Serial Acquisitions in Tech*

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Abstract

We examine serial acquisitions in the technology sector from 2010 to 2023. Defining serial acquisitions based on a granular S&P industry taxonomy, we find that they account for 24–37% of majority-control tech M&A, with over half completed by public firms. Followon targets in a series are generally larger and older than the initial acquisition, and among public acquirers, starting a series is associated with higher market value and greater innovation value, but not with significant changes in market competitiveness. Among deals with valid transaction values, over half of serial deals exceed the reporting threshold of the U.S. Hart–Scott–Rodino (HSR) Act. However, in below-threshold acquisitions, acquirers primarily target their core business category. Accounting for the cumulative value of a series would, in most cases, keep the timing of HSR review unchanged or modestly accelerate it, but when it does accelerate it, review could occur several deals or years earlier, potentially yielding important benefits in markets with long acquisition sequences. Finally, while Google/Alphabet, Amazon, Facebook/Meta, Apple and Microsoft (GAFAM) stand out from the rest of the sample for more frequent serial acquisitions, some other large acquirers display similar patterns.

Keywords: M&A; antitrust; technology ventures; serial acquisitions.

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1. Introduction

Serial acquisition is defined by the OECD as "a pattern and/or strategy of undertaking sequential acquisitions of a series of small companies by the same firm over time, in the same or adjacent markets, which it then consolidates into a larger, potentially dominant, company" (Abate and Lyon 2023).¹

Serial acquisitions are not a novel phenomenon and have been observed across various sectors and countries. However, antitrust agencies have increasingly expressed concerns about their potential competitive implications for two primary reasons. First, serial acquisitions are growing, involving not only private equity (PE) acquirers motivated by short-term profits but also non-PE firms pursuing long-term strategic goals such as industry consolidation (Hearn et al. 2022; Mehta et al. 2022; Pitchbook 2023). Second, many serial acquisitions fall below the reporting thresholds for merger review or appear benign when assessed individually. The cumulative effect of these transactions can enable an acquirer to rapidly gain significant market share, restrict competition, and potentially monopolize markets (Hearn and Shaban 2022; Abate and Lyon 2023). As a result, these acquisitions can evade antitrust scrutiny, at least early on, and contribute to so-called "stealth consolidation" (Wollmann 2024).

In response, policymakers worldwide have introduced or considered measures to address concerns about serial acquisitions. For instance, the U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) updated their merger guidelines in December 2023 to include provisions specific to serial acquisitions. Similarly, the European Union's Digital Markets Act (DMA) now mandates "gatekeeper" firms to report any planned mergers or acquisitions of significant digital services, regardless of transaction size. Additionally, the UK's Digital Markets, Competition, and Consumers Act, effec-

¹This definition includes roll-ups by private equity (PE) firms, which traditionally aim to acquire, restructure, and manage companies before selling them for profit. However, it excludes staggered acquisitions, where an acquirer incrementally buys shares of the same target firm through multiple small transactions.

²Guideline #9 of the 2023 Merger Guidelines states, "When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series." Guidelines: https://www.justice.gov/atr/mergerguidelines; related press release: https://www.justice.gov/opa/pr/justice-department-and-federal-trade-commission-release-2023-merger-guidelines.

³DMA Article 14 outlines reporting obligations for gatekeepers: "A gatekeeper shall inform the Commission of any intended concentration within the meaning of Article 3 of Regulation (EC) No 139/2004, where the merging entities or the target of concentration provide core platform services or any other services in the digital sector or enable the collection of data, irrespective of whether it is notifiable to the Commission under that Regulation or to a competent national competition authority under national merger rules." Content: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX: 32022R1925.

tive January 1, 2025, requires firms with "Strategic Market Status" to report M&A transactions under lower-than-usual notification thresholds.⁴ Beyond the US, EU, and the UK, South Africa amended its Competition Act in 2019 to enable its competition authority to address serial acquisitions, and Germany's Federal Court of Justice acknowledged the potential harm of serial acquisitions in 2008.⁵

Recent high-profile antitrust cases illustrate the growing concern over serial acquisitions. In 2020, the FTC alleged that Meta/Facebook used acquisitions, including Instagram (2012) and WhatsApp (2014), to eliminate competitive threats and consolidate its monopoly power.⁶ Retrospectively and in combination, the two deals constitute a series of acquisitions that allegedly helped Facebook (now Meta) eliminate threats to its monopoly. The FTC is asking the Court to order Meta to divest Instagram and WhatsApp and to require the firm to seek prior approval for any further acquisitions. The case went on trial in April 2025, with the court decision pending.

In January 2023, the US DOJ sued Google for monopolizing digital advertising technologies, "through serial acquisitions and anticompetitive auction manipulation." In particular, DOJ questioned Google's acquisition of DoubleClick in 2008 and AdMeld in 2011, alleging that the integration of DoubleClick and Google's own ad exchange were part of a strategy to monopolize digital advertising technologies, and by buying and shutting down AdMeld, Google prevented a potential rival from developing innovative ad technologies that could challenge Google's market position. In April 2025, the District Court judge ruled that Google monopolized two online advertising markets, but did

⁴See https://www.whitecase.com/insight-alert/uk-expands-its-merger-control-regime-and-cmas-powers-digital-markets-competition for a summary of the legislation; its full content is available at https://www.legislation.gov.uk/ukpga/2024/13/enacted.

⁵Abate and Lyon (2023), pp. 21-22, offer a brief description of the institutional changes in South Africa and Germany.

⁶Details of the FTC's case against Meta are available at https://www.ftc.gov/news-events/news/press-releases/2020/12/ftc-sues-facebook-illegal-monopolization. The FTC in fact reviewed and approved both deals at the time of acquisition, when Instagram was a 13-person startup with roughly 30 million users prior to its \$1 billion acquisition and Whatsapp had 55 employees and 400 million users prior to its \$19 billion acquisition. (Sources: Dealmakers's summary available at https://dealmakers.co.uk/the-story-of-instagrams-1billion-acquisition/), The Guardian (2014/2/19) available at https://www.theguardian.com/technology/2014/feb/19/facebook-buys-whatsapp-16bn-deal#:~:text=10%20key%20numbers,Telecoms., and the Conversation (2014/2/20) available at https://theconversation.com/whatsapp-bought-for-19-billion-what-do-its-employees-get-23496#:~: text=With%20only%2055%20employees%2C%20WhatsApp's,US%241%20billion%20in%202012...

⁷DOJ press release: https://www.justice.gov/opa/pr/justice-department-sues-google-monopolizing-digital-advertising-technologies.

⁸See https://crsreports.congress.gov/product/pdf/LSB/LSB10956 for a brief summary of the DOJ's position in the Google Ad Tech case; the DOJ's full complaint can be found at https://www.justice.gov/atr/case-document/file/1566706/dl?inline=.

not find Google's serial acquisitions of DoubleClick and Admeld anticompetitive.⁹

In September 2023, the FTC sued U.S. Anesthesia Partners (USAP) and Welsh, Carson, Anderson & Stowe (WCAS), a private equity firm, for using a "roll-up" strategy to buy up nearly every large anesthesia practice in Texas and engage in other anti-competitive practices to monopolize the anesthesiology market in Texas. ¹⁰ Beyond this particular case, Asil et al. (2024) identify 18 similar "roll-ups" in the anesthesia industry, finding that roll-ups increase market concentration and lead to sharp price hikes.

Traditionally, serial acquisitions occur in industries with fragmented markets that can significantly benefit from economies of scale, wide distribution networks, consolidated buying power, or rapid geographic expansion, ¹¹ but recent advances in information and communication technologies (ICT) have introduced new challenges and concerns regarding serial acquisitions in the tech sector (Abate and Lyon 2023).

In particular, defining targets by market is often difficult because ICT can be applied to many nascent markets, and younger startups may still be exploring which market to enter or avoid. Consequently, serial acquisition targets are not necessarily well-established horizontal competitors of the acquirer; instead, they can be nascent competitors or potential complementors, serving as upstream suppliers, downstream customers, or technological partners that enhance one or more of the acquirer's core business areas. More broadly, the acquirer may rely on serial acquisitions of tech startups to expand its ecosystem or build moats to hamstring or deter future rivals. Moreover, digital technology is not limited by geography, making it harder to define the relationship between acquirer and target geographically, unlike in grocery retail or healthcare. Digital technology often enables business models that feature indirect network effects, data feedback loops, and significant economies of scale and scope. These features imply that serial acquisitions in the tech sector can have greater pro- or anti-competitive effects than in other sectors. However, tech targets are often smaller and younger, allowing them to escape the scrutiny of existing merger review protocols.

Concerns about serial acquisitions in the tech sector are further heightened by popular attention on five large digital platforms: Alphabet/Google, Amazon, Meta/Facebook, Apple, and Microsoft (referred to as GAFAM). For example, Parker, Petropoulos and Van Alstyne (2021) followed all publicly known M&A deals involving GAFAM firms

 $^{^9}$ See New York Times summary of the court ruling at https://www.nytimes.com/2025/04/17/technology/google-ad-tech-antitrust-ruling.html.

¹⁰Source: https://www.ftc.gov/news-events/news/press-releases/2023/09/ftc-challenges-private-equity-firms-scheme-suppress-competition-anesthesiology-practices-across.

¹¹Historical cases concerning serial acquisitions include business categories such as waste management, mining, beer brewing, grocery retail, healthcare, hotel chains, regional banks, and funeral homes.

from 1988 to August 2020, finding the total count to be 825. In September 2021, the US FTC released a staff report describing 600+ acquisitions completed by the five GAFAM firms between 2010 and 2019, noting that many were not reportable to the US antitrust agencies under the Hart-Scott-Rodino Act (FTC 2021). According to Kwoka and Valletti (2021), nearly 97% of the GAFAM deals have not been assessed by any competition authority worldwide. Of the few assessed, the UK Competition and Markets Authority prohibited only Meta's 2022 acquisition of Giphy, leading Meta to divest Giphy to Shutterstock in 2023. Surprisingly, despite this intense spotlight on GAFAM, the extent to which their acquisitions constitute serial acquisitions remains largely unknown.

More generally, the technology sector lacks a systematic definition or description of serial acquisitions. To address this gap, we begin by defining serial acquisitions, utilizing a detailed taxonomy developed by S&P Global Market Intelligence, a go-to database of majority control M&A deals for Wall Street professionals interested in the tech sector. If an acquirer completed multiple acquisitions in the same business category during our sample period (2010-2023), we define these deals as a series. We refer to the first deal in a series as the "initial" deal, and all subsequent deals in the series as "follow-on" deals. Based on information available at the time of the deal, only follow-on deals are serial because one can only determine if a deal is initial retrospectively, after a follow-on deal occurs. Throughout the paper, we use "follow-on deals" and "serial deals" interchangeably, acknowledging that initial and follow-on deals fall in the same series retrospectively. We refer to deals that do not belong to any series as singleton deals.

Four patterns emerge from the raw M&A data of majority-control deals tracked by S&P in the information, communication and energy technologies (ICET) space. First, follow-on deals account for 24.4-37.2% of all deals in our data, depending on how narrow we restrict acquisitions in a series to belonging to the same business category in the S&P taxonomy.

Second, targets in serial deals tend to be older and larger than the initial deal in a series. This differs from PE acquirers, who usually begin with a larger target (the so-called 'platform' deal) when entering a business area and then add smaller targets to the series (Pitchbook 2023).

Third, while private equity firms are best known for making serial acquisitions, 53.8-55.3% of serial deals are made by publicly traded non-PE firms, and another 20.8-21.2% are made by private non-PE firms. This pattern persists regardless of whether we define

¹²A historical review of the case can be found at https://www.gov.uk/cma-cases/facebook-inc-giphy-inc-merger-inquiry.

a series by narrower or wider categories, indicating that focusing solely on PE in ICET overlooks the broader landscape of serial acquisitions.

Fourth, both firm characteristics and market structure correlate with the likelihood and intensity of serial acquisitions, and serial acquisitions are associated with improved performance and innovation, but not with reduced market competitiveness. Specifically, across the whole sample, serial acquirers are older and more resourceful than singleton acquirers. Moreover, public firms with higher market valuations, greater R&D spending, fewer employees, longer public tenure, and those operating in less concentrated markets are more likely to pursue serial acquisitions and to complete a larger number of such deals over time. Focusing on public non-PE firms, which account for the majority of serial acquirers in our sample, we adopt a difference-in-differences design using the staggered beginning of a series by an acquirer as a source of variation. We find that, following the start of a series, acquirers experience an average 11% increase in market value, along with a 19% rise in new patents' value, as measured by Kogan et al. (2017). Yet, using text-based measures of product market concentration and competitive threat (Hoberg, Phillips and Prabhala 2014; Hoberg and Phillips 2016), we find no evidence that serial acquisition behavior is associated with changes in these outcomes.

Antitrust authorities, including in the U.S. under the Hart-Scott-Rodino (HSR) Act, require pre-merger notification for transactions exceeding a size-of-transaction threshold. Since many deals in serial acquisition strategies can fall below this threshold, evade pre-merger review, and worsen market outcomes (Wollmann 2019, 2024), we use data on 13,992 acquisitions with available transaction values since 2010 to document patterns across below- and above-threshold deals. Follow-on deals are, on average, larger than initial and singleton acquisitions and thus less likely below the threshold, particularly for public acquirers. Notably, targets in below-threshold follow-ons are frequently in the same industry as the acquirer, suggesting higher competitive risk. Yet, we find no evidence that firms systematically manipulate deal values to avoid reporting. We further show that considering the cumulative value of an acquisition series captures some additional cases, especially in markets with long acquisition sequences where the current system delays review by multiple years or deals, though such a change could involve higher enforcement costs.

Finally, given the public debate surrounding GAFAM firms' acquisitions, we separately analyze their serial deals. Compared to other acquirers, GAFAM engage more frequently in serial acquisitions, often outside their core business categories, and tend to target younger, smaller, VC-backed private firms, particularly in the early stages of a series.

While this distinctive pattern aligns with policymakers' growing attention towards these firms, GAFAM's initial and follow-on deals account for only about 3% of such transactions in our data, and some other large technology and PE firms engage in a comparable number of acquisition series or have a comparable number of deals within a series. Analyzing transactions below the HSR threshold, we further show that heightened scrutiny of small GAFAM deals primarily expands review to series that remain entirely below the reporting threshold, rather than accelerating intervention in already-reportable cases.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 describes the S&P dataset and explains how we use the S&P taxonomy to define initial, follow-on, and singleton acquisitions. Section 4 presents four key empirical patterns in serial acquisitions in the tech sector. Section 5 examines serial acquisitions above and below the HSR threshold and discusses implications for merger review, while Section 6 focuses on the serial acquisition behavior of GAFAM firms. Section 7 concludes with a discussion of limitations and directions for future research.

2. Literature review

This work builds on the extensive literature on mergers and acquisitions (M&As), which explores various dimensions of M&A strategies and their potential impacts on acquirers' performance. For instance, Capron and Shen (2007) analyzed acquirers' preferences for private versus public targets and the alignment of target types with specific acquirer profiles. Similarly, Fine and Gray (1999) and Gupta and Gerchak (2002) investigated how synergies are realized through operational cost reductions and organizational integration. Within this body of work, two closely related streams include private firms' exits via M&A and public acquirers' M&A strategies in relation to firm performance.

Private firms, particularly venture capital (VC)-backed startups, often consider exit as their ultimate goal (Pisoni and Onetti 2018). While prior research extensively examines the outcomes of VC-backed startups being acquired (Bryan and Hovenkamp 2020; Cotei and Farhat 2018), limited attention has been paid to whether VC-backed startups engage in acquiring other firms and how such M&A activities may influence their own exits. In contrast, private equity (PE) firms, while not primarily driven by exit goals, remain active participants in M&A markets. These firms possess notable advantages, such as achieving higher stock returns in cross-border takeovers (Humphery-Jenner, Sautner and Suchard 2017) and paying lower acquisition premiums compared to public acquirers (Bargeron et al. 2008). Recent evidence highlights how PE firms pursue serial acquisition strategies

to consolidate markets they entered, which can lead to significant increases in prices (Asil et al. 2024). Yet, while the public debate has increasingly focused on serial acquisitions by PE firms, existing studies have not systematically documented the prevalence or patterns of such strategies. This study provides a comprehensive analysis of serial acquisitions completed by private companies and PE firms in the tech sector to address this gap.

Public firms are the most extensively studied acquirers in the M&A literature, partly due to better data availability. Many studies focus on stock market reactions to M&A announcements. For instance, Moeller, Schlingemann and Stulz (2004) found that smaller public acquirers achieve higher acquisition announcement returns. Fuller, Netter and Stegemoller (2002) documented that public acquirers with more than five takeovers tend to gain when acquiring private targets but incur losses when acquiring public targets. Additionally, Golubov and Xiong (2020) showed that public acquirers tend to perform worse operationally compared to private acquirers, while Maksimovic, Phillips and Yang (2013) demonstrated that public acquirers can realize higher gains, particularly during acquisition waves.

Prior literature has also explored how M&A activity can affect innovation in competing ways. ¹³ On one hand, acquisitions can generate synergies that enhance the acquirer's innovation performance (Zhao 2009; Bena and Li 2014); on the other, they may reduce the novelty of acquired technologies (Seru 2014) or even suppress innovation by eliminating potential competitors (Motta and Peitz 2021; Bourreau and Gautier 2024). Yet, empirical evidence for these so-called "killer acquisitions" remains limited to the pharmaceutical sector (Cunningham, Ederer and Ma 2021). In practice, acquisitions can be motivated by efficiency gains, such as economies of scale and scope, reduction of duplicative R&D, or elimination of double marginalization (Cabral 2021), and may also spur innovation by encouraging entry-for-buyout (Rasmusen 1988; Jin, Leccese and Wagman 2024b). ¹⁴ This paper contributes to the literature by focusing on serial acquisitions in the tech sector, an increasingly common but underexplored strategy that has recently drawn attention from antitrust agencies, despite its origins dating back to the 19th century. ¹⁵

Additionally, with growing attention from competition authorities, recent literature has documented and examined the implications of venture acquisitions by GAFAM firms (Google/Alphabet, Amazon, Facebook/Meta, Apple, and Microsoft) for entry,

¹³See Jin, Leccese and Wagman (2025) and Lefouili and Madio (2025) for a comprehensive review of the literature.

¹⁴Related to this, Eisfeld (2022) uses a structural model to quantify how entry-for-buyout and kill zone mechanisms affect startup entry, finding that banning venture acquisitions would reduce entry by 8–20%.

¹⁵See, e.g., Standard Oil Co. v. U.S., 221 U.S. 1, 31–42 (1911); U.S. v. American Tobacco Co., 221 U.S. 106, 157–60 (1911).

zingales 2020; Affeldt and Kesler 2021; Prado and Bauer 2022; Jin, Leccese and Wagman 2023). Ederer, Seibel and Simcoe (2025) examine a broader set of large technology companies (GAFAM plus Cisco, Intel, and Qualcomm) and find that patenting activity in affected Cooperative Patent Classification (CPC) groups continues to rise after an acquisition, with post-acquisition growth especially pronounced when follow-on acquisitions occur in the same technology space. They also show that acquired patents attract significantly more citations after the acquisition than comparable patents in the same CPC group. Our study adopts a broader perspective, describing serial acquisitions beyond the handful of large technology companies. We contribute to this literature by providing a systematic description of serial acquisition strategies by GAFAM and other large technology firms, placing them in the broader context of tech-sector M&A dynamics.

A growing body of research examines how pre-merger notification thresholds, particularly under the HSR Act, affect firms' acquisition behavior and market outcomes. Wollmann (2024) and Mayo and Press (2025) analyze the extent to which the 2000 legislatively mandated increase in the HSR reporting thresholds induced firms to endogenously undertake mergers that now fell below the threshold, thereby avoiding regulatory scrutiny. Wollmann (2019) demonstrates that in the U.S. dialysis industry, small deals that escape review under the HSR thresholds can nonetheless produce substantial changes in market structure and firm behavior, ultimately harming consumer welfare. Our analysis extends this literature by focusing on the technology sector and linking HSR coverage directly to serial acquisition strategies. We also document systematic differences between below- and above-threshold deals and assess how accounting for the cumulative value of a series of acquisitions could alter the merger review process.

Focusing on serial acquisitions, much of the existing literature highlights the potential downsides of serial acquisitions for corporate acquirers. For example, Laamanen and Keil (2008) found that serial acquisitions are negatively associated with post-acquisition performance for public acquirers. Similarly, Aktas, De Bodt and Roll (2011) reported a decline in cumulative abnormal returns (CAR) over successive deals in acquisition programs, although this effect is moderated by the type of CEO leading the acquisitions.

Despite these contributions, the prior literature has several limitations. First, it lacks a precise and consistent definition of serial acquisitions. Second, conclusions regarding the disadvantages of this strategy may not fully account for the increasing prevalence of serial acquisitions in recent years. This paper seeks to address these gaps by proposing a novel definition of serial acquisitions, leveraging a granular taxonomy of the technology

industry (Jin, Leccese and Wagman 2023), and providing a comprehensive analysis of serial acquisitions in the technology sector over the past nearly decade and a half. Additionally, we expand the existing literature on public acquirers by investigating how their serial acquisition strategies correlate with their performance, market competitiveness, and innovation incentives.

3. Definition and Data

3.1. Definition

If one had a clear definition for each relevant market, it would be straightforward to define a sequence of acquisitions that the *same* acquirer made in the *same* market from the beginning to the end of our sample as a series.

As shown in Figure 1, suppose acquirer #1 purchases A, B, and C sequentially in the green market. Thus, A-B-C form a series for acquirer #1 in this market. We call the acquisition of A the initial deal in this series, and B and C the follow-on deals. At the time of deals B and C, A had already occurred; thus, all follow-on deals are serial acquisitions. However, at the time of deal A, one cannot anticipate the occurrence of B or C with certainty. Therefore, we classify A as a non-serial acquisition, even though retrospectively it initiates the A-B-C series.

In contrast, in the blue market in the figure, acquirer #2 acquires the target D and only D throughout the sample period; we then refer to D as a singleton acquisition. If acquirer #2 acquires another target in the blue market beyond our sample period, D may become an initial acquisition in the future series but would remain a non-serial acquisition according to our definition. Under this framework, the classification of serial and non-serial acquisitions is time-neutral, whereas the label of initial or singleton deals can be time-dependent. Following the same logic, acquirer #3 acquires E and F in the gray market and acquirer #4 acquires G only in the yellow market; hence, E is an initial deal, F is a follow-on deal, and G is a singleton deal. E and F form a series once F is acquired, but only F is referred to as a serial acquisition. Henceforth, we use 'follow-on deal,' 'serial deal,' and 'serial acquisition' interchangeably.

Our definition is independent of whether an acquirer is in or out of the market before completing its initial deal, although this distinction might be important for regulators and policymakers. Later on, our data summary will describe whether the acquirer and the initial target are in the same business category as one target attribute. Moreover, the same acquirer could engage in multiple series of acquisitions in different markets. For

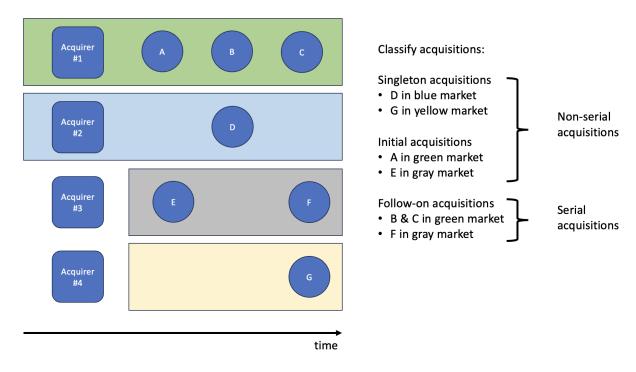


Figure 1. Definition of serial and non-serial acquisitions

example, if acquirers #1, #3 and #4 are the same entity in Figure 1, the series of A-B-C acquisitions may have strengthened the acquirer's incumbency in the green market, the singleton acquisition of G enables the acquirer to enter the yellow market, and the series of acquisitions E-F facilitates the acquirer entering and expanding inside the gray market.

Our framework is conservative in the sense that we take the acquirer and target identities of each M&A deal as recorded and do not incorporate information about the parent company. For instance, if acquirer #1 acquires targets A, B and C in the green market, and then A acquires targets H and I, we do not count H and I as part of the A-B-C series of acquirer #1. Under our definition, H and I could form another series for acquirer A if H and I are in the same market (not necessarily in the same market as A). As shown in Appendix B, tracing acquirer identity to its ultimate parent company does not affect our conclusions.

3.2. S&P data and taxonomy

Our primary data source is a database maintained by Standard and Poor's Global Market Intelligence, called 451 Research (henceforth, S&P). The data tracks majority (control) acquisitions of technology companies since the early 2000s, focusing on information, communication, and energy technologies (ICET). In a majority control acquisition, the

acquirer obtains more than 50% of the voting shares of the target. The S&P data is updated on a daily basis and has been widely used by investors and analysts in the financial industry, but we were advised by the firm that the entries prior to 2010 may be less comprehensive due to insufficient or imprecise information. In light of this, our analysis focuses on acquisitions consummated between January 1, 2010 and December 31, 2023. As shown in Jin, Leccese and Wagman (2023, 2024a), as far as majority control acquisitions in the tech sector are concerned, the S&P data is more comprehensive than the Worldwide Mergers, Acquisitions, and Alliances database offered by Refinitiv SDC, although the Refinitiv data is by definition broader than S&P's since it also tracks non-tech targets and includes minority acquisitions.

More importantly, we prefer the S&P dataset because it classifies the acquiring and acquired companies into a hierarchical technology taxonomy with 4 levels, with level-1 being the broadest (resembling an industry, such as "Application Software" and "Internet Content & Commerce," in some cases similar to 4-digit NAICS codes such as 5112 and 5191) and level-4 being the narrowest (resembling a technology business vertical, such as "Benefit and Payroll Management" and "Video-On-Demand Servers"). All level-1 "parent" categories have level-2 "children" categories, but not all level-2 categories have further children levels. In total, there are about two dozen level-1 categories and two hundred level-2 categories, yielding an average of about nine level-2 categories per level-1 parent. We refer to two level-2 categories as "adjacent" if they share the same level-1 parent category.

Each firm in the database is assigned a primary category, representing the firm's core business, which, in the taxonomy, includes a level-1, a level-2, and, if available, level-3 and level-4 classifications. Firms may also be assigned one or more secondary categories (organized analogously in the taxonomy). To avoid confusion, we only use a firm's primary level-1 and level-2 as its categorization in the S&P taxonomy.

The S&P data provides the location of each firm's headquarters, whether a firm is publicly traded, a consummation date for each acquisition, and the founding dates for the firms tracked (available in 90.71% of the transactions for the acquired firms and 92.49% for the acquiring firms). This allows us to compute the age of most target firms as of the time of the consummation of their acquisition. The S&P data also provides the number of employees a firm has and the transaction sizes in dollars, though these are more sparsely populated. In particular, only 23.82% of M&A deals recorded by S&P have information on the target firm's employee size at the deal time, and only 24.21% have deal size because publicly traded acquirers are required by law to disclose the transaction

size only if the transaction is material.¹⁶ As detailed in Jin, Leccese and Wagman (2024*a*), the S&P taxonomy is more systematic, more reliable, and more detailed than alternative taxonomies that other researchers have used to study technology mergers.

At the same time, the S&P taxonomy does not necessarily reflect the market definition that antitrust agencies and the courts may adopt in antitrust cases. Antitrust investigators can access confidential information from the defendants and other market stakeholders, but the S&P taxonomy relies on publicly available information to describe business areas. Due to this discrepancy, we summarize serial acquisitions in the S&P data according to two definitions: our "narrow" definition requires targets in the same series to belong to the same level-1 and level-2 categories in the S&P taxonomy (henceforth, Level-1/Level-2), whereas our "wide" definition considers targets as belonging to the same series if they share the same level-1 categorization (henceforth, Level-1). Labeling targets in the same level-1 but different level-2 as "adjacent," the wide definition counts adjacent targets in the same series, which by definition labels more acquisitions as follow-on or serial deals and can increase the length of a series.

It is difficult to gauge how our narrow and wide definitions compare with the definition of serial acquisitions in antitrust cases. Only two recent U.S. cases involve serial acquisitions in the tech sector: FTC vs. Facebook/Meta (2020) and DOJ vs. Google/Alphabet on ad tech (2023). While the FTC alleges that Facebook's acquisition of Instagram and WhatsApp is a series, the S&P taxonomy classifies Facebook as "Internet Content & Commerce" in Level 1 and "Social Networking & Collaboration" in Level 2, Instagram as "Mobility" (Level 1) and "Applications" (Level 2), and WhatsApp as "Mobility" (Level 1) and "Messaging" (Level 2). This means the two deals would only form a series under our wide definition but not the narrow definition. Conversely, as far as the DOJ's allegation that Google's acquisitions of DoubleClick and Admeld form a series, the S&P taxonomy classifies Google/Alphabet as "Internet Content & Commerce" in Level 1 and "Search" in Level 2, DoubleClick as "Internet Content & Commerce" (Level 1) and "Online Advertising" (Level 2), and Admeld as "Internet Content & Commerce" (Level 1) and "Online Advertising" (Level 2). The two deals would be considered a series under both narrow/wide definitions. However, because DoubleClick was acquired in 2008, and our sample period ranges from 2010 to 2023, these two deals would not be counted as a series in the summary statistics reported later in this section.

¹⁶A deal is "material" is it leads to at least 20% increase in some key metrics of the acquirer, like revenue and assets, though there are other factors to consider (e.g., strategic importance, impact on operations). With acquisitions of smaller ventures, if the deal is not considered material, deal amount is usually not reported to the SEC on an 8-K form.

Despite the above differences, the Facebook-WhatsApp deal is still classified as a follow-on/serial deal even by our narrow definition because Facebook had acquired Beluga Inc. in the same level-1 and level-2 categories before it acquired WhatsApp. Google did not acquire any other targets in the same level-1/level-2 categorization as Admeld between 2010 and 2023. Therefore, Google's acquisition of Admeld does not belong to any series in our data sample. This highlights that the starting point of the time horizon for serial acquisitions also matters when defining a series.

In short, these examples suggest that our narrow definition of serial acquisitions based on the S&P taxonomy tends to be more conservative than what the FTC alleged in the case against Meta, but our definitions are more comprehensive within the sample period, as we follow all M&A deals by the same acquirer in the S&P data.

4. Stylized Facts About Serial Acquisitions

In this section, we leverage the S&P dataset to document four facts about serial acquisitions in the technology sector.

4.1. How prevalent are serial acquisitions?

Table 1 reports the composition of singleton, initial, and follow-on deals in our full sample of 2010-2023.¹⁷ The first panel follows our narrow definition, which limits deals in a series to the same level-1 and level-2 categories; the second panel uses the wide definition, requiring deals in a series to belong only to the same level-1 category.

Of the total 57,804 M&A deals in the S&P data, 24.37-37.16% are follow-on deals (and thus serial acquisitions), depending on which of the narrow or wide definitions we employ. The percentage of initial deals is slightly higher under the wide definition (15.04% vs. 12.39%) because some series may only involve follow-on deals that belong to the same level-1 but a different level-2 from the initial deal. We report the average number (length) of follow-on deals per series as of the end of our sample period. To compute this average, we first count follow-on deals in each series and then average them across all series. This average is higher under the wide definition (2.47) than under the narrow definition (1.99), suggesting that, on average, the number of serial acquisitions in a series increases by 24.12% if we count follow-on acquisitions in adjacent level-2 categories.

¹⁷Figure A.2 in the appendix depicts the time trends of singleton, initial, and follow-on deals for our narrow and wide definitions.

Table 1. Summary of Deal Attributes

	Singleton	Initial	Follow-on			
Narrow Definition: Level-1/Level-2						
# of M&A deals	36,552	7,164	14,088			
Percent of total deals	63.23%	12.39%	24.37%			
Percent of deals with deal value within the column	21.40%	29.91%	28.59%			
Avg. deal value (\$MM) conditional on having deal value	356.85	324.48	602.38			
	(1,820.25)	(1,438.61)	(2,634.80)			
Median deal value (\$MM) conditional on having deal value	30.00	40.00	60.00			
# of series per acquirer			1.41			
Avg. length per series (# of follow-on deals)			1.99			
Avg. time span (days) from initial to first follow-on per series			705.24			
Avg. time span (days) from first follow-on to last follow-on per series			1117.74			
$(if \ge 2 \text{ follow-on deals})$						
HHI of follow-on deals' categories within each series (0–10,000)			8483.57			
Wide Definition: Level-1						
# of M&A deals	27,631	8,691	21,482			
Percent of total deals	47.80%	15.04%	37.16%			
Percent of deals with deal value within the column	19.23%	28.55%	28.85%			
Avg deal value (\$MM) conditional on having deal value	291.46	266.21	597.56			
(standard deviation)	(1,523.19)	(966.05)	(2,649.54)			
Median deal value (\$MM) conditional on having deal value	25.00	34.33	60.00			
# of series per acquirer			1.34			
Avg. length per series (# of follow-on deals)			2.47			
Avg. time span (days) from initial to first follow-on per series			670.65			
Avg. time span (days) from first follow-on to last follow-on per series (if \geq 2 follow-on deals)			1219.89			
HHI of follow-on deals' categories within each series (0–10,000)			9058.68			

Note: Standard deviations in parentheses. Deal values in millions of US dollars.

Time span measured in days. HHI is the Herfindahl–Hirschman Index (0–10,000 scale).

Conditional on the 24.21% of deals with reported deal size, follow-on deals are, on average, substantially larger than singleton and initial deals. This difference is even greater under our wide definition of serial acquisitions, suggesting that follow-on deals in adjacent Level-2 categories tend to be larger than those within the same Level-1 and Level-2 categories. Notably, this differs from the pattern where PE acquirers usually begin with a larger target (a 'platform' deal) when they enter a business area and then add smaller targets to the series (Pitchbook 2023). This difference occurs partly because most acquirers in serial acquisitions are non-PE firms. ¹⁸ In Table 1, we also report the standard deviation and median deal values for each type of deal. The standard deviation

 $^{^{18}}$ We did observe follow-on deals have a smaller deal size on average than initial deals in recent years, if we condition on PE acquirers.

is more than four times the average, and the median deal size is about 10-12% of the average; both suggest that the distribution of deal value is highly skewed across all deal types, regardless of the definition employed.

Figure A.1 reveals significant heterogeneity in deal number and size across technology sectors and deal types. The left panel shows that, beyond large sectors like application software or IT services & distribution, serial acquisitions are particularly common in business areas such as carrier infrastructure, mobility, security, semiconductors, and systems, relative to singleton deals. The right panel, which reports the total value of deals, reveals that high-value follow-on acquisitions occur in several tech sectors, whereas singleton deals exceed follow-on values only in a few areas, such as datacenters, infrastructure management, and storage. AI and app development & deployment stand out for having relatively modest singleton and initial deal values, yet follow-on acquisitions in these categories are among the most expensive, exceeding \$1 billion, on average. This pattern suggests that sector-specific factors, such as barriers to entry, shape the strategic value of follow-on acquisitions and help explain their prevalence and scale in certain domains.

In the last five rows of Table 1, we focus on follow-on deals and examine series characteristics. We find that, regardless of the narrow or broad definition, firms typically have only one series, averaging about two follow-on acquisitions, a figure that rises to 2.5 under the broader definition.

Moreover, firms wait nearly two years, on average, before making their first followon acquisition, and among series with multiple follow-ons, the average time between the first and last deal in the same series exceeds 3 years. This suggests that serial acquisition strategies unfold over extended periods, and effective scrutiny of such consolidation patterns requires a long-run perspective.

Lastly, we compute a firm-level Herfindahl–Hirschman Index (HHI) to measure sectoral concentration in follow-on acquisitions:

$$HHI_i = \sum_{j} \left(100 \times \frac{A_{ij}}{\sum_{j} A_{ij}}\right)^2$$

where A_{ij} is the number of follow-on acquisitions made by firm i in sector (level-1 or level-1/2) j between 2010 and 2023. Overall, acquirers appear highly concentrated, typically focusing on a single sector—likely reflecting the limited number of series most firms engage in.

4.2. Which firms are targeted in acquisition series?

Table 2 summarizes target attributes by deal type. Surprisingly, only 9.33-10.5% of all targets were VC-funded, and only 9.66-10.41% of targets were publicly traded as of the deal time. Conditional on being VC-funded, follow-on targets have, on average, raised more capital than singleton and initial targets as of the deal time. However, conditional on being publicly traded, follow-on targets are, on average, of a smaller market value than singleton and initial deals as of the deal time. Regarding target age and number of employees, follow-on targets tend to be older and larger than singleton and initial deals. ¹⁹

Table 2 also reports several variables summarizing the acquirer-target relationship. Overall, 50.43-57.13% of acquirers and targets belong to the same Level-1 for initial or follow-on deals, and these numbers are substantially higher than those for singleton deals (35.22-37.61%). Similarly, more acquirer-target pairs belong to the same level-1 and level-2 categorization for initial and follow-on deals (27.91-37.17%) than for singleton deals (19.56-22.81%). ²⁰

Since acquisitions within the same category may pose a higher risk of consolidation, in Figure A.4, we zoom into acquisitions that occur within the original core level-1/level-2 category of the acquirer and report the average probability of such deals across level-1 categories, separately for singleton, initial, and follow-on acquisitions. We find that such same-level-2 serial acquisitions are especially prevalent in Hosted Services, Semiconductors, Internet Content & Commerce, and Carrier Infrastructure. These sectors are often characterized by strong network effects, economies of scale, or technological compatibility, which may increase incumbents' returns from engaging in serial acquisitions. Overall, these patterns raise potential competition concerns that firms in certain sectors may use serial acquisitions to entrench or expand dominance within their core business areas.

4.3. Which firms engage in serial acquisitions?

Table 3 reports various acquirer attributes for singleton, initial, and follow-on deals. Since only follow-on deals are counted as serial acquisitions in our definition, we focus on them first. Classifying acquirers into three exclusive groups—PE, public non-PE

¹⁹Figure A.3 in the appendix depicts how the target age (as of the deal time) changes over time. Independent of deal type and narrow/wide definition, the average target age increases over time, suggesting that acquirers have become more conservative and prefer more mature targets in more recent years.

²⁰While the likelihood of having an acquirer as a minority investor in the target prior to the M&A deal is higher in follow-on deals (0.11-0.12%) than in initial and singleton deals (0.07-0.08%), these percentages are all lower than 1%, suggesting that the vast majority of targets are not acquired by their own PE or corporate investors.

Table 2. Summary of Target Attributes

	Singleton	Initial	Follow-on			
Narrow Definition: Level-1/Level-2						
# of M&A deals	36,552	7,164	14,088			
Percent if target is VC funded	9.87%	10.50%	9.38%			
If VC funded, \$ raised (\$MM)	62.67	59.67	81.80			
	(682.23)	(485.41)	(666.71)			
Percent if target is publicly traded	9.66%	10.33%	10.36%			
If publicly traded, market value (\$MM)	41,154.00	35,514.73	35,329.24			
	(128,801.11)	(67,031.97)	(64,213.63)			
Target age (years)	15.22	16.14	17.17			
Target size (# of employees)	672.97	604.78	1,991.70			
Percent if acquirer/target in same level-1 category	37.61%	54.56%	57.13%			
Percent if acquirer/target in same level-1 & level-2	19.56%	33.85%	37.17%			
Percent if acquirer/target in same country	67.65%	62.49%	55.82%			
Percent if acquirer/target in same state	33.30%	27.14%	22.20%			
Percent if acquirer/target in same city	9.37%	5.76%	4.42%			
Percent if acquirer invested in target before	0.91%	0.67%	1.53%			
Wide Definition:	Level-1					
# of M&A deals	27,631	8,691	21,482			
Percent if target is VC funded	9.33%	10.37%	10.25%			
If VC funded, \$ raised (\$MM)	68.06	53.46	70.58			
	(773.85)	(441.21)	(573.60)			
Percent if target is publicly traded	9.72%	10.41%	9.97%			
If publicly traded, market value (\$MM)	40,721.95	38,707.24	36,747.36			
	(139,828.77)	(79,272.96)	(66,788.19)			
Target age (years)	14.97	15.91	16.84			
Target size (# of employees)	634.58	637.32	1,573.30			
Percent if acquirer/target in same level-1 category	35.22%	50.43%	53.94%			
Percent if acquirer/target in same level-1 & level-2	22.81%	28.89%	27.91%			
Percent if acquirer/target in same country	68.59%	64.93%	58.07%			
Percent if acquirer/target in same state	35.49%	29.32%	22.76%			
Percent if acquirer/target in same city	10.28%	6.63%	4.87%			
Percent if acquirer invested in target before	0.86%	0.67%	1.40%			

Note: Standard deviations in parentheses. Market value and \$ raised in millions of US dollars.

(henceforth, public), and private non-PE (henceforth, private)—we find public acquirers account for 53.83-55.25% of all follow-on deals, PE acquirers account for 23.96-24.98%, and the remaining 20.79-21.19% are private acquirers. This pattern contrasts with the disproportionate public attention on PE acquirers regarding serial acquisitions. 21

²¹Since our main analysis treats subsidiaries as independent companies, and PE firms may be more likely to acquire through them, we verify that our qualitative results hold when attributing deals completed

Table 3. Summary of Acquirer Attributes

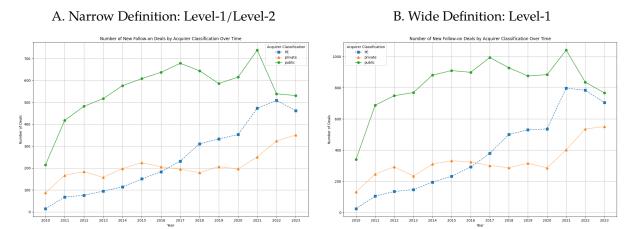
	Singleton	Initial	Follow-on			
Narrow Definition: Level-1/Level-2						
# of M&A deals	36,552	7,164	14,088			
Percent if acquirer is private non-PE	42.88%	25.57%	20.79%			
Percent if acquirer is public non-PE	34.64%	49.09%	55.25%			
Percent if acquirer is PE	22.49%	25.34%	23.96%			
Percent if acquirer's level-1 category is Application software	17.88%	20.48%	21.02%			
Percent if acquirer's level-1 category is IT services & distribution	12.16%	11.93%	12.13%			
Percent if acquirer's level-1 category is Internet content & commerce	11.47%	12.69%	13.05%			
Percent if acquirer's level-1 category is Technology portfolio investors	11.99%	8.86%	8.94%			
Percent if acquirer's level-1 category is not the above four	46.50%	46.04%	44.86%			
Acquirer age by time of merger (years)	23.65	26.30	30.46			
Acquirer market value if public (\$MM)	44,824.40	43,241.18	87,424.70			
	(165,831.53)	(120,020.52)	(231,426.79)			
Acquirer total \$ raised if private and VC funded (\$MM)	146.30	182.58	264.66			
	(569.57)	(1,015.37)	(623.16)			
Wide Definition: Level-1						
# of M&A deals	27,631	8,691	21,482			
Percent if acquirer is private non-PE	48.39%	28.86%	21.19%			
Percent if acquirer is public non-PE	30.60%	45.38%	53.83%			
Percent if acquirer is PE	21.01%	25.76%	24.98%			
Percent if acquirer's level-1 category is Application software	17.83%	19.43%	20.25%			
Percent if acquirer's level-1 category is IT services & distribution	12.23%	11.92%	12.07%			
Percent if acquirer's level-1 category is Internet content & commerce	10.87%	12.33%	13.34%			
Percent if acquirer's level-1 category is Technology portfolio investors	11.56%	9.40%	10.55%			
Percent if acquirer's level-1 category is not the above four	47.51%	46.91%	43.79%			
Acquirer age by time of merger (years)	21.82	25.54	30.58			
Acquirer market value if public (\$MM)	28,550.39	31,025.81	85,168.74			
	(124,481.19)	(86,037.09)	(229,414.93)			
Acquirer total \$ raised if private and VC funded (\$MM)	126.13	162.28	273.97			
	(499.38)	(883.45)	(749.34)			

Note: Standard deviations in parentheses where applicable. Market values and \$ raised in millions of US dollars.

Understandably, publicly-traded non-PE acquirers and PE acquirers can more readily engage in serial acquisitions because they may be able to access greater financial resources than private non-PE firms. In fact, conditional on being public, the market value of acquirers in follow-on deals at the deal time almost doubles that of acquirers in singleton or initial deals. More surprisingly, many private non-PE firms engaging in serial acquisitions are venture capital (VC) funded startups themselves. Conditional on being private and VC funded, acquirers of follow-on deals tend to raise significantly more capital than acquirers of singleton or initial deals.

For acquirers that conduct initial and follow-on acquisitions (henceforth, serial by subsidiaries to their parent PE firm (see Appendix B).

Figure 2. Trends in follow-on deals by acquirer type



acquirers), the three most common level-1 categories are Application Software, Internet Content & Commerce, and IT Services & Distribution. While Application Software and IT Services & Distribution are also the top two level-1 categories for acquirers of singleton deals, serial acquirers are more common in the level-1 category of Internet Content & Commerce themselves and less common in the level-1 category of Technology Portfolio Investors.

Distribution of Number of Series per Public Acquirer (Selected Firms Highlighted) 1200 1000 Number of Public Firms META AAPI MSFT IBM GOOG 400 AMZN csco 200 7 8 9 10 12 13 15 16 17 18

Figure 3. Distribution of number of series per public acquirer

Note: Selected leading public serial acquirers in the figure are labeled by their ticker symbols.

Figure 2 shows the time trend of follow-on acquisitions by acquirer type. Regardless

of whether we use a narrow or wide definition for follow-on acquisitions, the steady growth in the number of follow-on acquisitions by public (non-PE) acquirers appears to have stopped after 2017; meanwhile, follow-on acquisitions by PE acquirers continue to grow or even accelerate after 2017, and those by private acquirers begin to show impressive growth since 2020. Possibly, stricter disclosure requirements for public firms, a decline in IPOs over time, greater access to private capital, thicker secondary markets, and low interest rates until 2022 have all made it attractive to stay private when engaging in mergers and acquisitions.

To identify the leading serial acquirers in our sample, Figure 3 plots the distribution of series counts among all public firms. GAFAM firms rank among the most active serial acquirers, but they are not alone. Other tech giants such as IBM and Cisco, with 24 and 17 series respectively, also stand out.²² Within GAFAM, Google emerges as the most active, followed by Microsoft (21), while Apple (18), Amazon (13), and Meta (12) follow closely. Motivated by this evidence, Section 6 takes a closer look at GAFAM's serial acquisition behavior.

4.4. Firm characteristics and outcomes associated with serial acquisitions among public firms

Because public non-PE acquirers account for more than 50% of serial acquisitions, this section first analyzes which types of public non-PE firms are more likely to engage in serial acquisitions. We then examine how engaging in serial acquisitions relates to outcome variables reflecting firm performance, market competitiveness, and innovation output.

To carry out the analysis, we merge the S&P data with Compustat data and focus on public non-PE firms that are based in the US and have acquired at least a tech company in 2010-2023—and hence appear as acquirers in the S&P data. 23

We further merge our sample with the Hoberg-Phillips TNIC3 HHI data from Hoberg and Phillips (2016), which captures the intensity of competition among all public firms. Specifically, this database uses 10-K annual filings to identify a set of competitors for each public firm.²⁴ Then, based on each firm's share of sales within the set, an HHI is

²²Three additional firms—Oracle, Accenture, and Volaris Group—each recorded 15 series, while J2 Global completed 16.

²³Most of the public firms in the sample remain public from 2010 to 2023 so we can observe their market value throughout. A few public firms were delisted and became private sometime between 2010 and 2023. We keep their yearly records until their delisting. Similarly, for companies that went public after 2010 (e.g., Facebook/Meta), we collect their information from that year on.

²⁴Any pair of firms belong to the same TNIC3 if their cosine similarity based on 10-K annual filings

computed. Since each firm has its own set of rivals in a given year, the TNIC3 HHI varies at the firm-year level. By definition, firms with a higher TNIC3 HHI are likely to operate in more concentrated markets and thus face less competition.

Thus, we define two samples. The full sample consists of 10,412 unique U.S. companies that were publicly listed at any point between 2010 and 2023. The tech-acquirer sample is a subset resulting from merging the S&P dataset with Compustat and includes 2,099 companies. We use these two cross-sectional samples to examine the firm-level attributes associated with the propensity to engage in serial acquisitions and the number of such acquisitions completed.

Throughout this analysis, we rely on the narrow definition of serial acquisitions to classify acquisitions. Specifically, we regress either (i) an indicator for whether a firm completed any serial acquisitions between 2010 and 2023 or (ii) the total number of serial acquisitions in the same period, on a set of baseline firm characteristics: the logarithm of market value, the logarithm of R&D expenditure, and the logarithm of number of employees, as well as the firm's age since going public. All covariates are measured at the firm's first post-2010 appearance in our data—typically as of 2010, or the firm's first appearance year if it went public later. Because some covariates have missing values, we impute missing observations with zeros and include indicator variables for missingness. We augment the model with 3-digit NAICS code fixed effects and cluster standard errors at the firm level. We estimate a logit model to analyze the likelihood of engaging in any serial acquisitions and a Poisson model to assess the number of serial acquisitions completed. The results are summarized in Table 4.

We find that among firms engaging in at least one tech M&A deal, those with higher market value, fewer employees, a longer public history, and operating in less concentrated markets are more likely to engage in serial acquisitions. Specifically, a 1% increase in market value is associated with an increase in the odds of making any serial acquisition by approximately 0.12%, whereas a 1% increase in the number of employees is associated with a decrease in the odds of making any serial acquisition by approximately 0.17%. Additionally, the coefficient on TNIC HHI suggests that a monopolist has approximately 50% lower odds of becoming a serial acquirer than firms operating in highly fragmented markets with many small competitors. ²⁶ Interestingly, a 1% larger R&D expenditure

is above a certain threshold. This threshold is chosen so that if one picks two firms at random from the Compustat universe, the likelihood of them belonging to the same three-digit SIC code is the same as the one of belonging to the same TNIC3 (2.05%).

²⁵Throughout the analysis, we add one to variables before log transformation to account for zero values and retain observations in the estimation sample.

²⁶However, market concentration does not significantly impact the number of serial deals completed.

Table 4. Determinants of Serial Acquisitions

Dep. var.	Any serial deal		Total s	erial deals
Sample	Full (1)	Tech-acquirer (2)	Full (3)	Tech-acquirer (4)
log(Market Value)	0.298***	0.125***	0.288***	0.179***
	(0.0350)	(0.0407)	(0.0558)	(0.0621)
log(R&D Expenditure)	0.0513	0.0355	0.170***	0.216***
	(0.0358)	(0.0399)	(0.0492)	(0.0566)
log(Employment Size)	-0.0722	-0.171***	0.00705	-0.0289
	(0.0536)	(0.0578)	(0.0718)	(0.0768)
TNIC HHI	-0.354*	-0.701***	-0.240	-0.364
	(0.212)	(0.230)	(0.239)	(0.238)
Public Age	-0.00714*	0.0171***	0.000053	0.0160***
	(0.00385)	(0.00498)	(0.00520)	(0.00543)
Observations	10,412	2,099	10,412	2,099
NAICS 3-digit FE	Yes	Yes	Yes	Yes
Clustered SE	Firm	Firm	Firm	Firm
Model	LOGIT	LOGIT	POISSON	POISSON

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Dummies control missing values in dependent variables

does not affect the propensity to initiate any serial deal, but it increases the total number of follow-on deals by 24.11%. Results are similar when considering the number of deals, except that TNIC HHI is no longer statistically significant at the 5% level. The Tech-acquirer sample is our preferred one because the full sample includes firms that have never engaged in tech deals in 2010-2023 which makes the existence of systematic differences across types of firms more likely to explain our sample. Nonetheless, we present our results using this sample in columns (1) and (3) of Table 4, and the main qualitative patterns discussed above remain robust.

We further explore the determinants of serial acquisitions by considering whether firms are influenced by the serial acquisition behavior of others operating in the same technological space. Figure A.5 illustrates the distribution of follow-on deals by public firms across level-1 categories over time. Each hexagon's size corresponds to the number of follow-on deals in that sector-year, revealing that serial acquisitions are both persistent and broadly distributed across tech sectors, with consistent activity in areas such as Application Software, IT Services & Distribution, and Internet Content & Commerce. The widespread and sustained presence of follow-on activity suggests that public firms systematically rely on serial acquisitions to build or consolidate capabilities in key

domains. This pattern is consistent with a form of strategic clustering, whereby firms respond to peer behavior and perceived competitive pressures within specific markets.

To examine the relationship between serial acquisition and firm outcomes over time, we reorganize the tech-acquirer sample into a panel format and merge it with additional annual outcome variables. This results in a firm-year panel of U.S.-based public non-PE firms that engaged in at least one tech acquisition between 2010 and 2023. This panel structure allows us to examine the dynamic relationship between serial acquisition behavior and firm performance, market competitiveness, and innovation output. To capture performance, we use market value. For market competitiveness, we include both TNIC3 HHI and product market fluidity, where the latter reflects the extent to which firms modify their product offerings over time. High fluidity indicates more dynamic industries where incumbents face greater competitive threats (Hoberg, Phillips and Prabhala 2014). To assess innovation output, we consider three measures: the number of patent applications filed, the citations received by those patents, and the private real value of patents filed in a given year, as proposed by Kogan et al. (2017).²⁷

We exploit time variations by defining the start of serial acquisitions—the date of the first follow-on deal—as the beginning of the "treatment." Cross-sectional variation stems from whether firms engaged in serial acquisitions between 2010 and 2023. Thus, the "control pool" includes sampled public firms without any serial acquisitions, almost all of which have completed non-serial acquisitions as tracked by S&P between 2010 and 2023. Thus, we can carry out a difference-in-differences (DiD) analysis:

(1)
$$Y_{i,t} = \beta_1 Serial Start_{i,t-1} + u_i + v_{m,t} + \varepsilon_{i,t},$$

where $Y_{i,t}$ is one of the dependent variables considered; *Serial Start*_{i,t} is a dummy that is equal to one on and after the year when firm i starts any serial acquisitions. Since firms may make acquisition decisions based on their concurrent market value, rather than the other way around, we include the one-year lag *Serial Deal*_{i,t-1} in the specification; u_i and $v_{m,t}$ represent firm and market by year fixed effects; ε_{it} is the residual. We define a firm's market as the S&P level-1 sector for acquirers classified as tech firms in S&P, and as the NAICS 3-digit industry for non-tech acquirers, as S&P otherwise groups non-tech firms into a residual category labeled "Non-tech sector." We cluster standard errors at the firm level.

²⁷All the information on patents comes from the updated data used in Kogan et al. (2017), which is publicly available at: https://github.com/KPSS2017/Technological-Innovation-Resource-Allocation-and-Growth-Extended-Data.

Table 5. Serial Acquisitions and Firm Outcomes

Dep. var.	(1)	(2)	(3)	(4)	(5)	(6)
	l og	log	l og	l og	Product	TNIC
	(MktVal ue)	(PatentCounts)	(PatentCites)	(Patent Val ue)	fluidity	HHI
Panel A: TWFE						
Serial Start _{it–1}	0.0508	0.0952**	0.0554	0.172***	-0.0449	-0.00600
	(0.0365)	(0.0381)	(0.0579)	(0.0648)	(0.0801)	(0.00710)
Observations	14,207	14,324	14,324	14,324	12,780	12,827
R-squared	0.962	0.947	0.895	0.922	0.747	0.743
Panel B: CS						
Serial Start _{it–1}	0.103**	0.0824	0.0504	0.174**	-0.0334	-0.00615
	(0.0437)	(0.0518)	(0.0803)	(0.0875)	(0.0941)	(0.00965)
Observations	14,207	14,324	14,324	14,324	12,780	12,827
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Market*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

We estimate treatment effects via OLS using both two-way fixed effects (TWFE) and the doubly robust estimator developed by Callaway and Sant'Anna (2021) (henceforth CS), which mitigates bias that can arise in TWFE settings with staggered treatment timing due to implicit negative weighting. The CS approach mitigates this issue by constructing appropriate comparisons between not-yet-treated and already-treated units within each cohort-period. Because unobserved factors—such as technology-specific demand shocks—may influence both the likelihood of initiating a series of acquisitions and firm outcomes (e.g., innovation or valuation), we emphasize that our findings are descriptive and should not be interpreted causally.

Table 5 presents the estimated effects of initiating serial acquisitions on firm outcomes, using both TWFE (Panel A) and the doubly robust estimator developed by CS (Panel B).²⁸ Across both specifications, we find that serial acquisitions are associated with economically meaningful increases in firm performance and innovation outcomes.

²⁸Figure A.8 presents event study estimates based on the CS approach, illustrating dynamic patterns around the initiation of serial acquisition series.

In particular, the CS estimates indicate that the initiation of serial acquisitions is associated with a statistically significant increase in market value (10.8%) and patent value (19%). While the coefficient on patent counts is positive, it is only statistically significant under the TWFE specification. We find no robust effects on product market fluidity or TNIC HHI, suggesting that serial acquisitions do not measurably relate to firms' perceived market positioning or competitive threat. These findings are consistent with serial acquisitions enhancing firm performance primarily through innovation-related synergies rather than by reshaping product market competition.

5. Implications for Merger Review

To evaluate the potential effects of M&A deals that are more likely to raise competition concerns while ensuring an efficient allocation of enforcement resources, antitrust authorities typically require pre-merger notification for transactions exceeding a specified value threshold. In the U.S., this process is governed by the HSR Act, which mandates notification by merging parties to the FTC and the DOJ when the value of a proposed acquisition exceeds a reporting threshold.²⁹ A key concern in the context of serial acquisitions is that many deals within a series may individually fall below this notification threshold, thereby escaping scrutiny. As prior research has shown that even small, non-reportable acquisitions can significantly increase market concentration, raise prices, and reduce product quality (Wollmann 2024), threshold exemptions may exacerbate the risk of anticompetitive harm when making it more challenging for agencies to scrutinize serial deals.

In this section, we begin by documenting the extent to which series of acquisitions within the same category involve deals that fall below the HSR reporting threshold in place at the time of completion, and examine whether these small, follow-on deals that are not scrutinized by antitrust agencies systematically differ from higher-valued follow-on deals or from other below-threshold transactions. To conduct this analysis, after classifying deals as singletons, initial, or follow-ons, we focus on the 13,992 acquisitions for which a transaction value is available in our dataset and collect all relevant HSR thresholds applicable since 2010. We use the annually updated base thresholds to define whether an M&A deal is below or above the HSR threshold in its transaction year.

The size-of-transaction test uses a lower bound and an upper bound to determine whether a deal is exempt, subject to the size-of-person test, or not exempt. These bounds

²⁹If a merger is exempt from HSR filing, the agencies can still challenge it if they become aware of the transaction (e.g., through public reporting before or after it is consummated). See: https://www.justice.gov/sites/default/files/atr/legacy/2015/04/02/311222.pdf.

(\$50 and \$200 million) were first established by an amendment signed by President Clinton on December 20, 2000, and have since been adjusted annually for inflation. Specifically, a deal is exempted when its price is below the lower bound, while a deal must be reported when its price is above the upper bound. If the deal price is between the two (adjusted) bounds, a size-of-person test specifies that a filing is required only if one party of the deal has at least \$100 million (as adjusted) in annual net sales or total assets and the other party has at least \$10 million (as adjusted). This implies that deals involving targets with very small asset bases—often the case when assets consist primarily of uncapitalized intellectual property—can be exempt under the upper bound even though smaller transactions would not be.

In practice, we do not observe sales or asset values for most firms in our dataset. As a result, we cannot determine whether the lower or upper bound is relevant for a particular deal. Accordingly, in the main text, we adopt the lower bound (henceforth simply the "HSR threshold") as our threshold, but we verify the robustness of our results to using the upper bound and report these analyses in the appendix.

In addition, we note that the size-of-transaction test applies only to acquisitions with a sufficient nexus to U.S. commerce, i.e., where the target's U.S. assets or sales exceed the relevant threshold. Thus, not all transactions in our sample would in practice be subject to HSR review. However, due to data limitations, we cannot determine the applicability of the nexus test for each deal, as this would require detailed information on the geographic distribution of the target's assets and sales. Hence, we treat all transactions as if they were subject to the HSR threshold, effectively placing them in a hypothetical world in which every deal is evaluated under U.S. reporting rules.

Table 6 summarizes key characteristics of merging parties across singleton, initial, and follow-on deals, distinguishing between transactions that fall above or below the HSR reporting threshold. Serial acquisitions are defined according to the narrow definition, but the qualitative patterns remain robust when considering the wide definition. 33 In total, 8,654 deals (62%) fall below the threshold. Follow-on acquisitions account for

³⁰For example, the lower bound was increased to \$126.4 million for transactions closing on or after February 21, 2025 (Source: https://www.ftc.gov/enforcement/competition-matters/2025/02/new-hsr-thresholds-filing-fees-2025).

³¹For non-manufacturing firms with less than \$10 million in assets (as adjusted), sales do not affect the size-of-person test.

 $^{^{32}}$ For rules governing acquisitions of foreign assets, see 16 C.F.R. § 802.50 (https://www.law.cornell.edu/cfr/text/16/802.50); for acquisitions of voting securities of a foreign issuer, see 16 C.F.R. § 802.51 (https://www.law.cornell.edu/cfr/text/16/802.51). Nexus thresholds are updated annually along with the size-of-transaction threshold.

³³Specifically, Table A.1 replicates Table 6 using the wide definition.

Table 6. Summary of Parties Involved in Deals Above and Below the HSR Threshold

Metric	Below HSR Threshold			Above HSR Threshold		
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On
	Acquirer Att	ributes				
# of M&A deals	5,115	1,309	2,230	2,706	834	1,798
Percent if acquirer is private non-PE	12.86%	5.73%	6.77%	7.35%	3.48%	3.45%
Percent if acquirer is public non-PE	78.63%	87.24%	88.16%	65.34%	77.58%	79.03%
Percent if acquirer is PE	8.50%	7.03%	5.07%	27.31%	18.94%	17.52%
Percent if acquirer is VC funded	5.22%	4.66%	5.25%	2.88%	2.16%	2.50%
Percent if acquirer's level-1 is Application software	16.38%	22.46%	24.62%	8.98%	9.47%	13.96%
Percent if acquirer's level-1 is IT services & distribution	7.39%	8.10%	9.91%	3.73%	7.07%	5.90%
Percent if acquirer's level-1 is Internet content & commerce	11.50%	10.85%	10.54%	8.50%	10.55%	11.57%
Percent if acquirer's level-1 is Technology portfolio investors	7.12%	2.90%	1.97%	23.69%	15.11%	13.24%
Percent if acquirer's level-1 is not the above four	57.61%	55.69%	52.96%	55.10%	57.79%	55.34%
Acquirer age by merger (years)	23.41	25.53	27.52	35.16	34.56	36.06
Acquirer market value if public (\$MM)	7,807.52	11,616.44	18,072.24	36,364.96	34,267.89	57,763.39
	(40,972.38)	(56,616.92)	(96,600.04)	(107,759.34)	(73,905.79)	(166,178.59)
Acquirer total \$ raised if private and VC funded (\$MM)	274.38	126.93	222.09	793.37	2,638.87	881.93
	(597.24)	(178.40)	(313.61)	(1,221.36)	(6,959.67)	(1,312.57)
	Target Attri	butes				
Percent if target is VC funded	19.32%	22.31%	20.45%	22.95%	26.86%	25.75%
If VC funded, \$ raised (\$MM)	22.38	20.70	21.63	55.25	156.68	68.60
	(44.15)	(28.03)	(30.42)	(60.64)	(1,183.58)	(97.99)
Percent if target is publicly traded	18.01%	13.45%	14.30%	38.99%	35.73%	36.48%
If publicly traded, market value (\$MM)	11,856.81	18,869.52	25,773.09	26,558.33	26,254.64	28,428.06
	(52,447.76)	(43,670.53)	(59,352.85)	(60,183.72)	(57,224.15)	(55,643.09)
Target age (years)	14.97	15.05	15.92	23.24	20.69	22.13
Target size (# of employees)	341.84	128.28	134.14	2058.36	2123.95	2525.89
Percent acquirer/target in same level-1 category	33.86%	54.85%	63.68%	29.19%	47.84%	55.67%
Percent acquirer/target in same level-1 & level-2	16.19%	33.84%	41.48%	11.20%	23.38%	32.48%
Percent acquirer/target in same country	62.39%	59.21%	53.99%	62.42%	64.15%	59.68%
Percent acquirer/target in same state	35.27%	27.12%	23.50%	27.68%	25.30%	20.91%
Percent acquirer/target in same city	9.13%	4.58%	4.04%	6.95%	5.16%	4.12%
Percent acquirer invested in target before	0.61%	0.31%	0.49%	0.52%	0.24%	0.61%

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars. We use the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted).

33.68% of the above-threshold deals but only 25.77% of the below-threshold ones. This suggests that although a notable share of unreported deals occurs as part of a series, the majority of below-threshold transactions are not follow-on acquisitions. In fact, serial acquisitions are more likely to be above the HSR threshold than non-serial ones.³⁴

In terms of acquirer type, PE firms are more likely to engage in above-threshold transactions, while public and private corporate acquirers are more frequently associated with below-threshold deals. However, conditional on falling below the threshold, public companies are more likely than PE or private corporate acquirers to engage in follow-on acquisitions. Figure 4 shows the relationship between the average transaction value and the degree of deal "serialness," which we define by tagging the three different types

³⁴Figure A.9 in the appendix documents trends in the share of deals below the HSR threshold by deal type, both overall and separately for each different type of acquirer.

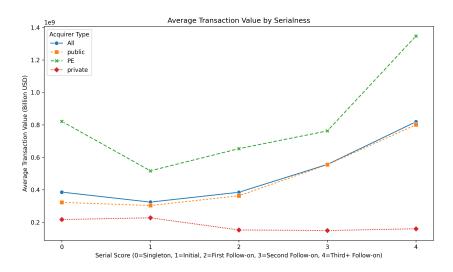


Figure 4. Average transaction value by serialness

of deals considered (singleton, initial, follow-on), while also distinguishing among follow-on deals based on their chronological order (first, second and third- or later follow-on). We find that, on average, follow-on deals tend to have a higher transaction value than both singleton and initial acquisitions, and the transaction value of serial deals increases monotonically with the degree of serialness. This pattern is primarily driven by public acquirers. Interestingly, for all deal types, PE acquirers have the highest average transaction values, followed by public and then private corporate acquirers. Contrary to the common narrative that PE firms enter a market through a large initial acquisition (the so-called "platform" acquisition) and then consolidate via a series of smaller follow-on (or "add-on") deals (e.g., Hammer et al. (2017)), we find that PE follow-on acquisitions are, on average, more valuable than their initial acquisitions, and deal value rises with serialness. However, only the third or later follow-on deals exceed the value of singleton acquisitions. Instead, the conventional pattern attributed to PE firms—where the initial deal is the largest and follow-on deals are smaller—is more characteristic of private corporate acquirers.

As mentioned above, our results are subject to the caveat that we only observe transaction values for a subset of deals. Therefore, in principle, differences in the incidence of below-HSR deals across singleton versus follow-on deals may reflect a different likelihood of having missing values. To that end, Figure A.10 illustrates the relationship—both overall and disaggregated by acquirer type—between the share of deals with transaction value and the degree of deal serialness. Overall and within each acquirer type, we do not observe systematic differences in the share of missing transaction values across

different types of deals that could drive the patterns we document.

Turning to the characteristics of the merging parties, the last rows of the top panel in Table 6 reveal that follow-on deals tend to involve older acquirers with higher market capitalization than singleton deals, both above and below the threshold. The bottom panel shows that targets in above-threshold transactions have typically raised more venture capital, are more likely to be publicly listed, and tend to be older and larger than those in below-threshold deals. They are also less likely to operate in the same industry (at the S&P level-1/2 classification) as the acquirer, compared to targets in below-threshold deals. In particular, more than 41% of the below-HSR serial deals involve a target in the same level-1/2 category of the acquirer, but the same statistic is only 16.19% and 32.48% for below-HSR singleton deals and above-HSR serial deals, respectively.

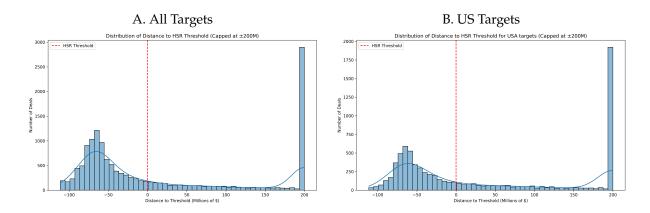


Figure 5. Distribution of distance to the HSR threshold

Note: We use the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted).

A natural question is the extent to which the transaction prices we observe reflect the actual value of the targets, or whether they are influenced by acquirers' strategic behavior aimed at avoiding antitrust scrutiny.³⁵ Recent literature has discussed this concern in the context of the HSR amendments implemented in 2001 (Wollmann 2019; Mayo and Press 2025). In theory, this behavior could be most pronounced precisely in deals that are more likely to raise competitive concerns and might face enforcement if

³⁵The FTC has acknowledged that merging parties have historically structured transactions—such as by issuing extraordinary dividends or deferring consideration through contingent payments—to avoid triggering HSR filing thresholds. In response, the agency clarified in 2020 that such tactics may constitute reportable consideration under Rule 801.90 and should not be used to circumvent the notification requirements. See, for example: https://www.ftc.gov/enforcement/competition-matters/2020/09/seeing-whole-picture-avoidance-devices.

reviewed, thereby allowing potentially harmful acquisitions to proceed unchecked.

Therefore, we examine whether acquisition prices in our dataset exhibit signs of strategic behavior aimed at avoiding HSR reporting. Specifically, we analyze the distribution of the difference between each transaction's value and the applicable HSR threshold at the time of completion. Figure 5A displays this distribution, capping the distance at \$200 million to truncate the long right tail. We find no evidence of bunching just below the threshold, suggesting that firms do not systematically manipulate reported transaction values to evade HSR notification requirements. Because deals unlikely to be subject to HSR review could, in principle, contribute to this pattern, Figure 5B shows the robustness of our results when restricting attention to deals involving U.S.-headquartered targets, which are more likely to fall within the scope of HSR review. ³⁶

Overall, our analyses suggest that follow-on deals are bigger than initial and singletons, and hence less likely to fall below the HSR threshold. Moreover, we do not find evidence supporting the notion that acquirers strategically choose targets or manipulate transaction prices to escape antitrust scrutiny. However, serial acquirers tend to be bigger, older, and operate in the same category as targets, all of which point to a higher risk of anti-competitive harm and call for greater scrutiny of serial acquisitions.

We conclude this section by analyzing how the pre-merger review process might change if agencies were to account for the cumulative value of an entire acquisition series up to the completion of the focal deal, rather than evaluating each transaction in isolation. This approach is consistent with Guideline #9 of the 2023 Merger Guidelines, which explicitly allows agencies to examine a series of acquisitions as a whole.

We consider all 6,755 series in our sample, with each acquirer averaging 1.41 series.³⁷ Of these, 5,075 series (75.13%) consist entirely of deals that would fall below the reporting threshold, whether assessed individually or on a cumulative basis. The remaining series fall into two categories: (i) only-cumulative-crossing series, comprising 111 cases in which no individual deal exceeds the threshold but the combined value does; and (ii) single-and-cumulative-crossing series, comprising 1,569 cases containing at least one deal that would exceed the threshold even if considered on its own.

The existence of the first group indicates that a cumulative approach would expand the set of transactions subject to review, though at the cost of greater resource use. Notably, in the second group, each series already contains at least one reportable deal, implying that a cumulative approach would not necessarily increase the number of cases

 $^{^{36}}$ In Figure 7 of the appendix we show the full distribution of log-transformed deal values.

³⁷To compare the individual- and cumulative-approaches, we retain deals with missing values in this analysis and replace them with zeros.

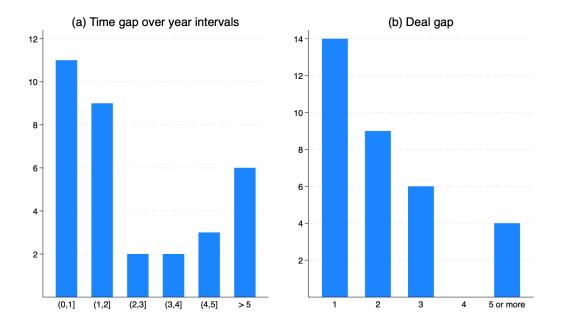


Figure 6. Distribution of series with different time and deal gaps

Note: Panel (a) shows the number of series for which the time gap is in different year intervals. Panel (b) shows the distribution of series with different deal gaps. Our computations rely on the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted)

reviewed and may not entail substantially higher enforcement costs.

Zooming in on this second set of series, we compare the individual- and cumulative-review approaches along two dimensions: (i) how early agencies could review a series, and (ii) the number of deals completed before review begins. We find 1,536 instances (97.90%) in which the series cumulatively crosses the HSR threshold exactly when the first individually above-threshold deal occurs. In these cases, the cumulative approach would neither trigger an earlier review nor capture additional pre-review deals, although considering the entire series could still influence the outcome of the review.

For the remaining instances, Panel (a) of Figure 6 shows the distribution of the time gap, measured as the number of years between when review would occur under the cumulative versus the individual approach (e.g., 0–1 years, 1–2 years, etc.). Similarly, coding singletons as 0, initial deals as 1, first follow-ons as 2, and so on, we compute the deal gap as the difference in deal order between when HSR review would be triggered under the two approaches. Panel (b) of Figure 6 reports the distribution of deal gaps, providing a measure of how many additional deals can occur under the individual

approach before review is initiated, as compared to the cumulative approach.³⁸

Panel (a) shows that in the subset of cases where the cumulative approach would trigger review earlier than the individual approach, the time gap is typically within one or two years, although 6 series exhibit gaps exceeding five years. These longer gaps suggest that in a small set of cases, acquisitions can accumulate over extended periods before crossing the individual-deal threshold, potentially allowing for gradual consolidation to occur without timely oversight.

Panel (b) shows that in most cases, review under the cumulative approach would occur one or two deals earlier, but there are 10 series in which it would occur three or more deals earlier. Although relatively rare, these cases are particularly relevant if the consolidation that occurs before agencies can intervene under the current individual-deal threshold system harms competition.

Taken together, these patterns suggest that while adopting a cumulative approach would only modestly accelerate review in a small number of cases, it could materially affect enforcement in markets characterized by long acquisition sequences, where the individual approach permits multiple unreported transactions before scrutiny begins. Whether such a change is desirable ultimately depends on how the potential competitive benefits of earlier intervention are weighed against the additional enforcement costs.

6. Serial Acquisitions by GAFAM

Motivated by Figure 3 and the public and policy attention GAFAM has received regarding serial acquisitions, we next explore whether they exhibit different serial acquisition patterns compared to the rest of the firms in our sample.

Consistent with the analyses in previous sections, we only count deals made directly by GAFAM firms, i.e., we do not include those by acquired GAFAM's subsidiaries. For example, Microsoft acquired LinkedIn in 2016. We count LinkedIn as one of Microsoft's acquisitions, but we do not count the acquisitions made by LinkedIn before or after 2016 as Microsoft's deals (in cases of non-acquired GAFAM subsidiaries, e.g., Google, a subsidiary of Alphabet, and Facebook, a subsidiary of Meta, acquisitions by those subsidiaries are counted). As shown in Appendix B, the patterns described below are robust if we count all of the acquisitions made by acquired GAFAM subsidiaries as GAFAM deals (after their acquirers became GAFAM's subsidiaries).

³⁸The exact numbers for these figures are also reported in Table 9. Additionally, since these analyses rely on the narrow approach to define series, Table A.2 shows that similar patterns arise when using the wide approach.

Comparing Tables 1 and 7 suggests that GAFAM firms are much more likely to engage in serial acquisitions than other firms. Although GAFAM firms only account for 582 (1%) of all 57,804 M&A deals in the S&P data, 56.19% of the GAFAM deals are follow-on acquisitions under our narrow definition. This number becomes as high as 84.36% when using our wide definition. The corresponding numbers in the full sample are much lower (24.37% and 37.16%). More interestingly, the length of the series—measured by the average number of follow-on deals per initial deal—is greater for GAFAM firms than for the full sample, especially when we adopt a wide definition of serial acquisitions (7.55 for GAFAM versus 2.47 in the full sample). A consistent pattern in both the full and GAFAM samples is that follow-on deals, when deal value data is available, tend to be larger than initial and singleton deals.

Next, we turn to the analysis of GAFAM serial acquisitions. We find that GAFAM firms tend to have longer acquisition series than other public companies. However, the average time between the initial and first follow-on deal, as well as between the first and last follow-on, is comparable to that of other public acquirers. Additionally, we observe substantial dispersion in the categories targeted by GAFAM firms across their series, consistent with prior research showing that these firms pursue technological diversification through an "acquire-adjacent-and-then-expand" strategy (Jin, Leccese and Wagman 2023).

The most striking difference lies in the number of acquisition series GAFAM firms undertake relative to other companies in our sample. While most public firms typically engage in just one or two series, GAFAM firms undertake substantially more. This disparity might raise concerns about consolidation, but it is important to note that our sample includes only tech-related deals and is not restricted to tech acquirers. As a result, average series counts across the board may be diluted by non-tech firms making a small number of acquisitions in a single category to secure specific technologies. These conclusions remain robust even when comparing GAFAM to the rest of the top 5% of public acquirers (ranked by average market value) from our data sample.

Figure A.6 in the appendix shows how the composition of singleton, initial, and followon deals changes over time for the GAFAM sample. In contrast to what we observed in the full sample (Figure 2), all three types of deals have decreased for GAFAM firms since 2019, no matter whether we use a narrow or wide definition for serial acquisitions. This may be a direct implication of the increased scrutiny antitrust authorities have paid worldwide to these firms.

Table 7. Summary of Deal Attributes: GAFAM

	Singleton	Initial	Follow-on
Narrow Definition: Level-1/Le	vel-2		
# of M&A deals	145	110	327
Percent of total deals	24.91%	18.90%	56.19%
Percent of deals with deal value within the column	15.17%	20.00%	11.93%
Avg. deal value (\$MM) conditional on having deal value	2,351.28	1,254.63	3,597.23
	(5,859.1577)	(3,995.1589)	(12,171.2421)
Median deal value (\$MM) conditional on having deal value	207.50	209.50	380.24
# of series per acquirer			16.83
Avg. length per series (# of follow-on deals)			3.05
Avg. time span (days) from initial to first follow-on per series			779.52
Avg. time span (days) from first follow-on to last follow-on per series (if ≥ 2 follow-on deals)			1692.91
HHI of follow-on deals' categories within each series (0-10,000)			1355.45
Wide Definition: Level-1			
# of M&A deals	26	65	491
Percent of total deals	4.47%	11.17%	84.36%
Percent of deals with deal value within the column	11.54%	15.38%	14.26%
Avg. deal value (\$MM) conditional on having deal value	536.86	1,155.95	2,949.31
	(525.83)	(2,648.51)	(9,824.19)
Median deal value (\$MM) conditional on having deal value	550.00	119.00	262.50
# of series per acquirer			10.83
Avg. length per series (# of follow-on deals)			7.55
Avg. time span (days) from initial to first follow-on per series			707.69
Avg. time span (days) from first follow-on to last follow-on per series (if ≥ 2 follow-on deals)			2276.88
HHI of follow-on deals' categories within each series (0-10,000)			2038.68

Note: Standard deviations in parentheses where applicable. Deal values in millions of US dollars. Time spans are measured in days. HHI is the Herfindahl–Hirschman Index (0-10,000 scale).

Table 8 presents the average target attributes of GAFAM deals.³⁹ As compared to the full sample (Table 2), GAFAM targets are significantly more likely to be VC funded regardless of deal type (24.62-34.48% for GAFAM vs. 9.33-10.5% for the full sample), and *less* likely to be publicly traded, especially if the deal is initial or follow-on (5.45-7.69% for GAFAM vs. 9.97-10.41% for the full sample).

Furthermore, GAFAM targets tend to be much younger. In fact, within GAFAM deals, the initial and follow-on targets are even younger than singleton targets (7.86-10.29 years old vs. 10.26-12.27 years old depending on our narrow/wide definition), but the opposite is true for the full sample (where initial and follow-on targets are 15.91-17.17

³⁹Table A.3 in the appendix shows some key attributes of GAFAM firms. Because S&P classifies three of the five GAFAM firms as having Internet Content & Commerce as their primary level-1 category (the other two have level-1 categories of Systems (Microsoft) and Mobility (Apple)), more deals appear in the level-1 category of acquirers in the GAFAM sample than in the full sample. Moreover, since our sample starts in 2010 and only Facebook was private at the time, the vast majority of GAFAM deals have a public acquirer.

Table 8. Summary of Target Attributes: GAFAM

	Singleton	Initial	Follow-on			
Narrow Definition: Level-1/Level-2						
# of M&A deals	145	110	327			
Percent if target is VC funded	34.48%	27.27%	30.28%			
If VC funded, \$ raised (\$MM)	38.61	25.06	25.33			
	(141.68)	(31.80)	(48.77)			
Percent if target is publicly traded	6.90%	5.45%	5.81%			
If publicly traded, market value (\$MM)	138,026.41	142,642.05	79,394.84			
	(124,308.91)	(123,524.54)	(101,144.17)			
Target age (years)	10.26	9.07	7.84			
Target size (# of employees)	2,036.95	63.05	709.98			
Percent if acquirer/target in same level-1 category	15.86%	11.82%	15.29%			
Percent if acquirer/target in same level-1 & level-2	1.38%	3.64%	3.67%			
Percent if acquirer/target in same country	68.97%	69.09%	69.42%			
Percent if acquirer/target in same state	23.45%	34.55%	38.53%			
Wide Definition	: Level-1					
# of M&A deals	26	65	491			
Percent if target is VC funded	26.92%	24.62%	31.77%			
If VC funded, \$ raised (\$MM)	22.47	23.25	29.88			
	(19.11)	(31.92)	(89.23)			
Percent if target is publicly traded	11.54%	7.69%	5.50%			
If publicly traded, market value (\$MM)	157,558.25	106,947.16	97,663.53			
	(136,141.47)	(151,234.49)	(107,925.71)			
Target age (years)	12.27	10.29	8.28			
Target size (# of employees)	208.33	85.75	1,040.48			
Percent if acquirer/target in same level-1 category	0.00%	9.23%	16.29%			
Percent if acquirer/target in same level-1 & level-2	0.00%	3.08%	3.26%			
Percent if acquirer/target in same country	65.38%	75.38%	68.64%			
Percent if acquirer/target in same state	15.38%	36.92%	34.62%			

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

years old and singleton targets are 14.97-15.22 years old as of the deal time). Opposite to the growing target age in the full sample, Figure A.7 shows that the average age of GAFAM targets either remains flat or fluctuates over time. 40

Somewhat surprisingly, the average employment size of GAFAM's follow-on targets is more than 10 times larger than their initial targets, despite their younger age on average as of the deal time. One explanation is that it is difficult for early movers in technology markets to grow while remaining independent due to pioneering costs (Lieberman and

⁴⁰The greater fluctuation at the end of the sample period is likely due to fewer GAFAM deals in recent years.

Montgomery 1998). The large percentage of missing values in employment size may also explain the considerable difference, particularly since our sample of GAFAM deals is relatively small.

Another striking difference between GAFAM targets and the full sample is that GAFAM firms are *less* likely to share the same level-1 and/or level-2 categories with their targets, but *more* likely to be headquartered in the same country and state as their targets. The latter is not surprising because GAFAM firms are headquartered in Silicon Valley or the Seattle area and these locations also tend to attract numerous tech startups. A lower level-1/level-2 overlap between GAFAM firms and their targets is more surprising. If the S&P taxonomy categories are somewhat correlated with market definitions in the minds of antitrust enforcers, this pattern suggests that GAFAM may have engaged in initial and serial acquisitions to enter new markets outside their core business areas (and then expand in them), rather than entrench the incumbency in their primary business category. Whether such behavior is pro- or anti-competitive deserves future research.

We next examine the below-HSR acquisition behavior of GAFAM firms. This analysis is particularly relevant given recent policy discussions about requiring large digital platforms to report all acquisitions. For instance, the EU Digital Markets Act obliges designated gatekeepers (which include GAFAM) to notify the European Commission of every transaction, irrespective of its value.

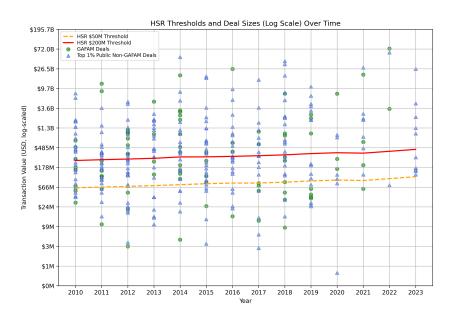


FIGURE 7. HSR thresholds and deal sizes (log-transformed) over time

We begin by analyzing how the prices of GAFAM deals with non-missing values

compare to those of a selected group of large public technology companies (henceforth, "top public acquirers"). The latter are defined as the top 1% of technology firms by average market capitalization, excluding GAFAM, private equity firms, and companies that never engaged in serial acquisitions. Technology firms are classified according to the S&P taxonomy. Figure 7 illustrates the (log-transformed) values of the deals completed by GAFAM and top public acquirers over time, and how they compare to the lower and upper bounds of the HSR size-of-transaction test.

We find that, after 2019, the volume of acquisitions declined markedly for both GAFAM and the top public acquirers, possibly reflecting the heightened antitrust scrutiny facing large technology firms. Among the deals that remain, an increasing share exceeded the lower HSR threshold, suggesting that very small transactions became relatively less common in recent years. Finally, GAFAM acquisitions (green circles) tend to be more likely than those of the top public acquirers (blue triangles) to fall below the upper HSR threshold, although this difference appears less pronounced when focusing on the lower threshold.

Building on this analysis, we consider the same sample of 6,755 acquisition series from Section 5 and identify those undertaken by GAFAM and the top public acquirers. Table 9 reports summary statistics for the series of these two groups and benchmarks them against those of all the other acquirers in the sample. The HSR threshold refers to the lower bound of the size-of-transaction test. On average, each GAFAM firm has more than three times as many series as a top public acquirer, though the two groups are similar in the average number of follow-on deals per series. Among GAFAM series, 67% consist entirely of deals either below the HSR threshold or with missing transaction values, compared to only 32% for the top 1% public technology acquirers. Moreover, only one GAFAM series (and none among top public acquirers) has no individual deal crossing the HSR threshold but exceeds it on a cumulative basis. Finally, GAFAM has 31 series with both single and cumulative crossings, representing 32% of their series, compared to 67.6% for top public acquirers.

Interestingly, and unlike the broader acquirer sample, all such series for both GAFAM and top public acquirers have zero time and deal gaps, meaning that the cumulative and

⁴¹This group includes the following 15 companies: Oracle, Cisco, Intel, NVIDIA, SAP SE, IBM, Visa, AT&T, Broadcom, Comcast, Mastercard, Alibaba, PayPal, RTX Corporation, and Netflix.

⁴²While we use the narrow approach to define series, Table A.2 shows that similar patterns arise when considering the wide definition.

⁴³As displayed in Table A.2, under the wide definition, GAFAM's series are longer on average. However, top public firms such as IBM and Cisco, have lengths similar to GAFAM. These firms are comparable to GAFAM also in terms of the number of series.

Table 9. HSR Threshold and the Cumulative Value of Series

	All	GAFAM	Top 1% public
	Acquirers		tech firms
Panel A: All Series			
Total # of series	6,755	101	102
# of series per acquirer	1.41	16.83	6.80
Avg. length per series (# of follow-on deals)	1.99	3.05	2.87
# of Series (no deal value crossing HSR threshold)	5,075	68	33
	(75.1%)	(67.3%)	(32.4%)
# of Series (only cumulative deal value crossing HSR threshold)	111	1	0
	(1.6%)	(1.0%)	(0.0%)
# of Series (both single and cumulative value crossings)	1,569	32	69
	(23.2%)	(31.7%)	(67.6%)
Panel B: Conditional on series with both single crossing	ng and cumi	ılative cros	sing
# of series with time $gap = 0$	1,536	32	69
$0 < \#$ of series with time gap ≤ 1 year	11	0	0
$1 < \#$ of series with time gap ≤ 2 years	9	0	0
$2 < \#$ of series with time gap ≤ 3 years	2	0	0
$3 < \#$ of series with time gap ≤ 4 years	2	0	0
$4 < \#$ of series with time gap ≤ 5 years	3	0	0
# of series with time gap > 5 years	6	0	0
# of series with deal gap $= 0$	1,536	32	69
# of series with deal gap $= 1$	14	0	0
# of series with deal gap $= 2$	9	0	0
# of series with deal gap $= 3$	6	0	0
# of series with deal gap = 4	0	0	0
# of series with deal gap ≥ 5	4	0	0

Note: The HSR threshold refers to the lower bound of the size-of-transaction test, which corresponds to \$50 million (as adjusted). The top 1% of public technology firms are defined by average market capitalization in our sample, excluding PE firms, GAFAM, acquirers that have never engaged in serial acquisitions, and those classified by S&P as non-technology companies. Since META went public during our sample period, we treat separately the series undertaken while the firm was private and while it was public. For comparison, we use the first single crossing and the first cumulative crossing of each series. The deal gap is calculated using deal serialness, defined as 0 for singletons, 1 for the initial deal in a series, 2 for the first follow-on, 3 for the second follow-on, and so on.

individual approaches would trigger HSR review at the same point in the series. This suggests that the main rationale for increasing scrutiny of small GAFAM acquisitions would be to enable agencies to review series that remain entirely below the threshold (or with missing transaction values), since the potential benefits from earlier review of the same series, conditional on reported transaction values, appear limited. In this sense, DMA-style reporting requirements for large digital platforms in the U.S. would

primarily serve to expand coverage to transactions that would otherwise escape review altogether, rather than to accelerate intervention in already-reportable cases.

While we have so far discussed GAFAM firms as a single group, Figure 3 reveals substantial heterogeneity in their serial acquisition behavior. To explore these differences in more detail, we examine the distribution of their follow-on deals over time and across technological categories. Specifically, Figure 8 applies the narrow definition of follow-on acquisitions and plots their distribution by level-1 sector. The size of each circle reflects the number of follow-on deals in a given sector-year. Several patterns emerge from this visualization.

First, there is substantial overlap in acquisition activity across GAFAM firms, indicating that these companies often compete within the same technological domains. Most level-1 sectors feature follow-on acquisitions by multiple GAFAM firms, suggesting a convergence in strategic priorities and a shared focus on key technologies. Only a few categories—such as Enterprise Networking, IT Outsourcing, IT Services & Distribution, Payments, and Storage—exhibit follow-on activity by a single GAFAM firm (either Google, Microsoft, or Meta).

Second, the timing and intensity of follow-on activity vary considerably. Google initiated serial acquisitions earlier and across a wider range of sectors, consistent with its historically aggressive acquisition strategy. Apple also engages in serial acquisitions across many level-1 categories and has been the first mover in areas such as Mobility and Semiconductors. In contrast, Microsoft and Meta are more concentrated in specific domains—for instance, Microsoft in Infrastructure Management and Meta in Mobility. Amazon has fewer acquisition series overall and, with the exception of Internet Content & Commerce, never engaged in more than two serial deals within the same level-1 category in our sample. In the level-1 category of Internet Content & Commerce, Amazon was also the first mover. 44

To summarize, GAFAM firms differ from the rest of the sample, as they engage more in serial acquisitions, expand more beyond the categories of their core business areas, and focus more on younger, smaller, VC-funded, private targets, especially in the initial and serial deals of a series. This distinctive pattern is consistent with policymakers' growing attention on GAFAM, as highlighted by the two antitrust cases against Google/Alphabet and Facebook/Meta. However, the initial and follow-on deals by GAFAM account for 2.6-3.1% of all initial and follow-on deals in our S&P data, suggesting that GAFAM

⁴⁴Alongside Google, Amazon was also among the first GAFAM firms to complete a serial acquisition in Artificial Intelligence and Systems.

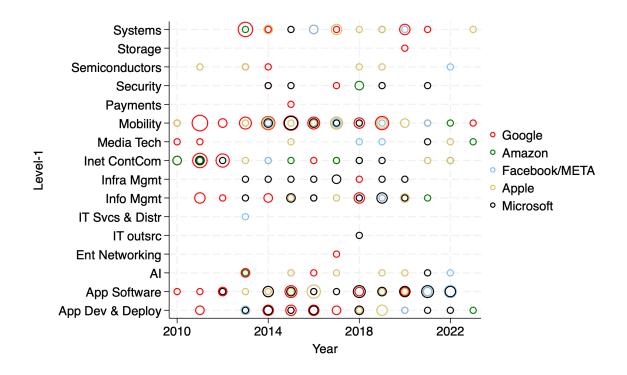


Figure 8. GAFAM serial acquisitions across level-1s

Note: The figure shows the distribution of follow-on deals made by each GAFAM firm over time level-1 sectors. The size of the circles reflects the number of follow-on deals in a given level-1-year. Follow-on deals are tagged using the narrow definition, i.e a when they are the second or a subsequent deal completed by a firm in a level-1/level-2 where that same firm had already acquire before.

activities are not representative of serial acquisitions in the tech sector. Moreover, some other technology and PE firms exhibit a similar number of acquisition series to GAFAM members, indicating that intensive serial acquisition behavior is not unique to GAFAM. We also provide evidence of substantial heterogeneity within GAFAM in terms of tech acquisition intensity, sectoral focus, and timing, suggesting that a one-size-fits-all policy approach may overlook important differences in how these firms operate.

Finally, our HSR threshold analysis shows that the main rationale for increasing scrutiny of small acquisitions by GAFAM would be to enable agencies to review series that remain entirely below the reporting threshold (or with missing transaction values), since the potential benefits from earlier review of the same series conditional on the reported transaction values appear limited. In this sense, DMA-style reporting requirements for large digital platforms in the U.S. would primarily serve to expand coverage to transactions that would otherwise escape review altogether, rather than to accelerate intervention in already-reportable cases.

7. Conclusion

With antitrust authorities and policymakers increasingly concerned about the competitive implications of serial acquisitions, our study provides a systematic, data-driven description of such activity in the technology sector from 2010 to 2023, focusing on the ICET segment. We document that serial acquisitions account for roughly one-quarter to over one-third of majority-control tech M&A deals, are primarily undertaken by publicly traded non-PE firms, and typically involve larger and more mature targets than singleton or initial acquisitions. Among public acquirers, initiating a series is associated with higher market valuations and increased innovation value, but we find no evidence of changes in market concentration or competitive threat measures.

Our analysis of transactions relative to the Hart–Scott–Rodino reporting threshold shows that follow-on deals are generally larger than initial and singleton acquisitions and thus less likely to fall below the threshold. However, below-threshold follow-ons are more likely to target firms in the same business category as the acquirer, which could raise concerns about the competitive harm of such strategies. Additionally, we find no evidence that acquirers systematically manipulate deal values to avoid reporting. Comparing individual- and cumulative-value HSR review approaches, we find that a cumulative framework would expand coverage to some entirely below-threshold series and, for series with both individual and cumulative threshold crossings, would trigger review earlier. While most timing differences are modest, these relatively rare cases—about 2% of those with both crossings—could be important in markets with long acquisition sequences, where the individual approach permits multiple unreported transactions before scrutiny begins. Such changes would need to be weighed against the additional enforcement costs.

Finally, GAFAM firms stand out for their greater reliance on serial acquisitions, their tendency to expand beyond their core business categories, and their focus on younger, VC-backed private targets, particularly early in a series. While these patterns may lend rationale to heightened policy attention, GAFAM's initial and follow-on acquisitions represent a small share of serial deals in tech, and a few other large technology and PE firms have engaged in comparable numbers of acquisition series. This suggests that limiting enhanced scrutiny to GAFAM alone may overlook other significant sources of cumulative consolidation, and a more systematic approach may be needed to identify acquirers who tend to pursue serial acquisitions that exhibit high frequency and/or length.

Overall, our findings highlight that serial acquisitions are a pervasive and diverse

feature of the tech M&A landscape, with patterns and potential risks that vary across acquirer types, target profiles, and transaction sizes. However, it is important to emphasize that our findings do not address the pro- or anti-competitive implications of serial acquisitions, as we lack precise definitions of antitrust markets and do not observe market-specific outcomes. For the same reasons, we cannot offer recommendations on how antitrust agencies should approach serial acquisitions. Yet, the descriptive evidence we provide serves as a starting point for future research to further explore the reasons behind serial acquisitions, as well as their effects on market competition and technological innovation.

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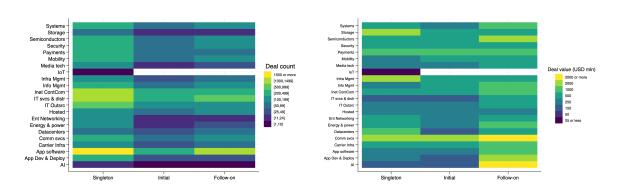
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ONLINE APPENDICES

Appendix A. Additional figures and tables



 $\label{eq:figure A.1.} \ensuremath{\text{Total number of deals and sum of their deal values across $S\&P$ Level-1 categories}$

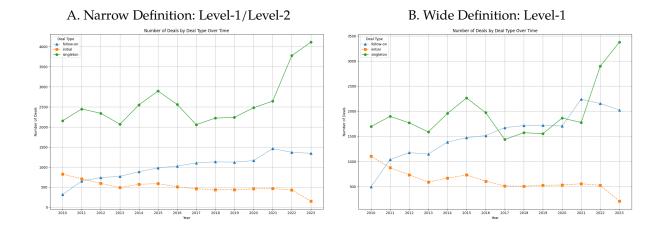


FIGURE A.2. Number of deals by deal type over time

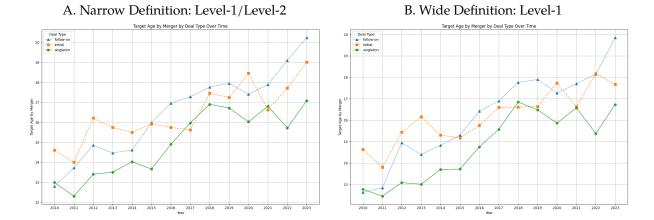


Figure A.3. Average target age by deal type over time

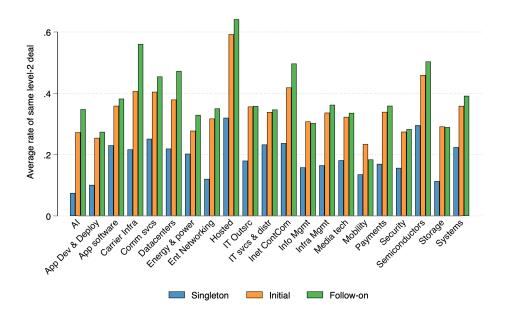


Figure A.4. Distribution across level-1s of same-level-2 deals

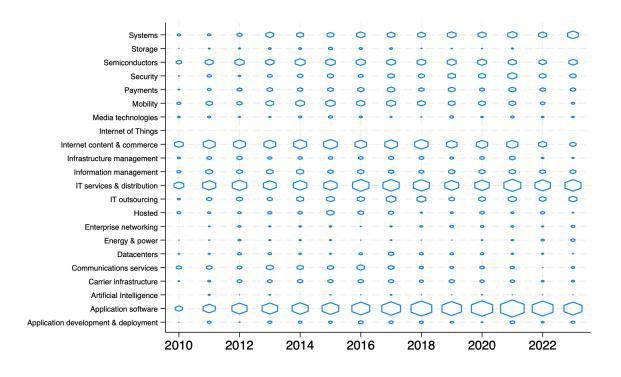


Figure A.5. Serial deals across level-1s

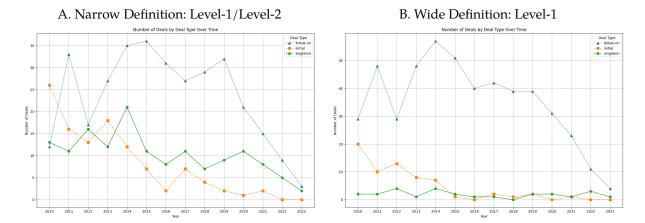


Figure A.6. Trends in GAFAM deals by type (deals completed by acquired subsidiaries excluded)

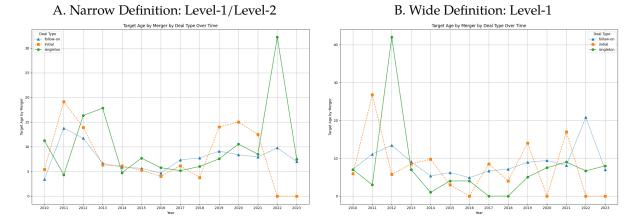


Figure A.7. Average GAFAM target Age by deal type over (deals completed by acquired subsidiaries excluded)

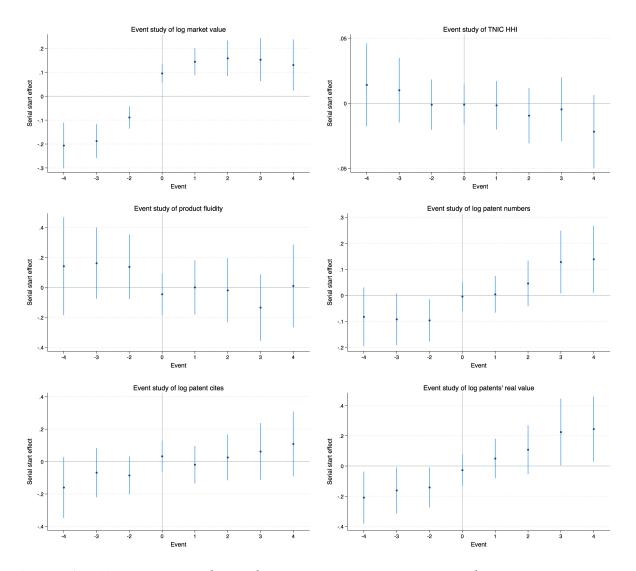


Figure A.8. Dynamic correlation between initiating a series and acquirer outcomes: Event-study plots

Note: The sample is conditional on public firms with at least one tech acquisition, meaning that the focal public firm appears as an acquirer in the S&P database.

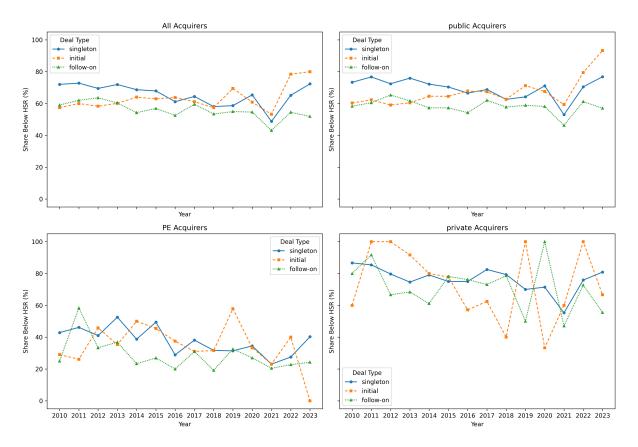


FIGURE A.9. Trends in the share of deals below the lower bound of the HSR size-of-transaction test

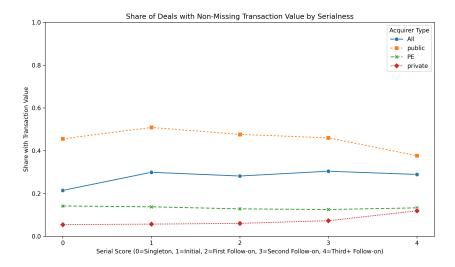


Figure A.10. Share of deals with non-missing transaction price by deal serialness

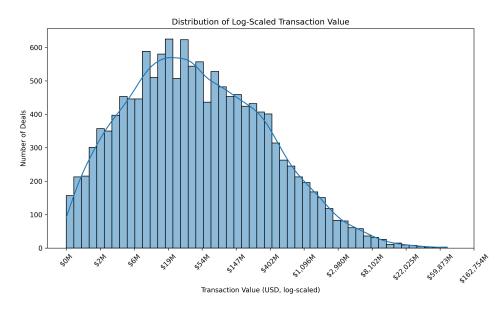


Figure A.11. Distribution of log-transformed transaction value

Table A.1. Summary of Parties Involved in Deals Above and Below the HSR Threshold under the Wide Series Definition

Metric	Belo	Below HSR Threshold			Above HSR Threshold		
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On	
	Acquirer Att	ributes					
# of M&A deals	5,115	1,309	2,230	2,706	834	1,798	
Percent if acquirer is private non-PE	12.86%	5.73%	6.77%	7.35%	3.48%	3.45%	
Percent if acquirer is public non-PE	78.63%	87.24%	88.16%	65.34%	77.58%	79.03%	
Percent if acquirer is PE	8.50%	7.03%	5.07%	27.31%	18.94%	17.52%	
Percent if acquirer is VC funded	5.22%	4.66%	5.25%	2.88%	2.16%	2.50%	
Percent if acquirer's level-1 is Application software	16.38%	22.46%	24.62%	8.98%	9.47%	13.96%	
Percent if acquirer's level-1 is IT services & distribution	7.39%	8.10%	9.91%	3.73%	7.07%	5.90%	
Percent if acquirer's level-1 is Internet content & commerce	11.50%	10.85%	10.54%	8.50%	10.55%	11.57%	
Percent if acquirer's level-1 is Technology portfolio investors	7.12%	2.90%	1.97%	23.69%	15.11%	13.24%	
Percent if acquirer's level-1 is not the above four	57.61%	55.69%	52.96%	55.10%	57.79%	55.34%	
Acquirer age by merger (years)	23.41	25.53	27.52	35.16	34.56	36.06	
Acquirer market value if public (\$MM)	7,807.52	11,616.44	18,072.24	36,364.96	34,267.89	57,763.39	
• • • • • • • • • • • • • • • • • • • •	(40,972.38)	(56,616.92)	(96,600.04)	(107,759.34)	(73,905.79)	(166,178.59)	
Acquirer total \$ raised if private and VC funded (\$MM)	274.38	126.93	222.09	793.37	2,638.87	881.93	
	(597.24)	(178.40)	(313.61)	(1,221.36)	(6,959.67)	(1,312.57)	
	Target Attri	butes					
Percent if target is VC funded	19.32%	22.31%	20.45%	22.95%	26.86%	25.75%	
If VC funded, \$ raised (\$MM)	22.38	20.70	21.63	55.25	156.68	68.60	
	(44.15)	(28.03)	(30.42)	(60.64)	(1,183.58)	(97.99)	
Percent if target is publicly traded	18.01%	13.45%	14.30%	38.99%	35.73%	36.48%	
If publicly traded, market value (\$MM)	11,856.81	18,869.52	25,773.09	26,558.33	26,254.64	28,428.06	
	(52,447.76)	(43,670.53)	(59,352.85)	(60,183.72)	(57,224.15)	(55,643.09)	
Target age (years)	14.97	15.05	15.92	23.24	20.69	22.13	
Target size (# of employees)	341.84	128.28	134.14	2058.36	2123.95	2525.89	
Percent acquirer/target in same level-1 category	33.86%	54.85%	63.68%	29.19%	47.84%	55.67%	
Percent acquirer/target in same level-1 & level-2	16.19%	33.84%	41.48%	11.20%	23.38%	32.48%	
Percent acquirer/target in same country	62.39%	59.21%	53.99%	62.42%	64.15%	59.68%	
Percent acquirer/target in same state	35.27%	27.12%	23.50%	27.68%	25.30%	20.91%	
Percent acquirer/target in same city	9.13%	4.58%	4.04%	6.95%	5.16%	4.12%	
Percent acquirer invested in target before	0.61%	0.31%	0.49%	0.52%	0.24%	0.61%	

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars. We use the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted).

Table A.2. HSR Thresholds and the Cumulative Value of Series under the Wide Series Definition

	All Acquirers	GAFAM	Top 1% public non-PE non-GAFAM tech firms
Pane	el A: All Series		
Total # of series	8691	65	85
# of series per acquirer	1.34	10.83	5.67
Avg. length per series (# of follow-on deals)	2.47	7.55	5.25
of Series (no deal value crossing HSR threshold)	6521	33	27
	(75.0%)	(50.8%)	(31.8%)
of Series (only cumulative deal value crossing HSR threshold)	158	1	0
	(1.8%)	(1.5%)	(0.0%)
of Series (both single and cumulative value crossings)	2012	31	58
	(23.2%)	(47.7%)	(68.2%)
Panel B: Conditional on series with	both single cros	sing and c	umulative crossing
# of series with time gap = 0	1944	31	58
$0 < \#$ of series with time gap ≤ 1 year	22	0	0
$<$ # of series with time gap \leq 2 years	22	0	0
$2 < \#$ of series with time gap ≤ 3 years	9	0	0
$3 < \#$ of series with time gap ≤ 4 years	4	0	0
$4 < \#$ of series with time gap ≤ 5 years	4	0	0
t of series with time gap > 5 years	7	0	0
t of series with deal gap = 0	1944	31	58
of series with deal gap = 1	29	0	0
t of series with deal gap = 2	18	0	0
of series with deal gap $= 3$	10	0	0
of series with deal gap = 4	4	0	0
# of series with deal gap > 5	7	0	0

Note: We use the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted). The top 1% of public technology firms are defined by average market capitalization in our sample, excluding PE firms, GAFAM, acquirers that have never engaged in serial acquisitions, and those classified by S&P as non-technology companies. Since META went public during our sample period, we treat separately the series undertaken while the firm was private and while it was public. For comparison, we use the first single crossing and the first cumulative crossing of each series. The deal gap is calculated using deal serialness, defined as 0 for singletons, 1 for the initial deal in a series, 2 for the first follow-on, 3 for the second follow-on, and so on.

Table A.3. Summary of Acquirer Attributes: GAFAM

	Singleton	Initial	Follow-on
Narrow Definition: Level-	1/Level-2		
# of M&A deals	145	110	327
Percent if acquirer is private	7.59%	3.64%	4.89%
Percent if acquirer is public	92.41%	96.36%	95.11%
Percent if acquirer's level-1 is Internet content & commerce	66.21%	61.82%	57.80%
Percent if acquirer's level-1 is Systems	21.38%	20.00%	22.32%
Percent if acquirer's level-1 is Mobility	12.41%	18.18%	19.88%
Acquirer age by time of merger (years)	20.34	23.21	28.44
Acquirer market value if public (\$MM)	643,224.03	359,549.30	675,720.59
	(598,193.41)	(280,621.65)	(496,123.33)
Wide Definition: Lev	el-1		
# of M&A deals	26	65	491
Percent if acquirer is private	23.08%	4.62%	4.48%
Percent if acquirer is public	76.92%	95.38%	95.52%
Percent if acquirer's level-1 is Internet content & commerce	69.23%	63.08%	59.88%
Percent if acquirer's level-1 is Systems	19.23%	20.00%	22.00%
Percent if acquirer's level-1 is Mobility	11.54%	16.92%	18.13%
Acquirer age by time of merger (years)	17.73	19.81	26.66
Acquirer market value if public (\$MM)	892,730.76	291,222.39	636,552.13
	(783,534.25)	(216,760.14)	(501,159.41)

Note: Standard deviations in parentheses. Market values in millions of US dollars.

Table A.4. Summary of Parties Involved in Deals Above and Below the Upper Bound of the HSR Size-of-Transaction Test under the Narrow Series Definition

Metric	Belo	Below HSR Threshold			Above HSR Threshold		
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On	
	Acquirer At	tributes					
# of M&A deals	6,545	1,775	3,094	1,276	368	934	
Percent if acquirer is private non-PE	11.87%	5.30%	6.11%	6.27%	2.72%	2.57%	
Percent if acquirer is public non-PE	76.67%	85.35%	86.01%	60.50%	74.46%	77.73%	
Percent if acquirer is PE	11.46%	9.35%	7.89%	33.23%	22.83%	19.70%	
Percent if acquirer is VC funded	4.86%	4.11%	4.72%	2.12%	1.63%	1.71%	
Percent if acquirer's level-1 is Application software	15.48%	19.49%	22.40%	5.33%	7.34%	11.46%	
Percent if acquirer's level-1 is IT services & distribution	6.74%	7.94%	9.02%	2.98%	6.52%	5.14%	
Percent if acquirer's level-1 is Internet content & commerce	11.06%	10.76%	10.96%	7.37%	10.60%	11.13%	
Percent if acquirer's level-1 is Technology portfolio investors	9.06%	4.96%	3.98%	32.29%	20.65%	17.02%	
Percent if acquirer's level-1 is not the above four	57.66%	56.85%	53.65%	52.04%	54.89%	55.25%	
Acquirer age by merger (years)	25.71	27.52	29.05	36.52	35.88	38.69	
Acquirer market value if public (\$MM)	12,374.61	16,627.44	25,132.20	49,229.11	41,917.53	73,559.84	
	(57,543.37)	(59,252.99)	(113,063.37)	(126,085.96)	(85,080.94)	(184,720.24)	
Acquirer total \$ raised if private and VC funded (\$MM)	328.04	957.13	366.13	914.89	169.63	1,072.52	
	(731.27)	(4,030.15)	(718.04)	(726.15)	(93.08)	(1,640.30)	
	Target Attr	ibutes					
Percent if target is VC funded	21.50%	25.35%	23.66%	15.83%	17.93%	20.02%	
If VC funded, \$ raised (\$MM)	28.88	25.45	28.95	83.82	624.32	120.63	
	(44.13)	(27.65)	(38.78)	(90.05)	(2,577.83)	(139.19)	
Percent if target is publicly traded	20.44%	16.28%	17.36%	50.00%	50.27%	46.90%	
If publicly traded, market value (\$MM)	14,115.58	17,414.17	24,296.65	31,404.38	33,470.88	31,307.79	
	(54,944.98)	(38,972.61)	(54,092.81)	(60,068.28)	(68,419.32)	(59,452.19)	
Target age (years)	16.18	16.04	16.94	26.52	23.13	24.50	
Target size (# of employees)	434.21	237.22	224.73	3402.29	3923.95	4249.72	
Percent acquirer/target in same level-1 category	33.29%	53.18%	62.09%	26.88%	47.01%	53.53%	
Percent acquirer/target in same level-1 & level-2	15.29%	31.61%	39.82%	10.19%	20.92%	29.66%	
Percent acquirer/target in same country	62.63%	60.17%	54.88%	61.21%	65.76%	61.99%	
Percent acquirer/target in same state	33.89%	26.54%	23.14%	26.25%	25.82%	19.70%	
Percent acquirer/target in same city	8.63%	4.68%	3.91%	7.05%	5.43%	4.60%	
Percent acquirer invested in target before	0.60%	0.23%	0.48%	0.47%	0.54%	0.75%	

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars. The upper bound of the HSR size-of-transaction test corresponds to \$200 million (as adjusted).

Table A.5. Summary of Parties Involved in Deals Above and Below the Upper Bound of the HSR Size-of-Transaction Test under the Wide Series Definition

Metric	Belo	ow HSR Thres	shold	Above HSR Threshold		
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On
	Acquirer Att	ributes				
# of M&A deals	4,558	2,064	4,792	755	417	1,406
Percent if acquirer is private non-PE	14.30%	6.10%	5.88%	8.87%	3.60%	2.28%
Percent if acquirer is public non-PE	73.74%	84.21%	85.45%	56.29%	70.26%	74.96%
Percent if acquirer is PE	11.96%	9.69%	8.66%	34.83%	26.14%	22.76%
Percent if acquirer is VC funded	5.24%	4.17%	4.42%	2.52%	1.68%	1.64%
Percent if acquirer's level-1 is Application software	14.52%	17.93%	21.29%	5.70%	6.24%	9.46%
Percent if acquirer's level-1 is IT services & distribution	6.49%	7.27%	8.66%	2.65%	4.80%	4.98%
Percent if acquirer's level-1 is Internet content & commerce	10.38%	11.29%	11.44%	6.36%	7.91%	11.10%
Percent if acquirer's level-1 is Technology portfolio investors	10.22%	5.09%	4.86%	34.30%	23.74%	20.55%
Percent if acquirer's level-1 is not the above four	58.38%	58.43%	53.76%	50.99%	57.31%	53.91%
Acquirer age by merger (years)	24.10	26.78	29.60	32.87	37.98	39.39
Acquirer market value if public (\$MM)	7,073.70	12,719.01	25,227.53	31,625.65	37,710.08	72,558.40
	(23,907.61)	(47,743.05)	(107,371.07)	(51,802.59)	(74,534.30)	(180,955.50)
Acquirer total \$ raised if private and VC funded (\$MM)	305.90	758.78	394.80	1,113.31	142.83	757.44
	(666.98)	(3,490.43)	(813.07)	(744.80)	(93.22)	(1,237.76)
	Target Attri	butes				
Percent if target is VC funded	19.42%	24.52%	25.00%	14.30%	17.03%	19.63%
If VC funded, \$ raised (\$MM)	27.97	27.29	28.77	78.98	525.09	110.78
	(50.30)	(29.77)	(35.93)	(92.16)	(2,326.56)	(127.62)
Percent if target is publicly traded	22.03%	17.59%	16.63%	50.99%	52.04%	46.87%
If publicly traded, market value (\$MM)	12,323.69	22,999.67	20,924.27	26,566.11	41,452.93	31,511.10
	(47,951.25)	(73,053.00)	(49,233.40)	(59,708.43)	(70,753.93)	(58,335.78)
Target age (years)	16.31	16.21	16.49	26.47	24.26	24.99
Target size (# of employees)	495.28	240.68	261.24	3314.36	4423.76	3852.80
Percent acquirer/target in same level-1 category	28.17%	47.14%	58.16%	22.38%	39.09%	48.65%
Percent acquirer/target in same level-1 & level-2	17.62%	27.96%	29.51%	13.91%	16.79%	21.98%
Percent acquirer/target in same country	63.01%	61.82%	56.70%	61.85%	63.31%	61.95%
Percent acquirer/target in same state	35.91%	29.84%	24.04%	27.81%	28.06%	20.41%
Percent acquirer/target in same city	9.41%	5.77%	4.61%	8.48%	5.04%	4.84%
Percent acquirer invested in target before	0.70%	0.24%	0.44%	0.53%	0.24%	0.71%

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars. The upper bound of the HSR size-of-transaction test corresponds to \$200 million (as adjusted).

Table A.6. The Upper bound of the HSR Size-of-Transaction Test and the Cumulative Value of Series under the Narrow Series Definition

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	6,755	101	102
# of series per acquirer	1.41	16.83	6.80
Avg. length per series (# of follow-on deals)	1.99	3.05	2.87
# of Series (no deal value crossing HSR threshold)	5,805	78	46
,	(85.9%)	(77.2%)	(45.1%)
# of Series (only cumulative deal value crossing HSR threshold)	` 99 ´	1	2
,	(1.5%)	(1.0%)	(2.0%)
# of Series (both single and cumulative value crossings)	851	22	54
	(12.6%)	(21.8%)	(52.9%)
Panel B: Conditional on series with both single crossing	ng and cumu	ılative cros	sing
# of series with time gap = 0	829	22	53
$0 < \#$ of series with time gap ≤ 1 year	7	0	0
$1 < \#$ of series with time gap ≤ 2 years	4	0	0
$2 < \#$ of series with time gap ≤ 3 years	6	0	1
$3 < \#$ of series with time gap ≤ 4 years	2	0	0
$4 < \#$ of series with time gap ≤ 5 years	2	0	0
# of series with time gap > 5 years	1	0	0
# of series with deal gap $= 0$	829	22	53
# of series with deal gap $= 1$	13	0	0
# of series with deal gap $= 2$	1	0	0
# of series with deal gap $= 3$	4	0	0
# of series with deal gap $= 4$	2	0	1
# of series with deal gap ≥ 5	2	0	0

Note: We use the lower bound of the HSR size-of-transaction test, which corresponds to \$50 million (as adjusted). The top 1% public tech firms are defined based on average market capitalization in our sample, excluding PE firms, GAFAM, and all the acquirers classified as non-technology companies by S&P. We use the first single crossing and first cumulative crossing of each series for comparison. The deal gap is calculated using deal serialness, which is defined as 0 for singletons, 1 for initial in a series, 2 for the first follow-on, 3 for the second follow-on, etc.

TABLE A.7. The Upper Bound of the HSR Size-of-Transaction Test and the Cumulative Value of Series under the Wide Series Definition

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	8,691	65	85
# of series per acquirer	1.34	10.83	5.67
Avg. length per series (# of follow-on deals)	2.47	7.55	5.25
# of Series (no deal value crossing HSR threshold)	7,427	40	40
	(85.5%)	(61.5%)	(47.1%)
# of Series (only cumulative deal value crossing HSR threshold)	155	1	3
	(1.8%)	(1.5%)	(3.5%)
# of Series (both single and cumulative value crossings)	1,109	24	42
	(12.8%)	(36.9%)	(49.4%)
Panel B: Conditional on series with both single crossing	ng and cumi	ılative cros	sing
# of series with time gap = 0	1,066	23	40
$0 < \#$ of series with time gap ≤ 1 year	6	0	0
$1 < \#$ of series with time gap ≤ 2 years	11	0	0
$2 < \#$ of series with time gap ≤ 3 years	8	0	1
$3 < \#$ of series with time gap ≤ 4 years	6	0	1
$4 < \#$ of series with time gap ≤ 5 years	3	0	0
# of series with time gap > 5 years	9	1	0
# of series with deal gap $= 0$	1,066	23	40
# of series with deal gap = 1	10	0	1
# of series with deal gap $= 2$	10	0	0
# of series with deal gap $= 3$	7	0	0
# of series with deal gap $= 4$	5	0	1
# of series with deal gap ≥ 5	11	1	0

Note: We use the upper bound of the HSR size-of-transaction test, which corresponds to \$200 million (as adjusted). The top 1% public tech firms are defined based on average market capitalization in our sample, excluding PE firms, GAFAM, and all the acquirers classified as non-technology companies by S&P. We use the first single crossing and first cumulative crossing of each series for comparison. The deal gap is calculated using deal serialness, which is defined as 0 for singletons, 1 for initial in a series, 2 for the first follow-on, 3 for the second follow-on, etc.

Appendix B. Deals Completed through Acquired Subsidiaries

As described in Section 3, we adopt a conservative approach to defining serial acquisitions by taking the acquirer and target identities of each M&A deal as recorded, without incorporating information on the parent company. In this section, we assess the robustness of our findings to this choice, which abstracts from the possibility that firms may complete acquisitions through subsidiaries they have previously acquired.

Data limitations allow us to identify such patterns cleanly only for public firms, since a firm's stock market symbol changes following an ownership change. This is not a major concern, however, as acquisitions through previously acquired subsidiaries are primarily relevant for large companies that acquire other large targets, which were themselves active acquirers, and such firms are typically public.

Nevertheless, we provide evidence that this is not an issue for private firms. Focusing on private firms that appear in our dataset both as acquirers and as targets, we identify 519 such cases. Together, their acquisitions account for only 3.68% of the total acquisitions made by private acquirers. The vast majority of these firms (about 75%) complete only a single deal (Figure B.1), and over 80% have no follow-on deals—as shown by the top panels of Figure B.2. Moreover, among the 58 (83) firms classified as serial acquirers under our narrow (wide) definition, most have only one series (middle panels of Figure B.2), and for more than 60% of them the average series length consists of a single follow-on deal (bottom panels of Figure B.2).

Focusing on public companies, we gauge the impact of accounting for acquisitions completed through acquired subsidiaries by identifying for each acquirer its ultimate parent, using information on stock market symbols. Specifically, when a public company makes an acquisition through a subsidiary, our data records the stock market symbol of the parent. Tables B.1–B.10 in this appendix replicate the public-company results from the main text using this ultimate-parent information.

In theory, tracing an acquirer's identity to its ultimate parent can affect both the number and the length of acquisition series. If the target of an earlier deal subsequently acquires other firms in the same S&P category, this may extend the original acquirer's series. Conversely, linking firms through a common parent can also combine multiple singleton deals into a new series, thereby increasing the total number of series.

In net, incorporating subsidiaries' acquisitions increases the total number of followon deals from 7,784 (11,564) to 8,918 (13,022) under the narrow (wide) definition. Additionally, we observe that series become, on average, longer. The tables show that using parental-company information yields only moderate changes relative to our conservative baseline. Interestingly, a larger share of public firms' serial acquisitions with non-missing deal values now fall below the HSR threshold, consistent with these companies using subsidiaries to make smaller acquisitions. Overall, we conclude that the key qualitative patterns documented in the main text remain robust.

Finally, we turn our attention to PE firms and assess the robustness of one of our main results: although PE firms have attracted considerable attention in the debate on serial acquisitions, public companies are the primary serial acquirers. Since our main analysis treats subsidiaries as independent companies, and PE firms may be more likely than other types of acquirers to transact through acquired subsidiaries, we use information on each firm's ultimate parent at the end of our sample to compute an upper bound on the total number of PE deals. This upper bound counts as PE deals any acquisitions made by subsidiaries that were themselves acquired by a PE firm, even if those acquisitions occurred before the subsidiary came under PE ownership. By construction, this inflates the number of PE deals. Nevertheless, even under this generous definition—applied only to PE firms, while keeping statistics for private and public acquirers unchanged—the qualitative pattern remains: public companies remain the main serial acquirers, whereas PE firms complete a total of 5,478, which account for less than 34% of all serial deals. Instead, if we compute the statistics for public and private acquirers in the same way, the share of PE serial deals falls to less than 32%.

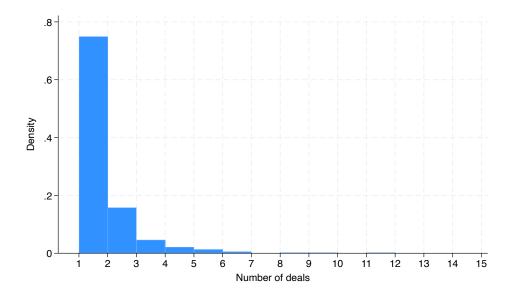
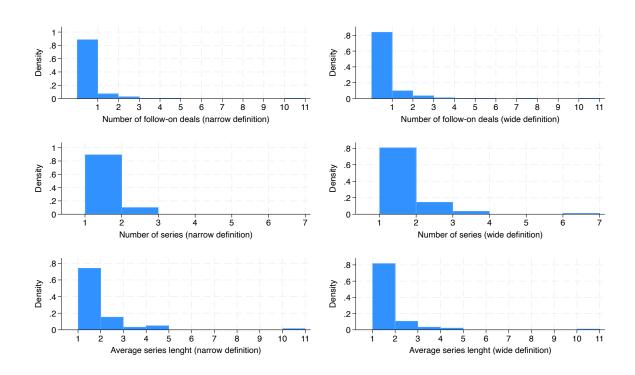


Figure B.1. Acquisitions of acquired private companies



 $\label{eq:figure B.2.} Figure \ B.2. \ Characteristics \ of \ serial \ acquisitions \ completed \ by \ acquired \ private \ companies$

Table B.1. Summary of Deal Attributes (Public non-PE acquirers)

	Singleton	Initial	Follow-on
Narrow Definition: Level-1/Level-2	2		
# of M&A deals	11,332	3,711	8,918
Percent of total deals	47.29%	15.49%	37.22%
Percent of deals with deal value within the column	47.75%	51.15%	41.01%
Avg. deal value (\$MM) conditional on having deal value		341.22	595.47
	(1,560.83)	(1,666.71)	(2,733.52)
Median deal value (\$MM) conditional on having deal value	21.00	35.00	54.00
# of series per acquirer			1.93
Avg. length per series (# of follow-on deals)			2.40
Avg. time span (days) from initial to first follow-on per series			824.64
Avg. time span (days) from first follow-on to last follow-on per series (if \geq 2 follow-on deals)			1404.32
HHI of follow-on deals' categories within each series $(0-10,000)$			8012.15
Wide Definition: Level-1			
# of M&A deals	6,999	3,940	13,022
Percent of total deals	29.21%	16.44%	54.35%
Percent of deals with deal value within the column	48.32%	52.46%	42.37%
Avg. deal value (\$MM) conditional on having deal value	158.44	257.13	568.40
	(653.57)	(1,192.85)	(2,734.58)
Median deal value (\$MM) conditional on having deal value	16.65	27.00	50.00
# of series per acquirer			1.62
Avg. length per series (# of follow-on deals)			3.31
Avg. time span (days) from initial to first follow-on per series			751.96
Avg. time span (days) from first follow-on to last follow-on per series (if \geq 2 follow-on deals)			1584.89
HHI of follow-on deals' categories within each series $(0-10,000)$			8456.03

Note: Standard deviations in parentheses. Deal values in millions of US dollars.

Time span measured in days. HHI is the Herfindahl–Hirschman Index (0–10,000 scale).

Table B.2. Summary of Target Attributes (Public non-PE acquirers)

	Singleton	Initial	Follow-on
Narrow Definition: Le	vel-1/Level-2		
# of M&A deals	11,332	3,711	8,918
Percent if target is VC funded	11.18%	13.28%	10.71%
If VC funded, \$ raised (\$MM)	69.07	47.09	69.23
	(434.06)	(229.01)	(427.16)
Percent if target is publicly traded	11.81%	13.28%	12.49%
If publicly traded, market value (\$MM)	44,020.13	29,874.32	38,266.94
	(156,536.30)	(60,760.86)	(71,280.66)
Target age (years)	15.13	15.79	16.81
Target size (# of employees)	543.09	680.29	636.03
Percent if acquirer/target in same level-1 category	29.04%	48.69%	54.79%
Percent if acquirer/target in same level-1 & level-2	11.36%	24.47%	31.44%
Percent if acquirer/target in same country	60.09%	55.54%	48.35%
Percent if acquirer/target in same state	33.50%	30.50%	25.10%
Percent if acquirer/target in same city	8.06%	5.07%	4.27%
Percent if acquirer invested in target before	0.71%	0.35%	0.77%
Wide Definition:	Level-1		
# of M&A deals	6,999	3,940	13,022
Percent if target is VC funded	9.77%	12.87%	11.70%
If VC funded, \$ raised (\$MM)	72.26	49.30	67.20
	(392.87)	(229.26)	(448.54)
Percent if target is publicly traded	11.94%	13.71%	12.05%
If publicly traded, market value (\$MM)	50,581.86	33,720.36	35,983.26
	(192,106.14)	(75,609.08)	(67,990.47)
Target age (years)	15.01	15.68	16.37
Target size (# of employees)	467.46	628.23	652.66
Percent if acquirer/target in same level-1 category	22.03%	42.23%	52.05%
Percent if acquirer/target in same level-1 & level-2	13.52%	22.46%	24.33%
Percent if acquirer/target in same country	60.85%	57.56%	51.11%
Percent if acquirer/target in same state	35.51%	33.55%	25.79%
Percent if acquirer/target in same city	8.84%	5.99%	4.81%
Percent if acquirer invested in target before	0.67%	0.41%	0.77%

Note: Standard deviations in parentheses. Market value and \$ raised in millions of US dollars.

Table B.3. Summary of Acquirer Attributes (Public non-PE acquirers)

	Singleton	Initial	Follow-on
Narrow Definition: Level-1/Lev	rel-2		
# of M&A deals	11,332	3,711	8,918
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%
Percent if acquirer's level-1 category is Application software	13.13%	15.31%	18.77%
Percent if acquirer's level-1 category is IT services & distribution	8.79%	10.43%	12.18%
Percent if acquirer's level-1 category is Internet content & commerce	12.22%	15.14%	15.28%
Percent if acquirer's level-1 category is Technology portfolio investors	2.56%	0.49%	0.38%
Percent if acquirer's level-1 category is not the above four	63.30%	58.64%	53.39%
Acquirer age by time of merger (years)	33.47	34.63	38.12
Acquirer market value if public (\$MM)	38,999.26	43,948.53	89,141.80
	(155,282.06)	(118,912.72)	(233,688.05)
Wide Definition: Level-1			
# of M&A deals	6,999	3,940	13,022
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%
Percent if acquirer's level-1 category is Application software	12.84%	14.31%	17.41%
Percent if acquirer's level-1 category is IT services & distribution	8.09%	9.24%	11.82%
Percent if acquirer's level-1 category is Internet content & commerce	10.36%	13.27%	15.83%
Percent if acquirer's level-1 category is Technology portfolio investors	3.43%	0.91%	0.51%
Percent if acquirer's level-1 category is not the above four	65.28%	62.26%	54.43%
Acquirer age by time of merger (years)	31.47	33.25	38.17
Acquirer market value if public (\$MM)	18,736.26	28,062.48	84,943.70
	(104,668.89)	(76,006.97)	(226,818.79)

Note: Standard deviations in parentheses where applicable. Market values and \$ raised in millions of US dollars.

Table B.4. Summary of Parties Involved in Deals Above and Below the HSR Threshold (Public non-PE, Narrow)

Metric	Belo	w HSR Thres	hold	Abo	ve HSR Thres	hold
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On
	Acquirer Att	ributes				
# of M&A deals	3,824	1,206	2,100	1,587	692	1,557
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Percent if acquirer's level-1 is Application software	16.53%	22.14%	25.10%	9.83%	9.83%	14.58%
Percent if acquirer's level-1 is IT services & distribution	7.74%	8.46%	10.48%	4.98%	6.94%	7.19%
Percent if acquirer's level-1 is Internet content & commerce	11.38%	10.61%	10.71%	10.14%	12.28%	14.19%
Percent if acquirer's level-1 is Technology portfolio investors	1.65%	0.25%	0.14%	1.89%	0.43%	0.32%
Percent if acquirer's level-1 is not the above four	62.71%	58.54%	53.57%	73.16%	70.52%	63.71%
Acquirer age by merger (years)	25.02	27.23	28.87	42.65	39.63	39.80
Acquirer market value if public (\$MM)	7,504.12	10,284.84	18,656.60	32,760.15	37,433.86	58,135.56
	(41,244.60)	(41,635.47)	(98,506.77)	(105,927.01)	(77,166.97)	(163,742.31)
	Target Attri	butes				
Percent if target is VC funded	19.25%	22.22%	20.14%	26.28%	29.91%	26.91%
If VC funded, \$ raised (\$MM)	18.85	20.99	19.26	49.97	36.44	70.02
	(25.73)	(28.53)	(28.37)	(50.90)	(29.41)	(97.44)
Percent if target is publicly traded	11.06%	12.19%	12.67%	31.25%	32.66%	34.81%
If publicly traded, market value (\$MM)	18,893.74	19,613.90	21,027.27	28,660.69	24,060.55	31,780.59
	(70,281.23)	(46,303.27)	(51,728.20)	(69,454.55)	(58,883.46)	(60,342.67)
Target age (years)	14.18	15.29	16.29	22.22	19.77	21.93
Target size (# of employees)	280.44	129.65	134.69	1464.02	1959.60	1957.82
Percent acquirer/target in same level-1 category	32.51%	53.57%	63.24%	33.46%	52.17%	62.30%
Percent acquirer/target in same level-1 & level-2	14.72%	31.51%	40.14%	11.72%	23.70%	34.87%
Percent acquirer/target in same country	60.22%	58.46%	52.38%	60.74%	61.42%	57.48%
Percent acquirer/target in same state	34.52%	28.69%	24.67%	27.03%	26.59%	23.38%
Percent acquirer/target in same city	8.63%	5.14%	4.24%	6.18%	4.62%	4.37%
Percent acquirer invested in target before	0.47%	0.17%	0.62%	0.57%	0.29%	0.64%

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

 $\label{thm:control} \begin{tabular}{ll} Table B.5. Summary of Parties Involved in Deals Above and Below the HSR Threshold (Public non-PE, Wide) \\ \end{tabular}$

Metric	Belo	Below HSR Threshold			Above HSR Threshold			
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On		
Acquirer Attributes								
# of M&A deals	2,534	1,378	3,218	848	689	2,299		
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		
Percent if acquirer's level-1 is Application software	15.67%	19.67%	23.56%	9.43%	9.72%	13.22%		
Percent if acquirer's level-1 is IT services & distribution	7.06%	7.55%	10.41%	4.95%	5.66%	6.87%		
Percent if acquirer's level-1 is Internet content & commerce	10.42%	11.68%	11.28%	8.96%	9.43%	14.18%		
Percent if acquirer's level-1 is Technology portfolio investors	2.17%	0.44%	0.25%	2.36%	0.87%	0.52%		
Percent if acquirer's level-1 is not the above four	64.68%	60.67%	54.51%	74.29%	74.31%	65.20%		
Acquirer age by merger (years)	23.84	25.71	28.98	41.16	40.49	41.09		
Acquirer market value if public (\$MM)	3,387.91	7,182.93	18,428.73	15,544.23	28,448.26	57,448.75		
	(10,082.61)	(23,086.61)	(91,476.85)	(33,015.20)	(59,233.96)	(158,253.61)		
	Target Attri	butes						
Percent if target is VC funded	17.92%	22.71%	20.51%	23.94%	26.85%	28.49%		
If VC funded, \$ raised (\$MM)	15.68	21.66	20.60	50.70	42.64	59.81		
	(19.95)	(25.91)	(31.32)	(55.57)	(36.51)	(82.63)		
Percent if target is publicly traded	10.66%	12.26%	12.34%	31.13%	35.12%	32.97%		
If publicly traded, market value (\$MM)	11,769.74	31,457.36	19,935.06	30,348.36	26,724.03	29,718.57		
	(33,505.78)	(101,533.57)	(50,094.82)	(84,883.33)	(54,714.12)	(57,709.44)		
Target age (years)	14.03	14.91	15.77	22.73	20.96	21.48		
Target size (# of employees)	364.92	141.98	133.51	1126.64	1885.31	1937.00		
Percent acquirer/target in same level-1 category	26.05%	47.17%	59.26%	23.94%	43.83%	59.03%		
Percent acquirer/target in same level-1 & level-2	16.73%	28.59%	30.08%	15.21%	21.48%	26.79%		
Percent acquirer/target in same country	60.34%	59.43%	54.69%	61.67%	61.39%	58.20%		
Percent acquirer/target in same state	36.15%	31.93%	25.73%	27.12%	29.46%	23.66%		
Percent acquirer/target in same city	9.23%	5.81%	5.19%	6.60%	5.08%	4.65%		
Percent acquirer invested in target before	0.59%	0.22%	0.47%	0.71%	0.15%	0.61%		

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

Table B.6. Summary of Deal Attributes (GAFAM with children)

	Singleton	Initial	Follow-on			
Narrow Definition: Level-1/Level-2						
# of M&A deals	135	118	349			
Percent of total deals	22.43%	19.60%	57.97%			
Percent of deals with deal value within the column	14.07%	20.34%	11.75%			
Avg. deal value (\$MM) conditional on having deal value	2,298.68	1,473.66	3,407.90			
	(6,171.64)	(4,032.67)	(11,892.13)			
Median deal value (\$MM) conditional on having deal value	165.00	245.00	300.00			
# of series per acquirer			23.60			
Avg. length per series (# of follow-on deals)			2.96			
Avg. time span (days) from initial to first follow-on per series			859.58			
Avg. time span (days) from first follow-on to last follow-on per series			1662.93			
(if ≥ 2 follow-on deals)						
HHI of follow-on deals' categories within each series (0–10,000)			854.63			
Wide Definition: Level-1						
# of M&A deals	15	66	521			
Percent of total deals	2.49%	10.96%	86.54%			
Percent of deals with deal value within the column	13.33%	13.64%	14.01%			
Avg. deal value (\$MM) conditional on having deal value	530.29	1,304.70	2,821.42			
	(743.46)	(2,767.12)	(9,636.75)			
Median deal value (\$MM) conditional on having deal value	530.29	275.00	250.00			
# of series per acquirer			13.20			
Avg. length per series (# of follow-on deals)			7.89			
Avg. time span (days) from initial to first follow-on per series			667.61			
Avg. time span (days) from first follow-on to last follow-on per series			2355.50			
(if ≥ 2 follow-on deals)			4540.45			
HHI of follow-on deals' categories within each series (0–10,000)			1543.17			

Note: Standard deviations in parentheses. Deal values in millions of US dollars.

Time span measured in days. HHI is the Herfindahl–Hirschman Index (0–10,000 scale).

 ${\it Table B.7. Summary of Target Attributes (GAFAM with children)}$

	Singleton	Initial	Follow-on				
Narrow Definition: Level-1/Level-2							
# of M&A deals	135	118	349				
Percent if target is VC funded	35.56%	29.66%	29.51%				
If VC funded, \$ raised (\$MM)	39.96	24.95	24.82				
	(144.50)	(30.84)	(48.15)				
Percent if target is publicly traded	4.44%	5.08%	6.30%				
If publicly traded, market value (\$MM)	106,688.89	106,991.89	86,800.64				
	(157,369.05)	(123,514.95)	(100,452.11)				
Target age (years)	9.38	8.88	8.01				
Target size (# of employees)	2,102.48	96.50	711.16				
Percent if acquirer/target in same level-1 category	15.56%	11.86%	15.47%				
Percent if acquirer/target in same level-1 & level-2	2.22%	2.54%	3.44%				
Percent if acquirer/target in same country	66.67%	67.80%	68.48%				
Percent if acquirer/target in same state	22.96%	31.36%	37.25%				
Wide Definition	: Level-1						
# of M&A deals	15	66	521				
Percent if target is VC funded	33.33%	27.27%	31.29%				
If VC funded, \$ raised (\$MM)	27.71	21.54	29.58				
	(20.68)	(30.40)	(87.48)				
Percent if target is publicly traded	6.67%	6.06%	5.57%				
If publicly traded, market value (\$MM)	2,268.13	106,947.16	97,663.53				
	(nan)	(151,234.49)	(107,925.71)				
Target age (years)	8.25	10.19	8.27				
Target size (# of employees)	37.50	87.87	1,025.35				
Percent if acquirer/target in same level-1 category	0.00%	7.58%	16.12%				
Percent if acquirer/target in same level-1 & level-2	0.00%	1.52%	3.26%				
Percent if acquirer/target in same country	66.67%	75.76%	66.99%				
Percent if acquirer/target in same state	13.33%	34.85%	33.21%				

Note: Standard deviations in parentheses. Market value and \$ raised in millions of US dollars.

 ${\it Table B.8. Summary of Acquirer Attributes (GAFAM with children)}$

	Singleton	Initial	Follow-on
Narrow Definition: Level-1/Lev	el-2		
# of M&A deals	135	118	349
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%
Percent if acquirer's level-1 category is Application software	0.74%	0.00%	0.00%
Percent if acquirer's level-1 category is IT services & distribution	0.00%	0.00%	0.00%
Percent if acquirer's level-1 category is Internet content & commerce	59.26%	55.08%	54.73%
Percent if acquirer's level-1 category is Technology portfolio investors	0.00%	0.00%	0.00%
Percent if acquirer's level-1 category is not the above four	40.00%	44.92%	45.27%
Acquirer age by time of merger (years)	21.08	21.23	26.78
Acquirer market value if public (\$MM)	644,859.11	364,971.73	697,365.96
	(593,379.18)	(276,285.10)	(509,989.59)
Wide Definition: Level-1			
# of M&A deals	15	66	521
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%
Percent if acquirer's level-1 category is Application software	0.00%	0.00%	0.19%
Percent if acquirer's level-1 category is IT services & distribution	0.00%	0.00%	0.00%
Percent if acquirer's level-1 category is Internet content & commerce	46.67%	56.06%	56.05%
Percent if acquirer's level-1 category is Technology portfolio investors	0.00%	0.00%	0.00%
Percent if acquirer's level-1 category is not the above four	53.33%	43.94%	43.76%
Acquirer age by time of merger (years)	33.25	18.83	25.06
Acquirer market value if public (\$MM)	935,885.02	289,169.98	653,320.29
	(854,309.92)	(211,040.48)	(507,745.36)

Note: Standard deviations in parentheses where applicable. Market values and \$ raised in millions of US dollars.

Table B.9. HSR Thresholds and the Cumulative Value of Series (Public non-PE, Narrow)

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	3,711	118	113
# of series per acquirer	1.93	23.60	6.65
Avg. length per series (# of follow-on deals)	2.40	2.96	2.90
# of Series (no deal value crossing HSR threshold)	2,224	82	40
	(59.9%)	(69.5%)	(35.4%)
# of Series (only cumulative deal value crossing HSR threshold)	105	1	0
	(2.8%)	(0.8%)	(0.0%)
# of Series (both single and cumulative value crossings)	1,382	35	73
	(37.2%)	(29.7%)	(64.6%)
Panel B: Conditional on series with both single crossing	ng and cumu	ılative cros	sing
# of series with time gap = 0	1,349	35	72
$0 < \#$ of series with time gap ≤ 1 year	11	0	0
$1 < \#$ of series with time gap ≤ 2 years	8	0	0
$2 < \#$ of series with time gap ≤ 3 years	3	0	1
$3 < \#$ of series with time gap ≤ 4 years	2	0	0
$4 < \#$ of series with time gap ≤ 5 years	3	0	0
# of series with time gap > 5 years	6	0	0
# of series with deal gap $= 0$	1,349	35	72
# of series with deal gap $= 1$	15	0	1
# of series with deal gap $= 2$	9	0	0
# of series with deal gap $= 3$	6	0	0
# of series with deal gap $= 4$	0	0	0
# of series with deal gap ≥ 5	3	0	0

Note: The top 1% of public technology firms are defined by average market capitalization in our sample, excluding PE firms, GAFAM, acquirers that have never engaged in serial acquisitions, and those classified by S&P as non-technology companies. Since META went public during our sample period, and in these analyses we leverage firms' stock market symbols, we focus on the series undertaken while the firm was public. For comparison, we use the first single crossing and the first cumulative crossing of each series. The deal gap is calculated using deal serialness, defined as 0 for singletons, 1 for the initial deal in a series, 2 for the first follow-on, 3 for the second follow-on, and so on.

Table B.10. HSR Thresholds and the Cumulative Value of Series (Public non-PE, Wide)

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	3,940	66	91
# of series per acquirer	1.62	13.20	5.06
Avg. length per series (# of follow-on deals)	3.31	7.89	5.30
# of Series (no deal value crossing HSR threshold)	2,243	34	31
•	(56.9%)	(51.5%)	(34.1%)
# of Series (only cumulative deal value crossing HSR threshold)	142	1	0
	(3.6%)	(1.5%)	(0.0%)
# of Series (both single and cumulative value crossings)	1,555	31	60
	(39.5%)	(47.0%)	(65.9%)
Panel B: Conditional on series with both single crossing	ng and cumu	ılative cros	sing
# of series with time gap = 0	1,487	30	59
$0 < \#$ of series with time gap ≤ 1 year	22	1	0
$1 < \#$ of series with time gap ≤ 2 years	19	0	0
$2 < \#$ of series with time gap ≤ 3 years	10	0	1
$3 < \#$ of series with time gap ≤ 4 years	5	0	0
$4 < \#$ of series with time gap ≤ 5 years	3	0	0
# of series with time gap > 5 years	9	0	0
# of series with deal gap $= 0$	1,487	30	59
# of series with deal gap $= 1$	27	1	0
# of series with deal gap $= 2$	18	0	0
# of series with deal gap $= 3$	12	0	1
# of series with deal gap $= 4$	4	0	0
# of series with deal gap ≥ 5	7	0	0

Note: The top 1% of public technology firms are defined by average market capitalization in our sample, excluding PE firms, GAFAM, acquirers that have never engaged in serial acquisitions, and those classified by S&P as non-technology companies. Since META went public during our sample period, and in these analyses we leverage firms' stock market symbols, we focus on the series undertaken while the firm was public. For comparison, we use the first single crossing and the first cumulative crossing of each series. The deal gap is calculated using deal serialness, defined as 0 for singletons, 1 for the initial deal in a series, 2 for the first follow-on, 3 for the second follow-on, and so on.

Table B.11. Summary of Parties Involved in Deals Above and Below the 200M HSR Threshold (Public non-PE, Narrow)

Metric	Belo	Below HSR Threshold			Above HSR Threshold			
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On		
	Acquirer At	tributes						
# of M&A deals	4,738	1,594	2,862	673	304	795		
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		
Percent if acquirer's level-1 is Application software	15.60%	19.51%	22.85%	7.28%	7.89%	12.58%		
Percent if acquirer's level-1 is IT services & distribution	7.39%	8.22%	9.82%	3.71%	6.25%	6.42%		
Percent if acquirer's level-1 is Internet content & commerce	11.29%	10.79%	11.67%	9.06%	13.49%	14.09%		
Percent if acquirer's level-1 is Technology portfolio investors	1.58%	0.19%	0.14%	2.67%	0.99%	0.50%		
Percent if acquirer's level-1 is not the above four	64.14%	61.29%	55.52%	77.27%	71.38%	66.42%		
Acquirer age by merger (years)	27.82	29.37	30.94	46.69	43.29	42.44		
Acquirer market value if public (\$MM)	11,547.00	16,208.30	25,661.46	44,380.22	46,128.00	74,031.80		
	(57,048.04)	(51,120.44)	(113,202.06)	(124,443.40)	(87,874.54)	(182,377.70)		
	Target Attr	ibutes						
Percent if target is VC funded	21.59%	25.78%	23.24%	19.32%	21.05%	22.26%		
If VC funded, \$ raised (\$MM)	25.01	25.42	28.44	76.30	53.86	118.06		
	(30.24)	(27.80)	(39.12)	(74.48)	(38.54)	(135.08)		
Percent if target is publicly traded	13.40%	14.68%	15.72%	42.20%	45.72%	45.03%		
If publicly traded, market value (\$MM)	20,503.18	17,232.04	20,693.30	33,025.59	32,747.78	36,847.84		
	(72,886.37)	(41,871.75)	(47,360.42)	(62,895.58)	(72,886.94)	(66,726.11)		
Target age (years)	15.20	15.99	17.18	26.26	21.89	24.19		
Target size (# of employees)	369.85	222.93	219.83	2405.10	3703.54	3334.91		
Percent acquirer/target in same level-1 category	32.44%	53.01%	62.75%	35.22%	53.29%	63.14%		
Percent acquirer/target in same level-1 & level-2	14.16%	29.92%	39.03%	11.59%	22.04%	33.84%		
Percent acquirer/target in same country	60.51%	59.35%	53.14%	59.44%	60.53%	59.62%		
Percent acquirer/target in same state	33.05%	28.23%	24.67%	27.19%	26.32%	22.14%		
Percent acquirer/target in same city	8.17%	5.02%	4.09%	6.09%	4.61%	5.03%		
Percent acquirer invested in target before	0.44%	0.13%	0.59%	0.89%	0.66%	0.75%		

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

Table B.12. Summary of Parties Involved in Deals Above and Below the 200M HSR Threshold (Public non-PE, Wide)

Metric	Belo	ow HSR Thres	shold	Above HSR Threshold				
	Singleton	Initial	Follow-On	Singleton	Initial	Follow-On		
Acquirer Attributes								
# of M&A deals	3,051	1,769	4,374	331	298	1,143		
Percent if acquirer is public non-PE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		
Percent if acquirer's level-1 is Application software	14.81%	17.92%	21.38%	7.55%	7.05%	11.11%		
Percent if acquirer's level-1 is IT services & distribution	6.92%	7.24%	9.67%	3.02%	5.03%	6.12%		
Percent if acquirer's level-1 is Internet content & commerce	10.23%	11.25%	12.12%	8.46%	9.06%	13.91%		
Percent if acquirer's level-1 is Technology portfolio investors	2.13%	0.45%	0.21%	3.02%	1.34%	0.96%		
Percent if acquirer's level-1 is not the above four	65.91%	63.14%	56.63%	77.95%	77.52%	67.89%		
Acquirer age by merger (years)	26.36	28.24	31.30	45.12	43.98	44.05		
Acquirer market value if public (\$MM)	4,913.93	11,254.35	25,973.54	23,096.56	36,106.07	72,515.77		
	(14,786.05)	(31,772.37)	(107,808.69)	(41,510.72)	(71,787.63)	(176,932.31)		
	Target Attri	butes						
Percent if target is VC funded	19.60%	25.04%	24.19%	17.82%	18.46%	22.48%		
If VC funded, \$ raised (\$MM)	22.55	26.43	27.85	78.39	62.83	104.00		
	(27.32)	(28.34)	(36.83)	(92.62)	(47.42)	(120.40)		
Percent if target is publicly traded	13.14%	15.09%	14.88%	40.18%	48.32%	44.09%		
If publicly traded, market value (\$MM)	16,730.12	26,121.94	19,422.70	36,645.90	33,981.89	34,737.66		
	(63,158.27)	(82,401.44)	(45,435.00)	(77,642.30)	(62,009.12)	(64,236.25)		
Target age (years)	15.11	15.92	16.55	26.89	23.07	24.31		
Target size (# of employees)	393.40	249.77	249.82	2039.85	3409.24	3210.83		
Percent acquirer/target in same level-1 category	25.43%	46.07%	59.14%	26.28%	45.97%	59.23%		
Percent acquirer/target in same level-1 & level-2	16.29%	27.36%	29.36%	16.92%	19.46%	26.25%		
Percent acquirer/target in same country	60.54%	60.20%	55.37%	61.93%	59.40%	59.14%		
Percent acquirer/target in same state	34.74%	30.92%	25.49%	25.98%	32.21%	22.48%		
Percent acquirer/target in same city	8.85%	5.65%	4.89%	6.04%	5.03%	5.25%		
Percent acquirer invested in target before	0.56%	0.17%	0.46%	1.21%	0.34%	0.79%		

Note: Standard deviations in parentheses. Market values and \$ raised in millions of US dollars.

Table B.13. 200M HSR Thresholds and the Cumulative Value of Series (Public non-PE, Narrow)

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	3,711	118	113
# of series per acquirer	1.93	23.60	6.65
Avg. length per series (# of follow-on deals)	2.40	2.96	2.90
# of Series (no deal value crossing HSR threshold)	2,851	94	57
	(76.8%)	(79.7%)	(50.4%)
# of Series (only cumulative deal value crossing HSR threshold)	97	1	2
	(2.6%)	(0.8%)	(1.8%)
# of Series (both single and cumulative value crossings)	763	23	54
	(20.6%)	(19.5%)	(47.8%)
Panel B: Conditional on series with both single crossing	ng and cumi	ılative cros	sing
# of series with time gap = 0	743	23	53
$0 < \#$ of series with time gap ≤ 1 year	5	0	0
$1 < \#$ of series with time gap ≤ 2 years	5	0	0
$2 < \#$ of series with time gap ≤ 3 years	5	0	1
$3 < \#$ of series with time gap ≤ 4 years	2	0	0
$4 < \#$ of series with time gap ≤ 5 years	2	0	0
# of series with time gap > 5 years	1	0	0
# of series with deal gap = 0	743	23	53
# of series with deal gap = 1	12	0	0
# of series with deal gap $= 2$	1	0	0
# of series with deal gap $= 3$	3	0	0
# of series with deal gap $= 4$	2	0	1
# of series with deal gap ≥ 5	2	0	0

Note: Top 1% public tech firms are defined based on average market capitalization in our sample, excluding PE firms, GAFAM, and all the acquirers classified as non-technology companies by 5&P. We use the first single crossing and first cumulative crossing of each series for comparison. The deal gap is calculated using deal serialness, which is defined as 0 for singletons, 1 for initial in a series, 2 for the first follow-on, 3 for the second follow-on, etc.

Table B.14. 200M HSR Thresholds and the Cumulative Value of Series (Public non-PE, Wide)

	All Acquirers	GAFAM	Top 1% public tech firms
Panel A: All Series			
Total # of series	3,940	66	91
# of series per acquirer	1.62	13.20	5.06
Avg. length per series (# of follow-on deals)	3.31	7.89	5.30
# of Series (no deal value crossing HSR threshold)	2,946	42	46
	(74.8%)	(63.6%)	(50.5%)
# of Series (only cumulative deal value crossing HSR threshold)	132	1	3
	(3.4%)	(1.5%)	(3.3%)
# of Series (both single and cumulative value crossings)	862	23	42
	(21.9%)	(34.8%)	(46.2%)
Panel B: Conditional on series with both single crossing	ng and cumi	ılative cros	sing
# of series with time gap = 0	821	22	40
$0 < \#$ of series with time gap ≤ 1 year	5	0	0
$1 < \#$ of series with time gap ≤ 2 years	11	0	0
$2 < \#$ of series with time gap ≤ 3 years	7	0	1
$3 < \#$ of series with time gap ≤ 4 years	6	0	1
$4 < \#$ of series with time gap ≤ 5 years	4	0	0
# of series with time gap > 5 years	8	1	0
# of series with deal gap $= 0$	821	22	40
# of series with deal gap $= 1$	9	0	1
# of series with deal gap $= 2$	12	0	0
# of series with deal gap $= 3$	5	0	0
# of series with deal gap $= 4$	7	0	1
# of series with deal gap ≥ 5	8	1	0

Note: Top 1% public tech firms are defined based on average market capitalization in our sample, excluding PE firms, GAFAM, and all the acquirers classified as non-technology companies by 5&P. We use the first single crossing and first cumulative crossing of each series for comparison. The deal gap is calculated using deal serialness, which is defined as 0 for singletons, 1 for initial in a series, 2 for the first follow-on, 3 for the second follow-on, etc.