

The Regulatory Consequences of the Oscillating Domains of Public and Private Markets

Law Working Paper N° 689/2023

November 2024

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Abstract

We contribute to the debate on regulatory interventions to stimulate public markets, which has ensued against the background of a significant boom in private markets and a corresponding decline in the number of firms and the amount of capital raised in public markets in the US and Europe. We argue that regulators should maintain a steady hand in setting the rules for capital markets and refrain from interventions that seek to shift capital raising from private to public markets. Our research challenges the popular view of a linear trend from one market to the other. We take a long-term perspective and examine historical developments more closely, arguing that the interaction between public and private markets is more complex. We claim that there is a dynamic divide between these markets and identify specific factors that determine the degree to which investors, capital, and companies gravitate more toward one market than the other. We show that these factors interact whereby the domains of public and private markets oscillate over time. While these oscillations imply ‘competition’ between these markets, we unravel their complementarities, which also militate against a secular trend towards one market. Our theoretical and empirical findings indicate that regulators should not seek to shift the dynamic divide, because the medium-term success of such interventions is doubtful, and they are likely to initiate a cycle of endogenous rule-making.

Keywords: corporate finance, capital markets, public markets, private markets, private equity, securities regulation, financial regulation

JEL Classifications: D53, G1, G3, K22

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We contribute to the debate on regulatory interventions to stimulate public markets, which has ensued against the background of a significant boom in private markets and a corresponding decline in the number of firms and the amount of capital raised in public markets in the US and Europe. We argue that regulators should maintain a steady hand in setting the rules for capital markets and refrain from interventions that seek to shift capital raising from private to public markets. Our research challenges the popular view of a linear trend from one market to the other. We take a long-term perspective and examine historical developments more closely, arguing that the interaction between public and private markets is more complex. We claim that there is a dynamic divide between these markets and identify specific factors that determine the degree to which investors, capital, and companies gravitate more toward one market than the other. We show that these factors interact whereby the domains of public and private markets oscillate over time. While these oscillations imply 'competition' between these markets, we unravel their complementarities, which also militate against a secular trend towards one market. Our theoretical and empirical findings indicate that regulators should not seek to shift the dynamic divide, because the medium-term success of such interventions is doubtful, and they are likely to initiate a cycle of endogenous rule-making.

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1 Introduction

Policymakers around the globe are discussing regulatory initiatives to revive public securities markets. These initiatives respond to a perceived decline of public markets over the last decades. Such a decline is associated with impending welfare losses and distributional concerns. Less vibrant public capital markets diminish investors' ability to diversify risks, dampening their willingness to provide capital and, consequently, decreasing financing opportunities for entrepreneurs with innovative yet highly uncertain business ideas. Inefficient capital allocation reduces growth and prevents the disruption of encrusted industrial organization. In addition, retail investors without access to private markets have fewer possibilities to participate directly in private sector welfare creation, if much of the added value is created in private firms.

The contemplated interventions either use regulatory fiat to compel more private firms to go public or increase the attractiveness for firms to register their securities for trading on public markets. While some policymakers propose tighter regulation of private markets, limiting issuers' ability to avoid registration as public companies and stay private,¹ others suggest de-regulation, alleviating the compliance burden of registered issuers and increasing the advantages of being public.² Both approaches put law center stage as the dominant explanation of market developments. Securities regulation is seen as either too lenient for private markets or too rigid for public ones. Therefore, legislators may administer the cure from opposite ends.

¹ The primary example is the U.S. Securities and Exchange Commission Proposal to change the determination of the threshold of 2000 shareholders "of record" that triggers registration and accompanying disclosure requirements. See the Securities Exchange Act of 1934, 17 CFR § 240.12g5-1 (defining securities "held of record"). See also Paul Kiernan, 'SEC Pushes for More Transparency From Private Companies' *Wall Street Journal* (10 January 2022) <<https://www.wsj.com/articles/sec-pushes-for-more-transparency-from-private-companies-11641752489>> accessed 25 November 2022. For the policy rationale underpinning the initiative, see Allison Herren Lee, 'Going Dark: The Growth of Private Markets and the Impact on Investors and the Economy' (12 October 2021) <<https://www.sec.gov/newsroom/speeches-statements/lee-sec-speaks-2021-10-12>>. For a critical assessment, see Hal Scott and John Gulliver, 'Gary Gensler's Assault on U.S. Capital Markets' *The Wall Street Journal* (17 July 2022) <<https://www.wsj.com/articles/gary-genslers-assault-on-u-s-capital-markets-partisan-activist-sec-shareholders-investors-funds-executive-office-11658077526>>.

² For such an agenda which has been sponsored in the U.S. since, at least, the promulgation of the Sarbanes–Oxley Act of 2002, see, e.g., Jamie Dimon, 'Chairman and CEO Letter to Shareholders' (8 April 2024) <<https://www.jpmorganchase.com/ir/annual-report/2023/ar-ceo-letters>>.

In this paper, we caution against such simplistic policy precepts for two reasons. First, these proposals for regulatory interventions assume linear market developments absent regulatory interventions where private markets grow endlessly at the expense of public markets (or vice versa). We put forward an alternative hypothesis of a more complex interaction of private and public market³ growth determinants. The data indicates that this hypothesis is better aligned with the historically fluctuating boundary between these markets. Market conditions temporarily observed at a certain point should not lead to exaggerated conclusions about market developments and hasty interventions without gaining some confidence in the root causes and potential trends.

Our hypothesis that we should expect more dynamic and oscillating domains of public and private markets builds on a behavioral model of interacting factors. Certain factors influence how much capital is raised on either public or private markets, and equilibrium outcomes will favor one of these markets at the expense of the other at a particular time. However, such an equilibrium is unlikely to be stable because, in response to the initial shift, other determinants of the relative market fraction will also be subject to adaptation and will thus push equilibrium outcomes in the other direction. Therefore, the domains of public and private markets are constantly in flux, without gravitating toward a stable steady state. Instead of a long-term secular trend away from one market to the other, we conceptualize the developments as oscillations between the two. Furthermore, from a static perspective, public and private markets are competing institutions, with the contest potentially generating a take-all-winner. However, when viewed from a dynamic perspective, public and private markets are also complementary institutions, mutually reinforcing and improving the performance of their functions. Therefore, the disappearance of either market would be inefficient. Interdependencies between these markets act as

³ It is practically impossible to provide a simple, precise, and globally applicable definition of private and public markets due to regulatory and market differences in various jurisdictions. We base our understanding of the status of markets as either private or public on the regulatory classification in key jurisdictions. Both the US and the EU follow similar approaches for that purpose: the key determinants are that firms can raise unlimited amounts of capital with an unrestricted investor base and unimpeded secondary market trading in public markets, whereas there are significant restrictions on each of these features in private markets. Therefore, public markets, largely free of relational contracting, are heavily regulated with high market transparency, while private markets remain lightly regulated with limited market transparency and a stronger reliance on private ordering. For the relevant provisions governing capital raising in those markets, see sections 4, 5 & 10 of the Securities Act of 1933 and Regulation (EU) 2017/1129 (arts. 1(3), 1(4), 1(5), 3(1) and 3(2) as well as arts. 6ff.). For a broader set of regulations differently applicable in those markets, see below (n 75).

'stabilizers' that moderate the oscillations of the divide and prevent them from gravitating towards extreme ends. Our data analysis shows that private markets have grown enormously but, when set against public markets, have gained little ground in market capitalization. Both our theoretical and data analysis should give pause to calls for salvaging public capital markets via de-regulation.

Secondly, we are skeptical of whether regulatory interventions can have an enduring impact on market developments. Our hypothesis implies that regulation is only one factor among many that affect firms' financing choices. Furthermore, the complexity of capital markets is such that regulators are generally boundedly rational. Their interventions might not work as intended or produce second-order effects that undo the intended regulatory outcome. Similarly, one market's advantages over the other due to regulatory and deregulatory interventions might get eroded as the 'subsidized' market growth causes novel problems in that market segment. These often trigger another round of regulatory interventions, and therefore, the set of regulatory policies is increasingly endogenously determined as the time horizon lengthens.

Furthermore, we argue that policies that favor private or public market financing for companies are fundamentally misguided if they cannot pinpoint positive or negative externalities flowing from firms' choices. Absent agency problems, firms' choices of private or public market financing should be value-maximising. Regulators should level the playing field when policy reasons justify regulation/de-regulation of both markets to prevent regulatory arbitrage. Unless such reasons exist, the regulatory aim should be growing the overall market pie.

Our contribution adds to the recent multi-faceted scholarship on capital market developments. Some papers identified several forces driving the observed upswing of private relative to public markets in recent years: (i) increased regulatory and ancillary costs of being public, making listings incrementally unattractive; (ii) the growth of private capital, partly driven by de-regulation, decreasing the need to tap into public markets even for large firms; (iii) mergers and acquisitions, leading to higher concentration in public markets, which means fewer (but larger) listed firms; and (iv) changing asset characteristics,

requiring less large-scale external funding and incentivizing private capital raising.⁴ Our paper produces a hypothesis that incorporates all these factors in a way that puts forward an oscillating relationship between public and private markets. Furthermore, our explanation of the interaction of various determinants of public and private market development that militates against a secular trend toward one market complements the work that doubts that public markets are in decline at all⁵ and presents summary statistics to corroborate this position.⁶ Our theoretical insights are aligned with empirical observations and carry important policy implications.

Section 2 puts forward our hypothesis of the dynamic divide between public and private markets, with a few illustrations of how this dynamic plays out. Section 3 shows the complementarities between public and private markets that corroborate our hypothesis of an inextricable, symbiotic relationship. Section 4 takes our hypothesis to the data and describes the trends in public and private markets in the US in recent decades that is consistent with our hypothesis. Section 5 then examines the role of regulation in this dynamic divide and prepares the ground for Section 6, which explores the policy implications of our findings. Finally, the last section concludes.

2 The dynamic public/private divide

This section presents our central hypothesis of a dynamic divide between public and private markets. We argue that certain factors determine whether investors, capital (either at the fundraising or investment level), and companies gravitate more towards one market than the other at a time. However, the resulting public/private divide does not constitute a stable equilibrium. The same or other factors will eventually cause countereffects that develop in response to the previous state in a way that favors the contracting market and will thus push back to another (unstable) equilibrium. This interplay produces an ongoing back and forth; thus, as the time horizon extends, one would observe oscillating

⁴ For a succinct summary of these explanations, see Kathleen M Kahle and René M Stulz, ‘Is the US Public Corporation in Trouble?’ (2017) 31 *Journal of Economic Perspectives* 67.

⁵ See, e.g., Brian R Cheffins, ‘Rumours of the Death of the American Public Company Are Greatly Exaggerated’ (European Corporate Governance Institute (ECGI) - Law Working Paper No 444/2019, April 2019) <<https://papers.ssrn.com/abstract=3225889>> accessed 6 September 2022.

⁶ Mark J Roe and Charles CY Wang, ‘Half the Firms, Double the Profits: Public Firms’ Transformation, 1996-2022’ (ECGI Law Working Paper 774/2024, 17 July 2024) <<https://www.ssrn.com/abstract=4372070>> accessed 16 September 2024.

domains of public and private markets rather than a secular trend from one to the other (below 2.1). We do not suggest that oscillations are perfectly continuous across intervals. Instead, we use the term to denote recurring pendulum swings shifting the relative size of public or private markets. We also identify the crucial levers responsible for the oscillations (below 2.2) and illustrate the multidimensional mechanics underpinning our hypothesis (below 2.3). This allows us to conclude that a secular trend toward one market is ultimately implausible.

2.1 The shifting balance of powers and the intuition of functional finance

Robert C. Merton's seminal work on functional finance provides one of the canonical frameworks to analyze the financial system.⁷ Adopting a functional perspective rather than an institutional one, he posits that providing a specific financial function will oscillate between 'markets' and 'intermediaries' in a dynamic institutional structure.⁸ Following developments over time, a particular pattern of competition between intermediaries and markets emerges: instead of a secular trend away from one to the other, the relevant function is moving back and forth between the two.⁹ Furthermore, this dynamic shows that intermediaries and markets help each other to grow and innovate. In the long term, they are thus in a complementary relationship, although they also compete at particular points in time.¹⁰ Merton's fundamental insight that functions are more stable than institutions and, therefore, represent a better reference point for understanding market developments applies beyond its original scope, investigating the changing domains of market-based versus bank/intermediary-based finance.

Our idea of 'the dynamic public/private divide' represents an analogous case for the relationship between public and private markets. Here similarly, the steady state is inherently unstable because it hinges on many determinants that change over time and in response to each other. Just like the boundaries of the firm are determined by the marginal transaction costs incurred in allocating factors

⁷ Robert C Merton, 'A Functional Perspective of Financial Intermediation' (1995) 24 *Financial Management* 23; Robert C Merton and Zvi Bodie, 'The Design of Financial Systems: Towards a Synthesis of Function and Structure' (National Bureau of Economic Research, July 2004) <<https://www.nber.org/papers/w10620>> accessed 24 November 2022.

⁸ Merton (n 7) 27.

⁹ *ibid.* (showing, for example, how the function of providing retail investors with diversified portfolios oscillated between market and intermediary-based solutions in a reactive cycle of financial innovation).

¹⁰ *ibid.*, 28.

on markets or in hierarchies,¹¹ there are equilibrium points up to which one form of capital raising dominates the other. The relevant equilibrium points fluctuate due to various institutional or technological changes, leading to the dynamic public/private divide we describe. The countervailing forces need not operate sequentially. Instead, they can also work simultaneously. In the latter case, the (changing) relative strengths of the push and pull factors determine temporary outcomes. In both cases, the reason why we see an oscillating divide between public and private markets instead of a secular trend (an extreme, winner-takes-all result) is that the system is exposed to shocks all the time that unhinge the temporary steady state, pushing it into opposite directions, and thus shift the divide back and forth over time.

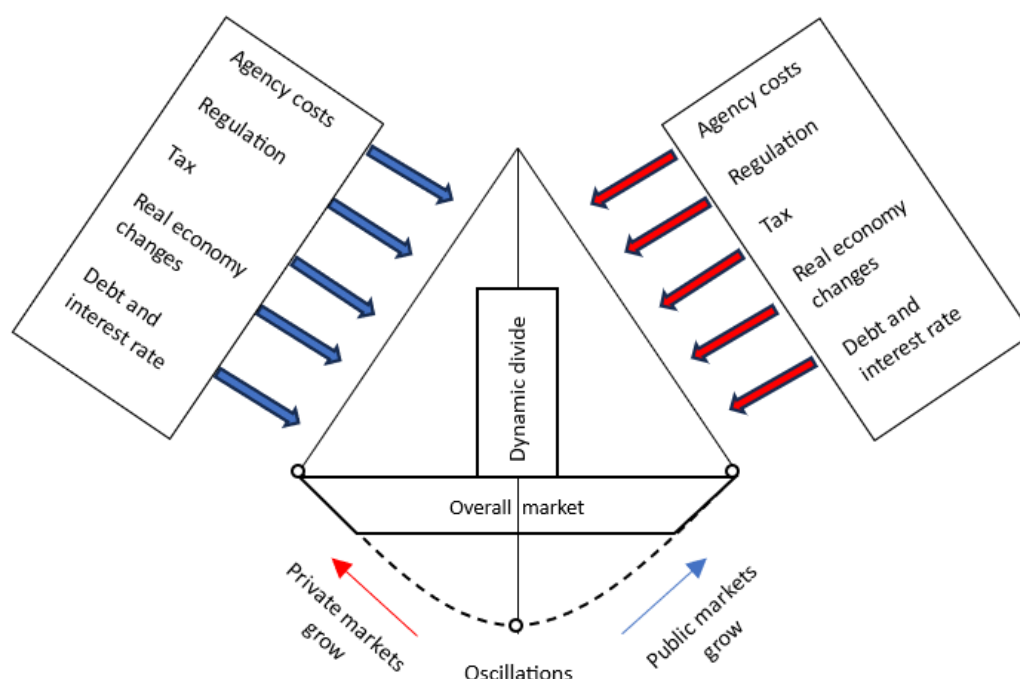
2.2 Drivers of the oscillating domains of public and private markets and their interaction

Several factors determine the growth or contraction of public and private markets in line with our hypothesis. These include (i) agency costs, (ii) regulation, (iii) tax, (iv) changes in the real economy, and (v) debt and interest rates. How all these factors interact and whether and to what extent their interplay favors one market over the other determine which market investors and firms tap into and, therefore, how public and private markets develop relative to each other. Oscillations between markets occur when the relative weight of relevant determinants shifts within or across the factors. There are instances where these shifts exhibit self-correcting tendencies; for instance, the positive impact of certain factors on the relative growth of one market may diminish over time and even reverse. Critically, any favorable treatment of one market, regardless of its origin, should increase activity (firms' capital raising or investor allocation) in that market, but is nothing but a starting point for further interactions of the factors that drive market development.

We summarize these factors in the figure below. Their relative momentum constantly changes, also as a result of an ongoing interaction between the different determinants. These shifts create the oscillating domains of public and private markets. Although we cannot deliberate in detail on the individual

¹¹ For the seminal insight, see Ronald H Coase, 'The Nature of the Firm', (1937) *Economica*, Vol. 4, p. 386 and for refinements of the argument, see Oliver Williamson, 'Markets and Hierarchies: Some Elementary Considerations', (1973) *American Economic Review*, Vol. 63, Issue 2, p. 316 and Oliver Williamson 'The Economic Institutions of Capitalism' (1985).

mechanics of these factors, let alone illuminate their latent effects comprehensively, the following illustrations should make it clear that they do not establish a persistent advantage for one market over the other and, therefore, cannot create a secular trend.



2.3 Illustrations

Our hypothesis of the oscillating domains hinges on continuous shifts in the relative momentum of the driving factors behind public and private market developments. Such shifts happen all the time as a function of social, economic, technological, and political transformations that may also emerge in response to prior alterations. We illustrate the dynamics in this subsection.

2.3.1 Comparative advantages in lowering agency costs

Lower agency costs have been much touted as a lasting advantage of private markets. Take, for instance, Nobel laureate Michael Jensen's prediction of the 'eclipse of the public corporation' from more than 30 years ago.¹² Jensen claimed that public corporations, laden with agency costs, would fade away, being

¹² Michael C Jensen, 'Eclipse of the Public Corporation' [1989] *Harvard Business Review* <<https://hbr.org/1989/09/eclipse-of-the-public-corporation>> accessed 8 September 2022.

replaced by private-equity-backed firms with their more robust governance and organizational structure.¹³ Time and time again, developments seemed to corroborate Jensen's hypothesis: for example, during the leveraged buy-out spree in the 1980s or the boom period from the beginning of the aughts up to the Global Financial Crisis (GFC) of 2008.¹⁴ Recently, there seems to have been a trajectory of bullish private equity activity and declining public markets again, providing the background for the policy question (above 1) we address in this paper.

However, we doubt that history is finally proving Jensen right. He argued that private companies' comparative advantages over public firms in reducing or eliminating agency costs would drive the inevitable triumph of private markets.¹⁵ Yet, differences in agency costs are not static and unlikely to explain the current phenomenon of booming private markets. If anything, agency costs in public corporations have been reduced in recent decades as institutional investors have replaced retail investors as shareholders in public companies. Although their incentives to monitor and engage with management remain doubtful,¹⁶ they should still be in a better position than retail investors.¹⁷ Furthermore, activist hedge funds monitor and discipline management in a collaborative effort with other institutional investors,¹⁸ which is often found to increase firm value.¹⁹ In addition, executive compensation today is predominantly tied to the medium- or long-term performance of the company and its shares, thus aligning the incentives of management and shareholders and ruling out the most egregious forms of pay-without-performance. Finally, at least in the US, an active plaintiffs' bar in securities litigation provides another powerful tool to keep managerial rent-seeking under control.²⁰ Although these

¹³ *ibid.*

¹⁴ See below notes 100-107 and accompanying text.

¹⁵ Jensen (n 12).

¹⁶ Lucian A Bebchuk and Scott Hirst, 'Index Funds and the Future of Corporate Governance: Theory, Evidence, and Policy' (2019) 119 *Columbia Law Review* 2029.

¹⁷ Marcel Kahan and Edward Rock, 'Index Funds and Corporate Governance: Let Shareholders Be Shareholders' (2020) 100 *Boston University Law Review* 1771.

¹⁸ See Ronald J Gilson and Jeffrey N Gordon, 'The Agency Costs of Agency Capitalism: Activist Investors and the Revaluation of Governance Rights' (2013) 113 *Columbia Law Review* 863.

¹⁹ For a review of the effects of hedge fund activism, see Alon Brav, Wei Jiang and Rongchen Li, 'Governance by Persuasion: Hedge Fund Activism and Market-Based Shareholder Influence' (ECGI Finance Working Paper No. 797/2021, January 2022), <<https://papers.ssrn.com/abstract=3955116>>.

²⁰ See, e.g., Holger Spamann, 'Indirect Investor Protection: The Investment Ecosystem and Its Legal Underpinnings' (2022) 14 *Journal of Legal Analysis* 17.

institutions of corporate governance do not eliminate agency costs, in combination, they reduce these costs significantly.

At the same time, private equity's alleged superiority in corporate governance has eroded somewhat.²¹ For example, more diverse business models of private equity firms that pursue different investment operations add to the existing conflicts of interest.²² Similarly, the recent trend of private equity firms partnering up to execute ever-larger transactions introduces another layer of friction in the investee firms' governance. It also complicates decision-making, especially in bad times when opinions on the most promising way forward may diverge.²³

Accepting for the sake of argument that Michael Jensen's observation of a comparative advantage of private markets in mitigating agency costs represented an accurate description of the steady state at the time of Jensen's writing, aggrieved shareholders on public markets could either respond by shifting investments from public to private markets ("exit") or by engaging in inducing governance or even legislative changes ("voice"). The preferred course of action depended on the relative costs and benefits of exit and engagement. These, in turn, varied for different types of equity holders and depended on the probabilistic success of engagement, which can also shift over time (e.g., in the wake of a financial crisis or a corporate scandal, legislative reforms may be easier to achieve²⁴). Those who preferred engagement may have achieved changes that shrunk or reversed the relative advantage of private

²¹ See Elisabeth de Fontenay, 'Private Equity's Governance Advantage: A Requiem' (2019) 99 Boston University Law Review 1095 (arguing that the business model of private equity firms no longer aims at remedying governance and operational deficits in underperforming firms, but relies on a dizzying array of new tactics and new asset classes); Brian Cheffins and John Armour, 'The Eclipse of Private Equity' (2008) 33 Delaware Journal of Corporate Law 1, 35-39 (detailing the potential deficiencies of the private equity). See also William Magnuson, 'The Public Cost of Private Equity' (2018) 102 Minnesota Law Review 1847 (arguing that "[t]he widespread perception about the corporate governance benefits of private equity overlooks the many ways in which the private equity model, far from eliminating agency costs, in fact exacerbates them.").

²² de Fontenay (n 21) 1112-1118. See also William A Birdthistle and M Todd Henderson, 'One Hat Too Many?: Investment Desegregation in Private Equity' (2008) 76 The University of Chicago Law Review 45.

²³ Cheffins and Armour (n 21) 38 (arguing that arrangements such as club deals, where private equity firms form consortia to carry out large buyouts or deals where some investors directly invest alongside private equity fund imply an erosion of organizational discipline). On the return of club deals which had fallen out of favor following the 2008 financial crisis, see Alon Harish, Karessa Cain and Steven Cohen, 'Private Equity: 2021 Year in Review and 2022 Outlook' (*The Harvard Law School Forum on Corporate Governance*, 9 February 2022) <<https://corpgov.law.harvard.edu/2022/02/09/private-equity-2021-year-in-review-and-2022-outlook/>> accessed 31 August 2022.

²⁴ For historical evidence in this regard, see Jihad Dagher, Regulatory Cycles: Revisiting the Political Economy of Financial Crises, Int'l Monetary Fund Working Paper No. 2018/008, <<https://www.imf.org/-/media/Files/Publications/WP/2018/wp1808.ashx>>.

markets, leading to a corresponding shift in equilibrium outcomes. Indeed, as just outlined, agency costs in public markets have been reduced via various developments in response to perceived managerial opportunism, such as hedge fund activism, performance-sensitive executive pay, strengthened shareholder engagement by institutional investors, etc.

Put more generally, agency costs are not fixed variables. They are a function of the existing institutional and market features, are subject to change, and, therefore, can shape market developments on either side of the public/private divide. For example, as private markets grow, horizontal conflicts (between investors) and vertical conflicts (between ultimate investors and intermediaries and also between investors and entrepreneurs) will inevitably become more pronounced, diluting agency cost advantages of private firms. The effectiveness of traditionally strong monitors, such as venture capitalists or private equity managers, and their ability to pay attention to portfolio companies will diminish as these companies increase in number or stay private longer.²⁵ This observation is related to the fact that private equity firms' actions are not mechanical and, thus, not scalable.²⁶ Similarly, the increasing investments of traditional public market investors, such as mutual funds in private firms²⁷ – which occurs when private markets become more attractive for other reasons – do not replicate the capabilities of traditional private market investors to provide effective governance to private firms such as entrepreneurial ventures.²⁸

2.3.2 Technological advances, asset characteristics, and growth opportunities

A particular factor's influence may come to be offset by another factor or a different effect of the same factor. We illustrate this against the background of technological advances that positively affect the real economy and the financial system. The accelerating digital revolution improves, among other aspects, the availability of financial capital across borders and the matching of demand with supply in capital

²⁵ Josh Lerner & Ramana Nanda, 'Venture Capital's Role in Financing Innovation: What We Know and How Much We Still Need to Learn', (2020) 34 Journal of Economic Perspective 237, 252.

²⁶ See Florencio Lopez-de-Silanes, Ludovic Phalippou, and Oliver Gottschalg, 'Giants at the Gate: Investment Returns and Diseconomies of Scale in Private Equity', (2015) 50 Journal of Financial and Quantitative Analysis 377 (showing that "investments held by private equity firms in periods with a high number of simultaneous investments underperform substantially.").

²⁷ See *infra* note 56 (noting growing investments of mutual funds in private markets – which, however, still remain very low in comparison to public market investments).

²⁸ *ibid.*

markets.²⁹ It also induces fundamental changes in the real economy, enabling an increasing number of new business models focused on 'intangibles' as pivotal output determinants. This shift also changes firms' asset characteristics, with the intangible to tangible asset or investment ratios increasing over time. Over the last decades, a clear trend led to firms holding more intangible assets than tangible ones.³⁰ Researchers estimate that, on average, the ratio of intangible assets to net assets (assets minus cash) rose fivefold from about 20% in 1970 to about 90% in the 2000s.³¹ These changes affect firms' financing preferences, ultimately leading to oscillating activity between private and public markets.

Crucially, firms whose success depends on the value generated by intangible assets may prefer to raise capital privately rather than in public markets for two reasons.³² First, with business models based on intangibles requiring fewer physical assets,³³ companies nowadays do not require as much capital as they once did for mass production and distribution,³⁴ which improves their ability to satisfy their capital needs in potentially shallower private markets. Second, business models relying heavily on intangible assets might be better suited to raising capital in private markets.

Firms with such business models might expect public market investors to apply a discount that reflects a potential agency problem between the controlling entrepreneur and investors. The entrepreneur has incentives to keep spending on developing new products (e.g., a new drug or technology) even when

²⁹ See, e.g., Erik Feyen, Jon Frost, Leonardo Gambacorta, Harish Natarajan and Matthew Saal, 'Fintech and the digital transformation of financial services: implications for market structure and public policy' (2021) BIS Papers No. 117, <<https://www.bis.org/publ/bppdf/bispap117.pdf>>.

³⁰ See 'Public to Private Equity in the U.S.: A Long-Term Look' (*Morgan Stanley Investment Management*) 17 <<https://www.morganstanley.com/im/en-hk/intermediary-investor/insights/articles/public-to-private-equity-in-the-us-a-long-term-look.html>> accessed 30 August 2022. See also Jonathan Haskel and Stian Westlake, *Capitalism without Capital* (Princeton University Press 2017).

³¹ Antonio Falato and others, 'Rising Intangible Capital, Shrinking Debt Capacity, and the U.S. Corporate Savings Glut' (2022) 77 *The Journal of Finance* 2799, 2807. A similar development can be observed also in the EU although it lags the US. See Carol Corrado and others, 'Intangible Investment in the EU and US before and since the Great Recession and Its Contribution to Productivity Growth' (2018) 2 *Journal of Infrastructure, Policy and Development* 11; Bart van Ark and others, 'Measuring Intangible Capital and Its Contribution to Economic Growth in Europe' (2009) 14 *EIB Papers*.

³² See René M. Stulz, 'Public versus Private Equity', (2020) 36 *Oxford Review of Economic Policy* 274, 283-85. See also Craig Doidge and others, 'Eclipse of the Public Corporation or Eclipse of the Public Markets?' (2018) 30 *Journal of Applied Corporate Finance* 8.

³³ See, e.g., Kahle and Stulz (n 4) 73-76 (noting the decrease in capital expenditures and the increase in R&D expenditures of the U.S. firms over time).

³⁴ 'Public to Private Equity in the U.S.: A Long-Term Look' (n 30) 17. We caution that this might not hold true for every type of firm heavy on intangibles. For example, AI companies that build AI services and products could be also quite capital-intensive.

such R&D investments are no longer optimal because the entrepreneur can externalize some of the losses when these investments fail.³⁵ This agency relationship might be managed more effectively in private markets where investors (e.g., high net-worth individuals) or sophisticated agents/intermediaries on their behalf (e.g., private fund managers) can contract with the entrepreneur and also supervise compliance with the tailored contractual terms better, which, in turn, should reduce agency costs and make for more favorable financing conditions. In this regard, control rights, especially veto rights, that may prove overly cumbersome in a public firm with dispersed shareholdings, are relevant.³⁶ These rights are even more valuable in firms with low capital but high R&D expenditures because the success of investments is harder to measure throughout the development process. Moreover, the entrepreneur is also more likely to find specialized investors who can understand the business model in private markets than in public markets.³⁷ Public market investors are generally diversified investors with rationally limited knowledge of the specifics of a firm's business model. Meanwhile, private market investors, especially venture capitalists, develop skills and knowledge to understand newly-formed business models and specialize in specific sectors, enhancing their firm-specific expertise. These profit-maximizing specialized investors are generally reluctant to use their comparative advantage to create positive externalities for passive shareholders. Therefore, they are unwilling to share the increases in firm value that they generate through their superior business acumen with apathetic shareholders on public markets.

Furthermore, public disclosure of information potentially affects business models that rely heavily on intangible assets more negatively than traditional ones. When firms raise capital from public markets, they need to disclose significant information at the outset (via a prospectus) and then have to update this information regularly and on an *ad hoc* basis. In doing so, firms with significant intangible

³⁵ Stulz (n 32) 284. This obviously depends on the extent to which the entrepreneur is exposed to the downside. In dispersedly owned companies where the entrepreneur managing the company has minimal exposure and in dual-class share structures where the entrepreneur controls the company despite her minimal stake, the entrepreneur can externalize most of the losses. Where the entrepreneur has a significant economic stake in the company as a shareholder, she will internalize a substantial fraction of the impending losses and thus face a counterincentive to commit to investments with negative net-present value or high volatility.

³⁶ See generally, Douglas Cumming, 'Venture Capital Financial Contracting: An Overview of the International Evidence' [2012] Handbook of Research on Venture Capital: Volume 2, 70-97.

³⁷ Stulz (n 32) 284-85.

assets/investments might give away valuable information to their competitors, who could draw inferences on trade secrets, original business models, or other aspects.³⁸ Disclosure mandates might disproportionately affect firms whose business model depends on intangible assets/investments as market entry barriers are reduced where the costs of imitating business models are lower because they are light on tangible assets and cannot rely on well-protected intellectual property rights. Even if firms can legally avoid disclosing sensitive information, this might also adversely affect their valuation and, thus, their cost of capital because the persistent informational asymmetry will induce investors to apply substantial discounts due to looming adverse selection problems and agency conflicts.³⁹

Thus, when firms with business models that rely heavily on exploiting intangible assets try to grow and become profitable, we should observe that these firms will raise capital privately rather than publicly. Of course, some firms might still raise funds publicly. Our point is that with changing asset characteristics, value-maximizing firms have specific incentives to prefer private over public capital raising. This general proclivity plays out all the more prominently if there is an abundance of capital to fund growth in private markets, which was the case during the recent period of generous monetary policy. Ultimately, these factors lead to expanding private markets relative to public ones.

However, it is worth considering what would happen next. As these firms continue to grow and become more visible, they will attract the attention of larger public firms (or their financial advisors). Crucially, at this point, many private firms with solid growth potential prefer to be acquired and quickly reach scale and therefore do not aspire to continue operating as an independent firm that relies on organic growth.⁴⁰ This preference is due to the same change ongoing in the economy, where the speed of technological innovation in many industries made getting big quickly more critical. Importantly, firms

³⁸ *ibid.*; Doidge and others (n 32) 14. Generally on the negative effect of disclosure requirements on firms' innovation, see Matthias Breuer, Christian Leuz, and Steven Vanhaverbeke, 'Reporting Regulation and Corporate Innovation' LawFin Working Paper No. 8, 2019, <<https://ssrn.com/abstract=3449813>> (reporting that mandatory disclosure of firms' financial statements reduces the total number of innovating firms in the industry, but not innovation spending).

³⁹ *ibid.*

⁴⁰ Xiaohui Gao, Jay R Ritter and Zhongyan Zhu, 'Where Have All the IPOs Gone?' (2013) 48 *Journal of Financial and Quantitative Analysis* 1663, 1664. See also Jay R Ritter, Andrea Signori and Silvio Vismara, 'Economies of Scope and IPO Activity in Europe' (2013) *Handbook of Research on IPOs* 11 for an analysis pertaining to the European market.

stand to lose profitable growth opportunities if they do not seize them quickly.⁴¹ Suppose an acquisition offer is made by a larger organization that can better realize economies of scope and scale via offering products and services faster and more efficiently than the firm could on its own. In that case, firms (and their investors) will accept such an offer because the valuation of the firm in a trade sale will be higher (as prospective earnings will also be higher) than a standalone valuation in a capital raising (privately or via an IPO).⁴² This is closely related to changing asset characteristics because business models that rely predominantly on intangible assets are much more easily scalable than those based primarily on tangible assets.⁴³ At this point, we should observe a growing public market relative to the private market because acquired firms would not raise capital anymore in private markets, and acquiring firms would need to finance their acquisition, which can be done at a relatively low cost, for instance, in a follow-on offering in a public market.⁴⁴ Although the number of public companies might decline due to this M&A activity,⁴⁵ public market capitalizations (and their ratio to GDP) would also grow as formerly private companies expand the (consolidated) balance sheets of the acquiring public companies.

The evidence supports this hypothesis for the US and Europe: despite the drop in the number of listed companies, market capitalizations have grown in both jurisdictions.⁴⁶ Moreover, a burgeoning literature shows that M&A activity is an essential driver of current market developments in the US and Europe. Lattanzio and others find that M&As are the primary channel for explaining the listing gap in the US, France, Germany, and the UK and that this effect primarily comes from 'private-target mergers,'

⁴¹ Gao, Ritter and Zhu (n 40).

⁴² *ibid.*, 1664-65. See also Jay B Kesten, 'The Law and Economics of the Going-Public Decision' in Douglas Cumming (ed), *The Oxford Handbook of IPOs* 27-51 (Oxford University Press 2019).

⁴³ Doidge and others (n 32) 15 ("[i]f a car manufacturer wants to produce twice as many cars, it has to double its manufacturing plant, which requires a large amount of capital. Being acquired by another car company would not make a manufacturing plant available unless that company had idle capacity. By contrast, a firm with a new software tool can increase its sales of that tool at a marginal cost that is close to zero. Hence, its main concern is to sell as much of that tool as possible until it is replaced by a better tool. Having access to a platform with broader visibility and distribution ability would be valuable to such a firm.").

⁴⁴ Follow-on financing in public markets is much less costly than IPOs as fixed costs have been already incurred and requirements related to new capital raising are less burdensome (such as watered-down prospectus requirements etc.).

⁴⁵ Mergers that target a private company can reduce the number of public companies if the target was going to go public eventually, regardless of whether the acquirer is a public or private company. Similarly, when the target company that has the same synergies is already a public company that ceases to exist independently, mergers reduce the overall number of public companies.

⁴⁶ See sources cited in *infra* note 92.

meaning that M&As mainly impact listings via preventing private firms from going public.⁴⁷ Furthermore, Eckbo and Lithell find not only that the actual listing count in the US for the observation period of 1980-2020 decreased by 6,144 public targets of public acquirers but also that this actual listing count similarly missed 9,841 private targets, which were large enough to be listed but ended up as divisions of public acquirers after private-to-public mergers.⁴⁸ The authors also find that despite the decline in the number of listed companies, public firms' contribution to GDP does not change, suggesting that public acquirers take on the output generated by private and public target companies.⁴⁹

However, in line with our oscillation hypothesis, subsequent developments should prompt private markets to grow again relative to public ones. Increasing consolidation and market power due to M&As⁵⁰ can raise antitrust concerns and trigger heightened scrutiny, as has happened in the US where the Biden administration has stepped up enforcement efforts.⁵¹ Furthermore, if the financing conditions for large public firms become more strenuous due to rising interest rates, these firms may become more hesitant about acquiring private growth firms. At the margin, such factors might push firms that would typically be acquired by a larger public company at some point back to organic growth paths in private markets. On the other hand, investors who have cashed in their investments in private companies by selling their stakes in the M&A deal will have freed-up capital to invest again in new-born or growing companies in private markets, starting the cycle again.

⁴⁷ Gabriele Lattanzio, William L Megginson and Ali Sanati, 'Dissecting the Listing Gap: Mergers, Private Equity, or Regulation?' (April 11, 2023), <<https://papers.ssrn.com/abstract=3329555>> (finding that in the US, an additional 100 mergers is associated with an additional 22.01 missing public firms one year later). The authors also find evidence that merging firms do so to finance themselves and to reach scale quickly as argued by Gao, Ritter, and Zhu (n 40).

⁴⁸ B Espen Eckbo and Markus Lithell, 'Merger-Driven Listing Dynamics' (ECGI Finance Working Paper No 752/2021, April 2024), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3547581> (also finding that the total transaction value of the acquisition targets was twice that of the IPOs).

⁴⁹ *ibid.*

⁵⁰ See, e.g., Gustavo Grullon, Yelena Larkin and Roni Michaely, 'Are US Industries Becoming More Concentrated?' (2019) 23 *Review of Finance* 697.

⁵¹ See The White House, 'FACT SHEET: Executive Order on Promoting Competition in the American Economy' (*The White House*, 9 July 2021) <<https://www.whitehouse.gov/briefing-room/statements-releases/2021/07/09/fact-sheet-executive-order-on-promoting-competition-in-the-american-economy/>> accessed 11 October 2022; 'Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers' (*Federal Trade Commission*, 18 January 2022) <<https://www.ftc.gov/news-events/news/press-releases/2022/01/federal-trade-commission-justice-department-seek-strengthen-enforcement-against-illegal-mergers>> accessed 24 November 2022. For a recent and salient example, see Maria Heeter et al., 'Google Parent and Wiz end talks on \$23bn deal' *Financial Times* (Jul. 23, 2024) <<https://www.ft.com/content/14553f76-bdfa-4637-bd5d-f3f56a7a4dbc>>.

In this case study as well, certain interdependent factors (e.g., changing business models and asset characteristics, economies of scope, and the need to grow fast as is facilitated in M&A-deals, antitrust concerns, and adverse financing conditions) constantly push companies and investments back and forth between private and public markets. The countervailing forces are present simultaneously, yet their relative momentum varies over time and across the economic and credit cycles. The factors we identify affect individual firms' capital raising ability and preferences, which, in aggregate, determine the oscillations in the domains of public and private markets. Assume that the company universe consists of firms raising private capital and firms going public either by being acquired due to the forces we explained or in standalone IPOs. At one point, depending on the momentum of forces, one part of the universe will grow more relative to the other, creating a change in the balance between the two markets. However, given that forces pulling in one direction might create a consecutive push-back at a later stage, the relative growth will trigger a swing-back in favor of the other market. For example, as more firms raise private capital at one stage, more firms are likely to go public at the next stage (as the number of firms that can be acquired increased at the previous stage). Or, as more firms go public at one stage, more firms are likely to raise capital privately at the next stage (thanks to freed-up private capital in the previous stage).

2.3.3 Debt and interest rates

Debt and interest rates also represent driving factors for market developments. Favorable borrowing conditions spur private equity activities such as highly leveraged buy-out transactions. However, they should not, in principle, grow private markets relative to public ones because public companies can also leverage up and pursue more positive NPV projects. Furthermore, public market investors (such as hedge funds) can increase their leverage and, thus, their investments in public equities.

However, firm and investor characteristics could lead to asymmetric changes in the relative size of public and private markets. For example, lower interest rates generally lead to higher valuations of high-growth companies as investors discount future cash flows at a lower rate. If more companies with such a profile are present in one market, the valuation of that market will grow relative to the other. Similar amplifying effects can come from complementarities debt can create unequally for firms in private and

public markets. For example, when agency costs are high in one market and firms lack credible commitment mechanisms, taking on debt will create external discipline and lower the cost of equity capital in the relevant market. Interest rates could also impact investor behavior and preferences for different investment options. In a low-interest-rate environment, investors may allocate more capital to riskier private investments in search for higher yields.⁵² Even if risk preferences remained stable in a low-interest rate environment, institutional investors with continuous and fixed payout obligations might have to make riskier investments that promise higher yields (such as private market investments) because fund allocations to bonds contribute only insufficiently to the required returns. Such portfolio recalibrations could increase the size of the private capital market relative to the public one. Critically however, the relevant impact of debt and interest rates reverses with economic and credit cycles, that is, if interest rates rise and credit becomes more scarce, discount rates increase, debt is not as easily available as a disciplining device, and investors might reduce the risk in their portfolios by reverting to public markets. Once again, a stable trend towards one market seems implausible.

2.3.4 Capital allocation between private and public markets

We illustrated above how relevant determinants of market growth are not static in itself or how the same factor can have opposite effects or another factor can offset its effect. Ultimately, even if the interaction of available factors leads to a skew in investor allocation in favor of one market, this will ultimately diminish returns and thus discourage further investments in such overheated markets.

Sometimes, private markets may promise higher risk-adjusted returns than public markets. For example, agency costs might be lower in private markets, or private fund managers might be exceptionally skilled in finding undervalued firms and creating or unlocking firm value. This outperformance should attract more capital to private markets (at the fundraising or investment level), and more promising companies can stay private longer. With more private capital available to fund growth, firms can stay private for far longer than was historically the case.⁵³ This amplifies the phenomenon of rising private markets

⁵² Raghuram G. Rajan, 'Has Finance Made the World Riskier?' (2006) 12 *European Fin. Mg't* 499.

⁵³ See below note 88 and the text thereto.

because more investors turn to them to invest in promising companies that shun public markets.⁵⁴ Recently, such recalibrations have become prevalent. Not only have those investors active in private markets increased their allocations, but traditional public market investors have also begun to tap incrementally into private markets. In search of higher yields, sophisticated investors, including pension funds and endowments, have increased their asset allocation in private markets.⁵⁵ Similarly, traditional public market investors such as mutual funds and hedge funds increased their private market investments.⁵⁶ Finally, some investment intermediaries have launched or consolidated their private capital arm, attracted by the growing investor interest and the opportunity to get around the low margins caused by the popular index-tracking passive investment strategies.⁵⁷

This would suggest a persistent, self-enforcing trend toward growing private markets at the expense of public ones. Consider, however, what would happen in the event of an abundance of private capital. First, finding firms that promise higher risk-adjusted returns will be incrementally more difficult.⁵⁸ In addition, as the demand increases for firms that can provide higher risk-adjusted returns in private markets, valuations will increase (reflected in the multiples over EBITDA).⁵⁹ As valuations increase,

⁵⁴ See Akila Quinio and Robin Wigglesworth, ‘Growth Equity Booms as Investors Embrace Private Markets’ *Financial Times* (7 January 2022).

⁵⁵ Bain & Company, ‘Public Vs. Private Assets: The Big Switch’ (2019), <<https://www.bain.com/insights/private-multiples-global-private-equity-report-2019/>>; ‘Public to Private Equity in the U.S.: A Long-Term Look’ (n 30) 15.

⁵⁶ See Sungjoun Kwon, Michelle Lowry & Yiming Qian, ‘Mutual Fund Investments in Private Firms’ (2020) 136 *Journal of Financial Economics* 407 (noting the valuation of mutual fund investments in private companies rising from US\$16 million in 1995 to US\$8 billion in 2015). See, e.g., Laurence Fletcher, ‘Hedge Funds Enter Private Equity Turf with Deals for Unlisted Companies’ *Financial Times* (2 August 2021); Robin Wigglesworth and Jamie Powell, ‘Tiger Global Burnt by Spec Tech Dumpster Fire’ *Financial Times* (4 April 2022).

⁵⁷ See, e.g., Robin Wigglesworth, ‘Private Capital Industry Soars beyond \$7tn’ *Financial Times* (11 June 2021). See also Nicholas Megaw, ‘Wall Street Banks Push into Europe’s Private Capital Markets’ *Financial Times* (8 November 2021).

⁵⁸ A similar dynamic exists in the money flows between active and passive (index) funds. See Jonathan B. Berk & Jules H. van Binsbergen, Measuring Skill in the Mutual Fund Industry, 118 *Journal of Financial Economics* 1 (2015) (showing how successful portfolio selection that outperforms markets attracts more funds until active managers fail to find additional investment opportunities that produce above market returns).

⁵⁹ For a seminal paper on demand-driven asset price increases, see Andrei Shleifer, ‘Do Demand Curves for Stocks Slope Down?’, 41(3) *The Journal of Finance* 579 (1986). See also Xavier Gabaix and Ralph S. J. Koijen, ‘In Search of the Origins of Financial Fluctuations: The Inelastic Markets Hypothesis’, NBER Working Paper No. 28967 (June 2021), <https://www.nber.org/system/files/working_papers/w28967/w28967.pdf>; Jeffrey Wurgler & Ekaterina Zhuravskaya, ‘Does Arbitrage Flatten Demand Curves for Stocks?’, 75(4) *The Journal of Business* 583 (2002).

returns should decrease because achieving the necessary value creation to sustain high returns will be more difficult.

Furthermore, as hinted above, horizontal and vertical agency conflicts become more pronounced when more capital flows into private markets and investors compete more vigorously for opportunities that promise above-market returns. Such an increase in agency costs dilutes a crucial comparative advantage of private markets in creating higher risk-adjusted returns. For example, competition to invest leads to situations where entrepreneurs have more bargaining power,⁶⁰ and investors will not allocate their capital as diligently as before.⁶¹ This might yield more investor expropriation and bad-apple investments,⁶² which would, in turn, curb enthusiasm for allocating capital in private markets at the fund level and ultimately restore diligence at the company investment level. A related driver in this regard is that conflicts of interest between fund managers and investors may also induce sub-optimal investments. Fund managers have strong incentives to invest the money raised due to the typical fee structure in private funds.⁶³ However, reputational concerns that fund managers face as repeat players attenuate these incentives to accept bad deals.

⁶⁰ See Michael Ewens & Joan Farre-Mensa, 'Private or Public Equity? The Evolving Entrepreneurial Finance Landscape' (2022) 14 *Annual Review of Financial Economics* 271.

⁶¹ See, e.g., Heather Somerville, 'Tech Startup Financing Hits Records as Giant Funds Dwarf Venture Capitalists' *Wall Street Journal* (1 August 2021), <<https://www.wsj.com/articles/tech-startup-financing-hits-records-as-giant-funds-dwarf-venture-capitalists-11627822800>> (explaining how investors' money pouring has led to less diligence and more leverage for company founders in the VC world recently). See also Ulf Axelson, Per Strömberg and Michael S Weisbach, 'Why Are Buyouts Levered? The Financial Structure of Private Equity Funds' (2009) 64 *The Journal of Finance* 1549 (noting the common complaint from fund managers that "[...] during good times many poor projects get financed.").

⁶² Indeed, some investors have started to rue their recent decisions to invest (heavily) in private markets. Negative outcomes not only affect the so-called 'venture tourists' who entered the market when it was booming. Significant write-offs of investments and mark-downs of valuations are also inflicted on seasoned investors who have found themselves in troubled waters, after engaging in the so-called 'competition to give away money.' Seasoned investors such as Sequoia seem to have relaxed their diligence too far as the conspicuous example of the firm's investment in fraudulent FTX shows. See, e.g., Berber Jin, 'Sequoia Capital Apologizes to Its Fund Investors for FTX Loss' *Wall Street Journal* (22 November 2022) <<https://www.wsj.com/articles/sequoia-capital-apologizes-to-limited-partners-for-ftx-investment-11669144914>> accessed 4 December 2022.

⁶³ See in this regard, Magnuson (n 21) 1867-70. See also Francois Degeorge, Jens Martin and Ludovic Phalippou, 'On Secondary Buyouts' (2016) 120 *Journal of Financial Economics* 124 (finding that "[funds] made late in the buying fund's investment period, when the fund is under pressure to spend capital, underperform other buyouts, while at the same time exhibiting slightly higher risk."). Similarly, after the investment made, if the basis of the management fee shifts to net invested capital, fund managers might have incentives to exit these investments later than optimal to continue earning management fees on the capital invested. See, e.g., David T Robinson and Berk A Sensoy, 'Do Private Equity Fund Managers Earn Their Fees? Compensation, Ownership, and Cash Flow Performance' (2013) 26 *The Review of Financial Studies* 2760 (finding evidence in this regard).

Once private markets overheat and do not deliver the expected higher risk-adjusted returns, investors should retreat and change their allocations, heralding a trend away from private markets.⁶⁴ In the opposite scenario, at a later stage, one would expect private market investments to become more attractive as returns increase again once less capital is available for deals.⁶⁵

Our arguments do not track macroeconomic cycles or other economic conditions which will affect both markets equally. Generally, a significant fraction of investors will straddle both markets and relocate capital if returns are unequal, creating oscillations.⁶⁶ The comparative advantages one market may enjoy over the other fade away in the complex interaction of market participants. Therefore, investors cannot allocate incrementally more capital to private markets in the expectation of higher risk-adjusted returns. Allocation decisions are thus unlikely to establish secular trends. This is backed by the observation that private equity fundraising is cyclical.⁶⁷ The optimal investor allocation to private equity will change and follow the shifting weight of the grand drivers we enumerated above.⁶⁸

2.4 Summary: no secular trend towards one market

Our theoretical deliberations (above 2.1 and 2.2) and illustrations (above 2.3) provide arguments as to why a secular trend towards one market is unlikely. As a result of the complex interplay of factors that determine market developments, force vectors do not consistently point in one direction. As our hypothesis suggests, this pivotal observation is of a general nature that applies beyond our illustrations. Factors that favour one market are either ambiguous in their effect or do not represent persistently dominant comparative advantages of that market over the other.

⁶⁴ See, e.g., Degeorge, Martin and Phalippou (n 63) ("investors penalize funds that burn money"). For some anecdotal evidence that investor interest in private funds is fading after the recent bullish period, see Tabby Kinder and Kaye Wiggins, 'Carlyle to Miss Deadline for \$22bn Fund as Investors Cool on Private Equity' *Financial Times* (14 December 2022) <<https://www.ft.com/content/c0293844-548b-442f-aa66-711673b3230f>>.

⁶⁵ On this, see generally Greg Brown et al., 'Private Equity: Accomplishments and Challenges' (2020) 32 *Journal of Applied Corporate Finance* 8, 19; Steven N Kaplan and Per Strömberg, 'Leveraged Buyouts and Private Equity' (2009) 23 *Journal of Economic Perspectives* 121, 141-43.

⁶⁶ See similarly, Spamann (n 20) 22, fn. 11.

⁶⁷ See, e.g., Kaplan and Strömberg (n 65) 125.

⁶⁸ On the optimal investor allocation to private equity and its determinants, see Arthur Korteweg and Mark M. Westerfield, 'Asset Allocation with Private Equity', *Foundations and Trends® in Finance*: Vol. 13: No. 2 (2022), pp. 95-204.

3 Complementarity between public and private markets

This section looks more thoroughly at yet another critical aspect of the interactions between public and private markets. The analysis complements our central argument that public and private capital market domains oscillate over time. Both markets should not be viewed only as competing institutions. Instead, substantial complementarities exist between public and private markets, reinforcing each market's functions. Therefore, at the margin, neither market can effectively eliminate the other. These additional efficiency considerations introduce further determinants that drive the oscillations we predict.

First, private market investors need public markets as an exit opportunity. Private equity and venture capital funds have limited lifespans (generally around ten years) and ultimately need to return capital to their investors.⁶⁹ Therefore, well-developed stock markets are a precondition for burgeoning venture capital activity.⁷⁰ The thrust of this argument carries over to private equity firms as well, which also depend on a timely exit option to generate the liquidity required to pay off their investors. In the last few years, IPOs have become less significant as an exit option for these investors as 'trade sales' have become a more popular method to cash in.⁷¹ However, exit via public markets, either in an IPO or in an acquisition by a public firm that refinances the transaction on public markets (see Section 2.3.2 above), remains an important way for private market investors to liquidate their investments. This is especially true when there are fewer funds for secondary buy-outs. With an abundance of liquidity, private equity investors can have an incentive to acquire good 'IPO candidate' firms with their own continuation funds, if equally profitable outside investment opportunities are scarce when they need to liquidate their original investment.⁷² At the same time, IPOs should become more prevalent again once liquidity dries up for private equity firms and/or investors and regulators scrutinize deals more thoroughly and crack

⁶⁹ See The Blackstone Group Inc., 'The Life Cycle of Private Equity' (August 2020), https://pws.blackstone.com/wp-content/uploads/sites/5/2020/09/the_life_cycle_of_private_equity_insights.pdf.

⁷⁰ See, e.g., Ronald J Gilson and Bernard S Black, 'Does Venture Capital Require an Active Stock Market?' [1999] *Journal of Applied Corporate Finance* 36.

⁷¹ See, e.g., Darian M Ibrahim, 'The New Exit in Venture Capital' (2012) 65 *Vanderbilt Law Review* 1.

⁷² See, e.g., Kaye Wiggins, 'Selling to Yourself: The Private Equity Groups That Buy Companies They Own' *Financial Times* (21 June 2022) <<https://www.ft.com/content/11549c33-b97d-468b-8990-e6fd64294f85>> accessed 24 November 2022.

down on secondary transactions within one fund family.⁷³ Recent literature also identifies how pre-IPO investments of public market institutional investors help venture capitalists to exit on more favorable conditions and thus induce venture capital investments in start-ups in the first place.⁷⁴

Second, private market investors benefit from the rich information environment in public markets. In particular, regulation stipulates extensive transparency requirements for publicly-held companies. These issuers need to provide financial information periodically and disclose material information on an *ad hoc* basis.⁷⁵ This information is then continuously incorporated into market valuations by informed traders.⁷⁶ Meanwhile, private markets are a long way from such an information-rich environment. Private firms and their investors are largely exempt from public disclosure obligations, and information flows are typically a matter of contractual stipulations. Moreover, a well-developed secondary market for shares in private firms is missing, meaning there is no comparably deep and liquid market on which price discovery could occur and generate asset prices, providing the sort of reliable signals familiar in public markets. The gist of the argument still holds, even though recently, more liquid and deep markets for the secondary trading of private company shares have emerged, such as Forge Global or the NASDAQ Private Market.⁷⁷ The relative opaqueness of private firms increases their cost of capital compared to public firms. To cope with informational asymmetries, private companies and their investors use public company-competitor disclosures and those firms' financials or trading values

⁷³ *ibid.* (detailing that limited partners have become increasingly wary of such transactions which are fraught with conflicts of interests and can be used to inflate fees, and that regulators have such transactions in sight).

⁷⁴ See Shiyang Huang and others, 'Public Market Players in the Private World: Implications for the Going-Public Process' (2021) 34 *The Review of Financial Studies* 2411 (showing that public market institutional investors help reduce IPO underpricing and thus instigate VC investments in start-ups in which such institutional investors hold stakes).

⁷⁵ In the US, the pertinent rules are found in the Exchange Act, Exchange Reporting Act and related Regulations promulgated by the SEC, and Regulation Fair Disclosure etc. See generally <<https://www.sec.gov/education/capitalraising/goingpublic>>. Listing rules might also provide further reporting obligations. In Europe, the relevant legislation includes the Prospectus Regulation, the Market Abuse Regulation, The Transparency Directive and Accounting Directive. See generally <https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/securities-markets_en> and <https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting_en>.

⁷⁶ See, e.g., Ananth Madhavan, 'Market Microstructure: A Survey' (2000) 3 *Journal of Financial Markets* 205.

⁷⁷ See Elizabeth Pollman, 'Information Issues on Wall Street 2.0' (2012) 161 *University of Pennsylvania Law Review* 179. For a study on the secondary private market, see Taylor D. Nadauld et al., 'The Liquidity Costs of Private Equity Investments: Evidence from Secondary Market Transactions' (2019) 132 *Journal of Financial Economics* 158.

as benchmarks for valuation purposes, lowering private firms' cost of capital compared to an environment where such benchmarks were unavailable.⁷⁸ The decline of public markets, thus, will also affect capital raising and investment activity in private markets, especially for the same or similar industries, because market participants can no longer build on the granular information and the high-quality price signals revealed in deeper and more liquid public markets.⁷⁹

Meanwhile, public markets also piggyback on private markets in various ways. For example, private markets incubate companies initially unsuited for public markets. At a more mature stage, such companies can be fed into public markets, ensuring these markets' continuity and depth by providing additional opportunities for diversification.⁸⁰ Public markets also operate more efficiently in the shadow of private markets. A realistic threat of private equity acquisitions, for instance, the presence of highly-capitalized buy-out funds, invigorates the market for corporate control and thus incentivizes corporate management to increase value.⁸¹

From the perspective of individual decision makers, the complementarities we highlight are externalities. The choice to raise or allocate capital in public or private markets is not influenced by the positive informational externalities vibrant public markets create for private ones, or the positive governance implications that the presence of powerful buyout funds might exert on public firms. However, suboptimal complementarities have a negative cost effect: if, for instance, private markets do not benefit from efficient informational spillovers from public market disclosure because public markets are depressed, the costs of being private become larger. At the margin, some investors will prefer to allocate capital on public markets where they can learn directly about the issuer, thereby creating incentives for issuers close to the cost-benefit-frontier to raise capital in public markets. Put generally,

⁷⁸ Elizabeth de Fontenay, 'The Deregulation of Private Capital and the Decline of the Public Company' (2017) 68 *Hastings Law Journal* 445, 487-97.

⁷⁹ *ibid.*

⁸⁰ Unless private market investors exist, small and medium sized companies need to resort to bank financing, which might not be always available. These firms may not be suitable for public markets initially for various reasons, including the inability to bear the costs associated with being public, the value of non-transparency and of the lack of short-termist pressures for the business model. See also Lattanzio and others (n 47) 3 (finding that "the positive impact of PE on listings by nurturing startups until their IPO stage dominates their negative effect via replacing public equity financing.").

⁸¹ See, e.g., Roberta Romano, 'A Guide to Takeovers: Theory, Evidence and Regulation' (1992) 9 *The Yale Journal on Regulation* 119.

complementarities influence market participants' incentives indirectly through marginal cost of capital effects. Therefore, their influence on market oscillations does not hinge on individual incentives to create positive externalities.

4 Trends in public and private markets

This section looks at the available evidence to further bolster our hypothesis on the interaction between public and private markets. Consistent with our hypothesis, the data do not reveal a secular trend. Although they should not be read as conclusive empirical evidence, they show that both markets constantly go through periods of growth and decline. While these developments might be correlated, the relative increases and decreases differ, making one form of finance or market stronger at a particular time, before the pendulum swings back again.

Although recent years have seen a rise in private markets (see Section 4.1 below), the evidence to what extent public markets have shrunk and were outgrown by private markets remains inconclusive. Furthermore, a deeper dive into modern financial history shows that these developments are not evidence per se of a stable and linear trend (see Section 4.2 below).

4.1 The recent rise of private markets

In recent years, private markets have grown substantially while important indicators for public market size have been atrophic. In particular, IPO numbers across several jurisdictions have been dismal for a long time as many firms have preferred to stay private for longer. Similarly, many public firms have delisted for various reasons, including private equity acquisitions.⁸² This observation holds for the US⁸³

⁸² 'Strengthening corporate governance should be a priority to boost economic recovery, says OECD', available at <https://www.oecd.org/corporate/strengthening-corporate-governance-should-be-a-priority-to-boost-economic-recovery-says-oecd.htm> (reporting 30,000 delistings since 2005 globally, uncompensated by new listings).

⁸³ Stulz (n 32) 276-77 (showing that the US had the highest number of listed firms in 1975); Craig Doidge, G. Andrew Karolyi & René M. Stulz, 'The U.S. Listing Gap', (2017) 123 Journal of Financial Economics 464 (reporting that the number of delistings has outgrown the number of new listings year over year). Public data sources are the World Bank's listed domestic companies dataset, available at <https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=US> and Prof. Jay Ritter's compilations, publicly available at <https://site.warrington.ufl.edu/ritter/ipo-data/>.

and European markets⁸⁴ and is independent of differences in market depth and liquidity. This phenomenon led the famed columnist Matt Levine to conclude that "[p]rivate markets are the new public markets."⁸⁵ Some commentators even proclaimed the 'death' of public markets.⁸⁶ Similarly, the Oxera report commissioned by the European Commission concluded that "[w]e have been witnessing the partial eclipse of the public corporation."⁸⁷

Related to the decline in IPO numbers is the development that companies in the US and Europe list at a later stage than they previously did.⁸⁸ This trend is due to the increased ability of firms to finance themselves during their growth phase in private markets, paving the way for numerous multi-billion-dollar private companies (known as 'unicorns' and 'decacorns').⁸⁹

Despite the decrease in both IPOs and the number of public companies in general, some evidence indicates that public markets have only become more concentrated. This development is not exclusively due to mergers between public firms but also because firms increasingly 'go public' as an acquisition target of a public firm rather than in a standalone IPO.⁹⁰ Therefore, small firm IPOs have disappeared while large firm IPOs remained stable over the years, both in the European and the US markets.⁹¹

⁸⁴ European IPO Task Force, 'European IPO Report 2020: Recommendations to improve conditions for European IPO markets', <<https://www.fese.eu/app/uploads/2020/03/European-IPO-Report-2020.pdf>> (reporting a long-standing decline in IPOs in European markets); Oxera Consulting LLP, 'Primary and Secondary Markets in the EU: Final Report' (November 2020), <<https://www.oxera.com/wp-content/uploads/2020/11/Oxera-study-Primary-and-Secondary-Markets-in-the-EU-Final-Report-EN-1.pdf>>, at 12 (showing a 12% decline in public listings in the EU-28 before Brexit despite a 24% growth of GDP and concluding that "[w]e have been witnessing the partial eclipse of the public corporation.").

⁸⁵ Matt Levine, 'Money Stuff: Public Markets Don't Matter Like They Used To' (Bloomberg, 5 August 2020), <<https://www.bloomberg.com/opinion/articles/2020-08-05/public-markets-don-t-matter-like-they-used-to>>. See also Michelle Lowry, 'The Blurring Lines between Private and Public Ownership' (European Corporate Governance Institute – Finance Working Paper No 844/2022, 25 August 2022) <<https://papers.ssrn.com/abstract=4200794>> accessed 24 November 2022.

⁸⁶ Frank Partnoy, 'Companies Aren't Going Public Anymore' [2018] *The Atlantic* <<https://www.theatlantic.com/magazine/archive/2018/11/private-inequity/570808/>> accessed 3 September 2022.

⁸⁷ Oxera Report (n 84) 12.

⁸⁸ *ibid.*, 32-33; Jay R. Ritter, 'Initial Public Offerings: Median Age of IPOs Through 2021' (May 2022), <<https://site.warrington.ufl.edu/ritter/files/IPOs-Age.pdf>> (showing that whereas the median IPO age was mostly under 10 years before 2000 in the US, afterwards it broke this mark, rising well above 10-year age in some years). See also Keith C Brown and Kenneth W Wiles, 'The Growing Blessing of Unicorns: The Changing Nature of the Market for Privately Funded Companies' (2020) 32 *Journal of Applied Corporate Finance* 52.

⁸⁹ For the reasons, see below 2.3.2.

⁹⁰ See, e.g., Eckbo and Lithell (n 48) (arguing that when taking into account mergers between public acquirors and private and public targets, the listing gap previously identified disappears); Lattanzio, Megginson and Sanati (n 47) (similar).

⁹¹ See, for the US, Vanguard, 'What's behind the falling number of public companies?' (December 2017), <<https://www.vanguard.ca/documents/whats-behind-the-falling-number.pdf>>, Figure 2; for the European

Furthermore, stock market capitalizations have increased both in the US and Europe.⁹² Therefore, it seems far-fetched to claim that public markets withered.⁹³

However, the substantial growth of assets under management in private funds provides evidence that private markets have grown significantly in recent years.⁹⁴ Capital resources available in private markets through venture capital and private equity funds, as well as other non-traditional investors such as hedge funds and mutual funds diversifying across markets, at times have proved sufficient not only to provide start-ups with the necessary capital to scale up but also to meet the capital requirements of relatively mature private companies. Consistent with this evolution, private markets have been more critical than public markets for capital raising in the US in recent years.⁹⁵ The private equity industry (a leading provider of private capital) has been growing as well,⁹⁶ surpassing its previous high before the GFC in most respects.⁹⁷

markets, Ritter, Signori and Vismara (n 40). For a discussion of why firms prefer to be acquired rather than pursuing organic growth, see below Section 2.3.2.

⁹² See The World Bank, 'Market capitalization of listed domestic companies (% of GDP) – United States', <<https://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS?locations=US>>. For the market capitalization of listed domestic companies and its ratio to GDP in the EU, see the World Bank databank, <<https://data.worldbank.org/indicator/CM.MKT.LCAP.CD?locations=DE-FR-NL-EU>> and <<https://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS?locations=DE-FR-NL-EU>>. Cf. Frederik P Schlingemann and René M Stulz, 'Have Exchange-Listed Firms Become Less Important for the Economy?' (2022) 143 *Journal of Financial Economics* 927.

⁹³ See also Roe and Wang (n 6); Margaret Blair, 'Are Publicly Traded Corporations Disappearing?' (2020) 105 *Cornell Law Review* 641.

⁹⁴ See, e.g., 'Private markets have grown exponentially', *The Economist* (23 February 2022), <<https://www.economist.com/special-report/2022/02/23/private-markets-have-grown-exponentially>> (noting that the private capital industry today manages four to five times as much capital as it had invested (US\$2.2 trillion) at its earlier peak prior to the GFC).

⁹⁵ Scott Bauguess, Rachita Gullapalli and Vladimir Ivanov, 'Capital Raising in the U.S.: An Analysis of the Market for Unregistered Securities Offerings, 2009-2017' (2018), <<https://www.sec.gov/dera/staff-papers/white-papers/dera-white-paper-regulation-d-082018>>, pp. 7-8 (showing that between 2009 and 2017, US companies raised more capital in private markets than in public ones); for recent data corroborating the trend, see SEC, 'Concept release on harmonization of securities offering', June 2019, p. 16, <<https://www.sec.gov/rules/concept/2019/33-10649.pdf>>; SEC Office of the Advocate for Small Business Capital Formation, Annual Report for Fiscal Years 2019, 2020, 2021, and 2022, <<https://www.sec.gov/oasb/small-business-capital-formation-reports>>.

⁹⁶ Private equity investments in companies do not translate automatically into capital injections. This is particularly the case for buyouts. However, if the buyout is with add-ons, which means that the PE firm commits to fund further acquisitions by the investee firms, there will be new capital injected to the firm. On the add-ons, see Tim Jenkinson, Hyeik Kim and Michael S Weisbach, 'Buyouts: A Primer' (SSRN, 9 August 2022) <<https://papers.ssrn.com/abstract=3964770>> accessed 20 October 2022.

⁹⁷ See, e.g., 'Q3 2022 US PE Breakdown | PitchBook' (2022) <<https://pitchbook.com/news/reports/q3-2022-us-pe-breakdown>> accessed 24 November 2022. (allowing to download data in an excel format on deal value and count, and fundraising).

European markets have been affected by the same phenomenon with an increase in the number of companies backed by private equity, total private equity investments, and total fundraising through private equity vehicles.⁹⁸ These investments had even caught up with equity capital raising in public markets in recent years, although equity investments in public markets regained a margin during the last two years.⁹⁹

4.2 No end of history in sight

At first glance, these observations seem to evidence a monotonous development. Yet, putting the recent developments in a broader historical context reveals a more complex pattern that does not align with the ‘end of history’ type of predictions some have been making. In particular, financial history shows various boom-and-bust periods in private equity activity. For example, an analysis by Kaplan and Strömberg, who look at private equity transaction and fundraising values (as a percentage of total stock market value) in the US between 1985 and 2007, indicates a dynamic relationship between the two markets, swaying up and down with private market peaks in 1988, 1998, and 2007.¹⁰⁰

More specifically, private equity firms started as leveraged buy-out (LBO) groups, emerging as an important phenomenon in the 1980s and reaching their peak with the infamous buy-out of RJR Nabisco in 1988.¹⁰¹ However, this LBO craze dwindled as the junk bond market – one of the backbones of this first generation of LBOs – crashed.¹⁰² Private equity then transformed itself, adding more focus on other strategies beyond the LBOs of large public companies.¹⁰³ Overall, private equity activity remained at moderate levels during the 1990s.¹⁰⁴ However, it picked up again considerably around the turn of the

⁹⁸ Invest Europe, ‘Investing in Europe: Private Equity activity 2021’ (3 May 2022), <<https://www.investeurope.eu/research/activity-data/>> (below: Invest Europe 2021 Report).

⁹⁹ For example, in 2019, private equity investments (€100.4bn) were slightly over equity financing on primary markets (€99bn in IPOs and follow-on financing). Compare Invest Europe, ‘Investing in Europe: Private Equity activity 2021’ (n 98), p. 38 with AFME, ‘Equity Primary Markets and Trading Report: 4Q 2021 and 2021 Full Year’, <<https://www.afme.eu/Publications/Data-Research/Details/AFME-Equity-Primary-Markets-and-Trading-Report---Q4-2021-and-2021-Full-Year>>, p. 9.

¹⁰⁰ Kaplan and Strömberg (n 65).

¹⁰¹ For a chronicle of the RJR Nabisco buyout, see Bryan Burrough and John Helyar, *Barbarians At The Gate: The Fall of RJR Nabisco* (Revised edition, Arrow 2010).

¹⁰² Kaplan and Strömberg (n 65) 122.

¹⁰³ *ibid.*

¹⁰⁴ *ibid.*, 125-28.

century, slowed down somewhat with the bursting of the dotcom bubble in the early 2000s, and then reached another, at that point unprecedented, peak in 2007.¹⁰⁵ Financial indicators such as capital commitments, transaction values and numbers reached extraordinary levels in 2006 and 2007, and large-scale public-to-private transactions returned.¹⁰⁶ This boom, however, also broke down at the advent of the GFC and the ensuing turmoil in debt markets.¹⁰⁷ In the wake of the Lehman Brothers collapse, private equity activity decelerated considerably and remained moderate until the early 2010s.¹⁰⁸ However, this downturn was also not persistent as private equity activity recovered notably, reaching unprecedented levels in 2021.¹⁰⁹

Against this background, commentators should exercise caution when making absolute predictions about the future of capital markets and corporate finance. Writing when private market activity appears to be at a peak may induce mistaking cyclical booms for secular trends. The 'relative growth' of private markets often retracts during subsequent periods, as observed in the aftermath of past peaks, such as the leveraged buy-out craze of the late 1980s that led to Jensen's prediction of the eclipse of public corporations or the pre-GFC boom that indicated unprecedented private equity activity. The most recent boom appears to share the same fate.

Similarly, a closer analysis of private equity transaction values relative to public market value in the US in the last decades does not reveal a clear linear trend but rather a fluctuation. Figure 1 depicts the aggregate annual private equity transaction value as a percentage of the US stock market capitalization between 2000-2022.¹¹⁰ Relative PE-deal values spike in the run-up to but decrease after the GFC and also fluctuate over the rest of the observation period without a clear and stable trend.¹¹¹ Transactional

¹⁰⁵ *ibid.*

¹⁰⁶ *ibid.*

¹⁰⁷ *ibid.*, 122.

¹⁰⁸ See sources cited in above notes 97 and 98 and accompanying text.

¹⁰⁹ *ibid.*

¹¹⁰ We obtain private equity transaction value from the S&P Capital IQ. Our search relates to private equity investments (entry or stake increase/decrease), including venture capital, in the US during the period of 2000 to 2022. We obtain the US public stock market value from various sources, including the data provided by the Board of Governors of the Federal System and World Bank.

¹¹¹ This observation is robust to different sources of public market value. Using, for example, the World Bank data only changes the absolute numbers, but the line's fluctuation remains the same.

and market values do not perfectly indicate market activity (e.g., capital raising). Yet, over time, they are functions of investment flows and map firms' ability to raise capital in one market rather than the other. Our findings concur with similar studies¹¹² and suggest private equity activity experiences temporary spikes relative to public markets, but these booms abate without establishing a unidirectional trend. This observation casts severe doubts on the common narrative that private markets will consistently outpace public markets. Narrowing the observation periods may allow the extrapolation of purportedly secular trends. However, such shifting would only overemphasize specific short-term effects and lead to mistaken conclusions about long-term market developments.

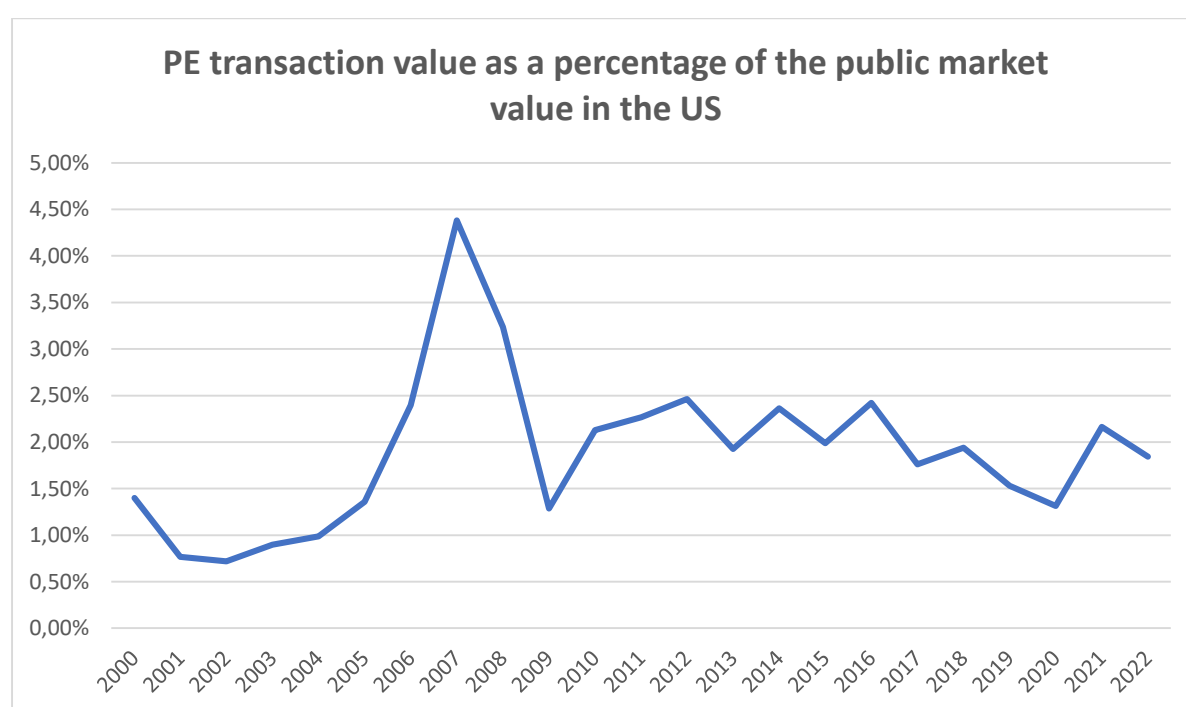


Figure 1 (sources: S&P Capital IQ, Board of Governors of the Federal Reserve System (US); authors' calculations)

Furthermore, this analysis suggests certain other indicators of relative market developments, such as the number of IPOs or public firms, might be misleading. In the same spirit, Roe and Wang recently

¹¹² See Kaplan and Strömberg (n 65) 125, Figure 1 (using similar data sources to analyze the period from 1985 to 2006 and showing a dissipating spike around the LBO-frenzy of the late 1980s).

argued that despite the declining number of publicly traded companies, public markets are at historic highs by every other measure.¹¹³

Figure 2 depicts equity values held privately and publicly in the US from 1996 until 2022.¹¹⁴ The value of publicly held equity is derived from market value. In contrast, privately held equity value is calculated by multiplying book value by the market-to-book ratios of similar publicly listed companies.¹¹⁵ The development of publicly and privately held equity values (red and blue areas) is strongly correlated, but the (multi-)annual respective growth and decline rates differ. This divergence becomes apparent once we plot the multiple of the publicly held and the privately held equity values (green line), which fluctuates across the time series.

¹¹³ Roe and Wang (n 6) (ascertaining that stock market capitalization, profits, revenues, and investment are up significantly over the past decades, and that the growth of these parameters has outpaced the overall growth of the economy).

¹¹⁴ Figures 2 and 3 are based on data provided by the Board of Governors of the Federal Reserve System, available at <https://fred.stlouisfed.org/release/tables?rid=52&eid=808373>. Privately held equity reported in Figures 2 & 3 also includes firms which are equity funded entirely by founders and other investors, excluding private market intermediaries such as venture capital and private equity funds (the main private market players). Therefore, the data on privately held equity values include, for example, firms with nothing but founders' equity stakes that depend on banks rather than external equity financing to fund growth.

¹¹⁵ Public market values are calculated as the sum of the market value of common and preferred equity for U.S. domestic (non-financial) corporations. Private market values are the sum of equity values of (non-financial) private companies. This equity value is necessarily imputed by multiplying close corporations' book value (derived mainly from the Internal Revenue Service records) with the market value multiples observed on public markets. To account for the illiquidity of closely held shares, the total private market values are adjusted downward by 25 per cent. For these definitions, see <https://www.federalreserve.gov/apps/fof/SeriesAnalyzer.aspx?s=LM103164113&t=L.223&suf=Q> and <https://www.federalreserve.gov/apps/fof/SeriesAnalyzer.aspx?s=LM103164123&t=L.223&suf=Q>. We do not take into account financial corporations such as ETFs and REITs to avoid double counting.

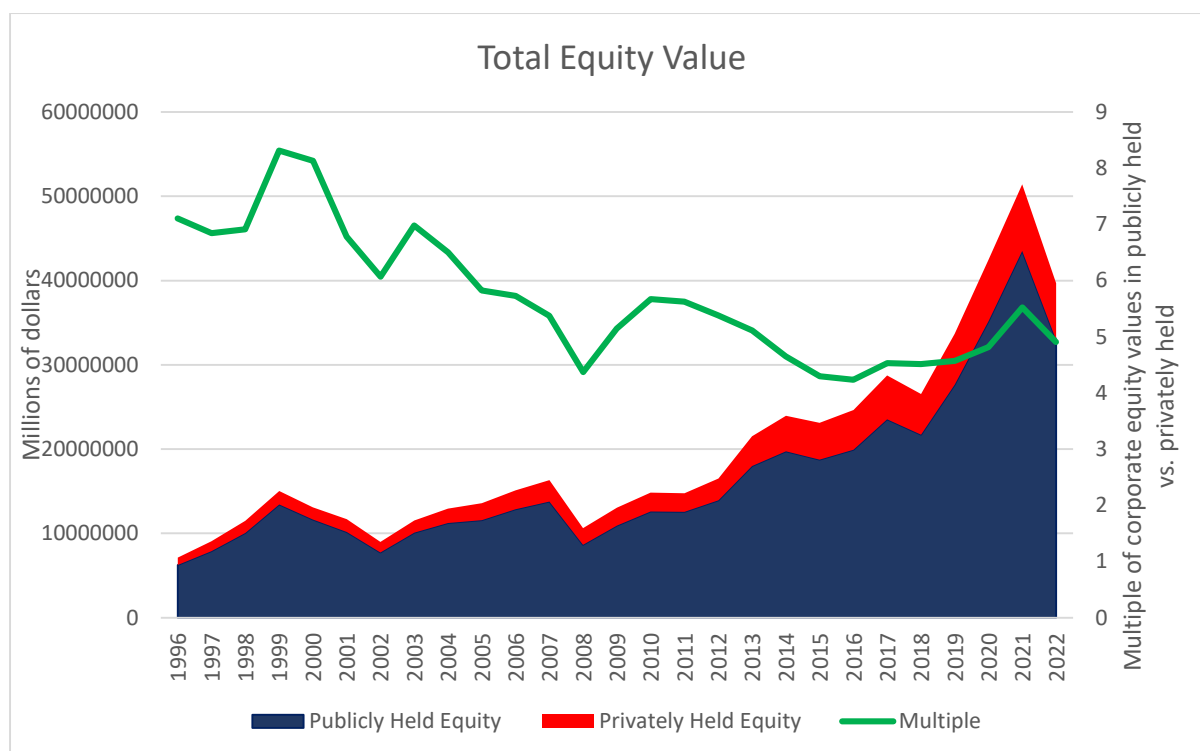


Figure 2 (sources: Board of Governors of the Federal Reserve System (US); authors' calculations)

Figure 3 maps the changes in publicly and privately held equity values over time. The chart demonstrates that, at times, the value of equity declines in one category while it increases in the other. Furthermore, throughout the periods in which both equity values follow the same trend, the slopes of the increases or decreases are markedly different. The fully correlated calculation of equity values¹¹⁶ entails that the observed variations across values probably result from a divergence in the magnitudes of capital or firm inflows into publicly held or privately held equity, hinting at heterogeneous activity levels in the two markets. We acknowledge that differences in internally funded or leverage-financed growth could also explain the divergences we observe. However, it is unlikely that refinancing conditions and growth opportunities are discrete and exogenous reasons that could fully explain the alternations. We highlight both findings again with a line that plots the changes in publicly held equity value as a multiple of the changes in privately held equity value. The reported fluctuations in equity values do not indicate a stable linear development that would corroborate a secular trend.

¹¹⁶ For a description of the relevant methodology, see *ibid*.

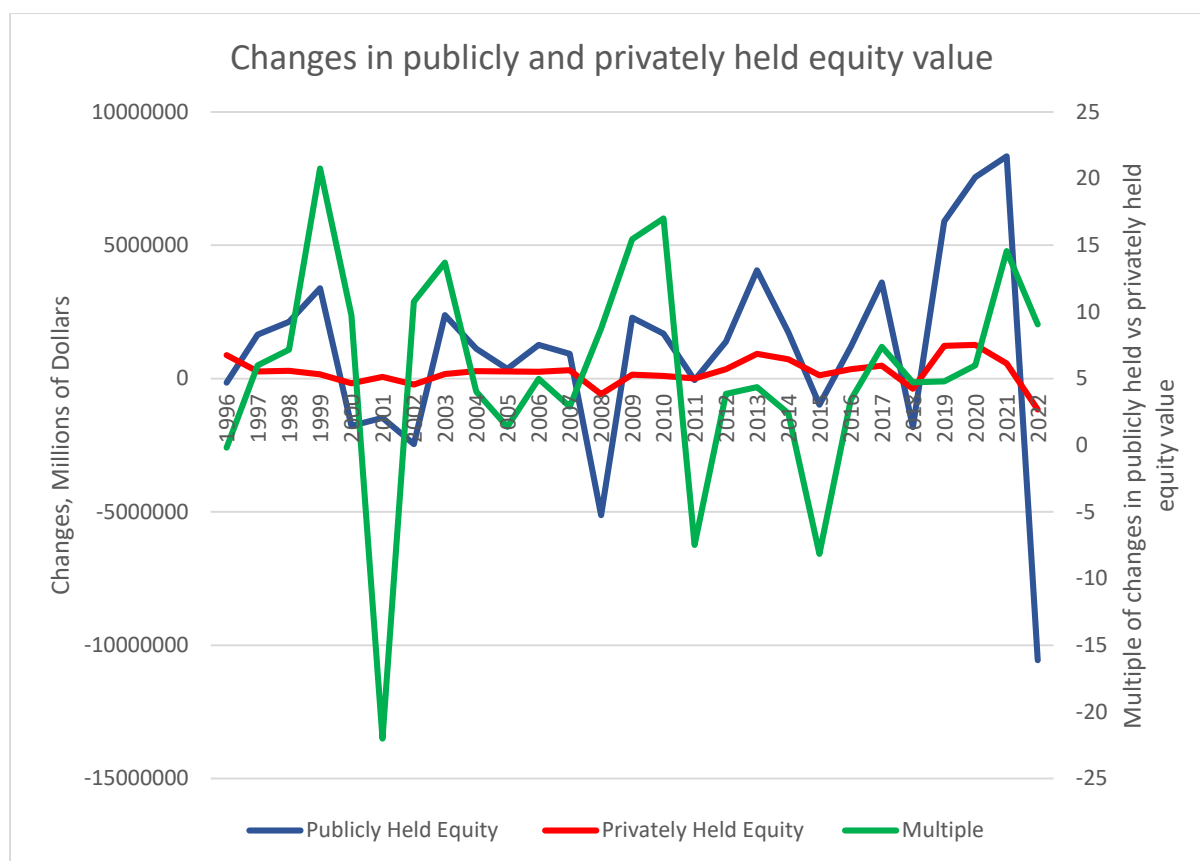


Figure 3

One might object that despite fluctuations, privately held equity value grew more relative to publicly held equity value during the period under consideration. Yet, the developments during the dotcom bubble,¹¹⁷ and its burst in the early 2000s primarily drive the observation. Therefore, a contextually mindful trend analysis must consider that the observation period starts around when public capital markets began to overheat significantly and that private markets were still comparatively underdeveloped in the late 90s/early 2000s. It is thus plausible that the observation period commences around a local maximum of the fluctuations, which was naturally adjusted downwards later, and that a more stable fraction of “swing” investments between mature markets drove subsequent fluctuations. Similarly, when private equity emerges and establishes its business model (the LBO heydays of the 1980s) or transforms and develops it substantially (the period before the GFC), periodic observations might suggest a secular trend toward private markets. However, once markets complete disruptive

¹¹⁷ Commonly, the catchphrase refers to the period between 1995 and 2001, see e.g., Niamh Moloney, EU Securities and Financial Markets Regulation (OUP, 4th edition, 2023) 202.

medium-term developments, it is more likely that competing markets will revert to sharing the overall pie in a fluctuating manner, as our observations suggest. The slope of the line that represents the ‘multiple’ in Figure 2 is only -0.12. The slope of the trendline of the ratio of publicly held equity value to the total equity value (the sum of privately held and publicly held equity value) is only a mere -0,003. These movements are a far cry from a winner-takes-all rush towards private markets and do not signal the death of public markets.

The data we reproduce here only cover the US but illustrate a general hypothesis which makes us confident that, if data were available for other public and private markets (for instance in Europe), the patterns would look fundamentally similar, despite due variations in detail.

5 Regulatory oscillations

In this section, we look at regulation in more depth as a driver of market developments. It is trite to say that regulation might support market growth by addressing market failures (like adverse selection, information asymmetry, and agency problems) or cause its contraction if it is excessive. Moreover, law has been identified as a pivotal determinant of financial market evolution and outcomes in the first place.¹¹⁸ Yet, we are skeptical of the transformative effect of deregulatory activities on market growth, primarily due to the bounded rationality of regulators. Often, market adjustments that regulators ignore or do not foresee counteract deregulatory measures and undo the immediate impact of the regulation or its long-run effect. Such reactions frequently trigger a second round of regulatory interventions. This observation implies that while regulation might be seen as an exogenous shock in the short-term, in the long-term, it becomes endogenously determined. Ultimately, it also means that deregulatory measures might cause public and private market oscillations but do not produce linear market developments in the long run.

¹¹⁸ See, e.g., Rafael La Porta and others, ‘Legal Determinants of External Finance’ (1997) 52 *The Journal of Finance* 1131. For an even more fundamental theory on the role the law plays in the construction of financial markets, see Katharina Pistor, ‘A Legal Theory of Finance’ (2013) 41 *Journal of Comparative Economics* 315.

We explain the bounded rationality and the unanticipated reactions that attenuate or undo the interventions' intended effects and lead to the incremental endogeneity of the regulatory process in section 5.1. We provide illustrations in sections 5.2 and 5.3.

5.1 Boundedly rational social planners and the endogeneity of their interventions

Financial regulators generally suffer from bounded rationality because they cannot foresee every latent effect of their interventions. What they think of as excessive regulation might be addressing market failures. Hence, de-regulation intended to reduce costs for market participants and grow the market may prove counter-productive with negative effects on market development. Similarly, deregulatory measures could end up creating new market failures that undo the first-order positive impact the relevant intervention may have on market growth.

This is again similar to the insights Merton's analytical framework of functional finance generates. Regulation can be a powerful exogenous influence on the financial system in the short run, but as the time horizon lengthens, regulation becomes increasingly endogenously determined.¹¹⁹ The original intervention induces responses in the system, which feed back into the dynamics and substance of regulation.¹²⁰ In other words, market participants will adapt their behavior differently or more comprehensively than regulators envisioned in response to new rules and standards,¹²¹ potentially precipitating further amendments in the regulatory framework. Regulatory interventions in capital markets can produce a short-term effect, furthering the intended goals. Still, regulation will induce other changes in the financial system, which will attenuate the impact of the original intervention over time and affect the regulation itself later. Boundedly rational regulators who cannot foresee every latent effect of their intervention cannot escape these regulatory dialectics. The ensuing back and forth is independent of the political economy dimension of the legislative and regulatory process, whether rule-makers pursue the common good or maximize their personal utility. Bounded rationality prevents them from implementing their objectives without frictions, and arising deficiencies of the created framework

¹¹⁹ Merton (n 7) 37-38.

¹²⁰ *ibid.* See also Edward J Kane, 'Interaction of Financial and Regulatory Innovation' (1988) 78 *The American Economic Review* 328.

¹²¹ For the seminal model, see Robert Lucas, 'Econometric Policy Evaluation: A Critique' (1976) 1 *Carnegie-Rochester Conference Series on Pub. Pol'y* 19-46.

may prompt second-round interventions (e.g., crisis-driven backlashes), in addition to shifts in regulatory preferences due to changes in the distribution of political power after elections, nominations, etc. We again use illustrations to explain the mechanism.

5.2 De-regulation I: cost reductions for public listings

Consider the JOBS Act of 2012 in the US.¹²² Policymakers had long been concerned about the increasing regulatory and ancillary costs (such as those coming from greater exposure to litigation risk) imposed on firms that go public or are already public, with unhealthy cost-hikes usually attributed to the Sarbanes-Oxley Act of 2002 (hereinafter, the SOX Act). These costs were considered prohibitive and cited as one of the primary reasons for shrinking public markets. Therefore, policymakers attempted to alleviate the burden via (de-)regulatory initiatives like the JOBS Act of 2012.¹²³ Some regulatory requirements were removed for a certain period (usually the first five years after the IPO) to improve “access to the public capital markets for emerging growth companies” (companies with annual gross revenues of less than US\$1,000,000,000). For instance, compliance with new or revised accounting standards and with Section 404(b) of the SOX Act on auditors' attestation and reporting on the internal control of management over financial reporting was suspended.¹²⁴

Even though reduced disclosure and compliance requirements indeed decreased the costs of being public, they also increased the cost of capital.¹²⁵ Potentially, the discount imposed for aggravated darkness and reduced accountability eats up the cost of capital benefits gleaned from tapping into deeper and more liquid public markets, ultimately eliminating the advantages of capital raising under the 'lighter' regulatory regime.¹²⁶ This net-negative effect inevitably pushes firms back into private capital raising. To be sure, 'emerging growth companies' could choose not to go public under the light regime

¹²² Jumpstart Our Business Startups Act, Pub. L. No. 112-106, 126 STAT. 307.

¹²³ See Kathleen Weiss Hanley, 'The Economics of Primary Markets', in *Securities Market Issues for the 21st Century* (Merritt Fox et al., 2018) 34, 37 & 75-77.

¹²⁴ Paul Rose and Steven Davidoff Solomon, 'Where Have All The IPOs Gone? The Hard Life of The Small IPO' (2016) 6 Harvard Business Law Review 83, 85.

¹²⁵ Hanley (n 123) 78-80; Susan Chaplinsky, Kathleen Weiss Hanley & S. Katie Moon, 'The JOBS Act and the Costs of Going Public' (2017) 55 Journal of Accounting Research 795.

¹²⁶ For a detailed critique of the US reforms to reduce the burdens associated with being public, see also Merritt B Fox, 'Regulating Public Offerings of Truly New Securities: First Principles' (2016) 66 Duke Law Journal 673, 715-27.

of the JOBS Act and subject themselves to the more stringent traditional requirements for being public instead, thereby avoiding the negative cost of capital effects. However, this means that they incur the higher costs associated with more stringent listing requirements and have to trade them off against the cost of capital benefits accruing in stringently regulated public markets. In this scenario, the costs of being public negatively correlate with the costs of capital. Therefore, reducing the costs of being public through de-regulation may lead to an increased cost of capital, ultimately diluting the incentives to go public earlier which legislators aspired to promote. Indeed, there is limited evidence of the JOBS Act positively influencing public capital raising.¹²⁷ A plausible explanation is that what regulators considered excessive regulation for small firms turned out to be helping firms to credibly signal their quality, offsetting their interventions' positive impact with negative cost of capital effects.

As regulators seem to have failed to facilitate public market capital raising via cost-reducing interventions, the regulatory focus has endogenously turned to growing private markets. The current discussion in the US ranges from opening up private markets to more investors and enabling more individuals to benefit from value creation in these markets to reforming private markets and tightening the grip on private companies because they have grown significantly in economic relevance and thus need more transparency under the very same rationales that apply to public firms.¹²⁸ Alongside the SEC interventions, a few senators around Elizabeth Warren sponsored the 'Private Markets Transparency and Accountability Act,' which would stipulate registration and reporting requirements for large private companies similar to those placed upon their public counterparts.¹²⁹ The available evidence indicates,

¹²⁷ See sources cited in note 125; cf. Michael Dambra, Laura Casares Field and Matthew T Gustafson, 'The JOBS Act and IPO Volume: Evidence That Disclosure Costs Affect the IPO Decision' (2015) 116 *Journal of Financial Economics* 121. The JOBS Act had also other provisions that made it easier to raise private capital.

¹²⁸ The SEC seems to have taken different positions under different presidencies. See John Finley, 'Expanding Retail Access to Private Markets' (Small Business Capital Formation Advisory Committee, November 2019) <<https://www.sec.gov/spotlight/sbcfac/expanding-retail-access-to-private-markets-finley.pdf>> accessed 25 November 2022; William W Clayton, 'The Private Equity Negotiation Myth' (2020) 37 *Yale Journal on Regulation* 67, 110–13 (explaining recent efforts of the SEC to expand retail investors' access to private markets). Cf. Allison Herren Lee, 'Going Dark' (n 1); Caroline Crenshaw, 'Remarks by Commissioner Crenshaw at Symposium on Private Firms' (*The Harvard Law School Forum on Corporate Governance*, 19 April 2022) <<https://corpgov.law.harvard.edu/2022/04/19/remarks-by-commissioner-crenshaw-at-symposium-on-private-firms/>> accessed 25 November 2022.

¹²⁹ For a commentary on the proposed bill, see, e.g., George S. Georgiev, 'Regulators Should Finally Require Some Transparency of Large Private Firms' (*The Hill*, 15 October 2022),

however, that bringing transparency to private markets/companies is likely to push firms to public markets where this transparency already exists and where deeper and more liquid capital supply offsets its costs.¹³⁰

The European growth markets for small and medium medium-sized enterprises provides another example under the EU regulatory framework. Embracing a long-standing tradition in some Member States, the European market infrastructure framework provides a secondary public market (known as 'multilateral trading facility' under the MiFID II) in the form of 'exchange-regulated markets' where firms are not subject to the stringent reporting and governance structures applicable in 'regulated markets'.¹³¹ Instead, they are primarily subject to rules determined by the exchanges themselves.¹³² While such reductions in the costs of being 'public' are associated with a promoting effect on public listings,¹³³ applying a lighter regime also increases the cost of capital for these firms.¹³⁴ This counter-effect disincentivizes firms from tapping into such regulation-light public markets where they would typically enjoy more favorable capital costs.¹³⁵ Realizing this, the EU adopted a labeling system called 'SME Growth Markets' whereby it provided specific EU-wide regulatory standards to balance the two countervailing effects and increase the net attractiveness of such markets for investors and issuers.¹³⁶

<<https://thehill.com/opinion/finance/3688672-regulators-should-finally-require-some-transparency-of-large-private-firms/>>.

¹³⁰ See, e.g., Cyrus Aghamolla and Richard T Thakor, 'Do Mandatory Disclosure Requirements for Private Firms Increase the Propensity of Going Public?' (2022) 60 *Journal of Accounting Research* 755 (finding that mandatory disclosure requirements for private firms makes these firms significantly more likely to transition to public equity markets).

¹³¹ See generally, Rüdiger Veil and Carmine Di Noia, 'SME Growth Markets' in *Regulation of the EU Financial Markets: MIFID II and MIFIR* (Danny Busch & Guido Ferrarini eds.), 2017, chapter 13.

¹³² *ibid.*

¹³³ Such markets have more of the features of public markets rather than private markets (such as free tradability of shares etc.).

¹³⁴ See, e.g., Ali C Akyol and others, 'Do Regulatory Changes Affect the Underpricing of European IPOs?' (2014) 45 *Journal of Banking & Finance* 43. For a lesson that these markets require well-enforced rules to protect market integrity, see the German experience with the *Neuer Markt* recounted in Ronald J Gilson, Henry Hansmann and Mariana Pargendler, 'Regulatory Dualism as a Development Strategy: Corporate Reform in Brazil, the United States, and the European Union' (2011) 63 *Stanford Law Review* 475, 502–07. See also Hans-Peter Burghof and Adrian Hunger, 'Access to Stock Markets for Small and Medium-Sized Growth Firms: The Temporary Success and Ultimate Failure of Germany's Neuer Markt' (1 October 2003) <<https://papers.ssrn.com/abstract=497404>> accessed 9 January 2023.

¹³⁵ On the development of such markets over time in the EU, see Oxera Report (n 84) 285-296.

¹³⁶ See generally Veil and Di Noia (n 131). It is debatable whether the concept of the SME Growth Market was a success. See Rüdiger Veil, Marc Wiesner and Moritz Reichert, 'Disclosure and Enforcement Under the EU Listing Act' (2022) 19 *European Company and Financial Law Review* 445.

As these examples show, boundedly rational regulators might mistake beneficial market regulation that lowers firms' cost of capital for excessive regulation. Consequentially, de-regulation may miss the intended effect of growing public markets by increasing the cost of capital. Regulatory interventions that are thought to create exogenous effects may be countered by further market reactions and developments that, in turn, spur new regulatory steps.

5.3 Deregulation II: liberalized fundraising rules

The second example concerns changes introduced in the US by the National Securities Markets Improvement Act (NSMIA) of 1996. The NSMIA exempted private firms raising capital under Rule 506 of Regulation D from blue sky laws (i.e., state securities regulation), making it easier for firms to raise private capital from out-of-state investors without complying with each state's securities regulation. Furthermore, it enabled private equity and venture capital firms to raise more significant amounts of capital in private funds by increasing the number of investors allowed in a fund that would otherwise trigger the registration requirements under the Investment Company Act (ICA), which private funds usually shun.¹³⁷ This Act indeed increased the supply of private capital.¹³⁸

Consider, however, the further developments this regulatory intervention induced. In the wake of the reform, private funds were able to attract more investors to a single fund, raising ever-larger funds at lower costs.¹³⁹ However, there are also agency conflicts at the fund level among the general partner and limited partners,¹⁴⁰ increasing as more investors contribute to the fund and provide larger amounts of capital. Accordingly, decision-making becomes more complicated, and more inefficiencies arise in fund

¹³⁷ Normally, private funds would have a one hundred investor cap. Under the changes (which also relaxed the look through requirements for this cap on investors), they could surpass this cap as long as all the investors were 'qualified purchasers'.

¹³⁸ Michael Ewens and Joan Farre-Mensa, 'The Deregulation of the Private Equity Markets and the Decline in IPOs' (2020) 33 *The Review of Financial Studies* 5463.

¹³⁹ *ibid.*, 5476 (reporting that "approximately 5% of all VC funds report having more than one hundred investors—a number that, before NSMIA's addition of Section 3(c)(7) to the ICA, would have triggered ICA registration. These 3(c)(7) funds have an average size of \$450 million, compared to \$62 million for VC funds with up to one hundred investors.").

¹⁴⁰ See, e.g., Robinson and Sensoy (n 63); Indraneel Chakraborty and Michael Ewens, 'Managing Performance Signals Through Delay: Evidence from Venture Capital' (2018) 64 *Management Science* 2875.

governance.¹⁴¹ For example, the larger the fund, the more incentives significant investors have to negotiate privileges in side letters, watering down the impact of investor protections in general fund agreements. This also benefits the fund manager, who gets more maneuvering space, yet it aggravates the horizontal conflicts between investors.¹⁴²

While liberalizing fundraising rules led to more private capital, it also caused more governance and agency problems at private funds as they grew larger. This illustrates the second-order effects of deregulatory measures, which boundedly rational regulators do not generally foresee. These developments might also dampen further fund growth as inefficiencies reduce returns for investors and call for stricter regulation of particular issues in private funds. For example, the SEC pushed to create more transparency for private fund investors and prohibit certain practices particularly susceptible to conflicts of interest.¹⁴³ The proposed rules addressed problems that might be especially prominent in larger funds with more investors, for instance, in the preferential treatment of certain large investors.¹⁴⁴ Overall, the rules aimed to bring private fund regulation closer to the requirements imposed under the ICA on registered public funds.¹⁴⁵ Yet, these rules were struck down by the U.S. Court of Appeals for the Fifth Circuit under the Administrative Procedures Act (APA) on the grounds that the SEC had exceeded its authority.¹⁴⁶ This example again demonstrates that deregulatory measures have ambiguous impacts on market development due to second-order effects. Regulation might create an exogenous shock in the short run but becomes endogenously shaped in the long run because the responsive changes it induces in the market call for another set of regulations.

¹⁴¹ See, e.g., de Fontenay (n 21) 1118-19. Increasing fund (or investment) size might also reduce returns the fund manager achieves due to diseconomies of scale. For the discussion, see, e.g., Florencio Lopez-de-Silanes, Ludovic Phalippou and Oliver Gottschalg, 'Giants at the Gate: Investment Returns and Diseconomies of Scale in Private Equity' (2015) 50 *Journal of Financial and Quantitative Analysis* 377.

¹⁴² See Clayton (n 128).

¹⁴³ 'SEC Proposes to Enhance Private Fund Reporting' (*SEC.gov*, 10 August 2022) <<https://www.sec.gov/news/press-release/2022-141>> accessed 6 December 2022; 'SEC Proposes to Enhance Private Fund Investor Protection' (*SEC.gov*, 9 February 2022) <<https://www.sec.gov/news/press-release/2022-19>> accessed 6 December 2022. The proposals have been recently implemented: 'SEC Enhances the Regulation of Private Fund Advisers' (*SEC.gov*, 23 August 2023), <<https://www.sec.gov/news/press-release/2023-155>>.

¹⁴⁴ *ibid.*

¹⁴⁵ The ICA imposes extensive regulations on registered funds, including investment and leverage restrictions, restrictions on related party transactions, and ongoing reporting requirements (such as disclosing their portfolio holdings, including the fair value of each security they hold, on a quarterly basis).

¹⁴⁶ The decision is available here: [23-60471CV0.pdf \(uscourts.gov\)](https://www.uscourts.gov/23-60471CV0.pdf).

6 Policy implications

This section sets out the policy implications of our data-supported hypothesis on market oscillations and our insights on boundedly rational regulatory interventions that target market segments. Given our evidence-based hypothesis that market developments rarely herald secular trends over the long run and regulators' illustrated inability to steer market developments lastingly, we contain regulators to two objectives. We argue that unless certain externalities exist, regulators should focus on growing the overall pie and abstain from responding to observed market developments at a certain point haphazardly. With a view to contemporary debates, avoiding to regulate oscillations means that regulators should not intervene to salvage public capital markets from their perceived decline in recent years (subsection 6.1 below). We also recall the canonical principle of regulating both markets when the objectives of the interventions apply evenhandedly across markets (subsection 6.2 below).

6.1 The case against regulating oscillations and for growing the pie

We motivated our research with a policy question vigorously discussed in regulatory circles worldwide (see above 1). Should regulators interfere with the perceived decline of public capital markets, either by curtailing issuers' right to stay private, i.e. regulate private markets more rigidly, or by increasing issuers' incentives to go public, i.e. deregulate public markets? Our straightforward answer is no. Despite some decline in headline metrics like IPOs and the number of public firms, a decline in the relevance of public markets is highly questionable, casting doubt on ringing the death bell for public markets.¹⁴⁷ Regulatory interventions are only one among many factors affecting market developments and their potential to shape markets strongly and lastingly is frequently overstated.

In any case, the development should not be interpreted as entailing persistent negative social welfare implications. Put more generally, when regulators aim to encourage or facilitate capital raising on markets, which can be for several reasons,¹⁴⁸ they should not, as a rule, target or prioritize public markets

¹⁴⁷ Roe and Wang (n 6) (showing that the number of listed firms and IPOs has declined while important other indicators of public firms economic relevance remained stable).

¹⁴⁸ For example, a bank-based economy can be more exposed to the credit crunch that comes with financial crises. This is one of the reasons why the EU promotes the Capital Markets Union. See generally, Nicolas Véron and Guntram B Wolff, 'Capital Markets Union: A Vision for the Long Term' (2016) 2 *Journal of Financial Regulation* 130.

over private ones and vice versa. From the public policy viewpoint, there is no *a priori* reason why one market would be more suitable than or preferable to the other.¹⁴⁹ Regulators should, as a general rule, be agnostic as to whether a firm (re)finances itself on public or private markets and instead aim to grow the total pie. In a competitive setting, growth in one market segment will not necessarily lead to overall growth because one market's gains may come at the expense of the other. Accordingly, growth of the total pie can only be achieved if the overall efficiency of capital markets improves. Irrespective of the limited influence of regulatory interventions on market developments, regulation is not inherently inefficient. For instance, regulators could reduce red tape or unnecessary complexity in capital raising across markets, which might have a facilitative effect on corporate finance.¹⁵⁰ This is easier said than done, however, because boundedly rational regulators may mistakenly consider efficient regulation excessive.

Notwithstanding the fundamental goal of increasing the overall pie, certain factors might induce a regulatory preference for capital raising in public markets. As long as regulators accept the dichotomy of public and private markets with diverging regulatory frameworks, especially public disclosure regimes, that respond to differences in market structure,¹⁵¹ there are positive effects unique to the regulatory environment of public markets that regulators often invoke to justify interventions pushing firms to go public rather than stay private.

Firstly, public market disclosure is associated with positive externalities.¹⁵² Investors benefit from increased transparency not only in specific firms but across the market. As price discovery becomes more accurate, the institutions of corporate governance that penalize revealed inefficiencies (e.g., the

¹⁴⁹ “Multiple channels for capital raising are a good idea in terms of greater assurance of supply at competitive prices.” Merton & Bodie (n 7) 37.

¹⁵⁰ Matthew T Gustafson and Peter Iliev, ‘The Effects of Removing Barriers to Equity Issuance’ (2017) 124 *Journal of Financial Economics* 580.

¹⁵¹ For the basic difference of largely anonymous public markets without significant relational contracting on the one hand and private markets that can rely on private ordering solutions on the other hand, see above (n 3).

¹⁵² Of course, similar positive externalities would also accrue on private markets if they were subject to a comparable disclosure regime. Yet, we base our discussion on the current framework governing public and private markets which mandates disclosure when markets fail to produce sufficient information. Whether private markets should generally be subject to similar transparency requirements due to the positive externalities mandatory disclosure creates, is beyond the scope of our analysis. However, we note below (section 6.2) that specific transparency requirements might be justifiable in private markets, too.

threat of activist campaigns or takeovers and high-powered incentive compensation) work better as well.¹⁵³ Stakeholders such as employees and suppliers might also benefit from the information disclosed. They can either negotiate better terms or can at least assess their exposure to the firm more accurately.¹⁵⁴ In addition, policymakers and the general public would have better knowledge of the impact of large firms on the economy as a whole.¹⁵⁵

Secondly, retail investors have easier access to public markets. They may thus be unable to participate in growth opportunities if more and more firms create (most of) their value in private markets. This carries important negative consequences for the distribution of wealth because it deepens inequality.¹⁵⁶

Yet, the extent to which these two factors are valid remains debatable. Disclosure (and transparency) that comes with public markets is not cost-free, neither at the firm level, where it creates compliance costs, nor from a social welfare perspective. Revealing proprietary information via disclosure can curb welfare-improving activities such as innovation.¹⁵⁷ Moreover, compliance costs and other firm-specific costs of disclosure might also drive some firms out of the market, reducing competition and associated welfare effects. Therefore, it might be more efficient if certain firms are nurtured in private markets rather than pushed to public markets.¹⁵⁸ Furthermore, some argue that current developments have not caused the investible market for retail investors to shrink or become more concentrated despite the decline in the number of listed firms.¹⁵⁹ In addition, retail investors can gain some exposure to value

¹⁵³ See generally Fox (n 126) 695-702.

¹⁵⁴ See generally Luca Enriques and Sergio Gilotta, 'Disclosure and Financial Market Regulation' in Niamh Moloney, Eilís Ferran and Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation* (Oxford University Press 2015) 522. See also Merritt B Fox, 'Retaining Mandatory Securities Disclosure: Why Issuer Choice Is Not Investor Empowerment' (1999) 85 Virginia Law Review 1335, 1345.

¹⁵⁵ For example, a former Commissioner of the SEC, Allison Herren Lee, expressed her concern, saying that "[t]he fact that more capital is now being raised in private markets means that a burgeoning portion of the U.S. economy itself is going dark", reducing the ability of policymakers and the public "to assess the impact of these issuers on the U.S. economy as a whole." See Herren Lee (n 128).

¹⁵⁶ See Partnoy (n 86); Doidge and others (n 32); Alexander Ljungqvist, Lars Persson and Joacim Tåg, 'The Incredible Shrinking Stock Market: On the Political Economy Consequences of Excessive Delistings' (ECGI Finance Working Paper No 458/2016, February 2018) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2714916>; Brown and Wiles (n 88).

¹⁵⁷ Breuer, Leuz, and Vanhaverbeke (n 38).

¹⁵⁸ See also Stulz (n 32) 287.

¹⁵⁹ See 'What's behind the falling number of public companies?' (n 91) 5-7.

creation in private markets indirectly via mutual funds or pension funds.¹⁶⁰ It is also unclear whether investors generate superior returns in private markets, implying that retail investors excluded from these markets may not miss out on higher yields.¹⁶¹

6.2 Original inefficiencies from regulating public or private markets only

Apart from growing the overall pie, the second objective of regulators should be to prevent regulatory arbitrage. In other words, as emphasized by a functional approach to regulation, regulators should avoid promulgating rules only for one market if the policy objectives they pursue apply evenhandedly to public and private firms (or intermediaries).¹⁶² We scope certain policy objectives below that can justify similar interventions in both markets which can further inform the current debates on how to (de-)regulate private and public markets going forward.

Regulators exclusively targeting public or private markets will miss the primary goals of their interventions because they will create opportunities for regulatory arbitrage as firms receive incentives to switch to or stay on the unregulated market. As the regulatory arbitrage opportunities become more visible and the number of firms exploiting them grows, regulation might be adapted to intervene evenhandedly (i.e., being applicable regardless of public or private status). Yet, such an adjustment is not inevitable. It might be prevented by a changing political economy, that could, for instance, be

¹⁶⁰ See, e.g., Lowry (n 40) 10–14. This also reflects an endogenous institutional response to market changes: as private markets grow, intermediaries provide access to these markets via new or enhanced products. See also Merton & Bodie (n 7) 28.

¹⁶¹ Cf. Robert S Harris, Tim Jenkinson and Steven N Kaplan, ‘Private Equity Performance: What Do We Know?’ (2014) 69 *The Journal of Finance* 1851; David T Robinson and Berk A Sensoy, ‘Cyclicality, Performance Measurement, and Cash Flow Liquidity in Private Equity’ (2016) 122 *Journal of Financial Economics* 521; Gregory W Brown and Steven N Kaplan, ‘Have Private Equity Returns Really Declined?’ (2019) 22 *The Journal of Private Equity* 11 with Ludovic Phalippou and Oliver Gottschalg, ‘The Performance of Private Equity Funds’ (2009) 22 *The Review of Financial Studies* 1747; Ludovic Phalippou, ‘An Inconvenient Fact: Private Equity Returns and the Billionaire Factory’ (2020) 30 *The Journal of Investing* 11; Antti Ilmanen, Swati Chandra and Nicholas McQuinn, ‘Demystifying Illiquid Assets: Expected Returns for Private Equity’ *The Journal of Alternative Investments* <<https://www.aqr.com/Insights/Research/White-Papers/Demystifying-Illiquid-Assets-Expected-Returns-for-Private-Equity>> accessed 31 August 2022.

¹⁶² Merton (n 7) 38–39. For proposals operationalizing this functional approach to prudential regulation and its enforcement, see Tobias H. Tröger, ‘How Special Are They? Targeting Systemic Risk by Regulating Shadow Banks’ in: *Reshaping Markets. Economic Governance and Liberal Utopia* 185–207 (Bertram Lomfeld, Alessandro Somma & Peer Zumbansen (eds.), Cambridge: Cambridge University Press, 2016); Mathias Thiemann and Tobias H. Tröger, ‘Detecting Tail Risks to Preclude Regulatory Arbitrage: The Case for a Normatively Charged Approach to Regulating Shadow Banking’, (2021) 11 *Acc’t., Econ. & L* 233–270.

determined by the influence of powerful beneficiaries of the status quo. In any case, welfare losses will occur as long as welfare-increasing regulation remains inefficiently patchy.

These welfare losses are correlated with companies' opportunities for regulatory arbitrage that may, in turn, also hinge on overall market conditions. For example, when private markets enjoy high capital inflows and liquidity, more firms can opt to stay private and raise capital outside of public markets to avoid certain regulations applicable to public companies. This amplifies the extent to which the welfare-enhancing effect of the regulatory intervention is thwarted. This is because a value-maximizing firm weighs the increased cost of capital in less liquid and shallower private markets¹⁶³ against the regulatory costs it avoids by staying private. Hence, a decrease in capital costs due to deeper and more liquid private markets increases the marginal value of regulatory arbitrage and thus amplifies the impending inefficiencies. Regulators inflict welfare losses on the economy if they abide by the zig-zag approach to regulation that simply retroactively follows oscillating market developments (see Section 5 above). To avoid these welfare losses, regulators should try to capture the relevant target group of a regulatory intervention as precisely and consistently as possible by asking which addressees are functionally equivalent on public and private markets.

Some policy objectives justify certain common requirements for private and public companies.¹⁶⁴ For example, transparency, prevention of fraud, and protection of certain stakeholders might necessitate having certain financial information publicly disclosed and audited, even by some private firms deemed particularly relevant by regulators (e.g., due to their size).¹⁶⁵ To a certain degree, the regulatory framework in the EU already follows such an approach (i.e., it requires certain non-listed firms to disclose critical financial information publicly and to have their financial statements audited).¹⁶⁶ In the

¹⁶³ See, e.g., William L Silber, 'Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices' (1991) 47 *Financial Analysts Journal* 60.

¹⁶⁴ We should also note that common rules must be equally enforceable and enforced. A non-enforceable rule for both markets is not better than a better-enforced rule only in one market.

¹⁶⁵ See in this regard Michael Minnis and Nemit Shroff, 'Why Regulate Private Firm Disclosure and Auditing?' (2017) 47 *Accounting and Business Research* 473.

¹⁶⁶ See Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (hereinafter *Accounting Directive*).

US, however, disclosure by private firms remains voluntary, and most companies remain in the dark.¹⁶⁷ Despite some recent initiatives by the SEC and Congress contemplating the implementation of a broader approach in the US as well,¹⁶⁸ we do not expect a significant shift in the US approach in the near future because such requirements would draw significant political and judicial backlash and would, at least, require compelling justifications.

Yet, whether regulators should indeed extend these financial regulatory requirements to similarly situated private companies is a function of potential benefits and costs which are very hard to gauge. The benefits can be twofold. First, it might provide information to those stakeholders who would not have been able to obtain it otherwise. Regulatory mandates can be conceptualized as a safety net that catches private ordering problems at those firms where disclosure would be beneficial for stakeholders but is not forthcoming.¹⁶⁹ Such a safety net would not add substantial costs for other firms that would have made disclosures voluntarily as long as the required transparency does not go beyond what would have been disclosed without a mandate. However, it is not clear if private ordering fails in this context. Even though some investors and stakeholders would indeed rely on such information for protecting themselves –a contested issue–,¹⁷⁰ they might bargain for information flows and disclosure arrangements that generate sufficient corporate transparency for their purposes when they need it.¹⁷¹ Leaving it to private ordering has the advantage of not imposing costs on firms whose investors and stakeholders do not require such information.

¹⁶⁷ See Petro Lisowsky and Michael Minnis, ‘The Silent Majority: Private U.S. Firms and Financial Reporting Choices’ (2020) 58 *Journal of Accounting Research* 547.

¹⁶⁸ For the SEC’s potential plans, see ‘The SEC Is Sounding Very European About Unicorns’ *Bloomberg.com* (18 January 2022) <<https://www.bloomberg.com/opinion/articles/2022-01-18/the-sec-is-sounding-very-european-about-regulating-unicorns-private-companies>> accessed 25 November 2022; Kiernan (n 4).

¹⁶⁹ See also Elizabeth Pollman, ‘Private Company Lies’ (2020) 109 *The Georgetown Law Journal* 353 (arguing that private company fraud can harm a broad range of shareholders and stakeholders, especially when they grow rapidly in value, calling for greater public oversight and enforcement).

¹⁷⁰ See generally Spamann (n 20).

¹⁷¹ Matthias Breuer, Katharina Hombach and Maximilian A. Müller, ‘The Economics of Firms’ Public Disclosure: Theory and Evidence’ (Working Paper, November 2022), <<https://ssrn.com/abstract=3037002>> (finding that private firms with multiple transacting stakeholders voluntarily disclose audited information, muting the need for regulatory intervention).

Second, an *ex-ante* disciplining effect of *ex-post* transparency and audit requirements can be expected to curb undesirable firm behavior at least at the margin. This could also address concerns over the exemptions private companies enjoy from hefty corporate governance requirements commonly imposed on public firms.¹⁷² A recent string of governance failures in unicorns (e.g., Theranos, WeWork, and recently FTX), which caused harm not only to their sophisticated investors but also their stakeholders (such as employees)¹⁷³ and the broader society, raised substantial concerns in the US.¹⁷⁴ However, it is challenging to empirically ascertain to what extent audited financial statement requirements stop fraud. Also, the living memory of Enron, Worldcom, Parmalat and the like, as well as more recent scandals such as Volkswagen or Wirecard in public markets remind us that accounting rules and regulation can only do so much to prevent corporate fraud.¹⁷⁵ Moreover, even though a case for regulatory intervention to compel disclosure and auditing in certain private firms can be made, such interventions potentially carry considerable costs that need to be weighed against their benefits, which is a daunting exercise.¹⁷⁶

Treating private and public firms equally in some respects is, however, more valid when it comes to more recent regulatory topics that might not follow the traditional objectives of financial regulation. It may be justified to apply climate-related disclosure rules only to public firms and public market investors as long as the same information-rich environment can be obtained at much lower costs in private firms and markets by private ordering. Under these preconditions, regulating only public

¹⁷² See, e.g., Jesse M Fried and Jeffrey N Gordon, 'The Valuation and Governance Bubbles of Silicon Valley | CLS Blue Sky Blog' <<https://clsbluesky.law.columbia.edu/2019/10/10/the-valuation-and-governance-bubbles-of-silicon-valley/>> accessed 1 September 2022.

¹⁷³ Employee-investors that hold stock options in the employer-companies can be vulnerable if these companies stay in private markets for a long time. As well as closing the possibility of having a liquid market to sell those stock options, employees can be deprived of correct valuation of their stock options that double as their remuneration in most cases (with the growing number of unicorns in the EU, this can be a problem in the EU as well although the use of stock options for employees is rare). See, e.g., David Larcker, Brian Tayan and Edwards Watts, 'Cashing It In: Private-Company Exchanges and Employee Stock Sales Prior to IPO' (12 September 2018) <<https://www.gsb.stanford.edu/faculty-research/publications/cashing-it-private-company-exchanges-employee-stock-sales-prior-ipo>> accessed 23 November 2022.

¹⁷⁴ See, e.g., Elizabeth Pollman, 'Startup Governance' (2019) 168 University of Pennsylvania Law Review 155.

¹⁷⁵ See also Alexander I Platt, 'Unicorniphobia' (2022) 13 Harvard Business Law Review 115 (arguing that "pushing [u]nicorns towards public company status may not improve their proclivity to risky and harmful conduct and may actually make things worse.").

¹⁷⁶ See generally, Christian Leuz and Peter D. Wysocki, 'The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research' (2016) 54 Journal of Accounting Research 525.

markets would legitimately align with the classical public/private dichotomy. However, when regulators aim to use 'stakeholder' disclosure as a social policy tool to affect firm behavior (e.g., in the case of climate-related disclosures, to reduce emissions), disclosure requirements should apply to firms regardless of their public or private status. Otherwise, they pave the way for regulatory arbitrage and the business activities these rules target will be taken on by players not subject to the same rules.¹⁷⁷ As a flipside, the opportunity to turn to unregulated markets puts a limit on regulators' ability to foster social objectives other than efficient capital allocation, if they are bound by a narrow mandate that justifies regulating only public markets.¹⁷⁸ Generally, market-specific rules add to the substantial costs of being public and thus encourage firms to go or stay private, thereby shrinking the rules' sphere of influence (i.e., triggering a defeating market response to the original intervention).¹⁷⁹ This approach also holds in other contexts, such as conflict minerals or resource extraction payment disclosures, where regulators embrace non-financial objectives and utilize disclosure obligations and their enforcement framework to pursue social goals.¹⁸⁰

Information is a non-excludable good. Regulators that seek to counter the looming information underproduction on public markets and thus stipulate disclosure obligations to overcome information asymmetries and preserve market integrity¹⁸¹ cannot control the use of disclosed data. Once public, stakeholders, like firm customers, non-government agencies, and media, can exploit the disclosed information to pressure the firm and affect its behavior.¹⁸² If the information that facilitates stakeholder

¹⁷⁷ See, e.g., Thomas Rauter, 'The Effect of Mandatory Extraction Payment Disclosures on Corporate Payment and Investment Policies Abroad' (2020) 58 *Journal of Accounting Research* 1075.

¹⁷⁸ See, for instance, Lee (n 1) (describing how the Commission addresses climate and social risks within its mandate to regulate public markets).

¹⁷⁹ See generally Alperen A. Gözlügöl and Wolf-Georg Ringe, 'Private Companies: The Missing Link on the Path to Net Zero' (2022) 22(2) *Journal of Corporate Law Studies* 887.

¹⁸⁰ See, e.g., Nicolas Grabar and others, 'SEC Resource Extraction Payments Rule—Third Time's the Charm?' (*The Harvard Law School Forum on Corporate Governance*, 26 December 2019) <<https://corpgov.law.harvard.edu/2019/12/26/sec-resource-extraction-payments-rule-third-times-the-charm/>> accessed 12 September 2022.

¹⁸¹ For this classical rational of mandatory disclosure obligations in securities regulation, see John C. Coffee, Jr., 'Market Failure and the Economic Case for Mandatory Disclosure System' (1984) *Virginia Law Review* 717; see also Andrei Shleifer and Robert Vishny, 'A Survey of Corporate Governance' (1997) 52 *Journal of Finance* 737.

¹⁸² See generally Ann M. Lipton, 'Not Everything Is About Investors: The Case for Mandatory Stakeholder Disclosure' (2020) 37 *Yale J Reg* 499 (emphasizing the importance of comprehensive public disclosures to non-investor audiences); for empirical evidence on increased reputational costs imposed by civil society and facilitated by mandatory ESG disclosure, see Katharina Hombach and Thorsten Sellhorn, 'Firm value effects of targeted disclosure regulation: The role of reputational costs' (2021) *Accounting for Transparency working paper No 18*, <<https://ssrn.com/abstract=3204505>>.

discipline is made available only by public firms, unintended consequences loom. Ultimately, such market-specific transparency requirements create the same effect as mandatory disclosure obligations promulgated as a social policy tool only in one market: issuers become incentivized to shift activities and engage in regulatory arbitrage. Although, in theory, the primary regulatory objective justifies an intervention limited to public markets, the rule's broader effect suggests that regulators might be wise to implement a regulatory framework targeting firms in all markets; for example, by capturing public and private firms that exceed a certain size threshold.

7 Conclusion

Recent market developments have seen private markets grow while certain indicators, such as IPOs or the number of public firms, suggest that public markets have declined. These observations have attracted much attention from scholars, media, and various stakeholders. Policymakers and regulators worldwide are contemplating initiatives to revive public markets via various measures.

We caution against hasty regulatory interventions in capital markets. First, these interventions are justified by projections of stable market developments extrapolated from relatively short-term trends. In contrast, we provide an alternative hypothesis whereby the significance of public or private markets for corporate finance fluctuates. Indeed, one might observe a certain trend that one market grows more relative to the other at a particular time, determined by certain factors. However, this will never lead to a stable steady-state: other factors subject to adaptation will create a countervailing effect and push the balance in favor of the other market. This will result in continuous movements whereby the domains of public and private markets oscillate. Furthermore, these two markets also feature complementarities, reinforcing each other in their functions rather than being truly competing institutions, which militates against extreme oscillations. This hypothesis of a dynamic divide better captures capital market developments historically and is in line with empirical evidence. It thus provides a better perspective to understand markets and act informedly.

Secondly, regulation is only one of the many determinants that affect market developments. It may even lack the potential to route such developments in a lasting manner. Regulators are boundedly rational

and the intended effects of their interventions are frequently undone by market adjustments which regulators do not foresee. These market reactions often trigger another round of regulatory interventions. This also means that as the time horizon lengthens, regulation becomes determined *by* market developments (endogenous) rather than shaping them (exogenous).

Normatively, we also do not see compelling social welfare arguments for pushing firms to raise capital in public instead of private markets. We therefore confine regulatory interventions in capital markets to two roles: (i) regulators should grow the overall market pie, being mindful of the cross-market effects of their actions and (ii) regulators should avoid regulating one market only if policy objectives evenhandedly apply to both.

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