

Are Public Firms Disappearing?
Corporate Law and Market Power Analyses

Mark J. Roe and Charles C.Y. Wang

February 27, 2023

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Abstract

The number of public firms in the United States has halved since the beginning of the twenty-first century, causing consternation among corporate and securities law regulators. The dominant explanations, often advanced by Securities and Exchange commissioners when considering policy initiatives, come from over- or under- corporate regulation of the stock market. The central legal explanation is that corporate and securities law has made the cost of being public too high. Conversely, goes the second legal explanation, capital-raising rules for private firms were once very strict but have loosened up. Private firms can now raise capital nearly as well as small- and medium-sized public firms. Either way, these views see legal imperatives as explaining the sharp decline in the public firm.

We challenge the implications of this thinking. While the number of firms has halved, public firms' economic weight has not halved. To the contrary, the public firm sector is bigger by every other measure: total stock market capitalization is up greatly over the past three decades, profits are up, revenues are up, investment is up, and employment is up. Moreover, stock market capitalization, profits, revenues, and investment have not only increased but have all grown faster than the economy.

The second challenge we pose is whether the explanation for the changing configuration of the public firm sector lies primarily in legal explanations. In other policy circles—at the Federal Trade Commission or the Justice Department's Antitrust Division, for example—policymakers ask why American industry is so much more concentrated now, with fewer firms in most industries today than there were at the end of the twentieth century. Yet these policymakers bring forward antitrust and industrial organization explanations, not corporate or securities regulation. Little crossover exists between these two policymaking circles, one focusing on corporate and securities regulation (the SEC) and the other on competition (the FTC). We bring forward real economy changes that could readily explain the reconfiguration of the American public firm sector to one that is more profitable, more valuable, and with bigger but fewer firms. These real economy developments are largely tied to industrial organization via changes in antitrust enforcement or changes in the efficient scope of the firm. In a single article, this explanatory effort can only be exploratory. Multiple researchers in multiple efforts will be needed to explain which real economy forces have an impact and which do not. We begin this effort: There are fewer firms, but the firms are bigger, more profitable and often in more concentrated industries. We show why the legal explanation is unlikely to be the complete story for the package of changes over the past quarter-century and probably not even the most important one. Corporate policymakers should adjust appropriately.

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INTRODUCTION

A major long-term strength of the American economy has been its deep capital markets and its concomitant capacity to rapidly grow firms. An entrepreneur lacking capital but with an idea, an invention, or a new technology can raise much money rapidly in public stock markets. The economy develops, and consumers are better off. A new but risky technology with a high potential payoff for consumers, investors, and the economy if it succeeds can, in this positive vision, often be financed by public stock markets but not by banks or via other private financial channels. Public stock markets can diversify risks that private capital markets cannot. That capacity facilitates greater investment and innovation, by providing capital to smaller and younger companies with novel products and services that disrupt and challenge encrusted, less vigorous incumbent firms. At the same time, ordinary investors obtain higher returns by investing in the stock market than by, say, depositing their money in a savings bank, and they can usually sell their investments easily when they need to.

Analysts and policymakers worry that this positive process is waning. In 1996 there were more than 7,000 public firms; by year-end 2021 that number had dwindled nearly to half, to fewer than 4,000. Fewer private firms went public in the later years than in the earlier years. Among firms that were already public, many disappeared—via merger, going private, or failure—but were not replaced.

The diminishing number of firms in the public sector is undeniable. Private firms that once went public in droves have done so only sporadically in recent decades, with only occasional “good” years when many private firms go public. 2021 was a good year; 2022 was a bad one, with very few initial public offerings of stock by private firms. Private firms are staying private. In this widely-shared dyspeptic perspective, a foundation of American economic success and people’s well-being is weakening.

The proposition that public firms are disappearing follows easily from the near halving of their number. But it’s a step that should not be taken. The *number* of firms is indeed declining, precipitously. But their collective economic *weight* is not. By multiple measures, the public firm sector is as important as ever. Public firms are much bigger on average now than before, and in more concentrated industries. *Total* profits, sales, investment, and employment have not just persisted at the same level, but most measures have increased—and increased faster than the economy has been growing.

Thus, properly analyzed, we have fewer firms but collectively they no less important economically than before. Three changes have occurred, roughly simultaneously: profits have gone up, value has gone up, and the number of firms has diminished. That persistence of their overall economic weight leads us to reassess the

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power of the legal explanations for the decline in number: the legal structures are supporting as much, or more, economic activity as ever.

The explanations given in corporate policymaking legal circles—often by Securities and Exchange commissioners considering policy initiatives—come from corporate and securities law regulation. Corporate and securities law has made the legal burdens of being public too heavy. And private capital-raising rules have loosened up enough over the decades such that private firms can raise capital as well as small- and medium-sized public firms. In some critics' and policymakers' thinking, the rules have loosened up too much.

We then consider whether these legal explanations should continue to be as central to understanding why we have fewer public firms. Others have challenged the strength of the over-regulation thesis and shown its inconsistencies and weaknesses, but without offering an alternate explanation for the quarter-century decline from more than 7,000 public firms to fewer than 4,000.

We bring forward an alternative explanation. The actual changes in the public firm sector—fewer firms, but a sector that is more profitable and more valuable—can be well-explained by real economy changes in recent decades that have little to do with securities regulation. We push forward four possible Real Economy explanations: that industrial organization changes affected the number of firms, that a technological shift temporarily boosted the number of public firms and then the numbers reverted to the lower long-run level, that governance changes in public and private firms induced fewer small public firms, and that the impact of international competition wounded small public firm manufacturing enterprises, driving them to merge or go out of business. Full analysis of these real economy explanations will require multiple efforts by multiple researchers. We set forth a framework of why these real economy explanations do better than the ascendant Legal Explanations, and we bring forward some evidence. The Legal Explanations can explain some of the changed structure of the public firm sector but not all of it, and maybe not even much of the new overall structure. Its partial relevance cannot be denied, its dominance though can be challenged, and we challenge it here. The real economy explanations we bring forward, particularly the industrial organization account, could alter corporate policymaking and thinking.

The industrial organization hypotheses come in two varieties—one is that antitrust enforcement has weakened, allowing more mergers and concentration than before. This is a policy perspective popular in policymaking, political, and some media circles, but less vigorously supported in academic industrial organization work. The I.O. Hypothesis's second variety is that economies of scale and similar changes have made size more important in many industries, pushing for fewer firms than before. Consider that in other Washington policy circles—at the Federal Trade Commission and the Justice Department's Antitrust Division—policymakers focus on the increased concentration—fewer firms—in many industries in the United States during recent decades. These policy circles contemplate phenomena tightly connected to the SEC focus on the declining number of firms. But little crossover exists between these two policymaking groups, even though the two talk about largely the same phenomenon. Industries have concentrated with fewer, albeit larger, firms in industry after industry. That concentration usually entails that the number of public firms decrease, often by

merger. Thus, in one part of Washington, Legal Explanations emanating from corporate securities law dominate, while in another part of Washington, Industrial Organization Explanations dominate. Both cannot be dominant.

* * *

In Part I, we set forth the problem to explain and the ascendant explanations in corporate and financial circles. The problem to explain is the halving in number of public firms since the mid-1990s. The ascendant explanation in corporate policy and academic circles is the Legal Explanation. Corporate securities law shoulders the blame.

The Legal Explanation comes in two varieties. The first variety is that the legal burdens of being a public company, especially after the Sarbanes-Oxley regulations of 2002, are too costly for many firms, so they stay private. The second variety is that private firms can now raise capital more easily than they could in the twentieth century. Hence, they have less reason to incur the burdens that come with registering with the authorities as a public firm. One variety of the Legal Explanation has law constraining public firms, while the other has it facilitating the vibrancy of private firms. We examine all SEC commissioners' statements on the issue from the past decade to show that they explain the declining number of public firms with one variety of Legal Explanation or the other. While the two explanations vie for allegiance inside corporate circles, the two have a basic feature in common. They see corporate securities law as the dominant driver, not Industrial Organization.

Part II is the center of this Article. There we go deeper into what is happening to our public firms. It's natural to think that fewer public firms and a growing private market mean that we are getting a smaller sector of publicly-traded firms. The idea that the public firm sector is shrinking is a natural corollary of the diminishing number of firms, especially if the public firm is no longer seen to be the best place for much economic activity. But that idea of a weakened, shrinking public firm sector should not define the problem, because it is incorrect. If public firms have become poor places to do business because of legal burdens, then the total *value* of the stock market—and not just the total number of firms—should be shrinking as well. But it is not. The total value of the entire stock market has been steeply rising during the very years that the number of firms was declining.

The size of the stock market is, admittedly, an imprecise indicator. Stock markets rise and fall for many reasons. So we turn to other indicators like profits, sales, investment, and employment. These other indicators also point to the public firm sector being as economically strong and large as ever. Tellingly, the total profit of public firms has increased over the decades, despite their declining number. And those profits are increasing faster than the economy is growing. By this measure—its rising profits—the public firm sector is becoming economically much *more* important. But these results—especially rising profits—fit awkwardly with the ascendant Legal Explanations, which posit that being a public firm has become more expensive and being a private firm more attractive. If burdensome regulation were the driving force, the public firm would have become a poor place to do business, and that should have showed up in profits and stock market value. It has not. Something is making the public firm sector more valuable and more profitable than ever.

That then poses two developments to explain—a package of three industrial organization changes happening together, and the single fact of the diminishing number of firms. The central transformation package was to fewer, more profitable, and more valuable firms. These three happened roughly simultaneously. The focus of legal analysis has been on a single change, the move to “fewer firms.” But let’s consider the possibility that the three are a single transformation of the public firm sector. If they are each part of a single process, then analysis should explain the triumvirate as a package. The Legal Explanations cannot explain the package, so we bring forward Real Economy explanations that can do so better.

The strongest real economy explanation is likely to the Industrial Organization Hypothesis—that firms have merged or grown, because size and integration have become more profitable, either because they have become more efficient or because the antitrust authorities have let them grow in ways that the authorities once barred. Other Real Economy forces could also be in play: first, a possible reversion to a more fundamental baseline number of public firms—there was a rise in the 1990s but, some might assert, it’s the rise before 1996 that was unusual, not the subsequent fall; second, enhanced corporate governance that meant that the system could handle fewer firms but could do so more profitably; and third, powerful international competition that made small public firm manufacturers less viable in the 1990s.

True, perhaps the public firm transformations are severable and have different causes. That is, we seek first to explain the package of profits, size, and fewer firms. But perhaps the fewer firms’ aspect has nothing to do with the rising profits and rising value. If severable, the Legal Explanations potentially have more explanatory power. But we show that even here Real Economy forces could still explain the diminishing number of firms alone, although our current understandings and evidence do not allow a sharp weighing of each explanation’s impact.

Our main purpose in this Article is to show in Part II that by measures other than a raw count, public firms’ economic weight has not lightened and that corporate and securities market regulators should accordingly reassess their basic views of public firm shrinkage. Our secondary purpose is to outline a research agenda of how real economy forces can explain the package of public firm changes we document in Part II. And then in Part IV, we consider the ramifications for SEC policy thinking if these Real Economy Explanations are dominant.

Some SEC policymakers seem to measure the strength of the public firm sector by the number of firms and find the downward trend worrisome. But when assessing how well securities regulation is doing and whether it is too burdensome, policymakers should focus not just on the number but on the metrics we bring forward—size of the stock market, profits, revenues, investment, and employment. And if the reason for the declining number of public firms largely comes from the Real Economy Explanations, such as one of the *I.O.* Hypotheses, then the SEC has less reason to reduce protective regulation for public firm investors. Currently, policymakers infer from the diminishing number of firms that their regulation is too tight. But if instead an *I.O.* Explanation is the dominant force that’s reducing the number of firms, that inference about the impact of legal regulation is incorrect, or weak. Securities regulation might be just right, and not at all too tight.

* * *

We then conclude. Corporate law policymakers and analysts have been apprehensive for decades about the declining number of public firms. As lawyers, we tend to overemphasize legal explanations for phenomena. While those legal explanations surely play a role, an Industrial Organization idea explains important trends in public firms that the Legal Explanation cannot explain. It fits better with the fact that the number of public firms is halving, while their profits, revenues, and investment are rising. The public firm sector is not becoming a scorned place to do business—it is growing. It’s achieving this growth with bigger firms in more concentrated industries.

I. THE PROBLEM TO EXPLAIN: THE DECLINING NUMBER OF PUBLIC FIRMS

A. Half as Many Public Firms By 2021

The number of public firms halved in the past 25 years. During the same time, the number of initial public offerings—when previously privately-owned firms sell their stock to distant, public stockholders—also declined.

These are worrisome developments for the American economy, according to many. Representative analyses plead for a “wake-up call for America” because of a “decimation of the U.S. capital markets structure [and a] demise of the IPO market,” that led to “the systemic decline in the number of publicly listed companies.”¹

The stock market has long been a central engine of American economic development and opportunity because it “encourages entrepreneurship, facilitates growth, creates jobs, and fosters innovation, while providing attractive opportunities for investors to increase their wealth and mitigate risk,” says one SEC commissioner.² By facilitating healthy risk-taking, says another commissioner, it “allows more creativity ... [and] brings a dynamism to our economy that’s necessary for the economic growth we have enjoyed over much of the course of our history.”³ It does this by allowing investors to diversify their investments among many firms, which allows risky firms to move forward because no investor has all its wealth tied up in a single firm. Lastly, because the average middle-class person with some savings can invest in the stock market—

¹ David Weild & Edward Kim, *Market Structure Is Causing the IPO Crisis—and More* (Grant Thornton, Capital Markets Series, June 2010), <https://static1.squarespace.com/static/61677f793dad743517bba88e/t/61ba601e1bb50267ce96348d/1639604255483/Market-structure-is-causing-the-IPO-crisis-June-2010.pdf> (report based on discussions with “current and former SEC senior staffers, investment bank executives and the venture capital community,” with the report’s work said to have “conclusions [that] gained favor with the financial news media and with members of Congress”).

² Michael S. Piowar, Comm’r, SEC, *Opening Remarks at SEC-NYU Dialogue on Securities Market Regulation: Reviving the U.S. IPO Market* (May 10, 2017), <https://www.sec.gov/news/speech/opening-remarks-sec-nyu-dialogue-securities-market-regulation-reviving-us-ipo-market>.

³ Hester M. Peirce, Comm’r, SEC, *Remarks at the 38th Annual Northwest Securities Institute CLE at the Washington State Bar Association: Tossing Fish and Catching Capital* (May 4, 2018), <https://www.sec.gov/news/speech/speech-peirce-050418>.

directly or through a pension plan or mutual fund—the public stock market allows these Main Street investors to share in companies’ growth and success.⁴ More Americans sense that they have a stake in business via the stock they own, historically making for more political and social stability. If the public firm has become an endangered economic species—as many say it has—these advantages are all diminished. Or lost.

Is the public firm becoming an endangered species? Figure 1 suggests that it is.

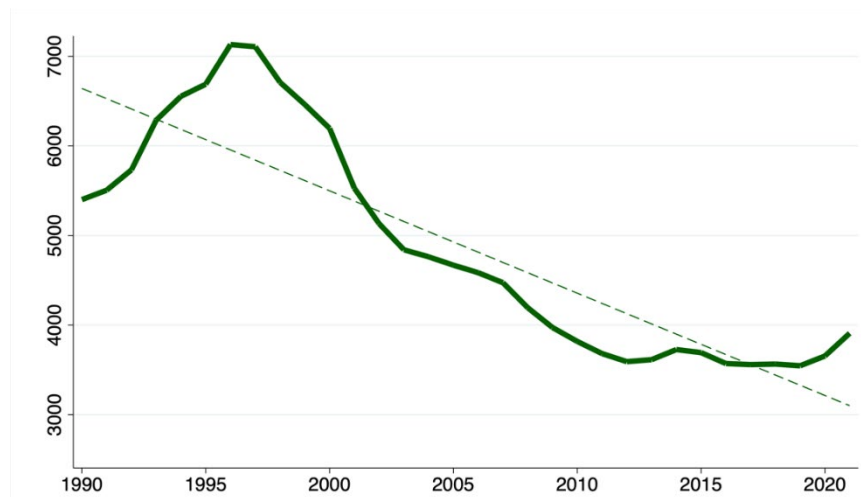


Figure 1. Declining number of public firms, 1990–2021⁵

The number of public firms dropped from a 1996 high of more than 7,000 to fewer than 4,000 a quarter-century later.

1. *Sharply declining number of public firms.* Figure 1 shows the sharp decline in the number of public firms, from 7,000 in 1996 to about half that number by 2021.⁶

2. *The dearth of IPOs.* The number of initial public offerings of stock by private companies has also plummeted. Some public companies fail, go bankrupt, shrink, remove themselves from the stock market, or are acquired by other public companies. But then other, fresher, newer private companies grow, sell their stock to raise capital, and join the roster of public companies. Amazon was a private company for several

⁴ Elad L. Roisman, Comm’r, SEC, Remarks at SEC Speaks: Encouraging Smaller Entrants to Our Capital Markets (Apr. 8, 2019), <https://www.sec.gov/news/speech/speech-roisman-040819>; Jay Clayton, Chair, SEC, Remarks at the Economic Club of New York (July 12, 2017), <https://www.sec.gov/news/speech/remarks-economic-club-new-york>.

⁵ Our sample consists of public firms with ordinary common shares included in both Compustat, provided by S&P GLOBAL MARKET INTELLIGENCE, and CRSP, provided by the Center for Research in Security Prices. ADRs (American Deposit Receipts, via which foreign stock trades in the U.S.), real estate investment trusts, closed-end funds, trusts, and shares of beneficial interest are excluded from our analyses throughout. As is standard in finance, the sample aggregates listings on the New York Stock Exchange, the American Stock Exchange, and NASDAQ. It doesn’t include the small handful of companies (about 1% of the total) that trade on regional exchanges.

⁶ Scaling that multi-decade decline to America’s growing population or our growing economy would render the decline even steeper.

years, went public in 1997, and its stock market capitalization now makes it one of the largest American companies.⁷

But the number of IPOs has been declining over the years, albeit with a short burst in 2021 that either reversed the trend (we shall see if it continues) or was a temporary respite (because IPOs nearly disappeared in 2022).⁸ Figure 2 illustrates.

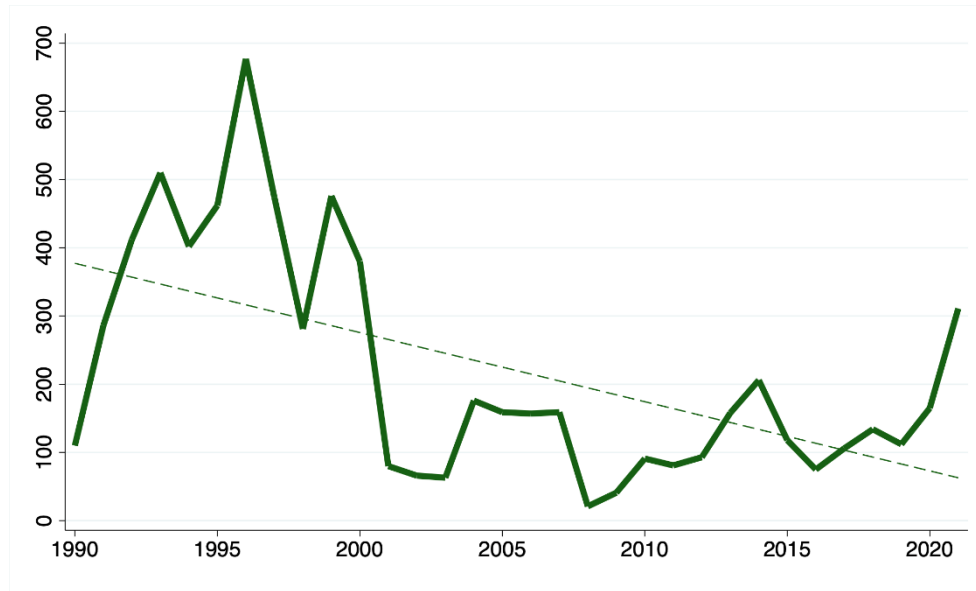


Figure 2. Declining number of IPOs, 1990-2021⁹

The number of private firms making an initial public offering of their stock dropped from a 1996 high of about 700 during the subsequent quarter-century.

B. Ascendant Explanations: Corporate Securities Law and the State of the Stock Market

Two regulatory explanations for the declining number of public firms dominate. One corporate securities regulation explanation is that going public has become so costly, especially after Sarbanes-Oxley's intense regulatory additions in 2002, that most firms, especially younger, smaller firms, do not want to absorb those costs and are

⁷ I.e., Amazon has issued 10.2 billion shares of stock. The stock traded at \$128 per share at the close of trading on September 2, 2022. Amazon's stock market capitalization was \$10.2 billion x \$128, or \$1.3 trillion.

⁸ Jay R. Ritter, Initial Public Offerings: Updated Statistics, June 30, 2022, <https://site.warrington.ufl.edu/ritter/files/IPO-Statistics.pdf>; Corrie Driebusch, *IPO Market Faces Worst Year in Two Decades*, WALL ST. J., Aug. 22, 2022.

⁹ *Id.* A new channel for going public has emerged. Some public companies are organized with no operations. Their purpose is to acquire a private company. "Special purpose acquisitions corporations," or SPACs, became prominent in financial media. They acquired about 150 private firms in 2020 and 2021 but do not fall into the standard IPO data, and amounted to 300 "IPO-substitutes" for the total period. Including them would only dampen the downward trend but not reverse it.

deterred from going public. Influential financial media continue to excoriate Sarbanes-Oxley and its purportedly negative impact on the public firm.¹⁰

The second corporate securities law explanation is that the SEC has eased the limits on private capital-raising to such an extent that private firms now can raise capital almost as easily as small public firms and can do so without the burdens of being public.

In addition, there is a finance explanation: when stock prices are high relative to other financing channels, private stockholders sell and thereby swell the number of public firms; when stock prices are low, they bide their time, and the number of public firms stagnates.

Discussion follows.

1. *Over-regulation, especially via Sarbanes-Oxley.* In the twenty-first century's early years, the over-regulation thesis was commonly voiced, and the thesis prominently continues today.¹¹

Going public is not cheap, and securities law requires expensive ongoing disclosure. Paying professionals to assemble regulator-required financial statements every three months is only the beginning. The securities laws' mandated disclosure for public companies induces firms to signal to private competitors how valuable the public firm's technologies and strategies are. Private (and public) competitors can imitate profitable strategies. And securities and corporate lawsuits are common for public companies. A former SEC commissioner contends that "today such litigation is less of a risk *and more of a certainty*.... [S]hareholder litigation surrounding initial public offerings has become even more top of mind for companies considering going public."¹² Senior management fears disruptive litigation, and those fears alter their strategic vision, often for the worse.

Better, in this over-regulation view, to stay private, if possible.

¹⁰ John Berlau & Josh Rutzick, *The 20-Year Experiment Holding America Back*, WALL ST. J., July 29, 2022, www.wsj.com/articles/the-20-year-experiment-holding-the-u-s-back-sarbanes-oxley-corporate-reform-bush-entrepreneurs-investors-fraud-business-11659044813?mod=opinion_lead_pos5. See also Stephen M. Bainbridge, *Sarbanes-Oxley § 404 at Twenty*, __ BUS. LAW. __ (forthcoming).

¹¹ See, e.g., William J. Carney, *The Costs of Being Public After Sarbanes-Oxley: The Irony of "Going Private"*, 55 EMORY L.J. 141 (2006); Ellen Engel, Rachel M. Hayes & Xue Wang, *The Sarbanes-Oxley Act and Firms' Going-Private Decisions*, 44 J. ACCT. & ECON. 116 (2007); Leslie B. Fletcher & Morgan P. Miles, *The Law of Unintended Consequences: The Effects of the Sarbanes-Oxley Act on Venture Funding of Smaller Enterprises*, 8 J. PRIVATE EQUITY 70 (2004); Dale A. Oesterle, *The High Cost of IPOs Depresses Venture Capital in the United States*, 1 ENTREPRENEURIAL BUS. L.J. 369, 370 (2006); Stephen J. Redner, *Thinking of Going Public? Think Twice, Then Read the Sarbanes-Oxley Act of 2002*, 6 J. SMALL & EMERGING BUS. L. 521, 523-27 (2002); Ivy Xiying Zhang, *Economic Consequences of the Sarbanes-Oxley Act of 2002*, 44 J. ACCT. & ECON. 74 (2007). But see Christian Leuz, *Was the Sarbanes-Oxley Act of 2002 Really this Costly? A Discussion of Evidence from Event Returns and Going-Private Decisions*, 44 J. ACCT. & ECON. 146 (2007); Christian Leuz et al., *Why Do Firms Go Dark? Causes and Economic Consequences of Voluntary SEC Deregistrations*, 45 J. ACCT. & ECON. 181, 192 (2008); John C. Coates, IV, *The Promise of Sarbanes-Oxley*, 21 J. ECON. PERSP. 91 (2007); Paul Rose & Steven Davidoff Solomon, *Where Have All the IPOs Gone? The Hard Life of the Small IPO*, 6 HARV. BUS. L. REV. 83 (2016). British authorities have similar worries. See Brian R. Cheffins & Bobby V. Reddy, *Will Listing Rule Reform Deliver Strong Public Markets for the UK?* 86 MODERN L. REV. 176 (2023) ("Amidst claims Britain's stock market has been 'fading away'...").

¹² Roisman, *supra* note 4 (emphasis added).

The over-regulation thesis was boosted by many in the early interpretations of the Sarbanes-Oxley Act of 2002. With that statute, Congress responded to scandals at Enron and WorldCom with new requirements for public companies. Among the most discussed was the expensive control systems the law required to avoid accounting fraud, even when the risks of fraud were modest. Since private firms did not face these costs, the purported advantages of being public had to be high to justify going public.¹³

2. *Relaxed regulation of private capital flows.* Meanwhile, astute analysis showed that paths to capital raising that were once closed for private companies opened up over the decades.¹⁴ Private firms in need of capital no longer have to go public.

The Securities and Exchange Commission requires firms to register as public firms once they exceed a threshold number of stockholders. In 1982, the SEC eased that threshold.¹⁵ In subsequent years, Congress and the SEC further expanded this category of firms that need not register as public firms.¹⁶ Proponents of the importance of this deregulation see private firms as better able to raise capital while remaining private. So these firms choose not to incur the added regulatory costs of being a public firm.

Collectively, we'll call these two regulatory ideas the corporate and securities "Legal Explanations." In the past decade, 13 of the 17 SEC commissioners spoke on the declining number of public firms. These viewpoints are detailed in Appendix Table 1A. *All* who spoke advanced some form of the Legal Explanation, with about half of them finding the first legal explanation—over-regulation of public firms—to be important, while about half found the deregulation of private equity flows central.¹⁷ Republican

¹³ See sources cited *supra* note 11. Entrepreneurs could prefer to keep their businesses private for reasons apart from regulation. Public company executives are subject to financial, social, and psychological pressures that private company executives can avoid. Private company executives often have more autonomy and privacy. Some executives, like Elon Musk, may prefer the notoriety that is more possible when running a public company.

¹⁴ John C. Coffee, *Gone with the Wind: Small IPOs, the JOBS Act, and Reality*, CLS Blue Sky Blog, Feb. 1, 2013, <https://clsbluesky.law.columbia.edu/2013/02/01/gone-with-the-wind-small-ipos-the-jobs-act-and-reality/>; Elisabeth de Fontenay, *The Deregulation of Private Capital and the Decline of the Public Company*, 68 HASTINGS L.J. 445 (2017); George S. Georgiev, *The Breakdown of the Public-Private Divide in Securities Law: Causes, Consequences, and Reforms*, 18 N.Y.U. J.L. & BUS. 221, 224–25, 264 (2021) (deregulatory cascade); Committee on Capital Markets Regulation, *Interim Report* (2006). See *supra* sources cited in note 11.

¹⁵ Regulation D, Rule 504, 17 C.F.R. § 230.504. However, we are unaware of any tallying of how much money was freed for investment by this loosening. Much of the private investment flow still comes from institutional investors, we understand, and they were exempt before the rules changed.

¹⁶ National Securities Markets Improvement Act of 1996, 1996 Enacted H.R. 3005, 104 Enacted H.R. 3005, 110 Stat. 3416; Michael Ewens & Joan Farre-Mensa, *The Deregulation of the Private Equity Markets and the Decline in IPOs*, 33 REV. FIN. STUD. 5463 (2020) (attributing a central role to the decline in IPOs to the National Securities Markets Improvement Act of 1996—a major deregulation of private stock investments). Jumpstart Our Business Startups Act ("JOBS Act"), Pub. L. No. 112-106, § 501; Fixing America's Surface Transportation Act ("FAST Act"), Pub. L. No. 114-94.

The better flow of private capital to private firms mitigates the economy-wide costs of burdensome regulation. Even if smaller public firms are burdened, private firms can now better step in to take their place.

¹⁷ Only one commissioner pointed to an I.O. Hypothesis as important. Allison Herren Lee, Comm'r, SEC, Remarks at The SEC Speaks in 2020: Investing in the Public Option: Promoting Growth in Our Public Markets (Oct. 8, 2020), <https://www.sec.gov/news/speech/lee-investing-public-option-sec-speaks-100820> ("Some research suggests that small companies may find it more beneficial to be acquired by a larger company in the same industry rather than going public; the resulting economies of scale and scope may produce greater returns than the company could expect to generate organically on its own.").

commissioners emphasize the regulatory burdens on the public firm. Democratic commissioners generally emphasize the loosened regulation on private firms.¹⁸ While the two seem at loggerheads, they have much in common. They both put corporate securities law front and center as explaining the declining number of public firms.

3. *How high is the stock market?* An additional explanation—popular in financial circles—is that more firms go public when the stock market’s price/earnings ratio is high, such that the stock market is a better source of financing for private firms than loans or private investments. That is, firms finance themselves from competing sources: bank loans, the bond market, private investors, and the stock market. Sometimes one source is less expensive, until markets even things out. When the stock market is a better source of funding—because investors have pushed up the price of stock while borrowing is still comparatively expensive—owners of private firms sell stock into the public stock market. In contrast, when the stock market is low, owners do not want to give buyers a bargain. They stay private.

Sometimes the entire stock market is attractive, sometimes a particular industry is. “IPOs come to market when their industry is ‘overvalued’ relative to the rest of the market.”¹⁹ Analysts say that when the stock market appears preferable to private investors, a window of opportunity opens to sell stock to the public. Those sales then swell the number of public companies.²⁰ When the stock market is less attractive, fewer private firms go public, more stay private, and the number of public companies declines.

Commissioner Robert Jackson advanced a thesis based on the organization of the IPO industry. Firms pay a fixed rate when going public, typically 7% of the value of the stock sold. This rate is not negotiated but can be seen as arising from investment bank cartel pricing. This is smaller than the percentage paid to manage the sale of the entire firm. Robert J. Jackson, Jr., Comm’r, SEC, Remarks at the Greater Cleveland Middle-Market Forum: The Middle-Market IPO Tax (Apr. 25, 2018), <https://www.sec.gov/news/speech/jackson-middle-market-ipo-tax>; Suan-Chi Chen & Jay R. Ritter, *The Seven Percent Solution*, 55 J. FIN. 1105 (2000). A related idea is that with the concentration of investment in big investment houses—BlackRock, Vanguard, Fidelity, and State Street—the investment houses’ own economies of scale demand that the absolute size of their investments be such a large portion of the stock of a small, just-recently public firm, that the investment house prefers not to be bothered. Marshall Lux & Jack Peard, *Hunting High and Low: The Decline of the Small IPO and What to Do About It* (Harv. Kennedy School M-RCBG Associate Working Paper Series No. 86, Apr. 2018), hks.harvard.edu/sites/default/files/centers/mrcbg/working_papers/86_final.pdf.

¹⁸ Appendix Table 1A.

¹⁹ Raghuram Rajan & Henri Servaes, *The Effect of Market Conditions on Initial Public Offerings, in VENTURE CAPITAL CONTRACTING AND THE VALUATION OF HIGH-TECH FIRMS* 437, 456 (Joseph McCahery & Luc Renneboog, eds. 2003) (more IPOs when the already-public firms in that industry have high market-to-book multiples); Tim Loughran & Jay R. Ritter, *New Issues Puzzle*, 50 J. FIN. 23, 46–47 (1995) (IPO volume is highest near peaks in market price).

²⁰ James C. Brau, *Why Do Firms Go Public?* in *THE OXFORD HANDBOOK OF ENTREPRENEURIAL FINANCE* 477–78 (Douglas Cumming, ed., 2012); Roger G. Ibbotson & Jeffrey F. Jaffe, *Hot Issues’ Market*, 30 J. FIN. 1027, 1027 (1975) (more firms go public when there’s a “hot issue” market); Scott Orn, *What is the IPO Window?*, Kruze Consulting (Feb. 23, 2022), <https://kruzeconsulting.com/blog/ipo-window/> (“If the stock market goes up, and people have money to invest and a greater appetite for risk, the IPO window is open.”); Josh Lerner, *Venture Capitalists and the Decision to Go Public*, 35 J. FIN. ECON. 293, 300–04 (1994) (venture capitalists “take companies public when their valuations are at their absolute . . . peak”); Jay R. Ritter, *The Long-Run Performance of Initial Public Offerings*, 46 J. FIN. 3, 19–20 (1991) (IPOs are overpriced because, when public stock market investors are overoptimistic about the prospects for growing private companies, these firms go public to take advantage of the high-price opportunity).

When is the stock market relatively attractive, compared to financing via private investment, bank borrowing, or the bond market? Investor sentiment can drive the stock market up. A bull market values stock excessively. Owners who perceive a window of opportunity to sell stock at favorable prices will often go public, even if their firm needs no significant new financing.²¹

This Finance Explanation, however, cannot explain the quarter-century decline in the number of public firms well. From 1996 onward, the stock market's valuation of earnings rose overall (although with ups and downs).²² That overall rise would, if it were the only factor in play, have induced *more* public firms. But in 1996, the number of U.S. public firms started its quarter-century decline.

Overall, the financial trends of the past quarter-century would have predicted and pushed *more* firms to go public, not fewer. Something must be offsetting the upward push of the Finance Explanation.²³

II. BUT THE PUBLIC FIRM SECTOR HAS NOT HALVED IN SIZE

To recap: In Part I, we confirmed the conventional wisdom that the number of public firms fell precipitously—declining by half in the 25 years since 1996. And we recapitulated the conventional explanations: doing business as a public firm became more expensive due to burdensome regulation, and staying private no longer means poor access to capital. An easy potential implication is that the public firm sector is becoming less important, or has even been eclipsed.

In this Part II, we challenge the concept that the public firm is disappearing, or even that the sector is shrinking. The public firm's business and economic role is as strong as ever. This strength can be seen first in aggregate data on stock market value—the total value of all public firm stock has been steadily rising: public firms' total value is now *more than double* the economy's annual output. It was less than half that year's output back in 1990. The strength can be seen in the public firm sector's overall profits, revenues, investment, and employment levels—all increasing. The one major measure of decline is in the *number* of public firms, *not* in the firms' total economic weight.

The public firm sector is bigger than ever.

²¹ See Rajan & Servaes, *supra* note 19, at 454 (“firm managers and investment bankers will bring IPOs to market when sentiment is high”). In a perfectly efficient financial market, we note, any advantage in one channel should lead the other channels to adjust quickly.

²² Shiller PE Ratio, <https://www.multpl.com/shiller-pe> (last accessed Sept. 4, 2022).

²³ The Finance Explanation is potentially still relevant: If something else powerfully pushed the number of firms *down*, then the rising valuation of earnings could have offset some of the powerful downward pressure. But the Finance Explanation cannot explain the *decline* in the number of firms. Something else must be in play.

A. Public Firms Are Bigger, Fewer, and Growing in Economic Power

While the *number* of public firms plummeted during the past quarter-century, their aggregate *value* has not. In 1990, the total value of U.S. stock market capitalization was \$2.7 trillion, or about half of that year's GDP. By 2021, the total capitalization had risen to \$50 trillion, or *twice* that of 2021 GDP. Public firms are by this measure four times as important today as they were in 1990. Figure 3 illustrates.

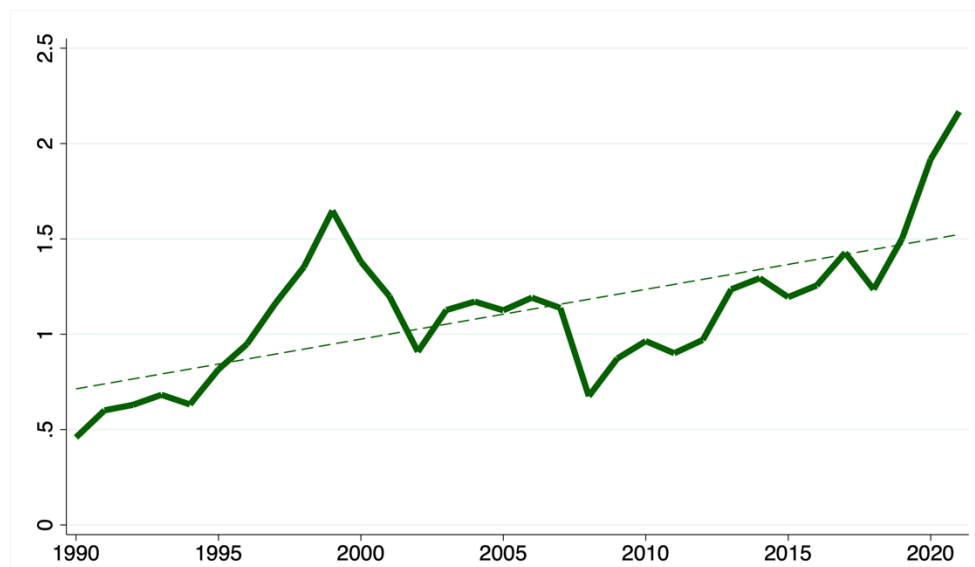


Figure 3. Rising Total Stock Market Capitalization to GDP, 1990–2021²⁴

This figure shows the total value of the stock market steadily rising in the past three decades. The value of each company is obtained by multiplying the trading value of a share of stock by the number of the company's shares. Total stock market capitalization is obtained by adding the value of each company.

Stock market capitalization is an imprecise measure, however. If interest rates fall, the stock market usually rises; and interest rates have, until recently, been low. If the stock market is excessively optimistic about future profits—if it's frothy, or in a bubble—stock values will be high. Hence, are there other measures of public firms' presence in the economy—profits, revenues, investment, employment? And do they confirm or undercut Figure 3? We examine these measures next.

²⁴ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com> [<https://perma.cc/8WM8-MRHT>].

B. Trends for Public Firms' Profits, Revenues, and Investment: All Are Rising

Consider profits. When the number of public firms peaked in 1996, their total profits constituted 4.5% of gross domestic product. Despite their ensuing decline in number, their aggregate profits not only *rose*, but rose faster than the economy grew. By 2021, public firm profits as a portion of the economy had just about *doubled* to 8.3% of that year's economic production. Doubled profits is not a sign of a shrinking public firm sector.²⁵



Figure 4. Rising Public Firms' Net Income as a Proportion of GDP, 1990–2021²⁶

This figure adds together the income of each public company to obtain the total income of public companies in each year. While there are ups and downs, this total profit has been rising as a proportion of the country's annual economic output.

²⁵ We used net income to measure profit. We checked other measures of profit (earnings before income tax and, also, earnings before income taxes, depreciation, and amortization). The rising trend persisted. We also checked Figure 3—total stock market capitalization's rise—against the trend for enterprise value. Total enterprise value adds the total value of the firm's debt to that of its stock because debt is also a promised return to capital owners. If debt rose or fell sharply during the period, the trend for enterprise value could have differed from that for stock market capitalization. It did not differ. The total enterprise value of public firms rose sharply from 1990 to 2021.

We checked whether changing tax rates accounted for the rise in public firms' net (after-tax) income by also looking at the change in pre-tax profit. In 1996, public firms' pretax income was 7.3% of GDP and rose to 10.3% of GDP by 2021.

²⁶ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com>.

How about investment levels? One worry in recent years has been that public firms are investing less than before.²⁷ If public firms are becoming fewer, then those fewer firms might invest less, making them less important.

Investment is more than just capital spending to buy hard assets—equipment, inventory, and factories. Investment includes spending on research and development and, increasingly, on intangible assets, like product brands. Figure 5 measures public firms' spending on both hard assets and R&D. In 1990, this spending amounted to just over 6% of that year's GDP. If declining investment tracked the declining number of firms, public firm investment would amount to only half, i.e., 3% of GDP by 2021. But that's not what happened. The 30-year trend line slopes slightly upward and, as the number of public firms diminished, the fewer but bigger remaining firms invested about the same amount, 6.6% of GDP in 2021.²⁸

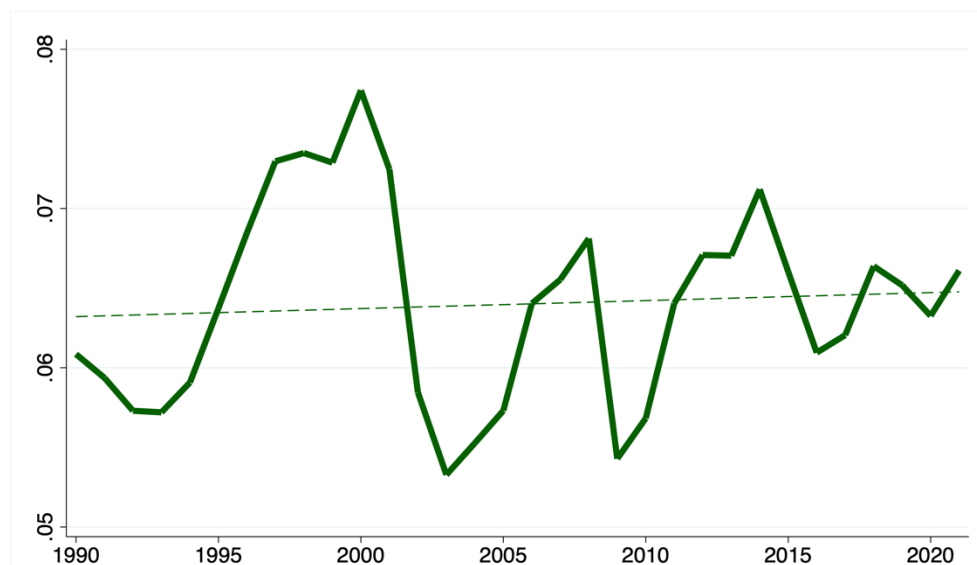


Figure 5. Rising Public Firm Total Investment (Capital Expenditure and R&D) as a Proportion of GDP, 1990-2021²⁹

²⁷ THOMAS PHILIPPON, *THE GREAT REVERSAL: HOW AMERICA GAVE UP ON FREE MARKETS* 63 (2019); Fangjian Fu et al., *Why Do U.S. Firms Invest Less Over Time?* China Int'l Conference Fin. 1 (2015).

²⁸ From the peak in the number of firms in 1996, investment was approximately flat, slipping from 6.86% of GDP to 6.1% of GDP. We used other measures of investment (capital spending alone, and capital spending with R&D and with selling, general, and administrative expenses). The results were the same.

²⁹ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com>. Cf. Brian R. Cheffins, *Rumours of the Death of the American Public Company are Greatly Exaggerated*, 40 *COMPANY LAW*. 1, 6 (2019); Georgiev, *supra* note 14; Alperen A. Gözllüçöl, Julian Greth & Tobias H. Tröger, *The Oscillating Domains of Public and Private Markets* (working paper, 2022).

Although the number of public firms declined from 7,000 in 1996 to fewer than 4,000 in 2021, their total investment, measured by adding together capital spending and R&D spending, rose, and the total rose faster than the economy was growing.

What about revenues? Public firms' revenues rose, keeping pace with the growth of the economy. Figure 6 tabulates the result. In the first and last years of the past quarter-century, public firms' revenues represented about 80% of each year's GDP. (And these firms became twice as profitable with the same revenue base.)

How about employment? Employment has also been rising. Figure 7 illustrates.³⁰

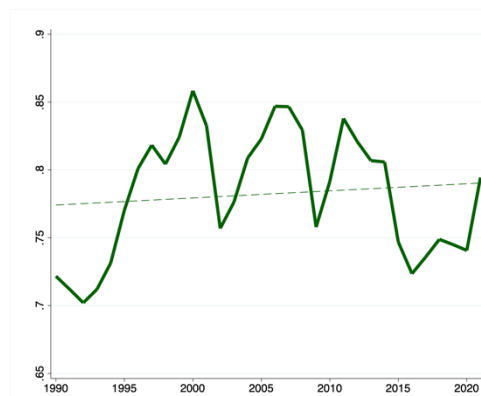


Figure 6. Public Firms' Rising Revenues as a Proportion of GDP, 1990-2021

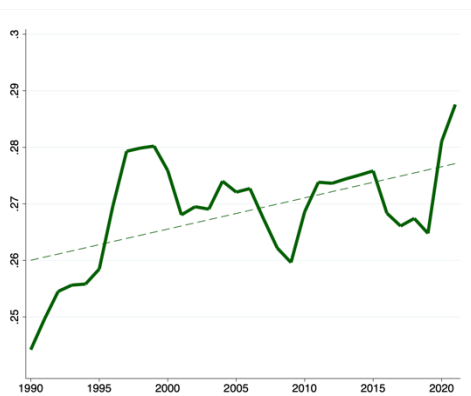


Figure 7. Public Firms' Rising Employment as a Proportion of Total U.S. Non-Farm Employment, 1990-2021

³⁰ But see Frederik Schlingemann & René Stulz, *Have Exchange-Listed Firms Become Less Important for the Economy?* 143 J. FIN. ECON. 927, 934 (2022). Schlingemann and Stulz find declining employment in the public firm sector, when compared to the 1970s. Most of the decline occurred between the 1970s and 1990. Manufacturing is less important to the American economy today than back then, when basic manufacturing employed many and many large manufacturers were public companies. Service firms are often not listed or public, and service industries have become more important to the economy. The authors find public firm employment from 1990 to 2019 to be roughly stable as a percentage of total US employment. But public firms did globalize and some of that employment growth was outside the U.S. Even if we exclude all non-U.S. employees, employment declined by 20%, not the 50% post-1996 decline of the number of firms. I.e., even with the most stringent notion of employment, the decline in the number of firms was 2½ times larger than the decline in employment.

Measuring total revenues of the public firm sector, as we do in Figure 6, risks a distortion. If A sells to B for \$1 million, and B improves the product and sells to C for \$2 million, and C sells to the public for \$3 million, total revenue of the A-B-C sector would be recorded at \$6 million, even though final sales are \$3 million. If supply chain length is roughly constant over time, Figure 6 remains relevant in showing that the public sector's total business increased over time. But if the A, B, C sequence added another intermediate step—a D that added further value—then revenue would be recorded as rising even though the sector's business didn't really increase.

Two considerations are relevant. First, the number of public firms decreased during this era, which would tend to tighten the supply chain. Secondly, each measure that we study imperfectly indicates whether the public firm sector is shrinking. But we show that every measure other than the raw number of firms—market capitalization, income, revenues, employment—points to a public firm sector that is not shrinking.

Collectively, Figures 3 through 7 do not paint a picture of a declining, weakening, or shrinking public firm sector. The public firms have diminished in number since their 1996 peak, but not in their aggregate value, profit, investment, sales, and employment. This is the central finding of this Article.

III. THE POTENTIAL REAL ECONOMY, INDUSTRIAL ORGANIZATION EXPLANATIONS

Part II showed that while the number of firms is plummeting, these firms became bigger individually, worth more collectively, and more profitable overall. In the aggregate, the nearly 4,000 public firms in 2022 play an economic role *greater* than that played by the more than 7,000 firms that were public in 1996. The Legal Explanation explains this aggregate trend poorly.

We explore in this Part III “real economy” aspects of the public firm that could explain this package of trends. We in particular examine an Industrial Organization Hypothesis, but also the possibility that the lower number is a reversion to a prior stable but lower number of firms, governance improvements in public and private firms, and the impact of international competition. We do not intend to, and maybe cannot, fully evaluate any of these channels and then weigh their import against the Legal Explanations. We instead outline a research agenda, show how these real economy pressures could explain the reconfigured public firm sector, and offer some limited evidence that supports (or rejects) each real economy explanation.

We seek to explain two phenomena: first, the reconfigured public firm sector of the past quarter-century as a package of rising profit, rising value, and declining number; and, second, the declining count in the number of public firms as a freestanding change. The I.O. Hypothesis can explain the nature of the public firms’ continued importance and reconfiguration better than the Legal Explanation. And, even if the changing count in the number of public firms were fully independent of the overall reconfiguration, each hypothesis—the Legal Explanations and the Real Economy, Industrial Organization Hypotheses—could contribute to explaining the change.

Fundamentally, the public firm sector is as big as ever but differently configured. Here in Part III we explore why that is.

A. Industrial Organization and Antitrust

While many economists see concentration as having increased markedly in recent decades, analysts differ on why. Some major academic work³¹ and many antitrust

³¹ Gustavo Grullon, Yelena Larkin & Roni Michaely, *Are US Industries Becoming More Concentrated?* 23 REV. FIN. 697, 697 (2019) (“Since the late 1990s, over 75% of US industries have experienced an increase in concentration”); Philippon, *supra* note 27; Lawrence J. White & Jasper Yang, *What Has Been Happening to*

policymakers³² see competition as declining as industry became more concentrated. The proponents of the antitrust view point to rising corporate profits that are not competed away, rising markups (as firms free from tight competition sell for a higher multiple of their costs),³³ and declining dynamism.³⁴ “Profits have risen as a share of GDP. This [rise] . . . points to a [parallel] rise in . . . excess profits earned by firms whose positions are protected by high barriers to entry. . . . [One wonders] why competitive forces have not (yet?) . . . erod[ed] these profits.”³⁵

Multiple policymakers, media proponents, and some academic analysts blame rising industrial concentration on weakened antitrust policy. They particularly blame the 1980s weakening of merger guidelines,³⁶ leading the Federal Trade Commission and the Department of Justice’s Antitrust Division in 2022 to consider restrengthening them.³⁷ These two government units were motivated by “recent evidence . . . that many industries across the economy are becoming more concentrated and less competitive.”³⁸

Aggregate Concentration in the U.S. Economy in the Twenty-First Century?, 38 CONTEMP. ECON. POL’Y 483, 483 (2020) (“[A]ggregate concentration . . . appears to have risen moderately but steadily since the mid-1990s.”).

³² See COUNCIL OF ECON. ADVISERS, BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER 1 (2016), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf [<https://perma.cc/3XR8-QCCM>]. The weakened antitrust explanation is more popular in policymaking, political, and media circles than it is in academic work.

³³ See Jan De Loecker, Jan Eeckhout & Gabriel Unger, *The Rise of Market Power and the Macroeconomic Implications*, 135 Q. J. ECON. 561, 561 (2020) (markups rose “from 21% above marginal cost [in 1980] to 61% [in 2020]”); Philippon, *supra* note 27, at 54 (profits are a steeply rising share of GDP); Carl Shapiro, *Protecting Competition in the American Economy: Merger Control, Tech Titans, Labor Markets*, 33 J. ECON. PERSPS. 69, 70–71 (2019); Robert E. Hall, *Using Empirical Marginal Cost to Measure Market Power in the US Economy* (Nat’l Bureau of Econ. Rsch., Working Paper No. 25251, 2018), <https://www.nber.org/papers/w25251> [<https://perma.cc/B7MM-5PUR>].

³⁴ Philippon, *supra* note 27, at 9–10, 51–56; Shapiro, *supra* note 33, at 70–72.

³⁵ Carl Shapiro, *Antitrust in a Time of Populism*, 61 INT’L J. INDUS. ORG. 714, 737 (2018). An aside: increased concentration need not reduce the number of firms. This feature is well-analyzed in industrial organization writing. An abstraction shows why: Posit an economy with ten industries divided among 20 firms, each of which has 5% of each industry. There is good competition and low concentration in every industry. Each firm is in 10 industries, with 5% of each market. Each of the 20 firms then spins off their Industry #1 division into separate firms. Those separate firms merge. We then have 21 firms, but they’re less competitively structured, because there’s now one monopoly. More firms, less competition. Each of the 19 large firms is about 5% smaller.

While important in theory and for some industries, this scenario fits badly with overall trends. Firms are getting larger *and* more focused on fewer industries. David Autor, David Dorn, Lawrence F. Katz, Christina Patterson & John Van Reenen, *The Fall of the Labor Share and the Rise of Superstar Firms*, 135 Q.J. ECON. 645, 650, 665 (2020) (“rise in sales concentration within four-digit industries across the vast bulk of the U.S. private sector, reflecting the increased specialization of leading firms on core competencies and large firms getting bigger”). The prior paragraph’s scenario has more focus but 19 smaller firms—inconsistent with the actual U.S. trend. *Id.*

³⁶ Orley Ashenfelter, Daniel Hosken & Matthew Weinberg, *Did Robert Bork Understate the Competitive Impact of Mergers? Evidence from Consummated Mergers*, 57 J.L. & ECON. S67, S68–S69 (2014); Gilbert B. Becker, *The U.S. Horizontal Merger Guidelines After One Half Century: Three Steps Forward and One Step Back*, 63 ANTITRUST BULL. 137, 140–41 (2018).

³⁷ Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers (Press Release, Jan. 18, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/01/federal-trade-commission-justice-department-seek-strengthen-enforcement-against-illegal-mergers> (“agencies launch joint public inquiry aimed at modernizing merger guidelines to better detect and prevent anticompetitive deals”).

³⁸ *Id.*

The FTC chair says that “decades of mergers have been a key driver of consolidation.”³⁹ The Attorney General and the head of the Justice Department’s Antitrust Division think that “too many industries have become too consolidated over time.”⁴⁰ Between 1996 and 2020, approximately 4,000 mergers between public firms occurred. Recall that in 1996 we had 7,000 firms. The 4,000 public-public mergers amount to the decline in the number of public firms.⁴¹

B. Industrial Organization and a New Winner-Take-All Organization of Business

A lax antitrust explanation has a progressive appeal that could modulate some (progressive) SEC commissioners’ thinking, especially those who see the public firm as embodying public, social values.⁴² The weakened antitrust explanation for fewer but bigger firms is more prominent in liberal policymaking circles and media than it seems to be in academic analysis. But there is a close cousin to the antitrust I.O. explanation—one that does not rely on weakened antitrust enforcement.

Consider rising economies of scale, extended networks, and the growing importance of winner-take-all skill, foresight, and industry success. Each can reduce the number of public firms.

1. *The new networks.* Increased concentration might be efficient and the result of intensified competition.⁴³ New technologies, frequently sheltered by patent protection,

³⁹ Statement of Chair Lina M. Khan Regarding the Request for Information on Merger Enforcement (Fed. Trade Comm’n, Jan. 18, 2022), <https://www.ftc.gov/legal-library/browse/cases-proceedings/public-statements/statement-chair-lina-m-khan-regarding-request-information-merger-enforcement>. Antitrust policymakers’ view may be incorrect. The loosened antitrust might have correctly reversed an overly stringent policy. But the loosening could still have accounted for the diminishing number of firms, rising profits, and rising value of the public firm sector.

⁴⁰ Merrick B. Garland, Att’y Gen., Remarks at the Roundtable on Promoting Competition and Reducing Prices in the Meatpacking Industry (Jan. 3, 2022), <https://www.justice.gov/opa/speech/attorney-general-merrick-b-garland-delivers-remarks-roundtable-promoting-competition-and>; Ass’t Att’y General Jonathan Kanter Delivers Remarks on Modernizing Merger Guidelines (Jan. 18, 2022), https://www.justice.gov/opa/speech/assistant-attorney-general-jonathan-kanter-delivers-remarks-modernizing-merger-guidelines#_ftnref2.

⁴¹ B. Espen Eckbo & Markus Lithell, Merger-Driven Listing Dynamics 8–9 (ECGI Finance Working Paper No. 752, Jan. 2022), www.ssrn.com/abstract=3547581; Gabriele Lattanzio, William L. Megginson & Ali Sanati, Dissecting the Listing Gap: Mergers, Private Equity or Regulation (SSRN working paper, 2022), www.ssrn.com/abstract=4198755. We obtain similar public firm merger counts. Appendix Table 3 (upper panel). Eckbo and Lithell also show that the total number of public firm acquisitions (i.e., including their acquisitions of private companies) amounted to 8,000 acquisitions. Eckbo & Lithell, *supra*, at 8. Had these firms stayed separate and all gone public—not plausible overall—there would have been 15,000 public firms.

⁴² Donald Langevoort, *The Effects of Shareholder Primacy, Publicness, and “Privateness” on Corporate Cultures*, 43 SEATTLE U. L. REV. 377 (2020); Hillary A. Sale, *The New “Public” Corporation*, 74 LAW & CONTEMP. PROBS. 137 (2011); Donald C. Langevoort & Robert B. Thompson, “Publicness” in Contemporary Securities Regulation after the JOBS Act, 101 GEO. L.J. 337 (2013). See also GERALD F. DAVIS, THE VANISHING AMERICAN CORPORATION 87–88 (2016); JOHN KENNETH GALBRAITH, THE NEW INDUSTRIAL STATE (1967, rev. ed. 1985).

⁴³ Susanto Basu, *Are Price-Cost Markups Rising in the United States? A Discussion of the Evidence*, 33 J. ECON. PERSP. 3, 3 (2019) (“industrial concentration can [come from] more efficient firms . . . gain[ing] market share”); Shapiro, *supra* note 33, at 72, 79–80; John Van Reenen, Increasing Differences between Firms: Market Power and the Macroeconomy (Aug. 31, 2018), www.kansascityfed.org/~media/files/publicat/sympos/2018/papersandhandouts/jh%20john%20van%20reenen%20version%202020.pdf.

often allow only one firm in an industry.⁴⁴ Other monopolies arise from network platforms whose operating costs decline greatly for a firm that services all consumers or where the value that users derive from the platform increases if there are more users on the same network.⁴⁵ Facebook is an archetypal network monopoly.⁴⁶

FTC commissioners emphasize the importance of network effects on increasing economic concentration.⁴⁷ “[N]etwork effects can ... create lock-in, path dependence, and high barriers to entry ... because most or all of the market may eventually ‘tip’ to an incumbent who can only be dislodged by a superior product or a significant cost advantage.”⁴⁸ The very structure of technological markets, therefore, said another FTC commissioner, may make them “more susceptible to consolidation of market power.”⁴⁹

2. *Scale economies.* Others see much of the new concentration as resulting from old-fashioned economies of scale⁵⁰ with high fixed costs.⁵¹

⁴⁴ Autor, Dorn, Katz, Patterson & Van Reenen, *supra* note 35, at 703 (“technological dynamism, rather than simply anti-competitive forces, is an important driver”); Ufuk Akcigit & Sina T. Ates, *What Happened to U.S. Business Dynamism?* at 3 (Nat’l Bureau Econ. Rsch. Working Paper No. 25756, 2019), <https://www.nber.org/papers/w25756> [<https://perma.cc/AEP6-HAH4>] (slowing of knowledge diffusion from leading to laggard firms has slowed dynamism); EDMUND PHELPS ET AL., DYNAMISM: THE VALUES THAT DRIVE INNOVATION, JOB SATISFACTION, AND ECONOMIC GROWTH (2020).

⁴⁵ Steven Berry, Martin Gaynor & Fiona Scott Morton, *Do Increasing Markups Matter? Lessons from Empirical Industrial Organization*, 33 J. ECON. PERSPS. 53–54, 56 (2019); James E. Bessen, *Information Concentration and Information Technology* (B.U. Sch. L., Law & Econ Paper No. 17-41, 2017), https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=1269&context=faculty_scholarship [<https://perma.cc/M9EX-8MRV>]; Patrick Barwise & Leo Watkins, *The Evolution of Digital Dominance: How and Why We Got to GAFAs*, in DIGITAL DOMINANCE: THE POWER OF GOOGLE, AMAZON, FACEBOOK, AND APPLE 21, 26 (Martin Moore & Damian Tambini eds., 2018).

⁴⁶ Dina Srinivasan, *The Antitrust Case Against Facebook: A Monopolist’s Journey Towards Pervasive Surveillance in Spite of Consumers’ Preference for Privacy*, 16 BERKELEY BUS. L.J. 39, 90–92 (2019).

⁴⁷ Christine S. Wilson, Comm’r, FTC, Address at CCIA Conference on Competition, Data, and Innovation in the Digital Economy: All (Industries) in the Same Boat: Staying the Course on the High Seas of High Tech (Mar. 28, 2019), https://www.ftc.gov/system/files/documents/public_statements/1512148/wilson_remarks_ccia_3-28-19.pdf (“online markets typically [are] susceptible to ‘tipping’ toward one dominant firm”); *The Role of Data and Privacy in Competition: Hearing on Online Platforms and Market Power Before the Subcomm. on Antitrust, Commercial and Administrative Law of the H. Comm. on the Judiciary*, 116th Cong. (2019) (testimony of Rohit Chopra, Comm’r, FTC), www.ftc.gov/system/files/documents/public_statements/1549812/chopra_testimony_at_hearing_on_online_platforms_and_market_power_part_3_10-18-19.pdf (“an unregulated market [for data-intensive digital platforms] is likely to tip toward a handful of platforms As more users join ... , it becomes even more valuable”); Edith Ramirez, Chair, FTC, Remarks at the 42nd Annual Conference on International Antitrust Law and Policy, Fordham Law School (Oct. 2, 2015), https://www.ftc.gov/system/files/documents/public_statements/810851/151002fordhamremarks.pdf (“network effects may lead to increased concentration ...”). Again, the popularity among FTC policymakers can be brought forward for the truth of the proposition or in contrast to thinking about similar issues at the SEC.

⁴⁸ Noah Joshua Phillips, Comm’r, FTC, Remarks at the Hudson Institute, We Need to Talk: Toward a Serious Conversation About Breakups (Apr. 30, 2019), www.ftc.gov/system/files/documents/public_statements/1517972/phillips_-_we_need_to_talk_0519.pdf.

⁴⁹ Terrell McSweeney, Comm’r, FTC, Remarks at the 2016 Taiwan International Conference on Competition Policy: A U.S. Enforcer’s Perspective: Protecting Competition and Promoting Innovation (June 29, 2016), www.ftc.gov/system/files/documents/public_statements/973233/mcsweeney_-_tftc_keynote_6-29-16.pdf.

⁵⁰ Berry et al., *supra* note 45, at 45 (“higher fixed (or sunk) costs can lead to fewer firms in a market, which can result in softer competition, higher prices, and reduced consumer welfare”).

⁵¹ *Id.*, at 54.

Steeply rising economies of scale are making firms bigger, according to several mainstream economic analyses, but these bigger firms compete, albeit on a larger scale. The cost of today's upfront investment, in this understanding, is a higher fraction of a product's final value than it used to be. More costs today are embedded in the big initial investment in factories, patents, and organizational capital.⁵² This is a common explanation for the increasing size and concentration of American firms.⁵³ If the larger efficient scale means the industry can only support three firms instead of six, then the industry will be more concentrated—and there will be fewer public firms. Competition today, in this view, demands scale and high markups.⁵⁴

Closely related are ideas that small firms today can develop a new technology better than a large public firm, but if they do find a successful technology, they must get big fast to profit from having found the new technology.⁵⁵ Jay Ritter, an expert on the IPO process, has brought this idea forward in several venues. Once the private firm has a viable product, it has reason to sell the product—or the firm or the technology—to a large public company, which then manages regulatory approvals, manufacturing, marketing, and distribution—tasks that the small firm cannot readily handle. Pharmaceuticals are particularly in need of this process. New drug development has become more science-intensive. People with the science skills often lack the organizational skills needed to manufacture and distribute their discovery.⁵⁶

3. *Skill, foresight, and industry.* The third efficiency explanation is technological. Firms succeed, now more than ever, by their competitive skill, foresight, and industry in coming up with a better product, a better patent, or a better industrial secret that garners most of the market.⁵⁷ Superstar firms emerge from winner-take-all competition.⁵⁸

4. *International competition.* From the 1980s onward, intense international competition in manufacturing, principally coming from East Asian, particularly Chinese, manufacturers hit American firms. It damaged the business of firms large and

⁵² Basu, *supra* note 43, at 9; JONATHAN HASKEL & STIAN WESTLAKE, *CAPITALISM WITHOUT CAPITAL: THE RISE OF THE INTANGIBLE ECONOMY* 240 (2017). A response is in De Loecker et al., *supra* note 33, at 603.

⁵³ Berry et al., *supra* note 45, at 48, 54.

⁵⁴ Cf. Chad Syverson, *Macroeconomics and Market Power: Context, Implications, and Open Questions*, 33 J. ECON. PERSP. 23, 27 (2019) (“reductions in trade, transport, or search costs . . . shift[] activity away from smaller, higher-cost producers and toward larger, lower-cost producers”).

⁵⁵ E.g., Xiaohui Gao, Jay R. Ritter & Zhongyan Zhu, *Where Have All the IPOs Gone?* 48 J. FIN. & QUANTITATIVE ANAL. 1663 (2013).

⁵⁶ Cf. Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration*, 109 COLUM. L. REV. 431 (2009).

⁵⁷ Bessen, *supra* note 45, at 2–3; James Traina, *Is Aggregate Market Power Increasing?* 16 (Stigler Ctr., Working Paper No. 17, 2018), <https://pdfs.semanticscholar.org/8059/7e4e80edebd66d3eef57e28d324623ad9ee0.pdf> [<https://perma.cc/TP6C-LEYW?type=image>].

⁵⁸ Autor et al., *supra* note 35, at 649. A related I.O. explanation is that the rising importance of intangibles and technological capacity is changing the relative efficiency of going public for technological firms. For more new firms, close ownership and direct information flows to stockholder-owners could be especially important. Disclosure obligations could be more costly for such firms. On the latter, see Daria Davydova, Rüdiger Fahlenbrach, Leandro Sanz & René M. Stulz, *The Unicorn Puzzle* (working paper, Nov. 2022), www.ssrn.com/abstract=4255165.

small. Many small public firm manufacturers presumably could not survive.⁵⁹ (This too is a real economy, industrial organization effect, not a securities regulation effect.)

5. *Separating evidence.* Several trends are consistent with both the I.O. Hypotheses and the Legal Explanations. But if it's the overall change in the past quarter-century that needs to be explained—fewer public firms that are bigger and more profitable—the Legal Explanations take a backseat to the I.O. Hypotheses. The Legal Explanation cannot explain the combination; the I.O. Hypotheses can.

The I.O. Hypothesis predicts that larger, typically public companies have been better able to capture extra profit over time due to their ability to reap the benefits from economies of scale or to drive out competition.⁶⁰ In Figure 4, we saw the quarter-century trend of public firms' profit rising faster than the economy was growing. That trend of rising profit, larger firms, and fewer firms is consistent with the I.O. Hypothesis but not the Legal Explanation. Further, the I.O. Hypothesis would, but the Legal Explanation would not, predict that public firms generated higher profit from the same amount of invested capital over time.⁶¹ This rise—profit going up more sharply than investment—has in fact occurred. Public firms have generated more profit per dollar invested, as recent work in finance indicates⁶² and which we confirm with new data in Appendix Figure 1. While Legal Explanations are consistent with some big firm trends (and, hence, cannot be ruled out), the I.O. Hypotheses explain more.

Several important works in finance conclude that U.S. mergers increased since 1996 much more than mergers in other economically advanced nations.⁶³ An American public firm was *three times more likely* to merge with another American public firm than was the case in Europe and Japan.⁶⁴ The finance researchers attribute the diminished

⁵⁹ See Robert Feinberg, *International Competition and Small-Firm Exit in US Manufacturing*, 39 EASTERN ECON. J. 402 (2013).

⁶⁰ Or assert monopsony power to their lower labor costs. See Simcha Barkai, *Declining Labor and Capital Shares*, 75 J. FIN. 2421, 2422 (2020); Autor et al., *supra* note 35 (concentration associated with large firms paying wages below employees' productivity). I.e., concentration allows firms to raise price and sometimes pay labor less. The declining labor share of national income could contribute to the rise in corporate profit of Figure 4. It fits well with the Industrial Organization Explanations.

⁶¹ When taking the same amount of risk. We note for clarity that our measure does not include the extra profit that a firm would make just by reinvesting its profit one year to make more the next year—compounding. Nor does it include the extra profit that on average accrues from taking more risk. The number we are looking at is what economists call excess "economic profit."

⁶² Cf. Dong Wook Lee, Hyun-Han Shin & René M. Stulz, *Why Does Equity Capital Flow Out of High Tobin's q Industries?* 34 REV. FIN. STUD. 1867 (2021) (firms whose stock price is relatively greater than its invested capital "receive[d] more funding from capital markets than [firms with relatively lower stock prices] from 1971 to 1996. Since then, the opposite is true. The key to understanding this shift is that large firms . . . have become more important within industries" and capital is flowing out from these large firms because they are investing less but earning more).

⁶³ Craig Doidge, Kathleen Kahle, G. Andrew Karolyi & René M. Stulz, *Eclipse of the Public Corporation or Eclipse of the Public Markets?* 30 J. APP. CORP. FIN. 8 (2018); Eckbo & Lithell, *supra* note 41; Lattanzio, Megginson & Sanati, *supra* note 41.

⁶⁴ Eckbo & Lithell, *supra* note 41, at 47 (fig. 8). The additional number of U.S. mergers above that foreign baseline accounts for most of the U.S. decline in number of public firms. *Id.*; Lattanzio, Megginson & Sanati, *supra* note 41.

Other corporate law features that are far afield from regulatory burdens are relevant for any international comparison. The corporate law mechanics of merging are straightforward in the United States, and perhaps easier than they were in the 1980s. The compensation parameters for senior executives now typically incentivize

number of American firms to 1000s of extra mergers. During the 7 years after the U.S. decline began, there were 300 public-public mergers annually; during the 7 years before the decline began, there were only 120 public mergers annually. The increase would account for 1,000 fewer firms. In addition, there were 1,540 more public firm acquisitions of private firms in the 7 years after the decline began in 1997 than there were before.⁶⁵ These two differentials account for about 2,500 of the 3,000-firm decline.

That high rate in itself does not separate the Legal Explanations from the I.O. Hypotheses because acquisitions of small firms fit with either explanation. But our inquiry here shows that the bulk of the post-1996 public firm mergers did not involve small capitalization firms (for which both explanations fit) but larger firms (for which the Legal Explanation fits poorly). Only about 950 of the 4,000+ public firm mergers since 1996 involved acquisitions of small public firms.⁶⁶ Large firms acquired many more other *large* firms than small firms. Figure 8 illustrates. Many public firms are disappearing because of mergers of America's largest public firms. Hence, a noticeable fraction of the excess U.S. mergers, and, hence, a noticeable fraction of the public firm reduction, fits badly with the Legal Explanation but well with the I.O. Explanation.

executives to favor more mergers, as mergers often allow them to monetize their stock options. Cf. Marcel Kahan & Edward B. Rock, *How I Learned to Stop Worrying and Love the Pill: Adaptive Responses to Takeover Law*, 69 U. CHI. L. REV. 871 (2002).

⁶⁵ An increase in the number of public firm acquisitions of private firms does not distinguish between the Legal Explanations and the I.O. Hypothesis. But the rate of private firm acquisitions by public firms *declined* slightly starting in 2003, when Sarbanes-Oxley kicked in. See Appendix Table 5. This is inconsistent with the primary Legal Explanation.

⁶⁶ Appendix Table 3, Size Distribution of Mergers of Public Companies, 1997–2021. Even among small firms (i.e., in the bottom 40% by stock market capitalization), the distribution fits poorly with the Legal Hypotheses. Acquisitions of the smallest 10% of firms (with a market capitalization under \$50 million) were no more frequent than those in the next larger 10% or the next larger 30%.

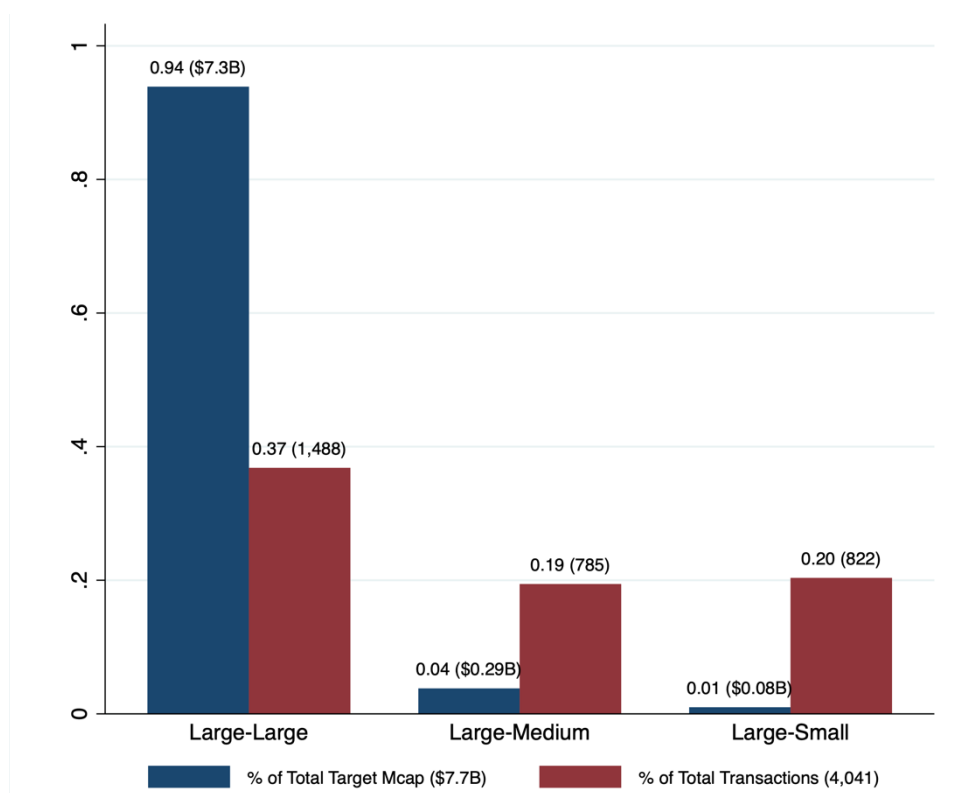


Figure 8. Large Firms Acquired More Large Firms than Small Firms, 1997-2021⁶⁷

This figure shows the size distribution of large firms' public firm acquisitions after 1996. The left-hand bar shows market capitalization of large firms' acquisitions of large, medium, and small public firms. The first number is their percentage of the total capitalization of all mergers and the second (in parentheses) is their 2021-dollar value. Not surprisingly, the total market capitalization of large firms merging with other large firms dominates the distribution. More surprising is that large firms' acquisitions of other large firms *also* dominate the *count* of the number of mergers (and, hence, of the number of public firms disappearing due to merger). As the red right-hand bar shows, large firms (defined as being within the top 40% by stock market capitalization) acquired *more* other large firms than small firms (defined as firms having the 40% lowest market capitalization)—nearly *twice* as many. (The numbers atop the red right-hand bars show the market capitalization of the acquisitions and (in parentheses) the number of acquisitions. For completeness, the middle bars show large firm acquisitions of medium firms (defined as in the middle 20% by stock market capitalization).) The loss of public firms by merger is not a phenomenon of large firms acquiring small firms. Large firms acquired 785 medium-sized public firms since 1996 and 1,488 large ones. Appendix Table 3 completes the picture (with medium- and small-firms own acquisitions). Recall that we are seeking to account for a drop in excess of 3,000 in the number of public firms. More than 2,500 of the mergers involved firms larger than the bottom 40% of public firms.

5. *Public policy contrasts.* Consider Washington policy announcements, not to discover the true reasons for the reconfiguration of the American public firm, but as a contrast with the SEC's perspective.

⁶⁷ Transactions come from Refinitive SDC Platinum (last accessed January 6, 2023). The size of the transactions (the left-hand bar) is denominated in 2021 inflation-adjusted dollars, with deflator obtained from The Federal Reserve Bank of St. Louis's Economic Database, at <https://fred.stlouisfed.org/series/GDPDEF> (last accessed December 31, 2022).

In 2022, the Democratic-controlled FTC signaled that it will challenge more mergers. That higher chance of an FTC challenge alone induced firms to forgo mergers that previously would have gone forward.⁶⁸ That presumably will dampen the decline in the number of public firms. Antitrust critics say that more of large public firms' many acquisitions in recent decades should have been challenged.⁶⁹

"Killer acquisitions" have been well-discussed in antitrust discourse.⁷⁰ Facebook's acquisitions of Instagram and WhatsApp are seen as instances of a powerful public company buying potential competitors before the upstarts are big enough to challenge the incumbent. The new FTC sued Facebook in 2021, claiming that Facebook's acquisition of both these companies was anticompetitive.⁷¹ Analysts said Facebook documents showed that the company "had a 'buy or bury' strategy whenever there was a competitive threat."⁷² In a 2012 email, Mark Zuckerberg (Facebook's founder and CEO) suggested in an email to Facebook's CFO that Facebook acquire Instagram and Path, another social networking app: "The businesses are nascent but the networks are established," he said, and "the brands are already meaningful and if they grow to a large scale they could be very disruptive to us. ... I'm curious if we should consider going after one or two of them."⁷³ Between 2013 and 2018, the five large American tech firms (Apple, Amazon, Facebook, Google and Microsoft) bought more than 300 small firms.⁷⁴

Such "killer acquisitions" help to explain the diminished number of public firms.⁷⁵

⁶⁸ Dave Michaels & Ryan Tracy, *FTC's Antitrust Posture Spurs Companies to Rethink Mergers*, WALL ST. J., Aug. 16, 2022, at A1.

⁶⁹ JONATHAN B. BAKER, *THE ANTITRUST PARADIGM: RESTORING A COMPETITIVE ECONOMY* 14–17 (2019); Colleen Cunningham et al., *Killer Acquisitions*, 129 J. POL. ECON. 649, 655 (2021) (big pharma alone accounts for about 50 killer acquisitions annually, in which the acquirer buys a small firm to shut down the target's research or its product); see also John M. Barrios & Thomas G. Wollmann, *A New Era of Midnight Mergers: Antitrust Risk and Investor Disclosures* 31 (Nat'l Bureau Econ. Rsch., Working Paper No. 29655, 2022).

⁷⁰ D. Daniel Sokol, *Merger Law for Biotech and Killer Acquisitions*, 71 FLA. L. REV. FORUM 1 (2020); Cunningham et al., *supra* note 69, at 649. Cf. D. Daniel Sokol, *Vertical Mergers and Entrepreneurial Exit*, 70 FLA. L. REV. 1357 (2018); C. Scott Hemphill & Tim Wu, *Nascent Competitors*, 168 U. PA. L. REV. 1879 (2020).

⁷¹ Complaint for Injunctive & Other Equitable Relief, *FTC v. Facebook, Inc.*, No. 1:20-cv-03590 (D.D.C. Jan 13, 2021).

⁷² Elizabeth I. Nielson, *Dislike: Facebook's Anticompetitive Monopoly on Social Media and Why U.S. Antitrust Laws Must Adapt to the Technological Era*, 75 SMU L. REV. F. 120, 137 (2022).

⁷³ FTC Complaint, *supra* note 71, at 26–27; Hemphill & Wu, *supra* note 70, at 1884–85.

⁷⁴ Brian R. Cheffins, *Rumours of the Death of the American Public Company are Greatly Exaggerated*, 40 COMPANY LAW. 1, 6 (2019), citing *Chicago Bears*, THE ECONOMIST, Apr. 28, 2018, at 62.

⁷⁵ We do not want to rely on the "killer acquisition" analysis as central, but as representative of antitrust thinking. Killer acquisitions' impact on *competition* does not require that there be many of them. But to explain the declining *number* of public firms, we need to explain why 3,500 public firms disappeared. And, killer acquisitions at a premium price remove some firms but then spur others to startup new companies, some of which go public. Gary Dushnitsky & D. Daniel Sokol, *Mergers, Antitrust, and the Interplay of Entrepreneurial Activity and the Investments that Fund It*, 24 VAND. J. ENT. & TECH. L. 255 (2022).

C. Reversion to a Prior Mean of Fewer Public Firms?

Discourse on the diminishing number of firms posits that it's the diminished number since 1996 that is abnormal.

An alternate interpretation is that the nonnormal development was the ballooning to 7,000 firms, not the subsequent decrease. But there is no vivid pre-1996 norm: the number of public firms had been steadily rising in the United States until 1996.⁷⁶ The average number of firms in the quarter-century prior to the 1996 peak was 4,700 firms. That's still 1,000 more firms than we had in 2021. And presumably the quarter-century growth in the economy and population pushed for another couple of thousand firms. The "reversion" explanation is weak.

A further view we hear on why the peak could have been abnormal: Around the peak there was a dotcom bubble, which burst. During that period, many tech stocks were highly valued. That high valuation attracted more public offerings, which added to the numbers of public firms. The bubble in valuation eventually burst and with it the number of public tech firms decreased. Or so the conjecture goes.

While plausible that the dotcom bubble burst reduced the number of firms, it contributes little to what needs to be explained. First, it doesn't explain the extraordinary post-1996 growth in size and profits in the public firm sector generally. Second, the dotcom bubble mostly refers to extraordinary high valuations, not to the number of firms. Third, the number of tech firms was about 1,000 in 1996 (when the U.S. total peaked) and dropped 50% to about 500 by 2021; that's about the same halving that the overall public firm sector experienced.⁷⁷ Fourth, the dotcom bubble's lifespan fits poorly with the rise and fall in the number of public firms. The bubble started growing circa 1995 and peaked in 2000. But the overall number of public firms peaked near the beginning of the period (in 1996) and started declining before the peak of the bubble.

D. Governance Improvements, Public and Private

For the most part, we have been arguing that the diminishing number of public firms should be examined in the context of a rise in size, profits, and value of the large public firm. The life cycle of the small firm could have altered over time, leading to a lower demand for small public firms, for governance or industrial organization reasons.

1. The holding pen. Here's what we mean. Posit that successful private firms once went public but had an unstable existence. Some prospered on their own, figuring out how to add functions they needed for viability. A pharma company with a good product could go public and figure out how to build a capacity for regulatory approval, manufacturing, and distribution. Other public firms were unstable until they merged with a very large firm that filled out the needed capacities, like manufacturing and distribution. Many small public firms would fail, close, and delist.

⁷⁶ See Appendix Figure 8A.

⁷⁷ See Appendix Figure 8B.

Consider next the possibility that financing and governance capacity in private firms improved such that the kind of firm that formerly went public, seeking to merge with a very large public firm, can nowadays get to this near-merger stage when still private. When the firm is ripe to take the growth step today, it really goes public (in a sense)—not by offering its stock to the public, but by merging itself with a public firm.

The private-to-public via merger process in this account approximates what it always has been, but eliminates one step, namely, the temporary existence as a small public firm. To the extent that it is true, this explains some of the decrease in the number of public firms. And it does so in a way that suggests little has changed—just a more direct channel than there had been for public firms' two-step acquisitions of private firms. This conceptualization contradicts the idea that more private firms are staying private; they are in fact moving into the public sector, but they're doing so directly, by being acquired by public firms.

2. *Rising intangibles in private markets.* More firms today depend on the quality of their intangible investments than before, when manufacturing was dominant.⁷⁸ Intangible investments are thought to be difficult for distant public stockholders to evaluate—the investor needs to be nearer to the firm than public stockholders typically are and needs a more nuanced flow of information than public stock markets typically receive. Hence, more firms remain private, with more close, hands-on private owners than previously.⁷⁹ Private firms, in this view, can better govern the increasing reliance on intangibles in American business than can public firms.

This strengthens both central theses of this paper. Again, *despite* the rising importance of intangibles, which private firms have an advantage in managing, public firms are bigger than ever. Something must be pushing back to keep more public firms from going private. The I.O. Hypothesis is a strong candidate for this pushback.

3. *Superior governance.* Irrespective of the growth of intangibles, private capital could govern firms more effectively than public stockholders. This argument has been made for some time and must be part of the story.⁸⁰ Public firms have major agency costs, from the disjunction between the interests of senior executives (for more pay, less work, and a bigger empire to run) and financial shareholders (who want the best risk-adjusted return). In the 1980s, this disjunction seemed to be particularly pernicious. Leading analysts predicted that the public firm would decline, due to managerial dysfunction.⁸¹ Since then, public firm governance has improved. If the governance of large private firms has improved even more, then they have acquired a competitive

⁷⁸ Intangibles are generally the firm's nonphysical assets. For a manufacturer, its machinery, inventory, and the factory are its tangible assets. The intangibles are goodwill, brand recognition, know-how, patents, trademarks, and the results from R&D.

⁷⁹ René M. Stulz, *Public versus Private Equity*, 36 OXFORD REV. ECON. POL'Y 275, 280–81 (2020); Doidge, Kahle, Karolyi & Stulz, *supra* note 63; Matej Bajgar, Chiara Criscuolo & Jonathan Timmis, *Intangibles and Industry Concentration: Supersize Me* (Ctr. Econ. Performance Discussion Paper No. 1806, 2021); Michael Ewens & Joan Farre-Mensa, *Private or Public Equity? The Evolving Entrepreneurial Finance Landscape* (Nat'l Bur. Econ. Rsch. Paper No. 229532, 2021). As a matter of categorization in this Article, rising intangibles is an industrial organization change, not a legal one.

⁸⁰ Michael C. Jensen, *Eclipse of the Public Corporation*, HARV. BUS. REV., Sept.-Oct. 1989.

⁸¹ *Id.*

advantage.⁸² If their governance has deteriorated, for which there's evidence, then the opposite has occurred.⁸³

4. *Financial development in private markets.* Private markets have strengthened and might have done so irrespective of legal changes. Wealthy sovereign investors—whether via Norway's sovereign wealth fund or Saudi Arabia's—can invest directly in private companies today in ways that they could not 25 years ago. Better telecommunication facilitates information flow. Information technology makes it easier for financial managers sitting in Oslo or Riyadh to assess and manage their investments that finance private businesses.⁸⁴

We have no doubt that this rising capacity for private financial channels to operate effectively is important. It explains why some private businesses exist today, and why they can grow in ways that they could not grow a quarter-century ago.

Yet, despite the advantages of going or staying private, the public firm sector is bigger and more profitable than ever. Private finance is getting better and private firms bigger, but so is public firm finance and so are public firms. Something like the real economy, I.O. considerations must be pushing back to stop even more public firms from exiting the sector and becoming private firms.⁸⁵

⁸² Cf. Cheffins, *supra* note 73, at 3 (strength of private companies' boards).

⁸³ Elisabeth de Fontenay, *Private Equity's Governance Advantage: A Requiem*, 99 BOS. U.L. REV. 1095 (2019).

⁸⁴ Cf. Kathleen M. Kahle & René Stulz, *Is the US Public Corporation in Trouble?* 31 J. ECON. PERSP. 67, 85 (2017) ("the internet has reduced search costs As a result, private firms have come to have relatively easier access to funding"). Presumably investment in public firms is eased as well.

⁸⁵ The growth of the private firm sector at the expense of the public firm can be exaggerated. The book value of equity from firms' tax filings shows that equity in private firms as a percentage of equity in the aggregate of all public and private firms grew from about 11% to 13% from 1996 to 2021. That quarter-century growth in an economy as large as the United States is not insubstantial. But at that rate of growth, public and private markets will not achieve parity until another four centuries have passed. See Appendix Figure 7.

Why are *both* the public and private sectors growing in total size during the past quarter-century? Interest rates declined after the 2009 financial crisis, and capitalization rates for expected income grew. A firm that was capitalized at, say, ten times expected earnings in 1996 is capitalized at 15 times expected earnings in 2023. Consequence: some *private* market growth is of rising financial asset values across *all* American financial assets. See the rising stock market capitalization in Figure 3, *supra*.

Private equity and venture capital finance more innovative technologies than public firms do. The payoffs from innovation are more deeply in the future than the payoffs from noninnovative business. When interest rates are low, those future payoffs have a higher present value than when interest rates are high. Interest rates for the past decade have hovered near zero. As interest rates rise now, the present value of those future earnings will decline. That could slow the growth of private equity and venture capital more than it will dampen the public market, which depends less on innovation and future breakthroughs. Thus, there's some artificiality to the recent growth of private financial markets. We shall see whether that artificiality disappears with rising interest rates.

Mechanically: an innovative firm that expects a \$1 billion profit ten years hence is worth \$1 billion today if interest rates are zero. An old-economy firm that produces \$100 million profit each year for the next ten years is also worth \$1 billion when interest rates are zero. If rates rise to 7%, then the high-tech firm's value plummets from \$1 billion to half that, \$500 million, while the old-economy firm's value only declines to \$750 million. More of the innovative firm's value comes deep into the future, which is less valuable when interest rates are high. More of the old-economy firm's value comes in the near-future which is more valuable when interest rates rise.

E. Pushbacks on the Industrial Organization Ideas We Advance

Several considerations could weaken the main thesis of this Article—that public firms, by every measure other than the number of firms, are no less important in 2022 than they were in 1996. Other considerations could weaken the secondary features of this Article, such as the prospect that I.O. Explanations play a major role in explaining the declining number (and increasing economic weight) of the public firm sector.

1. *Globalization.* We showed in Part II that public companies in the American stock market are overall as big as ever, when measured by stock market capitalization, revenues, profits, and investment. But are these *American* revenues, profits, and investment? The world has globalized greatly in the past 25 years. Is the continued strength of the stock market due to its listed firms excessively globalizing?

At a basic level, no—we do not include foreign-origin firms whose stock is listed on an American stock exchange.⁸⁶ Still, American firms' foreign-sourced profit rose somewhat more than their domestic profit. But *both* rose and *both* increased more rapidly than the American economy was growing.⁸⁷ U.S.-sourced profit in 2021 was nearly double what it was in 1990, as a proportion of GDP. And globalization is itself an aspect of industrial organization.

Furthermore, those newly globalized business segments of American public firms could have been owned privately or by companies originating outside of the United States. In 2021, however, they are owned by America's stock market investors. American-based public firms, subject to American corporate securities regulation, remain as economically important as ever.

The Legal Explanation anticipates that the burdens of regulation should be driving these businesses out from the American public firm. If *more* foreign business is coming under the umbrella of the American public firm and its regulatory structure, then American law and financial institutions are attractive, not unattractive.

2. *Is it just the FAANGs?* Several large new-economy tech companies have very high stock market capitalizations. Could their growth *alone* explain the core results—that the public firm sector is more profitable in 2021, with fewer than 4,000 firms today, than it was in 1996, with 7,000 firms?

To check this possibility, the stock market capitalization numbers were run again but without the FAANG companies—Facebook (Meta), Amazon, Apple, Netflix, and Google (Alphabet). The rise persisted without any of the FAANG companies.⁸⁸ Even when we excluded the largest companies—the S&P 500—the remaining public firms' total value stayed steady, even as the *number* of public firms outside the S&P 500

⁸⁶ We looked at U.S. incorporated companies only and further limited the look to firms listing ordinary common shares. Foreign companies listed in the U.S. were excluded. Foreign firms whose stock trades directly or indirectly in the United States (through the trading of receipts for the stock) were also excluded.

⁸⁷ See Appendix Figure 2. The impact of changing tax rates and different tax rates across different countries is largely eliminated because the comparisons are of pre-tax profit throughout.

⁸⁸ Appendix Figure 4.

declined, from about 6,500 to 3,500.⁸⁹ Roughly speaking, the profitability of an average American company *outside* the top 500 public companies doubled over the past 25 years.

3. *The Legal Explanations as killing the IPO market.* A proponent of the Legal Explanation could retort: “I can concede that the public sector has morphed and, yes, it is not smaller. Yes, it’s just as economically powerful as ever. Or more so. But the IPO process of private firms going public is now so badly damaged (because of the Legal Explanations) that IPOs are dead. There’s no longer a stream of private companies going public. Eventually the public sector will be hurt further.”

However, the changing character of the IPO process parallels that which we have shown to be the case for public firms overall: fewer but more valuable IPOs. And the totals, seen via the trend line in the figures below, show that the total *value* of the firms that are going public is growing as fast as the economy. The left-hand figure in Figure 9 plots the declining number of IPOs. But the right-hand figure shows that their total value has been rising with the economy’s growth.⁹⁰ There are big rises and steep falls, but the trend line is rising slightly, and it is rising faster than the economy is growing.

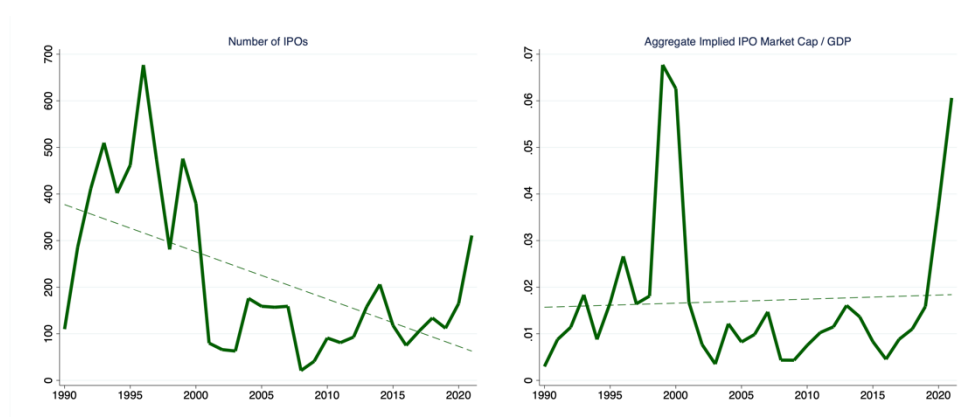


Figure 9. IPO Numbers and IPOs’ Value as a Proportion of GDP, 1990-2021⁹¹

⁸⁹ Appendix Figures 5 and 6. We also examined the relative growth of small and large firms. The smallest firms, which would be among those most sensitive to the costs associated with the Legal Explanation, grew. But the bigger firms—many of which were products of the biggest mergers—grew more. Appendix Table 2.

Corporate investment, however, slightly concentrated. Although it rose in the public firm sector overall, total investment slightly increased in the S&P 500 firms but slightly decreased in the smaller non-S&P 500 firms.

⁹⁰ The stock market value of a firm that goes public comes from the total value of its stock. If the firm sells 100 shares to the public for \$5 per share, it receives \$500. If it has 1,000 shares outstanding (in public and private hands) after the IPO, its total stock capitalization and, hence, its implied value, is \$5,000.

The fact of more IPOs in recent years being of later stage, larger private companies has been noticed before. We are unaware of prior measurement, however—i.e., the trend line shows as much value (as measured by stock market capitalization) moving from the private to the public market via IPOs in the later period as in the earlier. And if we include direct purchases of private firms by public firms, the numbers increase further.

⁹¹ Source: Ritter, *supra* note 7. Total annual IPO proceeds (the money received when the private companies sell stock to the public) declined at a much shallower rate than the decline in the number of annual IPOs. See Appendix Figure 3. Lattanzio, Megginson & Santi, *supra* note 41, show that improved private financing induces two offsetting effects for the number of public firms: Yes, private firms can grow larger without going public. But more firms are founded and get good funding, expanding the pool of healthy private firms, some of which grow

The left figure shows the number of previously private firms that initially sold their stock to the public in each year. It repeats Figure 2, *supra*. The three-decade trend is down, as corporate discourse indicates. But the right-hand figure shows that the total size of all companies making an initial public offering in a year has not been declining but is steady or rising. Even though the number of companies offering stock to the public in any one year went through a three-decade decline, in the last decade the trend is rising, not declining.

The Legal Explanation works here. Although the value of IPOs did not decrease, their number decreased. If the decrease in IPOs is not really part of the big trend—bigger, more profitable, and more valuable companies—then the Legal Explanation could play a substantial role in that decrease in IPOs.

The average number of IPOs per annum was 256 from 1960 through 1996, in Jay Ritter’s definitive compilation.⁹² The per annum average declines to 172 after 1996. Had the rate prevailing through 1996, when the number of public firms peaked, continued, about 2,200 additional IPOs would have occurred through 2021.⁹³ Although many of these 2,200 would have merged during this quarter-century or closed or gone private, the net number would contribute to the missing 3,500 firms. Here, the Legal Explanation could explain the decline if the IPO trend was largely independent of the reconfiguration package. But if the IPO decrease is part of the reconfiguration package (bigger firms, more profits), it does less well.

Another aspect of the “missing” IPOs: In the 7 years before the decline started, \$164 billion of private firm value was acquired by public firms; in the 7 years after, \$566 billion was acquired. And in the quarter-century after 1996 \$2 trillion in private firm value was acquired. Private firms *were* moving into the public sector, presumably including many of the “missing” 2,200 in the prior paragraph. But they were moving directly from private status to divisional status at a public firm.⁹⁴

4. *The Legal Explanations as propelling the I.O. results?* Could the Legal Explanations have induced the mass mergers of public firms over the past 25 years? The argument would be that the fixed costs of being public could be spread over bigger firms more readily than over smaller firms. Hence, public firms have merged down to a smaller number of larger firms. This is plausible and must be part of the story. The question is how big a part of the story it is.

The measured recent cost additions suggest legal propellants should not be a huge part of the I.O. Explanation. A Treasury Department task force “place[d] the average cost of achieving initial regulatory compliance for an IPO at \$2.5 million, followed by

large enough to go public. The authors provide evidence that the latter effect is as important as the former. Better private financing has not, they find, diminished the net number of public firms.

⁹² Jay R. Ritter, IPO Data, <https://site.warrington.ufl.edu/ritter/ipo-data/> (accessed Jan. 12, 2023) (IPO Statistics for 2022 and Earlier Years, tbl 8).

⁹³ This analytic is more controversial than it first seems. We took Jay Ritter’s average because it’s the definitive compilation and we take it back to the year his compilation starts. But if one started with other years, one could derive a graph showing an even bigger decline in IPO numbers.

⁹⁴ Appendix Table 5 (top panel). This increase fits both the I.O. Hypothesis and the Legal Explanation. The observations here on IPOs parallel the thinking in Part II, that public firms are growing by every measure other than their number. Here, the IPO count is down, but (i) the IPO market capitalization is not down, and (ii) accounting for public firms’ direct acquisitions of private firms, has many private firms moving from into the public firm sector.

an ongoing compliance cost, once public, of [\$1.8] million per year.”⁹⁵ For a large firm, these are small numbers; however, for a small firm contemplating an IPO, the expenses are meaningful. The average public firm has \$4.7 billion of revenue and \$609 million in profit. The typical expenses of being public thus constitute under 0.004% of revenues and under 0.3% of profit. This expense level could induce some very small public firms to merge, and stop some small private firms from going public. But too few dollars are involved to explain why bigger firms would merge without other I.O. benefits. Recall that 2,500 of the 4,000 public firm mergers since 1996 do not involve any small firms. Many were *mega*-mergers, such as mergers of Heinz and Kraft, Anheuser-Busch and Miller, CVS and Aetna, and Disney and 21st Century Fox.⁹⁶

True, the other costs of being public, like the risk of being sued, are not fixed costs. Some risks of suit rise with bigger size. But if true and important, then something else—like one of the I.O. Hypotheses—must be pushing back, because the firms have become much bigger and thus subjected themselves to those lawsuit risks even more.

Consider Sarbanes-Oxley more closely. (Sarbanes-Oxley, passed in response to the Enron and WorldCom scandals, has been criticized in some circles as wrongly but sharply raising the costs of small firms being public. It is not the only cost of a company being public, but it has been one of the most controversial during the past two decades.) The Legal Explanation would predict a spike upward in large firms absorbing smaller firms when Sarbanes-Oxley purportedly raised the regulatory costs of being public. But no such spike occurred.⁹⁷

⁹⁵ IPO Task Force, *Rebuilding the IPO On-Ramp: Putting Emerging Companies and the Job Market Back on the Road to Growth* (Oct. 20, 2011), www.sec.gov/info/smallbus/acsec/rebuilding_the_ipo_on-ramp.pdf. The alternative view is that as firms grow and go public, they need to adopt more sophisticated accounting and control mechanisms; the public offering forces many to do what they would need to do anyway.

The Treasury task force’s estimate, based on survey evidence from 2011, was at \$1.5 million annually. In 2021 dollars, that amounts to \$1.8 million annually. This is the compliance cost for the firm that goes public. Larger firms’ ordinary auditing costs are higher, often in the \$25 million per annum range. Michael Cohen, *Audit Fees Edged up from 2020 to 2021*, ACCOUNTING TODAY, Nov. 7, 2022, <https://www.accountingtoday.com/news/audit-fees-edged-up-from-2020-to-2021>. Cf. Dhammika Dharmapal, *Estimating Firms’ Responses to Securities Regulation Using a Bunching Approach* (ECGI Fin. Series 867, 2023), www.ssrn.com/abstract=2817151 (costly regulation should invite bunching just below the threshold in which costly regulation kicks in; little such bunching uncovered for Sarbanes-Oxley thresholds).

⁹⁶ Appendix Table 3. *MirrorReview, Biggest Mergers and Acquisitions of the Decade (2010–2020)*, www.mirrorreview.com/15-biggest-mergers-and-acquisitions-of-the-decade-2010-2019/. These deals ranged in size from about \$67.5 billion to \$100 billion. Million-dollar expenses due to going-public regulation would not seem to be major motivators for hundred-billion-dollar mergers. Cf. Lauren Hirsch & Julie Creswell, *Huge Deal Could Unite Albertsons and Kroger*, N.Y. TIMES, Oct. 14, 2022, at B1 (the planned “merger of the [two] largest U.S. grocery chains would invite antitrust scrutiny”); Jaewon Kang, *Kroger Sets \$24.6 Billion Pact to Buy Albertsons*, WALL ST. J., Oct. 15, 2022, at B1.

⁹⁷ Appendix Table 4. Other post-Sarbanes-Oxley trends fit badly with the Legal Explanation. The number of public firm acquisitions of *private* companies *declined* in the 5-year post-Sarbanes-Oxley period from the 5-year pre-Sarbanes level. Appendix Table 5 (middle and bottom panels) Eckbo & Lithell, *supra* note 40, at 58. Going private transactions rose in the first year after Sarbanes-Oxley. But there was no detectible impact on the number of going private transactions in later years. Ehud Kamar, Pinar Karaca-Mandic & Eric Talley, *Going-Private Decisions and the Sarbanes-Oxley Act of 2002: A Cross-Country Analysis*, 25 J.L. ECON. & ORG. 107, 117 tbl. 1, 121, 123 tbl. 6 (2008).

Consider the magnitude of legal costs in comparison with the last quarter-century's rise in public firm profitability. Basic securities law compliance for a small firm going public is about \$1.8 million per year. For small companies with a market capitalization of \$100 million or so, this is a noticeable expense.⁹⁸ For the more than 3,000 companies that disappeared, the aggregate expense could well have reached \$5.4 billion (from 3,000 * \$1.8 million)—also not a small amount. If Sarbanes-Oxley and other legal burdens induced the bottom 3,000 companies in 1996 to be folded into the top 4,000 in the subsequent quarter-century, then profits could have increased by that \$5.4 billion.⁹⁹

But what was happening to public firm profitability during that quarter-century? In 1996, public firm profits were \$587 billion (or more than \$1 trillion in inflation-adjusted 2021 dollars). By 2021, public firm profits were \$2.4 trillion. Public firm profits increased by \$1.4 *trillion* as 3,000 firms disappeared. The \$5.4 *billion* compliance savings cannot account for that \$1.4 *trillion* rise in profits. True, other costs of being public are in play. But we are unaware of any estimate that these costs amounted to a trillion dollars. Yet, for the Legal Explanation to prevail in explaining all of these related phenomena, we need to see legal burdens accounting for a trillion-dollar savings from the mergers, allowing for that trillion-dollar rise in profits. The I.O. Explanation can handle the trillion-dollar profit increase. The Legal Explanation cannot.¹⁰⁰

IV. IMPLICATIONS FOR CORPORATE LAW POLICYMAKING

Our main purpose for this Article is to demonstrate that public firms are as weighty as ever by measures other than their number. We accomplished this in Part II. The declining number of public firms is not as worrisome as analysts and policymakers think. Policymaking consequences follow.

⁹⁸ US Treasury IPO Task Force, *supra* note 95; Protiviti, SOX Compliance Amid Rising Costs (2022), <https://www.protiviti.com/US-en/insights/sox-compliance-survey> (similar expense range). The SEC, however, suspended the attestation requirement for companies with a public float of less than \$75 million. Smaller Reporting Company Definition, SEC Release No. 33-10513, June 28, 2018, 17 C.F.R. § 240.12b-2 (2021).

⁹⁹ Larger firms presumably bear higher costs than that \$1.8 million annually. But these do not seem commensurate with the trillion-dollar profit rise described in the next paragraph. Audit fees for larger companies often amount to about \$25 million. *See supra* note 95. Even if all of these fees were due to excess regulation, they would account for tens of billions of dollars, and could not explain the trillion-dollar rise in profit. Some costs, like litigation costs, probably scale to the size of the firm.

¹⁰⁰ Another small firm counter is subject to the same criticism. Small firms give away information about their business due to SEC disclosure requirements. If that business is hidden as a division of a large firm, the SEC rules do not always require disclosure of that division's results. This keeps good business results secret for longer, facilitating more profitmaking. Although it could be a factor accounting for 900 of the acquisitions of small firms in the past quarter-century, it is implausible that this disclosure aspect accounts for \$1.4 trillion in increased profit.

A. How the SEC Evaluates the Strength of the Public Firm Sector

Policymakers at the SEC measure the strength of the public firm sector by the number of firms and find the downward trend worrisome. But in assessing how well corporate securities regulation is working, policymakers should focus less on the number of public firms and more on the metrics we bring forward—size of the stock market, profits, revenues, investment, and employment.

More tellingly, the perspective that we show to be misleading—looking at the *number* of firms and not the sector’s *other indicia* of continued *strength*—mistakenly buttresses the over-regulatory thesis. A diminishing public firm sector resonates with those who fear that regulatory burdens are becoming weightier and lack sufficient benefits. But that perspective distorts the public firm reality, because it overemphasizes one relevant number and ignores the others. That perspective erroneously magnifies the apparent negative impact of corporate securities regulation.¹⁰¹

B. Impact on Current Deregulatory Efforts

The SEC’s considerations on current regulatory efforts could shift due to the I.O. Hypothesis and with the reconceptualization that public firms’ weight in the economy is not diminishing.

1. Regulation D. On the SEC’s agenda is a proposal to reduce the number of companies that can stay private without having to register as public companies with the SEC.¹⁰² The statute and rule (“Reg D”) require that firms with more than 500 shareholders who have characteristics indicating they are less sophisticated must register as public companies.¹⁰³ Proposals are on the table to count groups by their individual members, not by the group as a single investor. A look-through would require more private firms to register as regulated public firms.

¹⁰¹ Perhaps obvious but it bears mentioning in a footnote that the existence of costs does not mean that these costs must be reduced or eliminated. The costs could produce the benefits of being public—access to large pools of capital, access to specialized management skills, liquidity for investors, an acquisition currency, and so on.

¹⁰² SEC, Revisions to the Definition of Securities Held of Record (proposed amendments to 17 CFR 240.12g5-1; Paul Kiernan, *SEC Pushes for More Transparency From Private Companies*, WALL ST. J., Jan. 10, 2022, <https://www.wsj.com/amp/articles/sec-pushes-for-more-transparency-from-private-companies-11641752489>. Cf. Allison Herren Lee, Comm’r, SEC, Remarks at The SEC Speaks in 2021: Going Dark: The Growth of Private Markets and the Impact on Investors and the Economy (Oct. 12, 2021), <https://www.sec.gov/news/speech/lee-sec-speaks-2021-10-12> (text accompanying Commissioner Lee’s note 74) (SEC Commissioner advances regulatory thesis in the general area of inquiry); Hal Scott & John Gulliver, *Gary Gensler’s Assault on U.S. Capital Markets*, WALL ST. J., July 18, 2022 (“the SEC may limit the ability of private companies to raise capital from private-equity and venture-capital funds by effectively reducing the number of investors in private companies—a matter now on its official agenda”).

¹⁰³ The SEC term governs “nonaccredited investors.” Regulation D, Rule 501, 17 C.F.R. §230.501. The private firm is allowed up to 500 investors who are not accredited, a term that entails some sophistication in making investments. When it has 500 or more investors, it must register as a public company and becomes subject to stricter reporting rules. Securities Exchange Act of 1934, § 12(g); 15 U.S.C. § 78l(g) (2017).

A justification for rolling back the existing private safe haven rule is that we have too few public firms. Hence, to propel regrowth in the public firm sector, we should make larger private firms become public firms.¹⁰⁴

The impact of the Article's thesis here is that, to the extent I.O. considerations are driving down the number of public firms, the SEC has less reason to worry about securities regulation as tamping down the number of public firms. It's someone else's fault, not the SEC's. Even if Reg D is loosened, the number of public firms will not change by much if it's I.O. considerations that are propelling the concentration.

True, corporate law policymakers could still think that a disclosure regime is overall better than a nondisclosure regime, and that too many large private firms are absent from the disclosure regime. But the belief that the public firm sector is shrinking overall should not be a consideration, because the public firm sector is not shrinking.¹⁰⁵

2. *Rolling back the Sarbanes-Oxley section 404 attestations.* Another instance of relevance: the recent SEC plan to expand the exemption from public companies having to attest to the soundness of their internal financial controls. The SEC justifies a wider exemption because it “may be a positive factor in the decision of additional companies to register their [stock and go public].”¹⁰⁶ (This recent effort was part of the pushback to the Sarbanes-Oxley's famous-in-business-circles section 404 requirement,¹⁰⁷ which has been a major target for advocates of the over-regulation thesis.¹⁰⁸)

But the I.O. Hypothesis implies that the overregulation thesis as the primary explanation for fewer public firms is exaggerated. Even if the I.O. Hypothesis explains the decrease, that does not mean that the rollback is inappropriate. It means that one prominent rationale—that overregulation is suppressing public firms—should no longer be high on the justification list.

¹⁰⁴ Cf. Lee, *supra* note 102 (text accompanying Commissioner Lee's note 30). Some may desire this result because public firms are more readily regulated for social impact.

¹⁰⁵ Officials who see much over-regulation would presumably not recalibrate their bottom line on this alone.

¹⁰⁶ Accelerated Filer and Large Accelerated Filer Definitions, SEC Rel. No. 34-88365 (Mar. 12, 2020).

¹⁰⁷ Sarbanes-Oxley Act, 15 U.S.C. 7262(a); 17 CFR 240.13a-15 and 17 CFR 240.15d-15.

¹⁰⁸ See *supra* source cited note 11. However, the SEC regularly delayed implementation of this requirement for small issuers. Sec. Exch. Act. Rel. No. 34-56152 (July 27, 2005); SEC, INTERNAL CONTROL OVER FINANCIAL REPORTING IN EXCHANGE ACT PERIODIC REPORTS OF NON-ACCELERATED FILERS, www.sec.gov/rules/final/2010/33-9142.pdf. Dodd-Frank formalized the result. Dodd-Frank Act § 989G, Pub. L. No. 111-203 § 989G, July 21, 2010, 124 Stat. 1376, 1948 (codified as amended at 15 U.S.C. § 7262) (exempting public firms with a market capitalization under \$75 million from Dodd-Frank's controversial § 404 attestations). The 2012 JOBS Act expanded the exemptions: no company with less than \$1 billion in gross revenue needs to comply. JOBS Act, *supra* note 16, § 101, Pub. L. No. 112-106 § 103, 126 Stat. 310 (2012) (codified as amended at 15 U.S.C. § 77b(a)(19)).

Moreover, between 50% and 98% of all companies that went public since 2014 seem to have been exempt from the Sarbanes-Oxley attestation requirements. Bainbridge, *supra* note 10. The attestation requirement seems not to be a heavy impediment today. Lastly, a corollary of the Legal Hypotheses is that the cost of being public has increased in ways that particularly burden small firms. If so, one would expect that the size of small firms would increase (as the smaller of the small firms would drop out, or merge). But our results contradict that proposition. From the peak in public firms in 1996, the market capitalization for the smallest twenty percent of public firms actually grew slightly less than that of the largest twenty percent of firms.

C. Corporate and Securities Law to Facilitate Competition

The Securities and Exchange Commission primary mission has long been to protect the stock-owning public.¹⁰⁹ From that protection, capital markets could develop well, strengthening the American economy and American well-being.

The SEC is not charged with protecting and fostering competition;¹¹⁰ other governmental units do that. The analysis here of the I.O. Explanation thus leads to a difficult institutional question. Capital costs and financial markets are intimately tied to the SEC's core mission.¹¹¹ Antitrust, industrial organization, and competitive product markets are not. Yet, the analysis here tells us that industrial organization is tied up with corporate securities regulation and the diminishing number of public firms. That analysis, standing alone, could push the SEC to seek more competitive industrial markets. But that's not part of the SEC's "charter" from Congress.¹¹²

True, better capital markets typically facilitate more product competition by getting capital to new competitive entrants. Hence, just making capital markets better should benefit industrial competition. But the implications here are deeper: *how* we make capital markets better could strongly affect the efficacy of product markets.

The SEC should, however, be wary of making such goals part of its primary mission. First, it's inherently uncertain what the goal should be—e.g., should it be more public firms to compete with the bigger, already concentrated public firms? Or better-financed private firms to compete with all public firms? Second, strategizing on how to achieve this goal is just not within the SEC's expertise. It's hard enough for the full-time staff and commissioners at the FTC and the Antitrust Division to ascertain competition

¹⁰⁹ U.S. Securities and Exchange Commission, Our Goals <https://www.sec.gov/our-goals>, *modified* Aug. 19, 2022 ("Goal 1. Focus on the long-term interests of our Main Street investors."); The Role of the SEC, U.S. Securities and Exchange Commission, <https://www.investor.gov/introduction-investing/investing-basics/role-sec> ("[The SEC] has a three-part mission: *Protect investors*; Maintain fair, orderly, and efficient markets; [and] Facilitate capital formation.") (emphasis added).

¹¹⁰ While there are formal and informal SEC statements that its mission includes competition, that competition is between brokers, investment bankers, and other financial firms, not product market competition.

¹¹¹ John C. Coffee, Jr., *Law and the Market: The Impact of Enforcement*, 156 U. PA. L. REV. 229, 234–36 (2007); Merritt B. Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice Is Not Investor Empowerment*, 84 VA. L. REV. 1335, 1379 (1999) ("the primary function of [mandated securities regulation] disclosure is . . . efficiency in the real economy, not investor protection"). Coffee argues that the allegedly greater burden imposed by U.S. securities laws and enforcement *lowers* the cost of capital and increases securities valuations. Thus, the preoccupation with fewer public listings is misguided.

¹¹² Compare Hester M. Peirce, We Are Not the Securities and Environment Commission—At Least Not Yet (SEC Comm'r statement, Mar. 21, 2022), www.sec.gov/news/statement/peirce-climate-disclosure-20220321; James D. Cox, *Will It Float?: The Legitimacy of the SEC's Authority for Climate Risk Disclosures* (Mar. 29, 2022), <https://clsbluesky.law.columbia.edu/2022/03/29/will-it-float-the-legitimacy-of-the-secs-authority-for-climate-risk-disclosures/>, and Andrew N. Vollmer, The SEC Lacks Legal Authority to Adopt Climate-Change Disclosure Rules (2021); with John C. Coates Proposal on Climate-Related Disclosures Falls Within the SEC's Authority (June 22, 2022), <https://corpgov.law.harvard.edu/2022/06/22/proposal-on-climate-related-disclosures-falls-within-the-secs-authority/>, and Alexandra Thornton & Tyler Gellasch, The SEC Has Broad Authority To Require Climate and Other ESG Disclosures (Center for American Progress Report, June 2021), <https://www.americanprogress.org/article/sec-broad-authority-require-climate-esg-disclosures/>. There's broad agreement that the SEC can mandate disclosure of climate-related risks that would have a major impact on the firm's business. The disagreement is over whether that authority extends to mandating disclosures that seem to have no major impact on the disclosing firm's business.

policy. It's unlikely that the SEC, without direction from the agencies more expert in this dimension, would be an appropriate agency for such inquiries.

The structural difficulty for the regulatory system is not whether the SEC has authority and expertise here—it does not. The difficulty is that our regulatory system is modular—these agencies (FTC, Justice) deal with industrial organization, while these other agencies deal with finance (the Federal Reserve, the Department of the Treasury, the Federal Deposit Insurance Corporation), and the SEC deals with securities markets. When the regulatory issues are modular, agency modularity can work. When the regulatory issues interconnect in strong, complex ways, however, our regulatory system faces challenges. We show here that they connect: the SEC thought that corporate securities regulation of some sort was determining the number of public firms; we show why industrial organization is likely to have been a major determinant of the public firm reconfiguration.¹¹³

On this issue—how to deal with the diminishing number of public firms—we can firmly advise the SEC to *stop* inferring from their declining *number* that there's a corporate securities regulatory problem. We cannot advise the SEC to *start* taking industrial organization into account when regulating public and private markets—that is not part of its remit, nor part of its expertise. But that means that we are in the foothills of a significant regulatory design problem that we will in time need to surmount.

CONCLUSION

We examine the widely-stated observation that the number of public firms in the U.S. is declining precipitously and the closely related proposition that the public firm is becoming less important as the number of firms declined from their 1996 peak to only half as many today. We challenge this thinking of public firm sector decline by looking at the sector's total profit, total revenues, total investment, and total value. All of these attributes are rising faster than the economy is growing, despite the diminishing number of firms. Public firms are as economically important as ever; they are fewer in number but bigger and more profitable. That is the central claim and the central evidence in this paper.

This combination of larger and more profitable but fewer firms calls for new and potentially more powerful explanations, and we bring forward the I.O. Explanations. SEC commissioners from one party see the impetus as coming from over-regulation of public stock markets; commissioners from the other party see the impetus as largely coming from the rollback of private firm regulation. The two sides have more in common than they think. Neither side considers the changing industrial organization terrain. FTC commissioners and Antitrust Division chiefs, in contrast, look at and worry about increasing economic concentration coming typically from fewer public firms. They pay little attention to the corporate and securities Legal Explanations. Antitrust

¹¹³ Cf. Aneil Kovvali, *Stakeholderism Silo Busting*, __ U. CHI. L. REV. __ (forthcoming, 2023) (stakeholderism is breaking down separate regulatory siloes of for antitrust, bankruptcy, corporate, and environmental law).

and academic I.O. analysts view public firms' larger size as arising largely from efficiency, economic reconfigurations, or possibly from weakened antitrust.

We explore the Industrial Organization Hypotheses' relevance in explaining two overlapping phenomena. First, the actual reconfiguration of the public sector is one of more concentration and with public firms getting larger and more profitable. The I.O. Explanations can explain the full, actual reconfiguration and the public firms' profitability, value, revenues, and investment; the Legal Explanations cannot. A challenge for future work by corporate law academics will be to ascertain how much each explanation contributes to the overall package of changes that we've seen over the past quarter-century and whether the declining number of firms is a phenomenon separate from rising profitability and value. If separate, the Legal Explanation vies with the Industrial Organization Explanations to explain the decline.

The rising profits, revenues, investment, and stock market value together point to the public firm sector as becoming more important during the very decades that SEC commissioners and corporate analysts were looking to securities law considerations to explain the declining number of firms. Profits are rising more quickly than investment and revenue. There were more than 4,000 public firm mergers and most did not involve small firms for which the Legal Explanations could be particularly important. The distribution of merger size is something that the I.O. Hypotheses can explain but that the Legal Explanations cannot.

With our analysis in mind, policymakers at the SEC and corporate analysts can make better judgments of what is happening in securities markets, the public firm, and corporate and securities law regulation. Policymakers should downgrade the view that the public firm sector is shrinking due to major legal burdens, because the sector is just not shrinking, overall. They should look not just at the number of firms but at standard economic measures of business prowess, like total capitalization, overall profits, revenues, and investment. When they do, they will conclude that overall, the public firm sector is not shrinking.