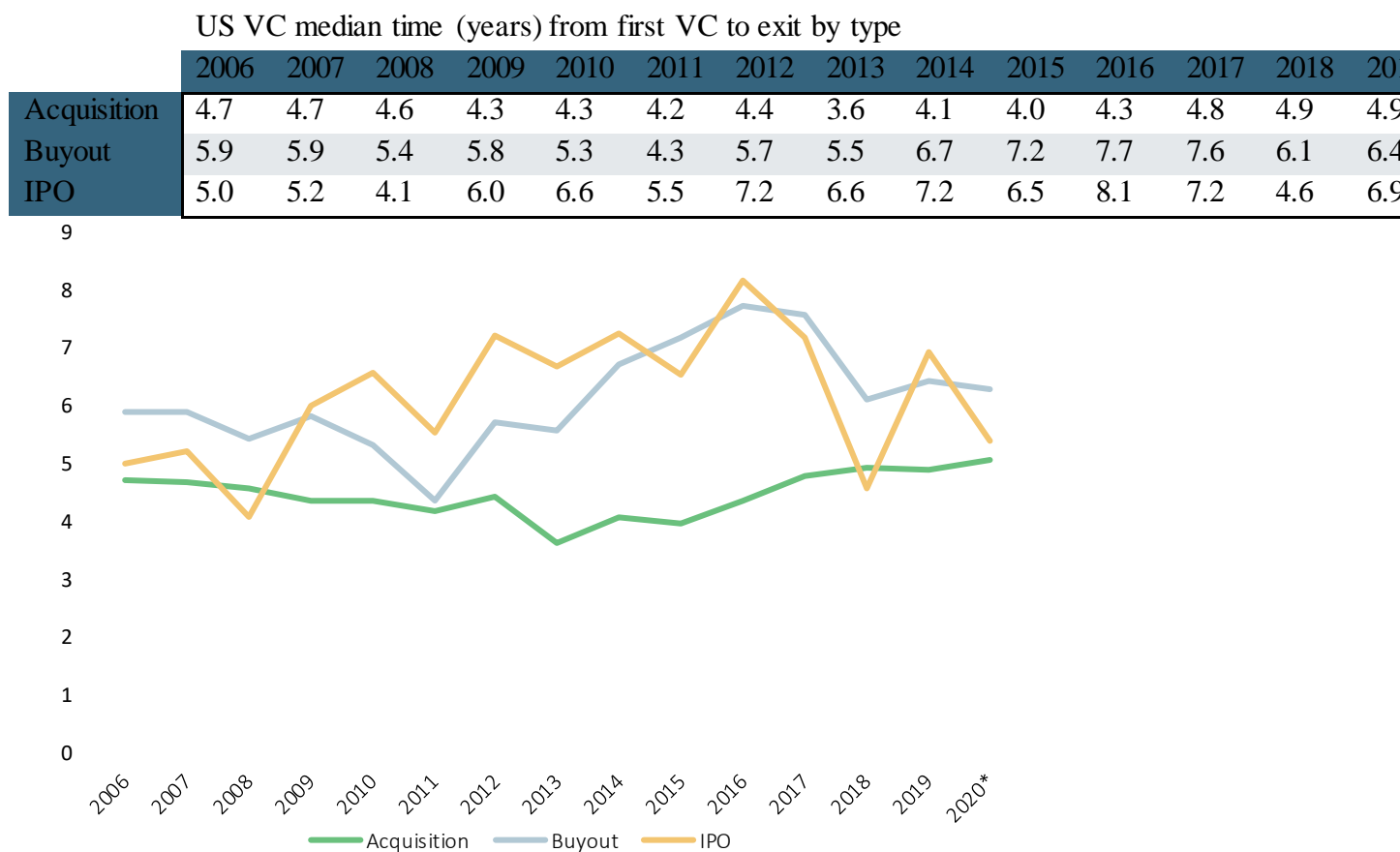


Source: PB/NVCA – authors’ analysis (“G&S Exit”)

Of interest in Figure 8 below is that the timing to liquidity for a venture fund is lower for M&A than other forms of exit. A change in antitrust-merger standards likely would shift this liquidity window further into the future because of increased antitrust scrutiny.

⁴⁸ To calculate the returns for a specific deal, one requires information on the equity stakes of the VC fund.

Figure 8 Time to a Liquidity Event



Source: PB/NVCA – “Exit Medians and Avg”

Corporate Venture Builders and Walled Gardens. In parallel to the vibrant world of grassroots VC-backed entrepreneurial ventures, we also witness the evolution of the corporate-venture-builder phenomenon. It includes entities such as BCG Digital Ventures, which self-describes as “a corporate investment and incubation firm . . . [that] invent[s], build[s] and invest[s] in startups with the world’s most influential companies.”⁴⁹ The latter exemplifies a growing model whereby incumbent corporations do not acquire independent startups but rather collaborate with a venture builder to seed and nurture innovations in certain areas through (one or more) ventures that are pre-designated to be assimilated within the incumbent.

To the extent that incumbents may be precluded or delayed from accessing the broader universe of entrepreneurial ventures, the entrepreneurial ecosystem may end up with “walled innovation gardens.” One concern is that such an approach effectively creates these walled gardens where only pre-selected startups can reach and win incumbents’ attention. This runs the risk of stifling innovation (for incumbents) and can also impact scale-up opportunities (for startups) and compensation and

⁴⁹ BCG DIGITAL VENTURES, <https://www.bcgdv.com/> (last visited June 1, 2021).

longevity of the VC funds that backed them. For incumbents, the risk is that they draw from a limited pool of innovators and, therefore, may miss out on other/better innovations beyond the focal pool. For entrepreneurs, it implies that many would be unable to scale or sell their companies, especially if the trade-sale route is blocked. Finally, for VC funds, the shift of incumbents' resources towards corporate-venture builders can decrease capital availability and the prospects of future funds in two ways: first, a decrease in established corporations as an important source of LPs, and, second, a decrease in M&A activity.

VII. Conclusion

The world of entrepreneurship is complex. There is a history of poorly thought-out legal rules which negatively impact business growth and innovation. The proposed change in merger presumptions, motivated by increasing the number of tech firms, will instead reduce M&A-exit opportunities for founders and VC investors, decrease the number of new VC funds founded, and may have a disproportionate impact specifically on social-based investing relating to sustainability and diversity that plays a large role in many first-time funds' investment decisions. By limiting the number of companies that can make acquisitions through a proposed change in merger law, the proposed change limits the ability of new ventures to exit. It also potentially chills incentives for such firms to scale up because they may be punished for being too successful with such restrictions placed upon them. The tradeoffs for a change in merger laws in terms of reducing entrepreneurial exits do not merit such a change in law.