

**Half the Firms, Double the Profits: Public Firms'
Transformation, 1996-2022**

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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-regulation of the stock market. The central legal explanation is that the net impact of corporate and securities law is a heavy burden that 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. Private firms are displacing public ones. 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 has held steady by every other measure for the past quarter-century and, for several central qualities, has become much bigger: profits are up greatly over the past three decades, size is up greatly, and revenue, investment, and employment are steady. Profits and stock market capitalization have grown faster than the economy, while revenues and investment have kept up with the economy's growth. We emphasize that public firm profits have doubled by most measures. This doubling has not been stressed in prior work looking at the declining number of public firms and has implications about what really is happening in the public firm sector, which we consider next.

The second challenge we pose is whether the explanation for the changing configuration of the public firm sector lies primarily in corporate and securities law's burdens. 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—and their academic correlates—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 largely tie to industrial organization via changes in antitrust enforcement (according to common progressive political views) or changes in the efficient scope and size of the firm (according to much academic analysis). In a single article, this explanatory effort can only be exploratory. Multiple researchers 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 much more profitable, bigger, 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 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 2022 that number had dwindled nearly to half, to fewer than 4,000. Fewer private firms went public. 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—that the sector’s weight in the economy is diminishing—follows easily from the near halving of their number. But it’s a step that should not be taken. The *number* of firms has declined, precipitously. But their collective economic *weight* is not falling. By multiple measures, the public firm sector is as important as ever. Public firms generate more profit than ever. They are much bigger on average now than before, and are concentrated in more industries. *Total* sales, investment, and employment have held

steady for the past quarter-century, growing as fast as the economy has been growing.

Thus, properly analyzed, we have fewer firms but collectively they are no less important economically than before. Three major changes have occurred, roughly simultaneously: profits have doubled, as has stock market value, and the number of firms has diminished. That persistence of their overall economic weight leads us to reassess the power of the legal explanations for the decline in number because American corporate and securities law structures are in fact supporting as much, or more, economic activity as ever. We emphasize the doubling of public firm profits. This doubling has not been emphasized in prior work and has strong implications for what is happening in the public firm sector.

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, it's said. And private capital-raising rules have loosened up enough over the decades such that private firms as well as small- and medium-sized public firms can raise capital. 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 overregulation thesis, showing 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 plausible Real Economy explanations, focusing first on the likelihood that industrial organization changes affected the number of firms, not corporate law changes. We then examine whether a technological shift temporarily boosted the number of public firms decades ago with the numbers then reverting to the lower long-run level, whether governance changes in public and private firms induced fewer small public firms, and lastly whether 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 many researchers. We set forth a framework for why these real economy explanations—or some of them—better explain this package of changes than the ascendant Legal Explanations, and we bring forward some evidence fitting better with the first industrial organization explanation than with Legal Explanations. The Legal Explanations can explain some of the changed structure of the public firm sector but not all of it, and maybe not even its most important features, like the doubling of public firm aggregate profit. Its partial relevance cannot be denied, but its dominance should be challenged, and we challenge it here.

The industrial organization hypotheses come in two major varieties—one is that antitrust enforcement has weakened, allowing more mergers and concentration

than before. This is a policy perspective popular in some public, political, and media circles, but one that is 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. This is a structural perspective supported more strongly in academic industrial organization work than in policy circles.

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 and more profitable 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 of the 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 boosting 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 these two explanations vie for allegiance inside corporate circles, the two have a basic feature in common. They each see corporate securities law as the dominant driver for the declining number of public firms, 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

profitability of the public firm sector—and not just the number of firms—should be shrinking as well. But profits are not declining. Profits have doubled and the total value of the entire stock market rose steeply during the very years that the number of firms was declining.

To repeat, the total profit of public firms—however measured, and there are multiple ways to measure public firms' profits—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. Meanwhile, other measures—like revenue, investment, and employment—have held steady. These measures have not halved, like the number of firms. But these results—especially rising profits—fit awkwardly with the ascendant Legal Explanations, which posit that being a public firm has become more expensive, while being a private firm is thought to be more economical. Yet, if burdensome regulation were the driving force (or if eased regulation of private firms made it a comparatively better place to do business), *then the public firm would have become a poor place to do business*, and that should have led to *weakened* profits and *anemic* stock market value. But it has not. Something is making the public firm sector *more* valuable and *more profitable than ever*.

It's plausible that the last quarter-century has been characterized by a package of three industrial organization changes happening together—more profit, more value, and a diminishing number of public firms. We consider explanations for this plausible package of changes in Part III.

That is, the central transformation package was to fewer, more profitable, and more valuable firms. These three changes happened roughly simultaneously. The focus of legal analysis has been on a single change, the move to “fewer firms.” But consider the possibility that the three constitute 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. We bring forward Real Economy, industrial organization explanations that can reveal what is going on.

True, perhaps this triumvirate of public firm transformations is severable, with each having a different cause. 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 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 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 how, in Part III, the current evidence supports these Real Economy

Explanations. And then in Part IV, we consider the ramifications for SEC policy thinking if these Real Economy Explanations are dominant.

SEC policymakers seem to measure the strength of the public firm sector by the number of firms and worry about the downward trend. But when assessing whether regulation is too burdensome, policymakers should focus not just on the number but on the metrics we bring forward—profitability, size of the stock market, revenues, investment, and employment. And if the reason for the declining number of public firms largely comes from the Real Economy Explanations, 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 too tight.

* * *

We then conclude. Corporate law policymakers and analysts have been apprehensive for decades about the declining number of public firms. It’s natural for lawyers to emphasize legal explanations for phenomena. While regulation surely plays 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 not halving—and in the case of aggregate profits, rising dramatically. The public firm sector is not becoming a scorned place to do business—it is growing. It’s achieving this growth with bigger, more profitable firms in more concentrated industries.

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

A. Half as Many Public Firms By 2022

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

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”).

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—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? Figures 1 and 2 suggest that it is.

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 2022.⁵ That decline leveled off by 2013.

² Michael S. Piwowar, 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>.

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

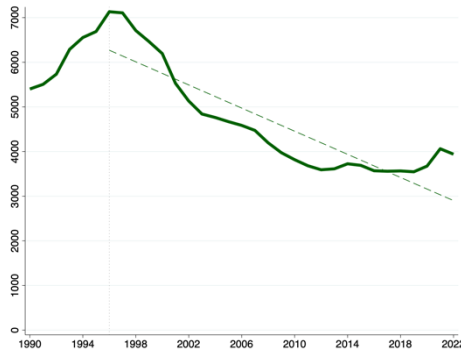


Figure 1. Declining number of public firms, 1990–2022⁶

The number of public firms dropped from a 1996 high of more than 7,000 to fewer than 4,000 by 2013 and stayed roughly at the lower level since, with a slight bend upward after 2019. The trendline from the 1996 peak shows a halving of the number of public firms by 2022.

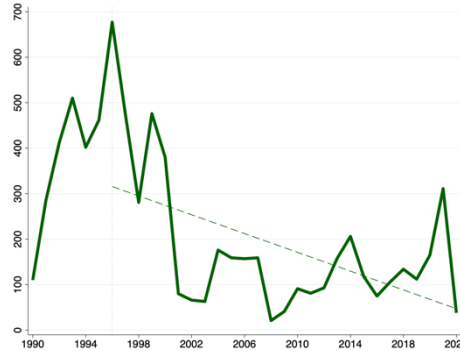


Figure 2. Declining number of IPOs, 1990–2022⁷

The number of private firms making an initial public offering of their stock dropped from a 1996 high of about 700. Figure 2 shows the trendline for IPOs from 1996 onward.

2. *The dearth of IPOs.* The number of initial public offerings of stock by private companies also plummeted and our Figure 2 replicates this common finding.

Some public companies fail, go bankrupt, shrink, remove themselves from the stock market, or are acquired. 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 years, went public in 1997, and its stock market capitalization now makes it one of the largest American companies.⁸

⁶ 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.

⁷ The IPO data comes from Jay P. Ritter's IPO database at <https://site.warrington.ufl.edu/ritter/ipo-data/>. 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. Results are summarized in the Appendix and included in Figure 12, *infra*. Their rise does not explain the decline in IPOs well: SPAC acquisitions substitutes for IPOs, but they only became substantial in 2020, at the same time that the IPO numbers kicked up again.

⁸ 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.

The number of IPOs declined in the past quarter-century, albeit with a short burst in 2021 that either reversed the trend or was a temporary respite (because IPOs nearly disappeared in 2022).⁹

We thus confirm the trends shown before in academic and policy work: a declining number of public firms and a decreasing number of IPOs. Figure 1 illustrates the former, Figure 2 the latter. We next look at the dominant explanations.

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 is that going public is too costly, especially after Sarbanes-Oxley's intense regulatory additions in 2002. Younger, smaller firms, it's said, do not want to absorb those costs and are deterred from going public. Influential financial media 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 burdens on private capital-raising so 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 for the level of IPOs: 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

⁹ 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.

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).

This view of Sarbanes-Oxley and over-regulation has been countered. Brian R. Cheffins, *Rumours of the Death of the American Public Company are Greatly Exaggerated*, 40 COMPANY LAW. 1, 6 (2019); John C. Coates, IV, *The Promise of Sarbanes-Oxley*, 21 J. ECON. PERSP. 91 (2007); 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).

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 Paul Rose & Steven Davidoff Solomon, *Where Have All the IPOs Gone? The Hard Life of the Small IPO*, 6 HARV. BUS.

Going public is not cheap. 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.

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 costly 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

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).

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. Conversely, some executives, like Elon Musk, may prefer the notoriety from 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/>; Cheffins, *supra* note 10, at 14; 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

importance of this deregulation thesis 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 commissioners emphasize the regulatory burdens on the public firm. Democratic commissioners emphasize loosened regulation on private firms.¹⁸ While the two seem at loggerheads, they have much in common. 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.

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 (although presumably others considered that possibility). 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.").

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 fee, which applies only to the shares being offered, is smaller than what is 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>; Hsuan-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.

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.

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.

The financial valuation trends of the past quarter-century would have predicted and pushed *more* firms to go public, not fewer. Hence, we push the Finance Explanation aside in our investigation. Something must be offsetting the upward push of the Finance Explanation.²³

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).

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.

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

To recap: In Part I, we confirmed the conventional wisdom that the number of public firms fell precipitously—declining by half in the roughly 25 years since 1996. And we recapitulated the conventional explanations: burdensome regulation made it too costly for many firms to go public, 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 burdens are making the public firm sector smaller. The public firm's business and economic role is as strong as ever. This strength can be seen first in aggregate data on public firms' profits, which have more than doubled in the quarter century since 1996. The pattern of increasing profits persists whether we adjust for the size of the economy or examine alternative measures of public firm profits, including income after extraordinary items, pretax income, and economic profit. The strength of public firms can also be seen in the public firm sector's overall market capitalization, revenues, investment, and employment levels—all increasing.

The public firm sector is much bigger than it was in 1996 when the number of public firms peaked.

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 *profitability* has not, a fact that fit badly with the conception that the American public firms is in decline.²⁴ In 1996 the total profit in the public firm sector was \$366 billion; by 2022, it had risen to \$1.6 trillion. While the number of firms was halving, profits were rising several-fold. Figure 3 illustrates.

²⁵ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com>.

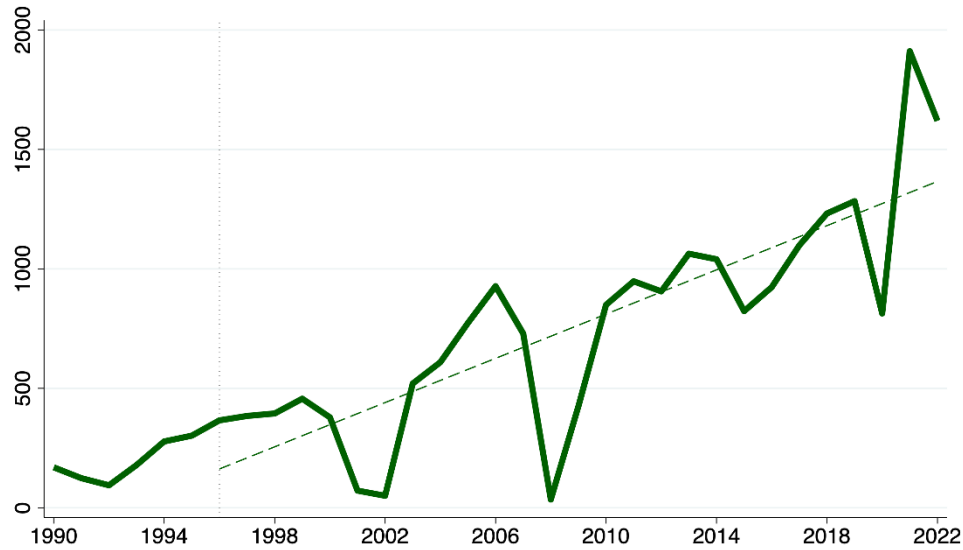


Figure 3. Profitability of the American public firm sector, 1990–2022.²⁵

This figure shows the several-fold rise in net income of the American public firm sector. The dashed line is the sharply rising 1996 trend-line. While the number of public firms halved (see Figure 1) and the number of IPOs declined (see Figure 2), public firms' net income rose sharply.

Conventional presentations of such economy-wide data over time scale the data to GDP. Typically, however, the number of firms is not scaled to the growing economy. While we are unaware of prior comparisons of profitability to the number of firms, a proper comparison would scale each. That is, the American economy grew by 215% since 1996; one would expect that growth to increase the number of firms and not just their size.

Still, we shall bias our presentation away from the thesis—that public firms are as important as ever. Hence, an unscaled comparison might tell us what really happened (such as in Figures 1 and 3); or a comparison that scaled both could paint the better picture. It's common, however, not to scale the number of firms and an unscaled profit rise can be misleading. Hence, when we scale net income to nominal GDP, we find that the trendline shows a doubling of profits as a share of GDP in 2022 as compared to 1996 and with a year-to-year comparison revealing a rise from 4.5% of GDP in 1996 to 8.2% in 2021 and 6.4% in 2022. Figure 4 illustrates.

²⁵ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com>.

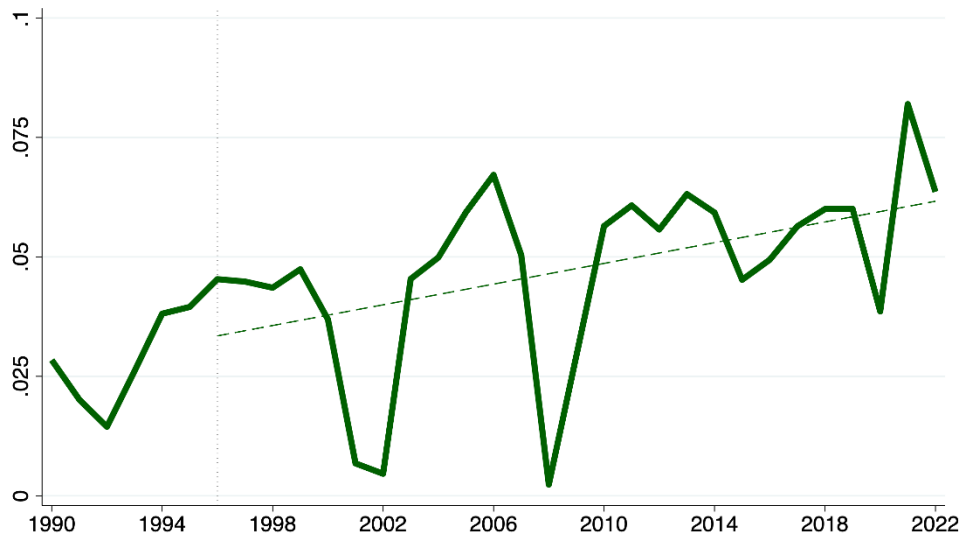


Figure 4. Profitability of the American public firm sector, scaled to GDP, 1990–2022.

This figure shows that public firm profits rose substantially from 1996 to 2022, even as the number of public firms halved. The dashed line is the sharply rising 1996 trend-line. While the number of public firms halved (see Figure 1) and the number of IPOs declined (see Figure 2), public firms' net income as a proportion of GDP did not halve but rose sharply, from 4.5% of GDP in 1996 to 8.2% in 2021 and 6.4% in 2022, with the trendline showing an overall doubling since 1996.

Multiple measures of profitability are commonly used. Hence, it's at least possible that choosing one from the several common measures produces the rather stark, sharp rise in Figure 4. But our investigation indicates that the common measures all produce a similar sharp rise. For example, accounting conventions have adjustments for extraordinary items and there are controversies about whether profits before or after extraordinary items are more indicative. Figure 5 illustrates the rising trend for net income without including extraordinary items. More centrally, a decline in the corporate tax, as the United States experienced after 2017, could push up post-tax profitability so much as to pull the entire trendline in Figure 4 up. But taxes cannot account for the sharp rise. Figure 6 demonstrates this. It shows profits before taxes of American public firms from 1990 to 2022, with a trendline from 1996 to 2022. The rise is more shallow than some other measures, but it is still a substantial rise and far from the slope of the halving of the number of public firms.

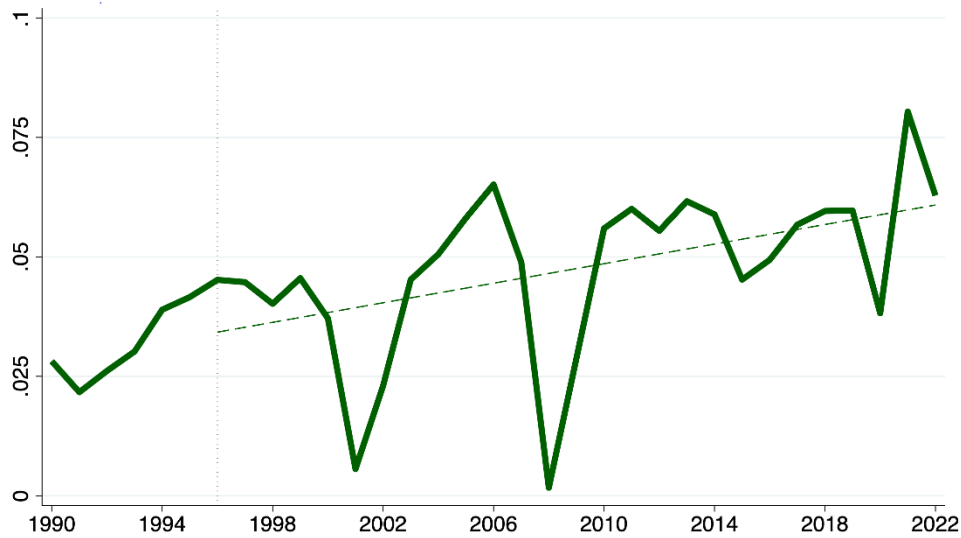


Figure 5. Profitability Before Extraordinary Items of the American Public Firm sector, Scaled to GDP, 1990–2022.

This figure shows that public firm profits, before the inclusion of extraordinary items, rose substantially from 1996 to 2022.

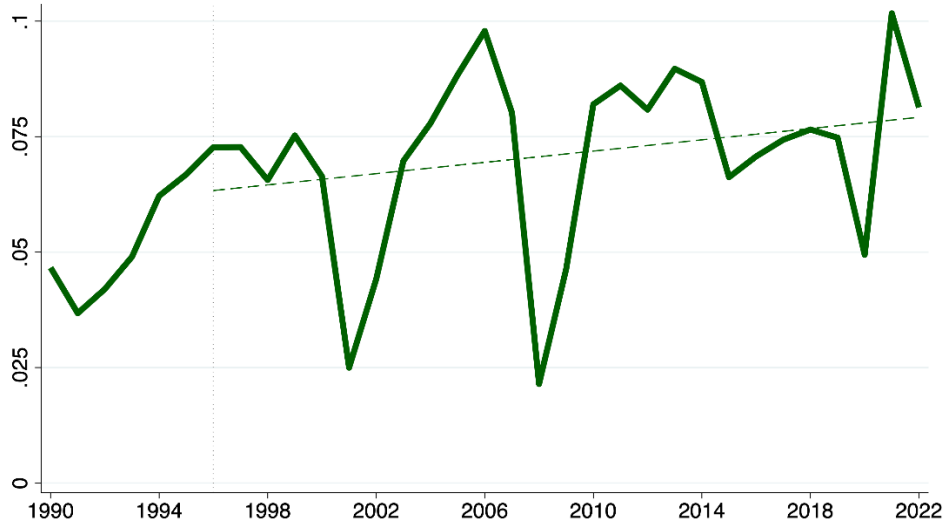


Figure 6. Before-Tax Profitability of the American Public Firm sector, Scaled to GDP, 1990–2022.

This figure shows that public firm pre-tax profits rose substantially from 1996 to 2022, even as the number of public firms halved. Despite the drop in corporate taxes, which boosted post-tax profitability, the trend since the peak in the number of public firms is still sharply up.

Some analysts prefer a measure of economic profits that accounts for investors' opportunity cost of capital. This measure, sometimes termed "abnormal earnings" or "residual income" has been shown to reflect the extent of economic rent that firms command, increasing with industry concentration, barriers of entry, market share, and firm size.²⁶ For example, if the public firm sector earned \$10 trillion in one year and then \$15 trillion in a later year, the comparison would have profits rising by 50%. If stock market investors invested \$20 trillion of capital on average in each year, and the benchmark opportunity cost of capital was 5% in the first year and 30% in the later year, which can occur either because interest rates or equity risk premiums have risen, then economic profit would have stayed the same at \$9 trillion. And if the benchmark opportunity cost of capital were 10% in both years, then economic profits would have increased 68%, from \$8 trillion to \$13 trillion.

Figure 7, the standard measure of such economic profits, again shows a sharp rise while the number of firms was plummeting.²⁷

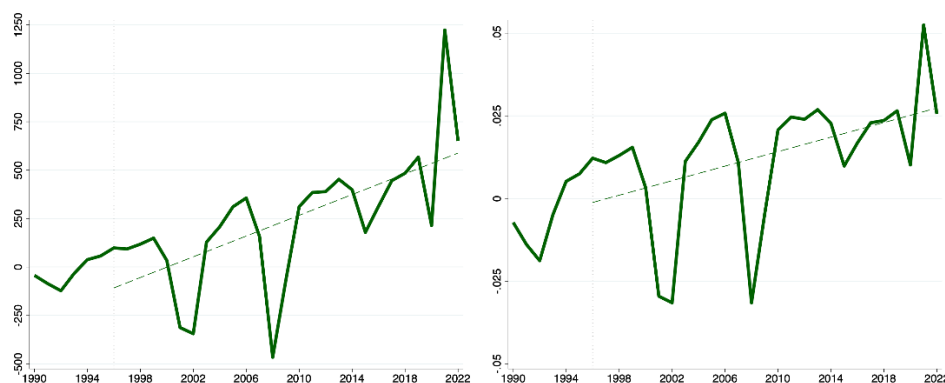


Figure 7. Economic Profits Rise, 1990–2022.

This figure recalculates public firms' profitability to account for the baseline cost of capital. In the common configuration of economic profit (sometimes called abnormal earnings or residual income), the measure accounts for the fact that investors have alternative opportunities—such as low-risk U.S. Treasury bonds—for their savings. The economic profit thus deducts from net income an interest component (equivalent to the yield on a 10-year Treasury bond and a risk premium for investing in stock, of 5.5% per annum). The left figure is the raw economic earnings; the right figure are the economic earnings scaled to GDP. Since these economic (or residual, or excess) earnings were near zero in 1996, calculating their multiple for 2022 is not meaningful. Suffice it to say that they rose sharply.

²⁶ Qiang Cheng, *What Determines Residual Income?* The Accounting REV. 80 No. 1, 85–112 (2005).

²⁷ Our measure of economic profit is computed as net income minus the opportunity cost of capital. We compute the opportunity cost of capital as the beginning-of-year book value of equity times the cost of equity, which is computed by implementing the Capital Asset Pricing Model. Specifically, each year's cost of equity capital is computed by summing the ten-year treasury yield, obtained from the St. Louis Fed's FRED Economic Database (<https://fred.stlouisfed.org/series/DGS10>), and an equity risk premium of 5.5%. Our choices are guided by common practice in the estimation of required returns on stock markets. See, e.g., Pablo Fernandez, Sophia Banuls, and Pablo Fernandez Acin. *Survey: Market Risk Premium and Risk-Free Rate used for 88 Countries in 2021*. IESE Business School Working Paper, <https://papers.ssrn.com/abstract=3861152> (2021).

B. Public Firms' Rising Stock Market Capitalization

While the *number* of public firms plummeted during the past quarter-century, their aggregate *value* has not, a fact that fit badly with the conception that the American public firms is in decline. Margaret Blair, Brian Cheffins, and George Georgiev make similar observations.²⁸

In 1996, the total value of U.S. stock market capitalization was \$7.7 trillion, or about [half] of that year's GDP. By 2022, the total capitalization had risen to more than \$38 trillion, much more than 2022 GDP. Public firms are by this measure are more important to the economy today as they were in 1990. Figure 8 illustrates.

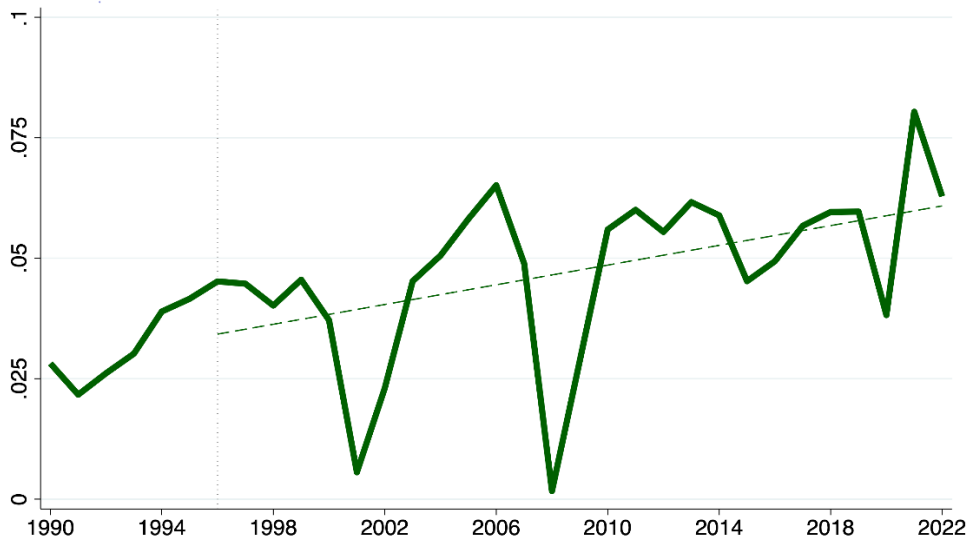


Figure 8. Rising Total Stock Market Capitalization to GDP, 1990–2022²⁹

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

²⁸ Cf. Cheffins, *supra* note 10, at 6, 22–24; Georgiev, *supra* note 14; Alperen A. Gözlüçöl, Julian Greth & Tobias H. Tröger, *The Oscillating Domains of Public and Private Markets* (working paper, 2022). Margaret Blair studies the largest 200 firms, focusing on the stability of their starting from the 1890s merger wave, showing that despite the vicissitudes of the twentieth century—early trust-busting, roaring Twenties, a Great Depression, World War II, and a postwar boom—the largest firms played a consistently important role in the economy through the 1980s. Margaret M. Blair, *Are Publicly Traded Corporations Disappearing?* 105 CORNELL L. REV. 641, 644–53 (2020).

We add to prior work by highlighting the sharply rising profitability of the public firm sector, which lays a foundation for the industrial organization hypotheses of Part II. We also focus on what has happened in the quarter-century since 1996, when the number of public firms peaked, conjecturing that there was an interconnected triad of changes in the quarter-century after the peak of (i) profitability doubling of tripling (Figure 4), (ii) stock market value tripling (Figure 3), and (iii) the scale of the public firm rising greatly. Corporate securities regulation cannot, we assert, explain that package.

²⁹ Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.computat.com> [<https://perma.cc/8WM8-MRHT>].

company's shares. Total stock market capitalization is obtained by adding the value of each company. The trendline shows the rise since 1996.

Stock market capitalization is an imprecise measure, however. If interest rates fall, the stock market usually rises; and interest rates were low until recently. If the stock market is excessively optimistic about future profits—if it's frothy, or in a bubble—stock values will be high. Hence, profitability seems to be a stronger measure of change over time. But there are other measures of public firms' importance—revenues, investment, employment. Does their quarter-century trend confirm or undercut the sharp rise in profitability in Figures 3 through 7? We examine these measures next.

C. Public Firms' Revenues, Investment, and Employment, 1996-2022: All Are Steady

Consider investment levels. One worry in recent years has been that public firms are investing less than before.³⁰ If public firms are becoming fewer, then those fewer firms might invest less, making them less important.

Investment is more than buying hard assets—equipment, inventory, and factories. It includes spending on research and development that produces firm know-how, which does not get measured as a hard asset. Figure 9 measures public firms' spending on both hard assets and R&D. (Other intangible investments—like product brands—but are harder to measure; hence, the measure we use is a lower bound for full economic investment.) In 1996 this spending on hard-asset investments and R&D amounted to just over 6.8% of that year's GDP. If declining investment tracked the declining number of firms, public firm investment would amount to only half, i.e., 3.4% of GDP by 2022. But that's not what happened. The 25-year trend line slopes slightly downward and, as the number of public firms diminished, the fewer but bigger remaining firms invested somewhat *more*, at just over 7% of GDP in 2022.³¹ Investment basically held steady and was slightly higher in the last year of the period than it was in the first, even as the number of firms and the number of IPOs plummeted.

³⁰ 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).

³¹ 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 also checked the trend for other measures of investment (capital spending alone, and capital spending with R&D and with selling, general, and administrative expenses). The trends were the same.

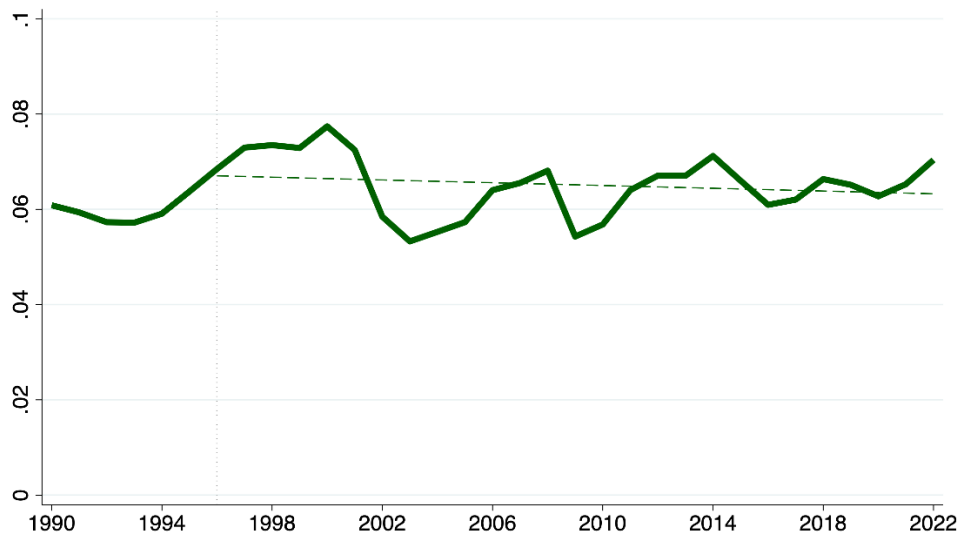


Figure 9. Steady Public Firm Total Investment (Capital Expenditure and R&D) Steady as a Proportion of GDP, 1996-2022³²

Although the number of public firms declined from 7,000 in 1996 to fewer than 4,000 in 2022, their total investment, measured by aggregating capital spending and R&D spending, held steady, and roughly kept up with the rate the economy was growing.

What about revenues? Public firms' revenues rose, keeping pace with the growth of the economy. Figure 10 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 at the end of the quarter-century became twice as profitable with the same revenue base.) Revenue was steady.

How about employment? Employment was also steady during the quarter-century, rising some. Figure 11 illustrates.³³

³² Source: S&P GLOBAL MARKET INTELLIGENCE, <http://www.compustat.com>.

³³ 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

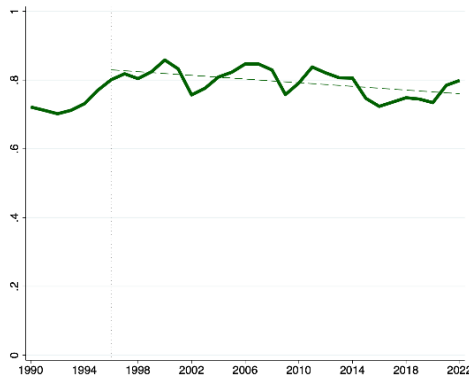


Figure 10. Public Firms' Revenues Steady as a Proportion of GDP, 1990-2022

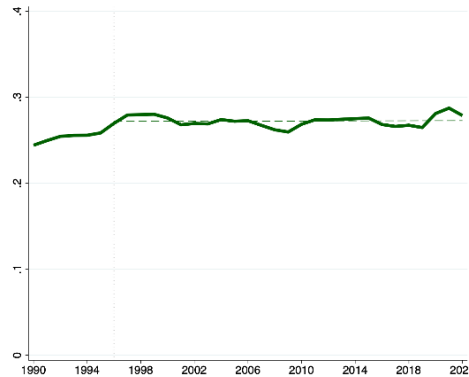


Figure 11. Public Firms' Employment Steady as a Proportion of Total U.S. Non-Farm Employment, 1990-2021

Collectively, Figures 3 through 10 do not paint a picture of a declining, weakening, or shrinking public firm sector. The public firms have halved in number since their 1996 peak, but not halved in their profitability, aggregate value, 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 much 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. Profits and value are up substantially; other measures have held steady as a portion of GDP. 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 Industrial Organization Hypotheses, but also the possibility that the lower number represents a reversion to a prior stable but lower number of firms, that the changes came from governance improvements in public and private firms, and that the result could have arisen from the impact of international competition. We do not intend to, and maybe cannot, fully evaluate each channel and then weigh each’s import against the Legal Explanations. We instead outline a research agenda, show how these real economy

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, all else equal, tighten the supply chain. That would make the weight of the public firm sector heavier, on this score, than the overall trend line. 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 stable or growing, not shrinking.

pressures could explain the reconfigured public firm sector, and offer some evidence that supports the 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 of public firms as a freestanding change. The I.O. Hypothesis can explain the package of economic power despite fewer firms better than the Legal Explanation. And, even if the count were fully independent of the package, each hypothesis—the Legal Explanations and the Real Economy, Industrial Organization Hypotheses—could contribute to explaining the halving.

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 industrial concentration as having increased markedly in recent decades, analysts differ on why. Some major academic work³⁴ and many progressive antitrust policymakers³⁵ see competition as declining as American industry became more concentrated. The proponents of the antitrust perspective point to rising corporate profits that are not competed away, to the apparently rising markups (as firms free from tight competition sell for a higher multiple of their costs),³⁶ and to declining dynamism.³⁷ “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.”³⁸

³⁴ 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 30; Lawrence J. White & Jasper Yang, *What Has Been Happening to 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.”).

³⁵ 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.

³⁶ 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 30, 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. Resch., Working Paper No. 25251, 2018), <https://www.nber.org/papers/w25251> [<https://perma.cc/B7MM-5PUR>].

³⁷ Philippon, *supra* note 30, at 9–10, 51–56; Shapiro, *supra* note 36, at 70–72.

³⁸ Carl Shapiro, *Antitrust in a Time of Populism*, 61 INT’L J. INDUS. ORG. 714, 737 (2018) (although other evidence suggested less of a drop in competition). 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,

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,³⁹ leading the Federal Trade Commission and the Department of Justice's Antitrust Division in 2022 to consider restrengthening them.⁴⁰ These two government units were motivated by "recent evidence . . . that many industries across the economy are becoming more concentrated and less competitive."⁴¹ The FTC chair says that "decades of mergers have been a key driver of consolidation."⁴² The Attorney General and the head of the Justice Department's Antitrust Division think that "too many industries have become too consolidated over time."⁴³ 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 firm mergers with other public firms amount to the decline in the number of public firms.⁴⁴

but they're less competitively structured, because there's now one monopoly. More firms, less competition. Each of the original 20 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.*

³⁹ 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).

⁴⁰ 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").

⁴¹ *Id.*

⁴² 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.

⁴³ 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.

⁴⁴ 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.

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.⁴⁵ That is, SEC progressives could see the reigning public firms as not just embodying values of openness and transparency but as the result of unwholesome mergers of public firms, as some other progressive policymakers see them to be. That is, the contrast in policymakers' explanations (weakened antitrust vs. securities regulation's harshness for public firms and laxness for private ones) for substantially similar phenomena—increased concentration and fewer public firms—seems to us worthy of comment. However, the weakened antitrust explanation for fewer but bigger firms is more prominent in liberal policymaking circles and media than in academic analysis.

Antitrust development is one I.O. explanation, but the academic literature points in gross to another I.O. development. That analysis looks to rising economies of scale, extended networks, and the growing importance of winner-take-all skill, foresight, and industry success to explain the declining number of firms or the increasing economic concentration. Each economic trend reduces the number of public firms.

1. *The new networks.* Increased concentration might be efficient and the result of intensified competition,⁴⁶ instead of the result of weakened competition. New technologies, frequently sheltered by patent protection, often allow only one firm in an industry.⁴⁷ Other monopolies arise from network platforms whose operating costs decline greatly for a firm that services all consumers or where the value that users

⁴⁵ 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).

⁴⁶ 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 36, 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.

⁴⁷ Autor, Dorn, Katz, Patterson & Van Reenen, *supra* note 38, 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?* J. POL. ECON. (forthcoming) (MS at 3) (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).

derive from the platform increases if there are more users on the same network.⁴⁸ Facebook is an archetypal network monopoly.⁴⁹

FTC commissioners emphasize the importance of network effects on increasing economic concentration.⁵⁰ “[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.”⁵¹

2. *Scale economies.* Others see much of the new concentration as resulting from old-fashioned economies of scale⁵² coming from high fixed costs.⁵³

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.⁵⁴ This is a common explanation for the increasing size and concentration of American firms.⁵⁵ If the larger efficient scale means the industry can only support three firms

⁴⁸ 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 GAFAM*, in DIGITAL DOMINANCE: THE POWER OF GOOGLE, AMAZON, FACEBOOK, AND APPLE 21, 26 (Martin Moore & Damian Tambini eds., 2018).

⁴⁹ 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).

⁵⁰ 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.

⁵¹ 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/phillis_-_we_need_to_talk_0519.pdf.

⁵² Berry et al., *supra* note 48, 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”).

⁵³ *Id.*, at 54.

⁵⁴ Basu, *supra* note 46, 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 36, at 603.

⁵⁵ Berry et al., *supra* note 48, at 48, 54.

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.⁵⁶

Closely related are ideas that small firms today develop a new technology better than a large public firm, often because they focus on one technological channel and use incentive plans that large, public firms cannot.⁵⁷ But if that small firm develops a successful technology, they must get big fast to profit from having found the new technology.⁵⁸ 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 rights to make the product—or to sell the firm itself or its technology—to a large public company, which then manages regulatory approvals, manufacturing, marketing, and distribution—tasks that the small firm cannot readily handle. Small pharmaceutical firms are particularly in need of this process. New drug development needs science-intensive people with science skills—people who often lack the organizational skills needed to manufacture and distribute their discovery.⁵⁹

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.⁶⁰ Superstar firms emerge from winner-take-all competition.⁶¹

4. *International competition.* From the 1980s onward, intense international competition in manufacturing, mainly from East Asian, particularly Chinese, manufacturers hit American firms. It damaged manufacturing firms of all sizes, but many smaller public firm manufacturers presumably could not survive.⁶² (This too, we emphasize, is a real economy, industrial organization effect, and not a securities

⁵⁶ 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”).

⁵⁷ Jonathan M. Barnett, “Killer Acquisitions” Reexamined: Economic Hyperbole in the Age of Populist Antitrust 6–7 (SSRN working paper, Mar. 28, 2023), www.ssrn.com/abstract=4408546.

⁵⁸ E.g., Xiaohui Gao, Jay R. Ritter & Zhongyan Zhu, *Where Have All the IPOs Gone?* 48 J. FIN. & QUANTITATIVE ANAL. 1663 (2013).

⁵⁹ Cf. Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration*, 109 COLUM. L. REV. 431 (2009).

⁶⁰ Bessen, *supra* note 48, 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>].

⁶¹ Autor et al., *supra* note 38, 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.

An intersection between I.O. and law, but not corporate law, is possible. Patent holders diminished power to obtain immediate injunctive relief is said to have weakened the stand-alone technological firm. Barnett, *supra* note 57, at 45 (pointing to the Supreme Court’s 2006 *eBay* decision).

⁶² See Robert Feinberg, *International Competition and Small-Firm Exit in US Manufacturing*, 39 EASTERN ECON. J. 402 (2013).

regulation effect.) As these smaller public firm manufacturers disappeared, we had fewer public firms.

5. *Separating evidence.* Several trends are consistent with both the I.O. Hypotheses and the Legal Explanations, such as the declining number of firms standing alone. But if the overall package of changes in the past quarter-century needs to be explained is an interrelated related, single package—fewer but more profitable, bigger public companies—then the Legal Explanations take a backseat to the I.O. Hypotheses. The Legal Explanation cannot explain the overall package; 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 efficient economies of scale or to drive out competition.⁶³ In Figure 3 through 6, we saw the quarter-century trend of public firms' profit rising faster than the economy grew. That trend of rising profit, larger firms, and fewer firms is consistent with the I.O. Hypothesis but not the Legal Explanation. For example, the I.O. Hypothesis could, but the Legal Explanation would not, explain public firms generating higher profit from the same amount of invested capital over time.⁶⁴

Indeed, the evolution of economic profits, presented in Figure 7, provides separating evidence. As we explained, our measure of economic profits has been shown to reflect firms' abilities to capture economic rent, which increase with industry concentration, barriers of entry, market share, and firm size. That public firms have as a whole have produced substantially greater economic profits in the quarter century since 1996, both in nominal terms and as a percentage of nominal GDP, is consistent with the I.O. Hypothesis. These data are also consistent with the recent work in finance, which indicate public firms have generated more profit per dollar invested over time.⁶⁵ 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.⁶⁶ An

⁶³ 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 38 (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.

⁶⁴ 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.”

⁶⁵ 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).

⁶⁶ 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 44; Lattanzio, Megginson & Sanati, *supra* note 44.

American public firm was *three times more likely* to merge with another American public firm than was the case in Europe and Japan.⁶⁷ The finance researchers attribute the diminished 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. That increase would alone 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.⁶⁸ 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 we show next that the bulk of the post-1996 public firm mergers were not of large firms acquiring small public firms (for which both explanations fit) but were larger firms acquiring other large 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.⁶⁹ Large firms acquired many more other *large* firms than small firms, as Figure 12 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.

⁶⁷ Eckbo & Lithell, *supra* note 44, 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 44.

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 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).

⁶⁸ 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.

⁶⁹ 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%.

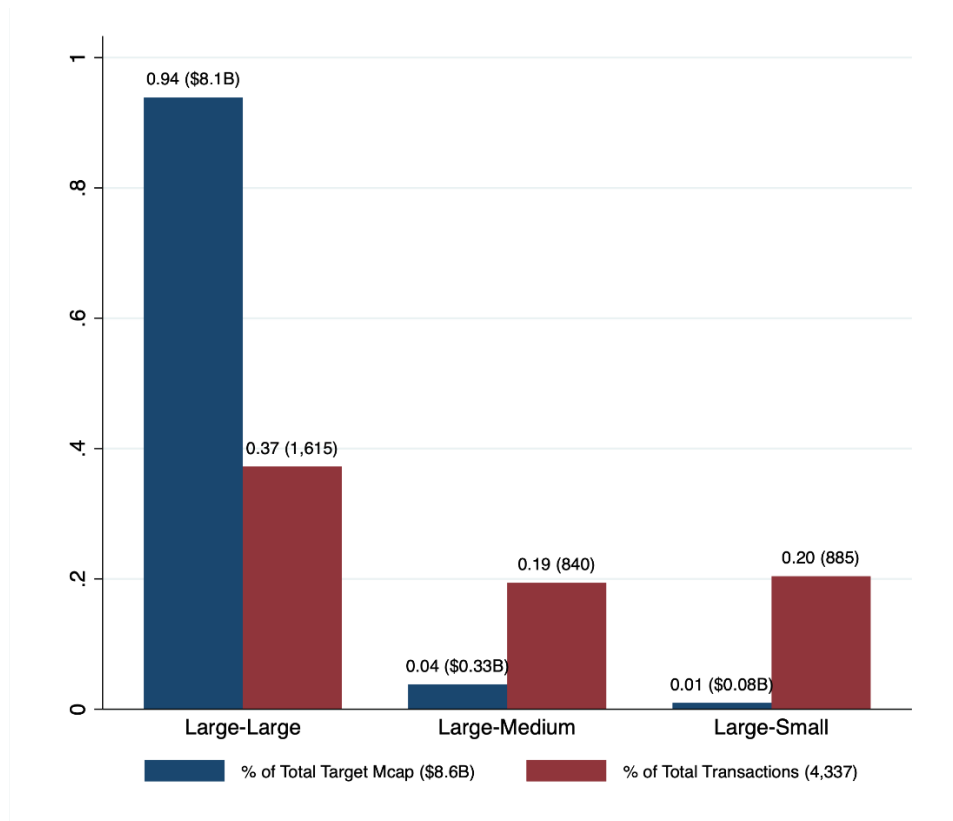


Figure 12. Large Firms Acquired More Large Firms than Small Firms, 1996-2022⁷⁰

This figure shows the size distribution of large firms' public firm acquisitions. 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 2022-dollar value. 94% of the total dollar-value of mergers were in mergers of larger firms with large firms. *And* these large firms merging with large firms accounted for 38% of the number of mergers.

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. (Large firms are defined as being within the top 40% by stock market capitalization.) As the red right-hand bar shows, the number of large firms that large firms acquired was nearly twice the number of small firms that they acquired.

The numbers atop the red right-hand bars show the market capitalization of the acquisitions and (in parentheses) the number of acquisitions. Large firms acquired 1,615 other large firms, but only 885 small firms, about half as many. For completeness, the middle bars show large firm acquisitions of medium firms (defined as in the middle 20% by stock market capitalization). Appendix Table 3 completes the picture (with acquisitions made by medium and small firms.) Recall that we are seeking to account for a drop of more than 3,000 in the number of public firms. About 2,500 of the mergers involved firms larger than the bottom 40% of public firms.

Further evidence fits better with the I.O. Hypotheses than with the Legal Hypotheses. The industries where the number of public firms diminished the most post-1996 were the industries whose average profits rose the most; the industries where the number of firms did not diminish or diminished the least substantially

⁷⁰ 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).

were the industries whose profitability rose the least. While we hardly think that this relationship is definitive and more work would be needed for a definitive resolution, the Legal Hypotheses cannot readily explain this difference, as the legal costs of being public presumably are the same across industries. Figure 13 illustrates. Profitability and industrial concentration correlate.

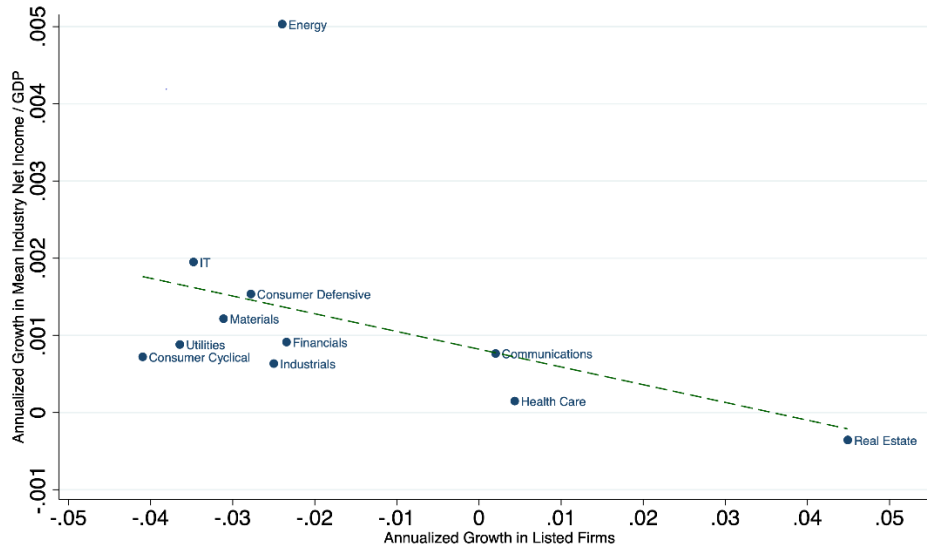


Figure 13. Fewer Firms in an Industry, Higher Profits in that Industry, 1996-2022

The x-axis measures the growth in the number of listed firms during the 1996-2022 period. (We use the two-digit Global Industry Classification Standard for our industry classification. (It is the measure commonly used in capital markets research across industries.) The number of firms in the industries to the right increased; the number of firms in the industries to the left decreased. The industries with a decreasing number of firms had profits that rose more than the industries with an increasing number of firms. The Legal Explanations cannot explain this difference; industrial organization changes can. Sources: Compustat-CRSP. GDP from FRED, <https://fred.stlouisfed.org/>.

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.

In 2022, the Democratic-controlled FTC signaled that it would challenge more mergers. That higher chance of an FTC challenge alone induced firms to forgo mergers that previously would have gone forward.⁷¹ 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.⁷²

⁷¹ Dave Michaels & Ryan Tracy, *FTC's Antitrust Posture Spurs Companies to Rethink Mergers*, WALL ST. J., Aug. 16, 2022, at A1.

⁷² 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).

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 pre-1996 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 1996.⁷³ The average number of firms in the quarter-century prior to the 1996 peak was 4,700 firms. That's still many more firms than we had in 2022. And presumably the quarter-century growth in the economy and population pushed for us gaining 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,⁷⁴ it contributes little to what needs to be explained. First, it doesn't explain the extraordinary post-1996 overall growth in size and profits in the public firm sector. Second, the dotcom bubble mostly refers to extraordinarily high valuations, not to the number of firms. Third, the number of public tech firms was about 1,000 in 1996 (when the U.S. total peaked) and dropped 50% to about 500 by 2022 that's about the same halving that the overall public firm sector experienced.⁷⁵ 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 dotcom peak.

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. Another I.O. possibility is that the life cycle of the small firm altered over time, leading to a lower demand for small public firms.

1. The holding pen. Here's what we mean. Posit that successful private firms once went public but had an unstable existence as public companies. Some prospered on their own, figuring out how to add functions they needed for viability. A pharma company with a superior product could go public and figure out how to build a capacity for regulatory approval, manufacturing, and distribution. Other pharma

⁷³ See Appendix Figure 8A.

⁷⁴ Cf. Blair, *supra* note 32, at 672 ("Valuations of 'dot-com' companies reached absurd height in the late 1990s, but eventually, reality began to set in . . . [T]he decline in the number of IPOs and in the number of publicly traded corporations since 2000 can be seen as a correction after a period of excess exuberance").

⁷⁵ See Appendix Figure 8B.

companies went public and could not acquire such capabilities. They were unstable until they merged with a large firm with the missing capacities, like manufacturing and distribution. Other small public firms failed, closed, and delisted.

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 large public firm, can nowadays get to this near-merger stage while 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.⁷⁶

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. This helps to explain the decrease in the number of small public firms: they were temporary originally and in transition; that transition from standalone and private to being a division of a public company is now direct, with fewer steps. This industrial change helps to explain the decrease in the number of public firms. And it does so in a way suggesting that little has changed on-the-ground—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.⁷⁷

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 harder for distant public stockholders to evaluate—the investor needs a more nuanced flow of information than public stock markets typically receive. Such firms are more likely 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 rising intangible aspect strengthens both central theses of this paper. *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.

⁷⁶ Cf. Cheffins, *supra* note 10, at 21; de Fontenay, *supra* note 14.

⁷⁷ The “holding pen” morphing into a direct sale suggests that the direct real economy consequences are stable. But for investors seeking to construct a portfolio with significant small-firm technological “pure plays,” the elimination of the small public firm investment opportunity is meaningful.

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 66; 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.

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, autonomy from oversight, and a bigger empire to run) and financial shareholders (who want the best risk-adjusted return). In the 1980s, this disjunction was particularly pernicious. Michael Jensen's well-known analysis predicted that the public firm would decline, due to this 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 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—such as Saudi Arabia's sovereign wealth fund—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 Riyadh to assess and manage their investments that finance private businesses.⁸⁴ Pension funds that might previously have felt confined to investing in public securities, real estate, and loans, now can make significant private equity investment.

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 of the business now in the public firm sector from exiting and joining the private firm sector.

5. *Relative size of public and private financial markets.* Considerable attention has been given to the growing importance of financial markets for private firms. This focus deserves the attention it has received. Our purpose here is not to evaluate the relative strengths and weaknesses of public and private markets, or even to definitively measure their relative size. Important work shows the growth of the financial markets' capacity to finance private business.

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

⁸¹ *Id.*

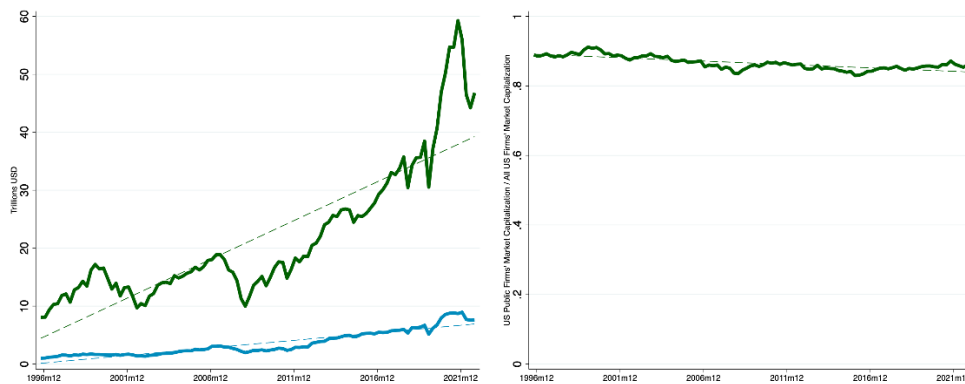
⁸² Cf. Cheffins, *supra* note 10, at 3 (strength of private companies' boards).

⁸³ Elisabeth de Fontenay, *Private Equity's Governance Advantage: A Requiem*, 99 B.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.

Our focus is on how public firms by all important measures other than their number persist in their importance to the economy during the past quarter-century. From that showing, we evaluate implications on securities regulation policy. We are not focused on the relative weight of public and private financial markets, although that is an important and related subject. The growth of private finance has indeed been substantial, with many more unicorns—billion-dollar firms—today than before, and with a growing capacity of private markets to finance ever larger firms. But we do contest the notion that this private financial growth has been, say, at an order magnitude faster than the growth of financial value in the public firm sector.

The growth we document for public firm value and profits during the past quarter-century roughly tracks that of the growth in value of private firm value. Figure 14 traces the spectacular growth in value of private business (using tax data). But that growth matches the rate of the rise in public firm stock market capitalization documented in Figure 3; it is not sharply greater.⁸⁵



Figures 14 and 15. Total Stock Market Capitalization and Private Equity Rising at Similar Rates, 1996–2022

These two figures illustrate the same phenomenon: the value of private investment in the United States has been rising sharply during the past quarter-century, but not more sharply than the value of public equity investment. The left figure, Figure 14, traces the two; the right figure, Figure 15 shows the market value of public equity as a percentage of the total market value of public and private equity. It is nearly flat for the past quarter-century. Sources: Federal Reserve Financial Accounts of the United States, <https://fred.stlouisfed.org/series/TNWMVBSNNCB> and <https://fred.stlouisfed.org/series/NCBCEL>.

To keep our perspective that the growth of the private sector is not materially different from that of the public firm sector: The largest twenty-five American

⁸⁵ Federal Reserve researchers obtained values similar to ours for the increase in the value of the private business sector. Jesse Bricker, Kevin B. Moore & Alice Henriques Volz, *Private Business Wealth and Rates of Return in the U.S.* (Feb. 2021 working paper), http://www.ecineq.org/wp-content/uploads/papers_EcineqLSE/EcineqLSE-218.pdf.

companies as measured by revenue, are still public companies. Of the top 500 American companies by revenue, about 80% are public firms.⁸⁶

Both sectors are growing, but the growth of the private firm sector at the expense of the public firm can be, and we believe has been, exaggerated. The 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 14% from 1996 to 2022. 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 Figure 15.

In another dimension, the private financing channels' strength is often measured against public firm capital-raising. While it is plausible that private firms raise more capital than public firms, by some measures, this difference does not mean that the private sector is "gaining on" the public sector. Private firms, especially those backed by venture capital, are often growing and need investment now because their capacity to generate income and cash is limited. Larger, mature public firms often do not raise new capital because they have earnings and positive cash flow that they can reinvest in valuable projects. This is an important subject for future inquiry.

* * *

We do not seek to definitively evaluate the relative growth of the public and private sectors. Instead, we simply show that the announced growth of the private sector and its newly won capacity to (i) raise large capital and (ii) grow beyond bigger than the size that in prior decades required the firm to go public do not contradict the public firm analysis we have done here. The value of financial assets has been rising everywhere and that rise helps explain the growth of both the public and private business sectors. The results suggest across-the-board growth, consistent with the central claim in this article—namely, that the public sector is not declining in any dimension other than number of firms.

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 bigger than ever, when measured by stock market capitalization, revenues, profits, and investment. But are these *American* revenues,

⁸⁶ Will Gornall & Ilya A. Strebulaev, *The Economic Impact of Venture Capital: Evidence from Public Companies 2* (SSRN working paper, June 2021), www.ssrn.com/abstract=2682841.

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.⁸⁷ Still, U.S.-sourced pre-tax profit was steady since 1996 while foreign-sourced pre-tax profit rose. The appendix figures illustrate.⁸⁸ And globalization is itself an aspect of industrial organization.

Recall our central policy inquiry: is the view, common at the SEC, that public firms are weakening, suggesting that burdensome securities regulation (or weakened private firm regulation) is the culprit. Properly interpreted, this data on rising foreign-source income should weaken these SEC-based propositions: (i) those newly globalized business segments of American public firms could have been owned privately or (ii) they could have been owned by companies originating outside of the United States. In 2022, however, they are owned by America's stock market investors. American-based public firms, subject to American corporate securities regulation, and they are more economically important than 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 2022, 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.⁸⁹ 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 declined, from about 6,500 to 3,500.⁹⁰ 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

⁸⁷ 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.

⁸⁸ See Appendix Figure 2. The impact of changing tax rates and different tax rates across different countries is largely eliminated because we compare pre-tax profit throughout.

⁸⁹ Appendix Figure 4.

⁹⁰ 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.

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 roughly parallels that which we have shown to be the case for public firms overall: fewer but more valuable IPOs. The total *value* of the firms that are going public is declining much less slowly than the number of IPOs. The trendline does not fully flatten when the focus shifts from numbers to dollars, but it flattens considerably. Indeed, while the trend over time of the number of IPOs is statistically significant and negative, the trend over time of the IPOs' capitalized value is statistically no different from zero. In this sense, the IPO market is just about holding steady. And if one considers the dot.com boom of 1998, 1999, and 2000 to be aberrational, dampening the local peak in those early years (if the dotcom boom were considered aberrational) would flatten the trendline considerably and would show IPO proceeds *as rising*.⁹¹

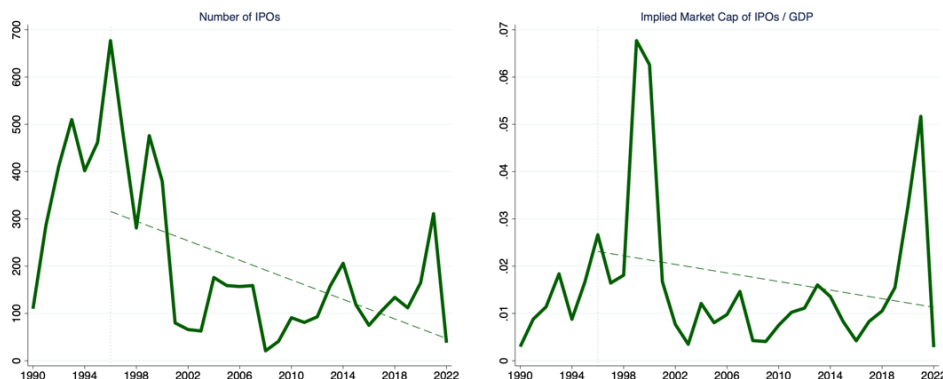
Indeed, the slope of the trend-line depends greatly on the period chosen. Had we stopped measuring at the end of 2021, the trendline for the value of the IPO market would have *risen*, even if the dot.com boom were part of that trendline.⁹² Figures 15 and 16 illustrate the contrast. The decline in dollars is shallow enough that there's no statistical significance to the quarter-century change in dollar value of private companies moving into the public sector.

Figure 15 looks at basic IPOs by selling themselves to a public company. In the Appendix, we provide similar contrasts—of numbers of firms versus dollars—for basic IPOs aggregated with special purpose acquisition transactions. These two when combined behave similarly to the contrast in Figures 16 and 17: the slope for the decline in dollars flattens considerably when we measure dollars instead of numbers.

⁹¹ 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.

⁹² Including or excluding special purpose acquisition corporations—SPACs—does not materially change these trendlines. SPACs substitute for IPOs functionally, but were low in number annually—less than 20 per year—til 2020. The Appendix shows the results without SPAC transactions.



Figures 16 and 17. IPO Numbers and IPOs’ Value as a Proportion of GDP, 1990–2022⁹³

The left figure shows the number of previously private firms that initially sold their stock into the public in each year. The three-decade trend in numbers of IPOs is down sharply, as corporate discourse indicates. But the right-hand figure shows that the total value of private companies moving into the public sector has declined much less sharply. And in the last decade the trend is rising, not declining. The dot.com boom of 1998–2000 is a local spike in those years; in the absence of the dot.com boom, the trendline would have trended up. Lastly, the trendline is sensitive to the start-year and the stop year. E.g., without 2022, the trendline for market capitalization would have a positive slope.

In recent years, SPAC (or “special purpose acquisition corporations”) transactions have become common: a public company is formed without an operating business but with capital to acquire one. When it acquires a private business, the transaction is functionally equivalent to the private company going public. For simplicity in Figures 15 and 16, we just illustrate the trends for traditional IPOs. In the Appendix, we illustrate the trend for traditional IPOs combined with special purpose acquisition transactions, and also add in direct acquisitions of private companies by already private companies. The results are similar: a decline in numbers over the quarter-century, but a much more shallow decline in total transactional value.

The Legal Explanation potentially works here. If the decrease in IPOs is not 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.⁹⁴ The per annum average declines after 1996. Had the rate prevailing through 1996, when the number of public firms peaked, continued, about 2,400 additional IPOs would have occurred through 2022.⁹⁵ Although many of these would have merged during this quarter-century or closed or gone private, the net number would contribute to the missing 3,500 firms.

⁹³ Source: Ritter, *supra* note 7. Lattanzio, Megginson & Santi, *supra* note 44, 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 private firms are founded and get good funding, expanding the pool of healthy private firms, some of which grow large enough to go public. The authors provide evidence that the latter effect—of more solid private firms—is as important as the former. Better private financing has not, they find, diminished the net number of public firms.

⁹⁴ 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).

⁹⁵ 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.

Here, the Legal Explanation could explain the decline *if* the IPO trend was largely independent of the reconfiguration package. But if the IPO decrease was embedded in the overall reconfiguration package (bigger firms, more profits), the Legal Explanation 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 about \$2 trillion in private firm value was acquired. Private firms *were* moving into the public sector, presumably including many of the “missing” 2,400 in the prior paragraph. But they were moving directly from private status to divisional status at a public firm.⁹⁶

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 an ongoing compliance cost, once public, of [\$1.8] million per year.”⁹⁷ 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 in 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.

Other techniques to estimate the net cost to firms of securities regulation yield similarly low costs. One technique examines whether firms’ sizes bunch below the level at which a regulatory constraint kicks in; if there’s much bunching, then firms fear going above the constraint; if there’s little bunching, the costs can be presumed small. Dhammika Dharmapal found little bunching below the level at which Sarbanes-Oxley’s thresholds kicked in.⁹⁸ Michael Ewens, Kairong Xiao, and Ting

⁹⁶ 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.

⁹⁷ 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>.

⁹⁸ Dhammika Dharmapal, *Estimating Firms’ Responses to Securities Regulation Using a Bunching Approach* (ECGI Fin. Series 867, 2023), www.ssm.com/abstract=2817151.

Xu examined multiple thresholds for securities regulation and found the present value of the regulatory costs to be more than that in the Treasury study and more than that in the Dharmapal study, but still small for the median firm.⁹⁹

In their study, the annual costs amount to about one- or two-tenths of a percent of firm value—a very small portion of the rising profit of the public firm sector.

These are not big numbers to begin with. And it's plausible that the percentages—measured for smaller firms, at the threshold of going public or of being regulated—decline for very large firms.

True, even this expense level could induce some 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 with other big firms unless there were major I.O. benefits. Recall that 2,400 of the 4,000 public firm mergers since 1996 do not involve 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.¹⁰⁰

Yes, there are 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 than at the beginning of quarter-century under discussion.

Consider Sarbanes-Oxley more closely. (Sarbanes-Oxley, passed in response to the Enron and WorldCom scandals, has been criticized as wrongly but sharply raising the costs of small firms being public. It has been 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.¹⁰¹

Compare the magnitude of legal costs to the last quarter-century's rise in 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

⁹⁹ Michael Ewens, Kairong Xiao & Ting Xu, Regulatory Costs of Being Public: Evidence from Bunching Estimation (SSRN working paper, May 23, 2023), www.ssrn.com/abstract=3740722. The authors find a noticeable cost jump after Sarbanes-Oxley, which thereafter reversed. *Id.* at 29.

¹⁰⁰ 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.

¹⁰¹ 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 43, 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). The JOBS Act in 2012 sought to increase IPOs by relaxing the Sarbanes-Oxley and related regulation. But it was followed by no more than a modest uptick in IPOs. Cheffins, *supra* note 10, at 13.

\$100 million or so, this is a noticeable expense.¹⁰² 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.¹⁰³ If we think that the phenomena of rising profits and larger size is an economy-wide, top-to-bottom phenomenon, in significant measure, I.O. has a chance of explaining, regulatory costs.

But what was happening to public firm profitability during that quarter-century? In 1996, public firm pretax profits were \$587 billion (or more than \$1.1 trillion in inflation-adjusted 2022 dollars). By 2022, public firm profits were \$2.1 trillion. Public firm profits increased by \$1 trillion as 3,000 firms disappeared. The \$5.4 billion compliance savings cannot account for that \$1 trillion rise in pretax 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 this package of 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.¹⁰⁴

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.

¹⁰² US Treasury IPO Task Force, *supra* note 97; 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).

¹⁰³ 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 97. 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.

The work that extrapolates costs from bunching below regulatory thresholds is relevant. One finds no bunching—Dharmapala, *supra* note 98. No bunching, no costs. Ewens, Xiao & Xu, *supra* note 99, find total bunching pointing to regulatory costs of about 3.5% of the average firm's gross earnings. *Id.* at 28. A bigger number, but still not a trillion-dollar event.

¹⁰⁴ 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.¹⁰⁵

B. Impact on Current Regulatory and Deregulatory Efforts

The SEC’s 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. Here we give one example: proposed changes to Regulation D, governing which companies must register as regulated public companies.

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.¹⁰⁶ The statute and rule (“Reg D”) require that firms with more than 500 shareholders who have characteristics indicating the shareholders are less sophisticated must register as public companies.¹⁰⁷ Proposals are on the table to count groups by their individual

¹⁰⁵ 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. A stock market with less fraud is one in which honest firms can command a higher price. Investors must pool good firms with bad ones when the investors price firms if the investors cannot discover up front where the fraud is. If there’s less fraud, the investors will pay a higher price for the higher quality pool.

¹⁰⁶ 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”).

¹⁰⁷ 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).

members, not by the group as a single investor. A look-through would require more private firms to register as regulated public firms.

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.¹⁰⁸

The impact of the Article's thesis here is that, to the extent I.O. considerations drove 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 I.O. considerations 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 it is not shrinking.¹⁰⁹

C. Corporate and Securities Law to Facilitate Competition

The Securities and Exchange Commission primary mission has long been to protect the stock-owning public.¹¹⁰ From that protection, capital markets could develop well, strengthening the American economy and American well-being.

The SEC's core mission is not to protect and foster product market competition;¹¹¹ 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.¹¹² Antitrust, industrial organization, and competitive product markets are not. Yet, the analysis here tells us that industrial organization ties up with corporate securities regulation and the

¹⁰⁸ Cf. Lee, *supra* note 106 (text accompanying Commissioner Lee's note 30). Some may desire this result because public firms are more readily regulated for social impact.

¹⁰⁹ Officials who fear over-regulation would presumably not recalibrate their bottom line on this alone.

Nuances are relevant. The data in this paper shows public firms' capitalization, profits, and revenue not to be shrinking as a fraction of the economy. It's possible that these measures are also increasing for private firms, particularly the larger private firms.

¹¹⁰ 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).

¹¹¹ Still, the statute states that when the SEC must consider the public interest, "the Commission shall also consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation." Securities Exchange Act of 1934, § 3(f). But other than in fostering competition among brokers, this option does not figure strongly in the agency's view of its mission. Cf. Our Goals, *supra* note 110.

¹¹² 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.

diminishing number of public firms. That analysis, standing alone, could push the SEC to seek more competitive industrial markets. But that's not the SEC's traditional mission.¹¹³

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.

Such goals are not part of the SEC's primary mission and there are good reasons for that. First, it's inherently uncertain how to implement such a general goal—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 determine competition 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 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.¹¹⁴

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

¹¹³ 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.

¹¹⁴ 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).

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 halved from their 1996 peak. 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 either rising faster than the economy is growing or holding steady, despite the diminishing number of firms. Profits, for example, have doubled, even as the number of firms halved. 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. True, the reduced number of public firms can adversely affect investors' capacity to construct the portfolio that they want. But reduced investment choice is not the same as the public firm sector diminishing in economic weight.

This combination of larger and more profitable but fewer firms calls for new and potentially more powerful explanations, and we bring forward the Industrial Organization Explanations. SEC commissioners from one political party see the impetus as coming from overregulation 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 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 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. If it's a package, the Legal Explanation fades in relative importance.

The rising profits 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 looked to securities law factors to explain the declining number of firms. Profits are rising sharply, while investment and revenue are holding

steady as a proportion of the economy. 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 sector, 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. The altered structure may disrupt some portfolio strategies; but this is not as important as a broad contraction of the public firm sector's real economic activity—a contraction that has not happened. To understand the public firm sector's full role today, policymakers should look not just at the number of firms but at basic measures of business prowess, like total capitalization, profits, revenues, and investment. When they do, they will conclude that overall, the public firm sector is not shrinking.