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The oscillating domains of public and private markets

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The Oscillating Domains of Public and Private Markets

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Law Working Paper N° 689/2023

March 2023

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This paper has benefitted from critique and comments from Matthias Breuer, Mark Roe, and Alessandro Romano. We gratefully acknowledge research support from the Leibniz Institute for Financial Research SAFE and the Center for Advanced Studies Foundations of Law and Finance funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) - project FOR 2774.

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Abstract

We contribute to the debate about the future of capital markets and corporate finance, 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. Our research sheds light on the fluctuating significance of public and private markets for corporate finance over time, and challenges the conventional view of a linear progression from one market to the other. We argue instead that a more complex pattern of interaction between public and private markets emerges, after taking a long-term perspective and examining historical developments more closely. We claim that there is a dynamic divide between these markets, and identify certain factors that determine the degree to which investors, capital, and companies gravitate more towards one market than the other. However, in response to the status quo, other factors will gain momentum and favor the respective other market, leading to a new (unstable) equilibrium. Hence, we observe the oscillating domains of public and private markets over time. While these oscillations imply 'competition' between these markets, we unravel the complementarities between them, which also militate against a secular trend towards one market. Finally, we examine the role of regulation in this dynamic divide as well as some policy implications arising from our findings.

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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LawFin Working Paper No. 52

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Alperen A. Gözlügöl | Julian Greth | Tobias H. Tröger

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We claim that there is a dynamic divide between these markets, and identify certain factors that determine the degree to which investors, capital, and companies gravitate more towards one market than the other. However, in response to the status quo, other factors will gain momentum and favor the respective other market, leading to a new (unstable) equilibrium. Hence, we observe the oscillating domains of public and private markets over time. While these oscillations imply ‘competition’ between these markets, we unravel the complementarities between them, which also militate against a secular trend towards one market. Finally, we examine the role of regulation in this dynamic divide as well as some policy implications arising from our findings.

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1 Introduction

More than 30 years ago, Nobel laureate Michael Jensen predicted the ‘eclipse of the public corporation.’¹ Laden with agency costs, public corporations were, he claimed, going to fade away, to be replaced by private-equity-backed firms with their stronger governance and organizational structure.² Time and time again, developments seemed to corroborate Jensen’s hypothesis: for example, during the leveraged buyout spree in the 1980s or the boom period from the beginning of the aughts up to the Global Financial Crisis (GFC) of 2008.³ Recently, there seems to have been a trajectory of bullish private equity activity and declining public markets again. This trend has triggered a rich debate on various questions including why the growth of private markets is outpacing that of their public counterparts, how the latter situation can be salvaged, and whether and how regulators can address any undesirable market developments.

¹ Michael C Jensen, ‘Eclipse of the Public Corporation’ (1989) Harvard Business Review, <<https://hbr.org/1989/09/eclipse-of-the-public-corporation>>, last accessed 23 February 2023.

² *ibid.*

³ See below notes 55-62 and accompanying text.

Is history finally proving Jensen right? He argued that the inevitable triumph of private markets would be driven by the comparative advantages private companies have over public firms in reducing or eliminating agency costs.⁴ Yet, there is reason to doubt that differences in agency costs 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,⁵ they should still be in a better position than retail investors and might also employ more complex monitoring strategies to generate above-market returns, thereby inducing corporate governance enhancements.⁶ Furthermore, activist hedge funds monitor and discipline management strongly in a collaborative effort with other institutional investors,⁷ which is largely found to increase firm value.⁸ 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.⁹ Although these institutions of corporate governance do not completely eliminate agency costs, it seems plausible that, in combination, they reduce these costs significantly.

At the same time, private equity's alleged superiority in corporate governance has eroded to some extent.¹⁰ For example, more diverse business models of private equity firms which pursue different

⁴ Jensen (n 1).

⁵ Lucian A Bebchuk and Scott Hirst, 'Index Funds and the Future of Corporate Governance: Theory, Evidence, and Policy' (2019) 119 *Columbia Law Review* 2029.

⁶ For a case study of the engagement and trading behavior of an active UK asset manager, see Marco Becht, Julian Franks, and Hannes F. Wagner, 'Corporate Governance through Exit and Voice' (ECGI Finance Working Paper No. 633/2019, October 2019), <http://ssrn.com/abstract_id=3456626>, last accessed 23 February 2023.

⁷ 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; Marcel Kahan and Edward B. Rock, 'Hedge Funds in Corporate Governance and Corporate Control' (2007) *University of Pennsylvania Law Review* 1021.

⁸ 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>>, last accessed 23 February 2023.

⁹ See, e.g., Holger Spamann, 'Indirect Investor Protection: The Investment Ecosystem and Its Legal Underpinnings' (2022) 14 *Journal of Legal Analysis* 17.

¹⁰ See in this regard 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.").

investment operations add to the existing conflicts of interest.¹¹ 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 and complicates decision-making, especially in bad times when opinions on the most promising way forward may diverge.¹²

Recent scholarship has indeed discarded Jensen's simple agency cost explanation and argued that the following other forces drive the recently observed upswing of private relative to public markets: (i) increased regulatory and ancillary costs of being public, making listings incrementally unattractive; (ii) the growth of private capital, 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.¹³ To what extent these factors have played a role for both the absolute growth of private markets and their surge relative to public markets is a matter of debate. Moreover, it remains unsettled as to whether recent developments represent secular trends or rather short-lived phenomena subject to change. Some even doubt that public markets are in decline at all.¹⁴

In this paper, we put forward an alternative hypothesis on the interaction between private and public markets¹⁵ that is better aligned with the historically fluctuating boundary between them.¹⁶ We argue that a linear projection of market developments that takes off from a specific point in time and

¹¹ de Fontenay (n 10) 1112-1118. See also William A Birdthistle and M Todd Henderson, 'One Hat Too Many?: Investment Desegregation in Private Equity' (2008) 76 University of Chicago Law Review 45.

¹² Cheffins and Armour (n 10) 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/>>, last accessed 23 February 2023.

¹³ 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.

¹⁴ 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>>, last accessed 23 February 2023.

¹⁵ 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 116).

¹⁶ See Section 2.2.

gravitates towards a predetermined end point cannot capture the dynamic divide between private and public markets adequately. 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 certain time. But 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. The domains of public and private markets are therefore in a constant state of flux, without gravitating towards a stable steady state. Instead of a long-term secular trend away from one market to the other, we conceptualize the developments as cyclical – oscillating 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, reinforcing and improving each other with respect to the performance of their functions. This implies that the ‘death’ of either market would be inefficient. Indeed, interdependencies between these markets act as ‘stabilizers’ that moderate the oscillations of the divide and prevent them from gravitating towards extreme ends.

Against this theoretical background, regulatory interventions can have a powerful influence (as an exogenous shock) on the dynamics in these markets that stretch beyond the immediate effects of changes in the regulatory framework. In the long run, these dynamics induce further responses from market participants which in turn may feed back into the regulatory framework. Thus, the set of regulatory policies is increasingly *endogenously* determined as the time horizon lengthens.

Our theory draws on the seminal work of Robert C. Merton¹⁷ who argues that we should adopt a functional perspective rather than an institutional one when we analyze the financial system.¹⁸ He posits that the provision of a specific financial function will oscillate between ‘markets’ and ‘intermediaries’ in a dynamic institutional structure.¹⁹ Following developments over time, a specific 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.²⁰ 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

¹⁷ 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>>, last accessed 23 February 2023.

¹⁸ Merton (n 17) 23; Merton & Bodie (n 17) 26.

¹⁹ Merton (n 17) 27.

²⁰ *ibid.*

at particular points in time.²¹ We argue that an analogous case can be made for the relationship between public and private markets, that we call ‘the dynamic public/private divide.’

Section 2 provides the factual background for our hypothesis and describes the trends in public and private markets both in the US and Europe during recent decades. It also recaps on the latest pertinent market developments. Against this background, Section 3 puts forward our theory of the dynamic divide between public and private markets, with a few examples given of how this dynamic plays out. Thereafter, Section 4 shows the complementarities between public and private markets that corroborate our hypothesis of an inextricable, symbiotic relationship. 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 Trends in public and private markets

Recent shifts in the relevance of public and private markets in corporate finance have stirred a lively debate on where capital markets are headed. Some observers see a fundamental change with substantial amounts of capital flowing into private markets rather than public ones and companies staying private or, at least, going public much later than was traditionally the case. This phenomenon led, for example, the famed columnist Matt Levine to conclude that “[p]rivate markets are the new public markets”.²² Some commentators even proclaimed the ‘death’ of public markets.²³ Others claimed in turn that such a claim was ‘greatly exaggerated.’²⁴ Many scholars went on to investigate the potential determinants of the current phenomena.²⁵ Those partly blaming certain regulatory interventions for the current developments in turn devised recipes detailing how regulators should respond to the emerging equilibrium.²⁶

²¹ *ibid* 28.

²² 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>>, last accessed 23 February 2023. 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>>, last accessed 23 February 2023.

²³ Frank Partnoy, ‘Companies Aren’t Going Public Anymore’ (2018) *The Atlantic*, <<https://www.theatlantic.com/magazine/archive/2018/11/private-inequity/570808/>>, last accessed 23 February 2023.

²⁴ Cheffins (n 14). See also Vartika Gupta, Tim Koller and Peter Stumpner, ‘A Closer Look at Trends in Public Company Listings and IPOs | McKinsey’ (McKinsey & Company), <<https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/reports-of-corporates-demise-have-been-greatly-exaggerated>>, last accessed 23 February 2023.

²⁵ See above note 13 and accompanying text.

²⁶ See, e.g., Elisabeth de Fontenay, ‘The Deregulation of Private Capital and the Decline of the Public Company’ (2017) 68 *Hastings Law Journal* 445; George S Georgiev, ‘The Breakdown of the Public–Private Divide in Securities Law: Causes, Consequences, and Reforms’ (2021) 18 *New York University Journal of Law & Business* 221.

In this section, we look at the available evidence to lay the foundations for our novel theory on the interaction between public and private markets. Although recent years have seen a steady rise of private markets (see Section 2.1 below), a deeper dive into modern financial history shows that these developments are not evidence per se of a stable and linear trend (see Section 2.2 below). This is consistent with our main hypothesis of the constantly shifting domains of public and private capital markets that we develop and illustrate in more detail in the next section (see Section 3 below).

2.1 The recent rise of private markets

In recent years, private markets have grown substantially while public ones have withered. In particular, IPO numbers across several jurisdictions have been dismal for a long time as many firms have preferred to stay private for longer.²⁷ Similarly, many public firms have delisted for various reasons, including private equity acquisitions.²⁸ This observation holds for the US and European markets, and is independent from differences in market depth and liquidity. The OECD puts it conspicuously, as follows: “Since 2005, more than 30,000 companies have delisted from stock markets globally, equivalent to 75% of all listed companies today. These delistings have not been matched by new listings, leading to a major reduction of publicly listed companies.”²⁹

The phenomenon has been most pronounced in the US where the number of listed companies has been decreasing steadily as the number of delistings has outgrown the number of new listings year over year.³⁰ In spite of significant growth in the size of its economy, the US now has fewer public companies than in 1975.³¹ After its peak towards the end of the 1990s, the number of listed companies almost halved in the 2000s and has remained stable at a (relatively) low level in recent years.³² Meanwhile, IPO numbers have been constantly low over the past two decades in comparison to the

²⁷ See below notes 33-35 and the text thereto.

²⁸ See below notes 30 & 38 and the text thereto.

²⁹ See ‘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>, last accessed 23 February 2023

³⁰ See, e.g., Craig Doidge, G. Andrew Karolyi & René M. Stulz, ‘The U.S. Listing Gap’, (2017) 123 Journal of Financial Economics 464.

³¹ See René M. Stulz, ‘Public versus Private Equity’, (2000) 36 Oxford Review of Economic Policy 274, 276-77.

³² Data sources which the text is based on 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/>>, both last accessed 23 February 2023

pre-2000 period.³³ Only in late 2020 and 2021 did the number of listed companies distinctly increase, largely thanks to positive market sentiment attracting large numbers of IPOs.³⁴

Similar to the US, European markets have witnessed a long-standing trend of decline in IPOs.³⁵ According to a recent report prepared by Oxera Consulting for the European Commission (pre-Brexit), “the number of listings in the EU-28 declined by 12%, from 7,392 in 2010 to 6,538 in 2018, while GDP grew by 24% over the same period. Large financial centres (Frankfurt, Paris, and London) saw declines in listings. 8,000–17,000 large companies in 14 EU member states are eligible to list but not seeking to do so.”³⁶ The report concludes that “[w]e have been witnessing the partial eclipse of the public corporation.”³⁷ While there is significant variation across Member States, much of the decline has been driven by reductions on the main market in the large financial centers such as Frankfurt, Paris, Amsterdam, Luxembourg, and, before Brexit, London.³⁸

Related to the decline in IPO numbers is the development that in both the US and Europe, companies are seeking to list at a later stage than they previously did.³⁹ This trend is due to the increased ability

³³ See Jay R. Ritter, ‘IPO Statistics for 2021 and Earlier Years’, <<https://site.warrington.ufl.edu/ritter/ipo-data/>>, last accessed 23 February 2023, Table 15 and Figure 5. See also Bain & Company, ‘Public vs. Private Assets: The Big Switch’ (25 February 2019), <<https://www.bain.com/insights/private-multiples-global-private-equity-report-2019/>>, last accessed 23 February 2023, Figure 3.3 (showing the substantial drop in the number of US IPOs since the mid-1990s). Especially, small firm IPOs have disappeared while large firm IPOs have remained largely stable. See Vanguard, ‘What’s behind the falling number of public companies?’ (December 2017), <<https://www.vanguard.ca/documents/whats-behind-the-falling-number.pdf>>, last accessed 23 February 2023, Figure 2.

³⁴ See Jay R. Ritter, ‘The number of listed firms in the U.S. 1980-2021, by quarter’, <<https://site.warrington.ufl.edu/ritter/ipo-data/>>, last accessed 23 February 2023. However, given the number of SPACs among IPOs in 2020 and especially 2021, it remains to be seen whether this increase will be offset by a steep decline if some of these SPACs are dissolved because they did not merge with a target company prior to the merger deadline. By end of September 2022, 21 SPACs worth approx. \$ 9.9 million have been liquidated in the US and it seems likely that there are more to come as an increasing number of SPACs is approaching the (extended) merger deadline in a rather hostile market environment. See Michelle Celarier, ‘SPAC Liquidations are on the Rise as Time Runs Out to Find Deals’ Institutional Investor, 27 September 2022, <<https://www.institutionalinvestor.com/article/b1zzdfjw1p8nfv/SPAC-Liquidations-Are-on-the-Rise-as-Time-Runs-Out-to-Find-Deals>>, last accessed 23 February 2023.

³⁵ For example, while the number of annual IPOs in Europe was 380 per year between 1997 and 2007, it fell to 220 per year between 2008 and 2018. See 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>>, last accessed 23 February 2023, p. 10. Similar to the US, the decline in IPO activity is driven by small firms, especially in the main markets. See Jay R Ritter, Andrea Signori and Silvio Vismara, ‘Economies of Scope and IPO Activity in Europe’ (2013) Handbook of Research on IPOs 11.

³⁶ See 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>>, last accessed 23 February 2023, at 12 (below: Oxera report).

³⁷ *ibid.*

³⁸ *ibid.* 30 & 263-66.

³⁹ Oxera Report (n 36) 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>>, last accessed 23 February 2023 (showing that

of firms to finance themselves during their growth phase in private markets, which we explain below and which paved the way for numerous multi-billion-dollar private companies (known as ‘unicorns’ and ‘decacorns’).

We should note that 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 is not exclusively due to mergers between public firms, but also because firms increasingly ‘go public’ as a target in an acquisition of a public firm rather than in a standalone IPO.⁴⁰ This is also in line with the increasing capitalization of stock markets both in the US and Europe.⁴¹

Nevertheless, it is undeniable that private markets have grown significantly and outpaced public markets. According to the Economist, the private capital industry had some US\$2.2 trillion under management at its peak prior to the Global Financial Crisis (GFC); today, it manages four to five times as much.⁴² Similarly, a McKinsey report shows that the growth of private assets under management (including buyout, venture capital, growth, and other funds) has been constant, reaching a record high in 2021.⁴³ Global funds raised across the full private capital spectrum hit US\$1.2 trillion in 2021, reaching their highest level ever.⁴⁴ Capital resources now available in private markets through venture capital and private equity funds as well as other non-traditional investors such as hedge funds and

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.

⁴⁰ See, e.g., B Espen Eckbo and Markus Lithell, ‘Merger-Driven Listing Dynamics’ (ECGI Finance Working Paper No 752/2021, December 2022), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3547581>, last accessed 23 February 2023 (arguing that when taking into account mergers between public acquirors and private and public targets, the listing gap previously identified disappears); Gabriele Lattanzio, William L Megginson and Ali Sanati, ‘Dissecting the Listing Gap: Mergers, Private Equity, or Regulation?’ (18 August 2022), <<https://papers.ssrn.com/abstract=3329555>>, last accessed 23 February 2023 (similar). See also Vanguard (n 33) Figures 3 & 4.

⁴¹ 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>>. All last accessed 23 February 2023. 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.

⁴² See ‘Private markets have grown exponentially’, *The Economist* (23 February 2022), <<https://www.economist.com/special-report/2022/02/23/private-markets-have-grown-exponentially>>, last accessed 23 February 2023.

⁴³ McKinsey & Company, ‘Private markets rally to new heights: McKinsey Global Private Markets Review 2022’ (March 2022), <<https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/mckinseys-private-markets-annual-review>>, last accessed 23 February 2023, at 21 (exhibit 12) (thereafter McKinsey report).

⁴⁴ Bain & Company, ‘Global Private Equity Report 2022’, <<https://www.bain.com/insights/topics/global-private-equity-report/>>, last accessed 23 February 2023, at 20.

mutual funds diversifying across markets, are becoming sufficient not only to provide startups with necessary capital to scale up, but also to meet the capital requirements of relatively mature private companies.

The bulging appetite of investors for private markets has led private equity firms to launch ever-bigger funds. Blackstone's planned US\$30 billion vehicle, that would be the largest private equity fund ever, and Advent's very recent US\$25 billion buyout fund are the most visible manifestations of this development, which has created an abundance of private money for companies to tap into.⁴⁵ Consistent with this evolution, private markets have been more important than public markets for capital raising in the US in recent years. An SEC staff paper shows that between 2009 and 2017, US companies raised more capital in private markets than in public markets.⁴⁶ This trend carried over into the following years too.⁴⁷ The private equity industry (which is a main provider of private capital) has been growing as well, surpassing its previous high before the GFC in most respects (i.e. deal value and count, and fundraising).⁴⁸ While long dwarfed by the number of US-listed companies, the number of private-equity-backed companies in the US also overtook the former towards the late 2000s.⁴⁹

European markets have been affected by the same phenomenon. Indeed, recent years have seen the biggest-ever going-private deals in European markets, with more deals in the pipeline. Significantly, Advent and Cinven acquired the elevator business of Thyssenkrupp, a German blue-chip company, in

⁴⁵ See respectively Sabrina Willmer, 'Blackstone Weighs Up to Record \$30 Billion for Flagship Fund' *Bloomberg* (20 October 2021), <<https://www.bloomberg.com/news/articles/2021-10-20/blackstone-eyes-up-to-30-billion-for-flagship-buyout-fund>>, last accessed 23 February 2023 and Jan-Henrik Foerster, 'Advent Raises One of the Biggest Buyout Funds at \$25 Billion', *Bloomberg* (23 May 2022), <<https://www.bloomberg.com/news/articles/2022-05-23/advent-raises-one-of-biggest-ever-buyout-funds-at-25-billion>>, last accessed 23 February 2023. Note that funds alone do not indicate the maximum buyout capacity as usually private equity firms form a consortium (with other private equity firms or institutional investors like pension funds) to acquire large public targets.

⁴⁶ 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>>, last accessed 23 February 2023, pp. 7-8.

⁴⁷ For the year of 2018 and following years, see respectively, SEC, 'Concept release on harmonization of securities offering', June 2019, p. 16, <<https://www.sec.gov/rules/concept/2019/33-10649.pdf>>, last accessed 23 February 2023 and SEC Office of the Advocate for Small Business Capital Formation, Annual Report for Fiscal Years 2019, 2020 and 2021, <<https://www.sec.gov/oasb/small-business-capital-formation-reports>>, last accessed 23 February 2023.

⁴⁸ See, e.g., 'Q3 2022 US PE Breakdown | PitchBook' (2022), <<https://pitchbook.com/news/reports/q3-2022-us-pe-breakdown>>, last accessed 23 February 2023. After clicking 'download report', one can access the underlying data in an excel format.

⁴⁹ See PitchBook, 'M&A Report 3Q 2018', <https://files.pitchbook.com/website/files/pdf/PitchBook_3Q_2018_MA_Report.pdf>, last accessed 23 February 2023, at 6. See also Neuberger Berman, '2008 – 2018 – 2028: The Dissolving Divides that Will Shape the Post-Crisis Investment Era', <<https://www.nb.com/en/global/08-18-28/four-trends-for-the-next-ten-years-capital-markets-restructuring>>, last accessed 23 February 2023, at 16.

2020 for €17.2 billion – one of the biggest private equity deals in Europe to date.⁵⁰ Meanwhile, Axel Springer SE, one of Europe’s largest media publishers, went private in a deal led by the private equity firm KKR & Co.⁵¹ The largest deal in the European market ever was recently closed : at the end of 2022, Blackstone and the Benetton family took Italy’s Atlantia, a large airport and motorway operator, private in a deal valued at €54 billion.⁵²

In Europe, there has also been an increase in the number of companies backed by private equity, in total private equity investments, and also in total fundraising through private equity vehicles.⁵³ 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.⁵⁴

2.2 No end of history in sight

At first glance, these observations seem to evidence a monotonous development. Yet, putting the recent developments in capital markets in a broader historical context reveals a more complex pattern which 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

⁵⁰ See ‘Advent, Cinven complete €17.2bn Thyssenkrupp elevator unit buyout signed before Covid-19 pandemic’ (31 July 2022), <<https://www.altassets.net/private-equity-news/by-news-type/deal-news/advent-cinven-complete-e17-2bn-thyssenkrupp-elevator-unit-buyout-signed-before-covid-19-pandemic.html>>, last accessed 23 February 2023.

⁵¹ See Maria Armental, ‘KKR to Take Axel Springer Private’ *Wall Street Journal* (24 January 2020), <<https://www.wsj.com/articles/kkr-begins-process-to-delist-german-media-giant-axel-springer-11579842914>>, last accessed 23 February 2023.

⁵² See Voluntary public tender offer launched by Schema Alfa S.p.A. for all the shares in Atlantia S.p.A., dated 7 October 2022, <<https://www.atlantia.com/documents/37344/660721/ATLANTIA+OPA+ENG+03+cover+lr2.pdf>> as well as final offer results dated 28 November 2022, <https://www.atlantia.com/documents/37344/625691/Comunicato_risultati_definitivi_ad_esito_riapertura_-_ENG.pdf>, both sources last accessed 23 February 2023. The deal value is based on an equity value of approx. €19 bn and Atlantia’s net financial debt of approx. €35 bn at the end of 2021.

⁵³ Invest Europe, ‘Investing in Europe: Private Equity activity 2021’ (3 May 2022), <<https://www.investeurope.eu/research/activity-data/>>, last accessed 23 February 2023 (below: Invest Europe 2021 Report).

⁵⁴ 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 53), 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>>, last accessed 23 February 2023, p. 9. However, note that private equity investments in companies do not translate automatically into capital injection. 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>>, last accessed 23 February 2023.

relationship between the two markets, with private market peaks in 1988, 1998, and 2007, and drops in between.⁵⁵

More specifically, private equity firms started as leveraged buyout (LBO) groups, emerging as an important phenomenon in the 1980s, reaching their peak with the infamous buyout of RJR Nabisco in 1988.⁵⁶ However, this LBO craze dwindled as the junk bond market – one of the backbones of this first generation of LBOs – crashed.⁵⁷ Private equity then transformed itself, adding more focus on other strategies beyond the LBOs of large public companies.⁵⁸ Overall, private equity activity remained at moderate levels during the 1990s.⁵⁹ However, it picked up again considerably around the turn of the 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 2007.⁶⁰ Various financial indicators such as capital commitments, transaction values and numbers, had reached extraordinary levels in 2006 and 2007 and large-scale public-to-private transactions returned.⁶¹ This boom however also collapsed with the advent of the GFC and the ensuing turmoil in debt markets.⁶² In the wake of the Lehman Brothers collapse, private equity activity decelerated considerably and remained at moderate levels until the early 2010s.⁶³ However, this downturn was also not persistent as private equity activity recovered notably, reaching unprecedented levels in 2021.⁶⁴ Arguably, this quick rebound was supported by the fact that the adverse impact of the GFC was attenuated by central banks' expansionary monetary policies, which created an abundance of market liquidity.

Against this background, commentators should exercise caution when making absolute predictions about the future of capital markets and corporate finance. Writing at times 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 buyout 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 is likely to share the same fate.

⁵⁵ Steven N Kaplan and Per Strömberg, 'Leveraged Buyouts and Private Equity' (2009) 23 *Journal of Economic Perspectives* 121.

⁵⁶ 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).

⁵⁷ Kaplan and Strömberg (n 55) 122.

⁵⁸ *ibid.*

⁵⁹ *ibid* 125-28.

⁶⁰ *ibid.*

⁶¹ *ibid.*

⁶² *ibid* 122.

⁶³ See sources cited in above notes 48 and 53 and accompanying text.

⁶⁴ *ibid.*

Similarly, a closer analysis of firms' capital raising in private vs. public markets in the US during the period between 1996 and 2021 does not reveal a clear linear trend but rather a fluctuation. In particular, it shows how firms' overall financing decisions change over time, especially in the extent to which firms decide to raise finance in public rather than private markets. Figure 1 depicts the aggregate issuances at market value over time for public and private firms. The development of public and private market issuances (red and blue areas) is largely correlated, but the relative growth and decline in the size of the respective capital issuances per year or over a longer period differ. This becomes even more obvious once we turn to the multiple of issuances in public vs. private markets (green line) which fluctuates throughout the time series.

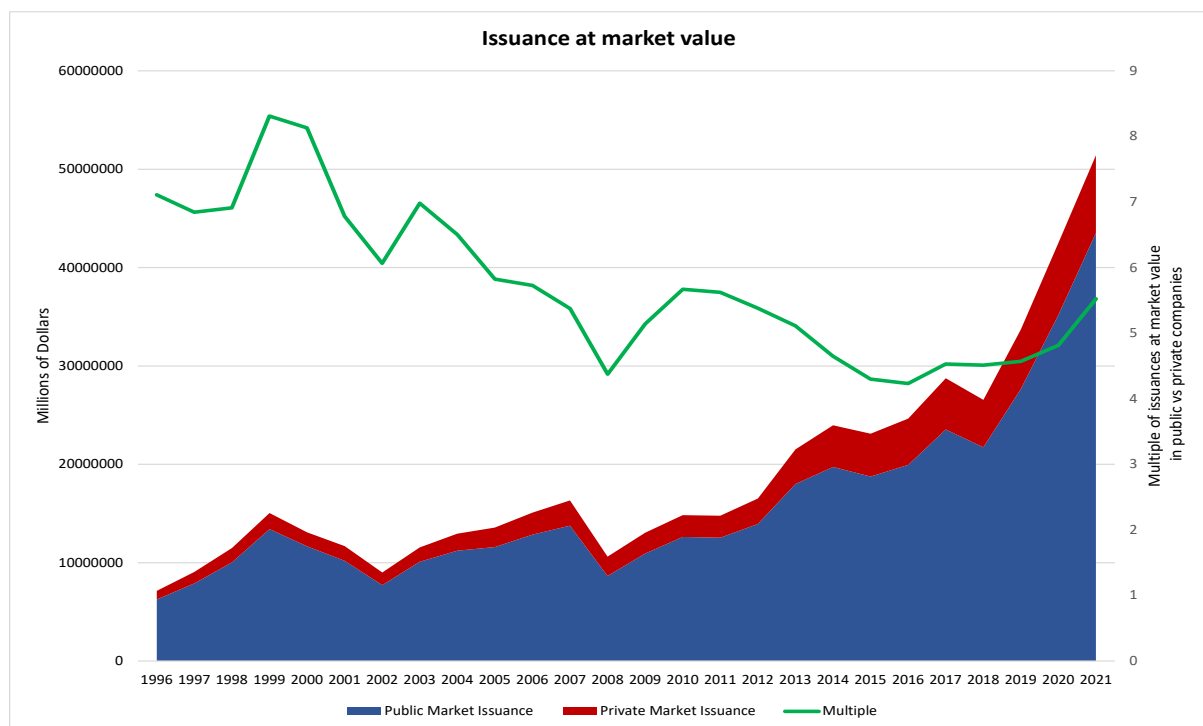


Figure 1 (sources: Board of Governors of the Federal Reserve System (US); authors' own calculations)

Figure 2 displays the same data in the form of changes in the amount of capital issued by public and private firms over time. Two findings can be derived from this figure. First, the chart demonstrates that, at times, capital raising declines in one market while it simultaneously increases in the other and vice versa. Second, throughout periods in which both markets follow the same trend, the slope of the increases or decreases is markedly different. This indicates again that the magnitude of activity in the two markets diverges. Most importantly, the reported fluctuations in market value levels do not corroborate a stable linear development that would hint at a secular trend.

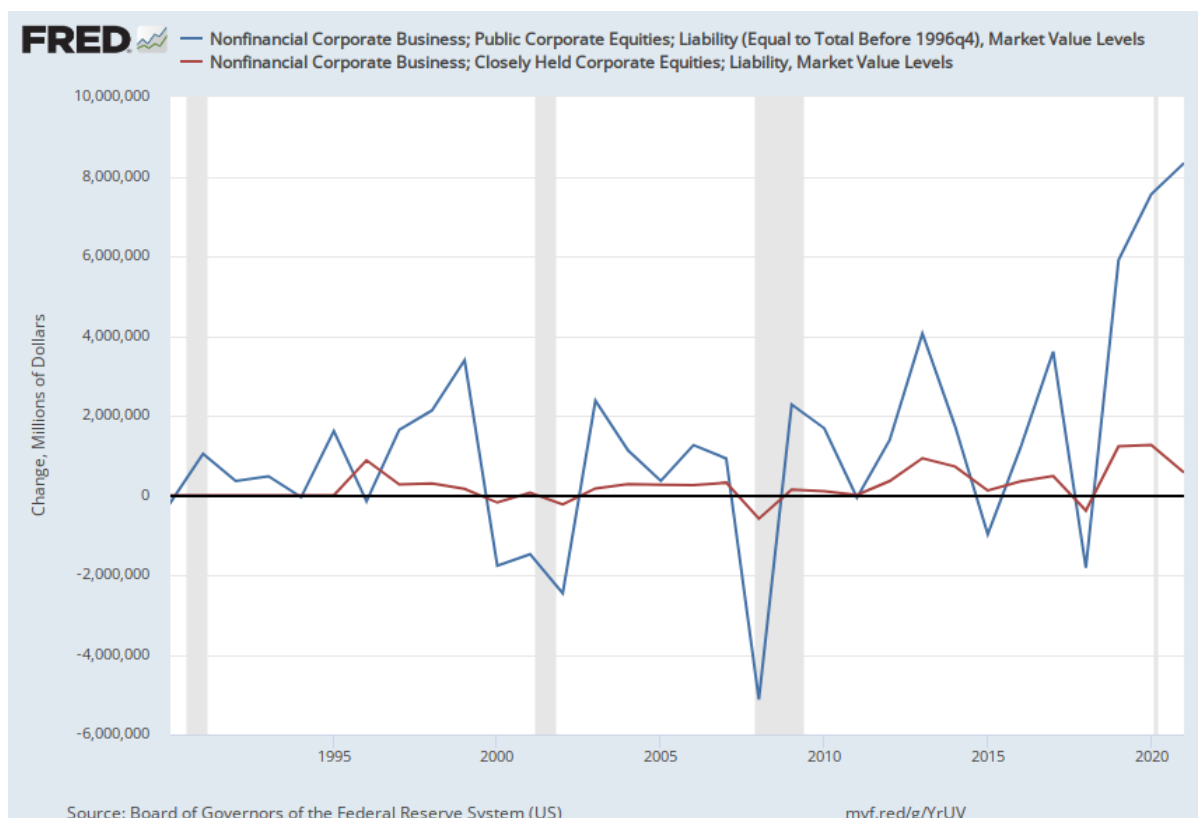


Figure 2

Although the data we reproduce here only cover issuances in the US, we do not see any reason to assume that developments in European public and private markets and the interaction between the two would differ fundamentally. If anything, European companies' traditionally heavier reliance on bank credit should attenuate the magnitude of the fluctuations compared to the US.

3 The theory of the dynamic public/private divide

In this section, we present our main hypothesis that is more consistent with the historical evidence we surveyed in the previous section. Specifically, we argue that there is a dynamic divide between public and private markets. The gist of the theory is as follows: 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 certain time. However, the resulting public/private divide does not constitute a stable equilibrium. Market participants, regulators, and others will respond to the observed developments. These responses will impact (other) factors in a way that favors the other market and will thus push back to another (unstable) equilibrium. This will be an ongoing cycle and therefore, as the time horizon lengthens, one would observe a constantly morphing domain of public and private markets rather than a secular trend away from one to the other.

3.1 The idea of functional finance

Our theoretical argument is based on Merton's analytical framework of functional finance (see Section 1 above). His fundamental insight that functions are more stable than institutions and therefore represent a better reference point for understanding market developments⁶⁵ applies beyond its original scope, which investigated the changing domains of market-based versus bank/intermediary-based finance. This becomes obvious if we look at one of the author's key examples: the financial function of providing retail investors with a well-diversified portfolio of equities. At the beginning, this function was best served by buying shares on a stock exchange – *markets*. This solution was however marred by transaction and monitoring costs and the problems of indivisibilities.⁶⁶ The innovation of mutual funds, as pooling *intermediaries*, greatly reduced these costs and provided for perfect divisibility; portfolios could be significantly better diversified (for instance, they could replicate the S&P 500 index).⁶⁷ Later, futures contracts were created on these indices. These *exchange-traded* contracts reduced costs, improved diversification further, and facilitated the creation of *exchange-traded* options on diversified portfolios.⁶⁸ *Intermediaries* then further served the diversification function by using equity-return swaps to create custom contracts with individual specifications of the index, the time horizon, and the currency mix for the payments.⁶⁹

History illustrates that we do not observe a pathway that connects the dots towards a predetermined endpoint. In fact, the evolution of the scrutinized function of finance moves back and forth between the two institutional alternatives.⁷⁰ Our idea of 'the dynamic public/private divide' represents an analogous case for the relationship between public and private markets. The rationale is based on the idea that the steady state is inherently unstable, because it hinges on many determinants that change over time, also in response to each other. Take, for instance, Michael Jensen's hypothesis of a comparative advantage of private markets in mitigating agency costs. Accepting for the sake of argument that the observation represents 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 to induce governance or even legislative changes ("voice"). The preferred course of action will depend on the relative costs and benefits of exit and engagement. These will in turn vary for different types of equity holder and will also depend on the probabilistic success of engagement, which can also shift over time (e.g. in the

⁶⁵ Merton (n 17) 23; Merton & Bodie (n 17) 26.

⁶⁶ *ibid.*

⁶⁷ *ibid.*

⁶⁸ *ibid.*

⁶⁹ *ibid.*

⁷⁰ *ibid.*

wake of a financial crisis or a corporate scandal, legislative reforms may be easier to achieve⁷¹). Those who prefer engagement may achieve changes that shrink or even reverse the relative advantage of private markets, leading to a corresponding shift in equilibrium outcomes. Just like the boundaries of the firm are determined by the marginal transaction costs incurred in the allocation of factors on markets or in hierarchies,⁷² there are tipping points up to which one form of capital raising dominates the other. The relevant tipping points fluctuate courtesy of various institutional or technological changes, leading to the dynamic public/private divide we describe. The countervailing forces need not occur 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 examples, the reason why we see an oscillating divide between public and private markets instead of a secular trend (an extreme, winner-takes-all outcome), is that the system is exposed to shocks all the time that unhinge the temporary steady state, push it into opposite directions, and thus shift the divide back and forth over time. Therefore, the characteristics of the marginal firm that is at the tipping point between public or private market financing change constantly, without following a one-directional adjustment.

In the following sub-sections, we illustrate and specify our hypothesis with two examples.

3.2 Example 1: Intertwined investment cycles in private and public markets

Assume that at a certain time, for whatever reason, private markets are growing, meaning more capital is committed in private markets (at the fundraising or investment level) and more promising companies are staying private. With more private capital available to fund growth, firms are able to stay private for far longer than was historically the case,⁷³ which in turn exacerbates the phenomenon of rising private markets, because more investors turn to them to invest in promising companies which shun public markets.⁷⁴ Recently, such recalibrations have become prevalent. Not only have those investors active on 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

⁷¹ 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>>, last accessed 23 February 2023.

⁷² 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).

⁷³ See above note 39 and the text thereto.

⁷⁴ See Akila Quinio and Robin Wigglesworth, 'Growth Equity Booms as Investors Embrace Private Markets' *Financial Times* (7 January 2022).

markets.⁷⁵ Mutual funds that have traditionally been active only in public markets have recently increased their investments in private companies, with the valuation of mutual fund investments in private companies rising from US\$16 million in 1995 to US\$8 billion in 2015.⁷⁶ In a similar vein, private markets have recently embraced a new type/entrant in the form of hedge funds. Enticed by the lucrative returns in private markets, hedge fund managers are increasingly looking to buy into unlisted companies.⁷⁷ Many players in the investment world 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.⁷⁸

This would suggest a persistent, self-enforcing trend towards growing private markets at the expense of public markets. Consider however what would happen in the event of an abundance of private capital. When investors compete to invest in companies in private markets that promise above-market returns (e.g. dragon companies that grow exponentially in value), this means that entrepreneurs have more bargaining power and investors will not be as diligent in their capital allocation as before.⁷⁹ This might yield more investor expropriation and bad-apple investments which would then again curb enthusiasm for the private market allocation of capital at the fund level and increase diligence at the company investment level.⁸⁰ Another important factor in this regard is that conflicts of interest

⁷⁵ Bain & Company, 'Public Vs. Private Assets: The Big Switch' (2019), <<https://www.bain.com/insights/private-multiples-global-private-equity-report-2019/>>, last accessed 23 February 2023; McKinsey Report (n 43), 6 & 8-10; 'Public to Private Equity in the U.S.: A Long-Term Look' (*Morgan Stanley Investment Management*) 15, <<https://www.morganstanley.com/im/en-hk/intermediary-investor/insights/articles/public-to-private-equity-in-the-us-a-long-term-look.html>>, last accessed 23 February 2023.

⁷⁶ See Sungjoun Kwon, Michelle Lowry & Yiming Qian, 'Mutual Fund Investments in Private Firms' (2020) 136 *Journal of Financial Economics* 407. See also Michael Ewens and Joan Farre-Mensa, 'Private or Public Equity? The Evolving Entrepreneurial Finance Landscape' (2022) 14 *Annual Review of Financial Economics*, <<https://doi.org/10.1146/annurev-financial-101821-121115>>, last accessed 23 February 2023; Sergey Chernenko, Josh Lerner and Yao Zeng, 'Mutual Funds as Venture Capitalists? Evidence from Unicorns' (2021) 34 *The Review of Financial Studies* 2362.

⁷⁷ 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).

⁷⁸ 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).

⁷⁹ On the entrepreneurs' growing power, see Ewens and Farre-Mensa (n 76).

⁸⁰ See, e.g., Wigglesworth and Powell (n 77) (noting the problems and losses Tiger Global, a hedge fund, endured in its private market investments, among others, "whose open cheque book and hunger for quick deals over exhaustive due diligence has annoyed much of VC's establishment royalty"); 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>>, last accessed 23 February 2023 (explaining how investors pouring money has led to less diligence and more leverage for company founders in the VC world). 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.").

between fund managers and investors might result in sub-optimal investments. Fund managers have strong incentives to invest the money raised as a result of the typical fee structure in private funds,⁸¹ although these incentives are somewhat attenuated by reputational concerns as fund managers are repeat players. Anecdotally, the recent write-offs of investments and mark-downs of valuations provide some indication that private markets have overheated during the recent bullish market phase. Indeed, some investors have started to rue their decisions to invest (heavily) in private markets already. Not only are the so-called 'venture tourists' that entered the market when it was booming affected (via significant write-offs of investments and mark-downs of valuations) but so too are seasoned investors who have found themselves in troubled waters, after engaging in the so-called 'competition to give away money.'⁸²

Once private markets overheat, one should observe a trend away from them.⁸³ The predictable backlash then creates a natural frontier for the growth of private markets relative to public ones. If organic growth via private capital becomes more difficult, firms would either go public or merge with a large public firm.⁸⁴ Both strategies would lead to an extraordinary growth of public markets. 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.⁸⁵ As this example shows,

⁸¹ See in this regard, Magnuson (n 10) 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).

⁸² For example, newcomers to private markets have been hit by a substantial loss of their investments due to significant recent mark-downs of valuations (such as Tiger Global's venture capital investments or Softbank's Vision Fund). See, e.g., Wigglesworth and Powell (n 77); Min Jeong Lee and Takahiko Hyuga, 'SoftBank Vision Fund Loses \$7.2 Billion on Tech Writedowns' *Bloomberg* (11 November 2022), <<https://www.bloomberg.com/news/articles/2022-11-11/softbank-vision-fund-loses-7-2-billion-as-writedowns-persist>>, last accessed 23 February 2023. Seasoned investors such as Sequoia also seem to have relaxed their diligence too far as the conspicuous example of its investment in FTX that was exposed as fraud 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>>, last accessed 23 February 2023.

⁸³ See, e.g., Degeorge, Martin and Phalippou (n 81) ("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>>, last accessed 23 February 2023.

⁸⁴ IPOs during 'hot' and 'cold' cycles were associated with the capital raising needs of the relevant firm. See, e.g., Hugh MJ Colaco and others, 'IPOs, Clustering, Indirect Learning and Filing Independently' (2009) 33 *Journal of Banking & Finance* 2070; Woojin Kim and Michael S Weisbach, 'Motivations for Public Equity Offers: An International Perspective' (2008) 87 *Journal of Financial Economics* 281.

⁸⁵ On this, see generally Greg Brown et al., 'Private Equity: Accomplishments and Challenges' (2020) 32 *Journal of Applied Corporate Finance* 8, 19; Kaplan and Strömberg (n 55) 141-43.

the equilibrium between public and private markets is never stable. Instead, the relationship between the two is best described as an oscillating movement between two extreme states, thus forming a dynamic divide.

3.3 Example 2: Technological advances, asset characteristics, and growth opportunities

The second example relates to technological advances which positively affect both the real economy and the financial system. Such advances improve, among other aspects, the availability of financial capital across borders and the matching of demand with supply on capital markets.⁸⁶ They also induce fundamental changes in the real economy, enabling an increasing number of new business models focused on 'intangibles' as pivotal output determinants. This has resulted in the asset characteristics of firms changing with the intangible to tangible asset or investment ratios increasing over time. Indeed, over the last decades, a clear trend led to firms holding more intangible assets than tangible ones.⁸⁷ 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.⁸⁸ These changes affect firms' financing preferences, ultimately leading to oscillating activity between private and public markets, which also fits the current market developments outlined above.

Crucially, firms whose success depends on the value generated by intangible assets may prefer to raise capital privately rather than in public markets.⁸⁹ The reason for that is twofold. First, with business models based on intangibles requiring fewer physical assets,⁹⁰ companies nowadays simply do not require as much capital as they once did for mass production and distribution,⁹¹ which in essence improves their ability to satisfy their capital needs in potentially shallower private markets. Secondly,

⁸⁶ 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>>, last accessed 23 February 2023.

⁸⁷ See 'Public to Private Equity in the U.S.: A Long-Term Look' (n 75) 17. See also Jonathan Haskel and Stian Westlake, *Capitalism without Capital* (Princeton University Press 2017).

⁸⁸ 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*.

⁸⁹ See Stulz (n 31) 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.

⁹⁰ See, e.g., Kahle and Stulz (n 13) 73-76 (noting the decrease in capital expenditures and the increase in R&D expenditures of the U.S. firms over time).

⁹¹ 'Public to Private Equity in the U.S.: A Long-Term Look' (n 75) 17.

business models that heavily rely 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 such R&D investments are no longer optimal, because the entrepreneur can externalize some of the losses when these investments fail.⁹² This agency relationship might be managed more effectively in private markets where investors 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.⁹³ These rights are even more valuable in the context of firms with low capital expenditures 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.⁹⁴ 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 certain sectors, which also enhances 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 reluctant 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 business models. When firms raise capital from public markets, they need to disclose significant information at the outset (via the prospectus) and then have to update this information regularly and on an *ad hoc* basis. In doing so, firms with significant intangible assets/investments might give away valuable information to their competitors

⁹² Stulz (n 31) 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, they 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.

⁹³ 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.

⁹⁴ Stulz (n 31) 284-85.

who could draw inferences on trade secrets, original business models, or other aspects.⁹⁵ Information 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.⁹⁶

Thus, at the point where 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 capital 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 an expansion of private markets relative to public markets.

However, it is worth considering what would happen next. As these firms continue to grow and become more visible, they would attract the attention of larger public firms (or their financial advisors). Crucially, at this point, many private firms with strong 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.⁹⁷ This is due to the same sort of change ongoing in the economy where the speed of technological innovation in many industries made getting big quickly more critical. Importantly, firms stand to lose profitable growth opportunities if they do not seize them quickly.⁹⁸ If 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, then 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

⁹⁵ *ibid.*; Doidge and others (n 89) 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>>, last accessed 23 February 2023 (reporting that mandatory disclosure of firms' financial statements reduces the total number of innovating firms in the industry, but not innovation spending).

⁹⁶ *ibid.*

⁹⁷ 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 Ritter, Signori and Vismara (n35) for an analysis pertaining to the European market.

⁹⁸ Gao, Ritter and Zhu (n 97).

raising (privately or via an IPO).⁹⁹ This is closely related to changing asset characteristics (i.e. the move towards business models that rely predominantly on intangible assets, because the latter are much more easily scalable than those based primarily on tangible assets).¹⁰⁰ 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 relatively low cost, for instance, in a follow-on offering in a public market.¹⁰¹ Although one might observe a decline in the number of public companies as a result of this M&A activity,¹⁰² 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 both the US and Europe: despite the drop in the number of listed companies, market capitalizations have grown in both jurisdictions.¹⁰³ Moreover, a burgeoning literature shows that M&A activity is an important driver of the current market developments both 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 largely comes from ‘private-target mergers,’ meaning that M&As mostly impact listings via preventing private firms from going public.¹⁰⁴ 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.¹⁰⁵ The authors also find that despite the decline in the number of listed companies, public firms’ contribution to GDP does not

⁹⁹ *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).

¹⁰⁰ Doidge and others (n 89) 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.”).

¹⁰¹ 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 is less burdensome (such as watered-down prospectus requirements etc.).

¹⁰² 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.

¹⁰³ See sources cited in note 41.

¹⁰⁴ Lattanzio and others (n 40) (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 97).

¹⁰⁵ Eckbo and Lithell (n 40) (also finding that the total transaction value of the acquisition targets was twice that of the IPOs).

change, suggesting that public acquirers indeed take on the output generated by private and public target companies.¹⁰⁶

However, in line with our oscillation hypothesis, subsequent developments should prompt private markets to grow again relative to public markets. Increasing consolidation and market power as a result of M&As¹⁰⁷ can raise antitrust concerns and trigger heightened scrutiny, as is currently happening in the US where the Biden administration has stepped up enforcement efforts.¹⁰⁸ Furthermore, if the financing conditions for large public firms become tougher due to rising interest rates, they may become more hesitant about acquiring private growth firms. At the margin, such factors might push firms that would normally be acquired by a larger public company at some point, back to organic growth in private markets. On the other hand, investors that 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 all over again.

In this example 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 basically present simultaneously, yet their relative momentum varies over time and across the economic and credit cycles.¹⁰⁹ However, the equilibrium is never stable, as corporate finance oscillates between the domains of public and private markets.

¹⁰⁶ *ibid.*

¹⁰⁷ See, e.g., Gustavo Grullon, Yelena Larkin and Roni Michaely, 'Are US Industries Becoming More Concentrated?' (2019) 23 *Review of Finance* 697.

¹⁰⁸ See, e.g., 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/>>, last accessed 23 February 2023; '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>>, last accessed 23 February 2023.

¹⁰⁹ 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 the appearance of a 'dominance' of one market over the other. However, given that forces pulling in one direction might create a consecutive push-back at a later stage, the relative growth will swing back in favor of the other market at that point in time. For example, as more firms (in the universe) raise private capital at one stage, more firms (in the universe) 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 (in the universe) 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).

The evidence we presented in Section 2.2 above is consistent with our theory of a dynamic public/private divide. In particular, Figures 1 & 2 (depicting capital raising by public and private firms in the US in different formats) do not reveal a linear trend. Instead, they buttress our posit that corporate finance oscillates between public and private markets. Although they should not be read as robust empirical evidence, they show that both markets constantly go through periods of growth and decline. While these developments might be correlated, crucially, the relative increases and decreases differ, making one form of finance or market stronger at a particular time, before the pendulum swings back again.

4 Complementarity between public and private markets

In this section, we look more thoroughly at the interactions between public and private markets. This analysis complements our main argument that the domains of public and private capital markets oscillate over time. Both markets should not be viewed only as competing institutions. Instead, there are substantial complementarities between public and private markets that reinforce 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 10 years) and ultimately need to return capital to their investors.¹¹⁰ Therefore, it has been argued that well-developed stock markets are a precondition for burgeoning venture capital activity.¹¹¹ The thrust of this argument carries over to private equity firms as well, who also depend on a timely exit option to generate the liquidity required to pay off their investors. To be sure, in the last years, IPOs have become less significant as an exit option for these investors as 'trade sales' has become a more popular method to cash-in.¹¹² 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 3.3 above) remains an important way for private market investors to liquidate their investments. This is especially true when there are fewer funds for secondary buyouts. 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

¹¹⁰ 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, last accessed 23 February 2023.

¹¹¹ 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.

¹¹² See, e.g., Darian M Ibrahim, 'The New Exit in Venture Capital' (2012) 65 *Vanderbilt Law Review* 1.

investment opportunities are scarce at the time they need to liquidate their original investment.¹¹³ 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 down on secondary transactions within one fund family.¹¹⁴ 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.¹¹⁵

Second, private market investors benefit from the rich information environment that public markets provide. In particular, regulation stipulates extensive transparency requirements for publicly-held companies. They need to provide financial information quarterly and annually as well as disclose material information on an *ad hoc* basis.¹¹⁶ This information is then continuously incorporated into market valuations by informed traders.¹¹⁷ Meanwhile, private markets are a long way from such an information-rich environment. Evidently, 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 that 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, despite the fact that 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.¹¹⁸ The

¹¹³ 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>>, last accessed 23 February 2023.

¹¹⁴ *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). In a different set of cases, the practice may also serve to conceal ailing investments and has thus been likened to a Ponzi scheme. Katie Martin, 'Amundi Warns That Parts of Private Equity Market Resemble "Ponzi Schemes"' *Financial Times* (1 June 2022), <<https://www.ft.com/content/21c6e2e4-6c52-4d13-b3a2-5455d51d9970>>, last accessed 23 February 2023.

¹¹⁵ 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).

¹¹⁶ 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>. 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.

¹¹⁷ See, e.g., Ananth Madhavan, 'Market Microstructure: A Survey' (2000) 3 *Journal of Financial Markets* 205.

¹¹⁸ 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

relative opaqueness of private firms increases their cost of capital in comparison to public firms. To cope with informational asymmetries, private companies and their investors use public company-competitor disclosures as well as the financials or trading values of those firms as benchmarks for valuation purposes which in turn lowers private firms' cost of capital in comparison to an environment where such benchmarks were unavailable.¹¹⁹ This means that the decline of public markets 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.¹²⁰

Meanwhile, public markets also piggyback on private markets in various ways. For example, private markets incubate companies that are 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.¹²¹ 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.¹²²

5 Regulators as boundedly rational social planners – regulatory dialectics

A fundamental insight from Merton's work is that 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.¹²³ This is because the original intervention induces responses in the system which feed back into the dynamics and substance of regulation.¹²⁴ An analogous argument can be made here for regulatory interventions in public and private markets. This is not

Private Equity Investments: Evidence from Secondary Market Transactions' (2019) 132 *Journal of Financial Economics* 158.

¹¹⁹ de Fontenay (n 50) 487-97.

¹²⁰ *ibid.*

¹²¹ 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 40) 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.").

¹²² See, e.g., Roberta Romano, 'A Guide to Takeovers: Theory, Evidence and Regulation' (1992) 9 *The Yale Journal on Regulation* 119.

¹²³ Merton (n 17) 37-38.

¹²⁴ *ibid.* See also Edward J Kane, 'Interaction of Financial and Regulatory Innovation' (1988) 78 *The American Economic Review* 328.

surprising, because law is a pivotal determinant of market evolution and outcomes in the first place.¹²⁵ Furthermore, in response to new rules and standards, market participants will adapt their behavior more comprehensively than intended and envisioned,¹²⁶ potentially precipitating further amendments in the regulatory framework. Regulation can produce a short-term effect related to its intended goal, but will then induce other changes in the financial system which will attenuate the effect of the original intervention over time and affect the regulation itself at a later stage. Boundedly rational regulators who cannot foresee every latent effect of their intervention cannot escape these regulatory dialectics. Using examples again, these are explained in the sub-sections below.

5.1 Example 1: Second-round effects of cost reductions for public listings

Consider the JOBS Act of 2012 in the US.¹²⁷ 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 at that point 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 behind the shrinking of public markets. Therefore, policymakers attempted to alleviate the burden via (de-)regulatory initiatives like the JOBS Act of 2012.¹²⁸ 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), some regulatory requirements were removed for a certain period (usually the first five years after the IPO), 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.¹²⁹

Even though reduced disclosure and compliance requirements certainly decreased the costs of being public, they also increased the cost of capital.¹³⁰ Potentially, the discount imposed for increased darkness and reduced accountability eats up the cost of the capital benefits gleaned from tapping into deeper and more liquid public markets, ultimately eliminating the advantages of capital raising under

¹²⁵ See, e.g., Rafael La Porta and others, ‘Legal Determinants of External Finance’ (1997) 52 *The Journal of Finance* 1131. For a critical 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.

¹²⁶ For the seminal model, see Robert Lucas, ‘Econometric Policy Evaluation: A Critique’ (1976) 1 *Carnegie-Rochester Conference Series on Pub. Pol’y* 19-46.

¹²⁷ Jumpstart Our Business Startups Act, Pub. L. No. 112-106, 126 STAT. 307.

¹²⁸ 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.

¹²⁹ 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.

¹³⁰ Hanley (n 128) 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.

the 'lighter' regulatory regime.¹³¹ This inevitably pushes firms back into private capital raising. Indeed, there is limited evidence of the JOBS Act having any positive influence on public capital raising.¹³²

As regulators seem to have failed to facilitate public market capital raising via their 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.¹³³ 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.¹³⁴ The available evidence indicates, however, that bringing transparency to private markets/companies is likely to push firms to public markets where this transparency already exists and where its costs are offset by a deeper and more liquid capital supply.¹³⁵

With the European growth markets for small and medium sized enterprises, a similar example can be found in 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) in the form of 'exchange-regulated markets' where firms

¹³¹ 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.

¹³² See sources cited in note 130; 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.

¹³³ 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>>, last accessed 23 February 2023; 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: The Growth of Private Markets and the Impact on Investors and the Economy' (*U.S. Securities and Exchange Commission*, 12 October 2021), <<https://www.sec.gov/news/speech/lee-sec-speaks-2021-10-12>>, last accessed 23 February 2023; 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/>>, last accessed 23 February 2023.

¹³⁴ 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), <<https://thehill.com/opinion/finance/3688672-regulators-should-finally-require-some-transparency-of-large-private-firms/>>, last accessed 23 February 2023.

¹³⁵ 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).

are not subject to the stringent reporting and governance structures applicable in ‘regulated markets.’¹³⁶ Rather, they are largely subject to rules determined by the exchanges themselves.¹³⁷ While such reductions in the costs of being ‘public’ are associated with a promoting effect on public listings,¹³⁸ the application of a lighter regime also increases the cost of capital for these firms.¹³⁹ This counter effect disincentivizes firms from tapping into such regulation-light public markets where they would normally enjoy more favorable capital costs.¹⁴⁰ Realizing this, the EU adopted a labelling 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.¹⁴¹

Along similar policy lines, the Commission is currently proposing to allow the listing of companies with a dual-class share structure.¹⁴² This would however have a similar effect on the cost of capital, insofar as investors would devalue dual-class structures,¹⁴³ which in turn would erode (some of) the advantages of being public and thus run counter to the regulatory aim of increasing the number of companies going public.

As these examples show, regulatory interventions might have exogenous effects, which may be countered by further market reactions and developments that in turn spur new regulatory interventions.

5.2 Example 2: Second-round effects of 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

¹³⁶ 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.

¹³⁷ *ibid.*

¹³⁸ Such markets have more of the features of public markets rather than private markets (such as free tradability of shares etc.).

¹³⁹ 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>>, last accessed 23 February 2023.

¹⁴⁰ On the development of such markets over time in the EU, see Oxera Report (n 36) 285–296.

¹⁴¹ See generally Veil & Di Noia (n 145). 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(3) *European Company and Financial Law Review* 445.

¹⁴² See <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7348>, last accessed 23 February 2023.

¹⁴³ See, e.g., George S Dallas, ‘Letter: Investor concerns are not served by dual-class share structures’ *Financial Times* (4 March 2021).

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.¹⁴⁴ Furthermore, it enabled private equity and venture capital firms to raise larger 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 normally avoid.¹⁴⁵ This Act was indeed found to increase the supply of private capital.¹⁴⁶

Consider however the further developments induced by this regulatory intervention. 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.¹⁴⁷ However, there are also agency conflicts at the fund level among the general partner and limited partners¹⁴⁸ which also increase 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 governance.¹⁴⁹ For example, the larger the fund, the more incentives large investors have to negotiate certain 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.¹⁵⁰

These developments might in turn call for (stricter) regulation of certain issues in private funds. Indeed, this is happening currently in the US with the SEC's push to create more transparency for private fund investors and prohibit certain practices that can be particularly susceptible to conflicts of interest.¹⁵¹ The proposed rules address problems that might be especially prominent in bigger funds

¹⁴⁴ de Fontenay (n 29).

¹⁴⁵ *ibid.* 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'.

¹⁴⁶ 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.

¹⁴⁷ *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.").

¹⁴⁸ See, e.g., Robinson and Sensoy (n 86); Indraneel Chakraborty and Michael Ewens, 'Managing Performance Signals Through Delay: Evidence from Venture Capital' (2018) 64 *Management Science* 2875.

¹⁴⁹ See, e.g., de Fontenay (n 10) 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.

¹⁵⁰ See Clayton (n 133).

¹⁵¹ 'SEC Proposes to Enhance Private Fund Reporting' (*SEC.gov*, 10 August 2022), <<https://www.sec.gov/news/press-release/2022-141>>, last accessed 23 February 2023; 'SEC Proposes to Enhance Private Fund Investor Protection' (*SEC.gov*, 9 February 2022), <<https://www.sec.gov/news/press-release/2022-19>>, last accessed 23 February 2023.

with more investors, for instance in the preferential treatment of certain large investors.¹⁵² If the rules were promulgated, they would bring private fund regulation closer to the requirements imposed under the ICA on the ICA-registered public funds.¹⁵³ This example again demonstrates that regulation might create an exogenous shock in the short run which induces further changes in the market in the long run calling for another set of – now endogenously-shaped – regulations.

6 Policy implications

Merton also argued for a change in the approach to financial regulation, urging a move from ‘institutional’ to ‘functional’ because although institutions can change, functions remain the same over time.¹⁵⁴ The GFC of 2008 proved that point: while banks were relatively well-regulated, ‘shadow banks’ (non-bank financial intermediaries¹⁵⁵), that served the same functions as banks (arguably) were not, which ultimately impinged on financial stability and brought the system to the brink of collapse.¹⁵⁶ According to Merton, a functional approach towards regulation would prevent regulatory arbitrage,¹⁵⁷ including in transnational settings.¹⁵⁸

¹⁵² *ibid.*

¹⁵³ 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).

¹⁵⁴ Merton (n 17) 38-39.

¹⁵⁵ On October 22, 2018 the Financial Stability Board (FSB) announced its decision to replace the term ‘shadow banking’ with the term ‘non-bank financial intermediation’ (NBFI) in all future communications, in an attempt to emphasize the forward looking aspect of the FSB’s work in the field. See Financial Stability Board, ‘FSB reviews financial vulnerabilities and deliverables for G20 Summit’ (2018), <<https://www.fsb.org/wp-content/uploads/R221018.pdf>>, last accessed 23 February 2023.

¹⁵⁶ Gary Gorton and Andrew Metrick, ‘Securitized Banking and the Run on Repo’, (2012) 104 *Journal of Financial Economics* 425 (finding that concerns about the liquidity of markets for securitized bonds led to increases in the amount of collateral required for repo-transactions that entailed the collapse of this pivotal short-term funding market which in turn rendered the U.S. banking system effectively insolvent); Daniel Covitz, Nellie Liang and Gustavo A. Suarez, ‘The Evolution of a Financial Crisis: Collapse of the Asset Backed Commercial Paper Market’, (2013) 68 *The Journal of Finance* 815 (showing a massive withdrawal of liquidity in more than 100 ABCP-programs that affected roughly one third of the market in 2007). Furthermore, Tobias Adrian and Hyun Song Shin, ‘Liquidity and Leverage’, (2010) 19 *Journal of Financial Intermediation* 418 document that marked-to-market leverage behaves strongly procyclical; Antoine Martin, David Skreie and Ernst-Ludwig von Thadden, ‘Repo Runs’, (2014) 27 *The Review of Financial Studies* 954 present a stylized model to expose the root cause of this kind of instability.

¹⁵⁷ 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.

¹⁵⁸ Merton (n 17) 38-39.

We concur with this approach, which implies that regulators should in principle be agnostic as to whether a firm (re)finances itself on public or private markets. However, our insights also add further specifications for policymakers to consider.

6.1 Additional inefficiencies from regulating public or private markets only

A functional approach to regulation already suggests that regulators should avoid promulgating rules only for one market if the policy objectives they pursue apply evenhandedly to public and private firms (or intermediaries). The oscillations that firms and markets go through as a consequence of the dynamic public/private divide and the mechanisms that drive them provide additional insights into the inefficiencies created by regulatory arbitrage opportunities in these settings.

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 certain; it might, for example, be prevented by a changing political economy, that may also be determined by the influence of powerful beneficiaries of the status quo. In any case, welfare losses will occur in the meantime, because 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 markets¹⁵⁹ against the regulatory costs it avoids by staying private. Hence, a decrease in the costs of capital due to deeper and more liquid private markets increases the marginal value of regulatory arbitrage and thus amplifies the impending inefficiencies. With this in mind, our approach highlights which welfare losses regulators inflict on the economy if they abide by the zig-zag-approach to regulation that simply retroactively follows oscillating market developments (see Section 5 above).¹⁶⁰ In order to avoid these

¹⁵⁹ See, e.g., William L Silber, 'Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices' (1991) 47 Financial Analysts Journal 60.

¹⁶⁰ Even if regulation initially produces a certain intended effect, it is likely to induce other changes that might then put in motion yet another set of (counter-)effects which trigger in turn a new round of regulatory responses. For example, increasing transparency for private firms (which regulators might decide to implement as a result of the growth of these companies) might result in more capital allocated to private companies at the expense of public equity, which aggravates the phenomenon of ever larger private companies. See Jinhwan Kim and

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 indeed justify certain common requirements both for private and public companies.¹⁶¹ 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 which are deemed to be particularly relevant by regulators (e.g. due to their size).¹⁶² 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).¹⁶³ The SEC and Congress are currently contemplating the implementation of this approach in the US as well.¹⁶⁴

This approach could also address concerns over the exemptions private companies enjoy from hefty corporate governance requirements commonly imposed on public firms.¹⁶⁵ 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)¹⁶⁶ and the

Marcel Olbert, 'How Does Private Firm Disclosure Affect Demand for Public Firm Equity? Evidence from the Global Equity Market' (2022) 74 *Journal of Accounting and Economics* 101545.

¹⁶¹ 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.

¹⁶² See in this regard Michael Minnis and Nemit Shroff, 'Why Regulate Private Firm Disclosure and Auditing?' (2017) 47 *Accounting and Business Research* 473.

¹⁶³ 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).

¹⁶⁴ See above notes 133-134 and accompanying text. In the US, disclosure currently remains voluntary for private firms and most companies remain dark. See Petro Lisowsky and Michael Minnis, 'The Silent Majority: Private U.S. Firms and Financial Reporting Choices' (2020) 58 *Journal of Accounting Research* 547. 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>>, last accessed 23 February 2023; 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>>, last accessed 23 February 2023.

¹⁶⁵ 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/>>, last accessed 23 February 2023.

¹⁶⁶ 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>>, last accessed 23 February 2023.

broader society, raised substantial concerns in the US.¹⁶⁷ Even though investors and some stakeholders may contract for information flows and disclosure arrangements that generate sufficient corporate transparency for their purposes,¹⁶⁸ private ordering may not always provide adequate safeguards. This may be the case once private companies have grown substantially to the point that their activities create significant externalities, beyond adjusting stakeholders who can indeed fend for themselves. In these scenarios, by definition, contractual solutions become insufficient for achieving socially optimal outcomes, and may not even be available with respect to the interests of certain stakeholders, like employees.¹⁶⁹ Therefore, common requirements for public and private companies such as having some financial information publicly disclosed and having the financial statements audited, once again represents a plausible regulatory response,¹⁷⁰ although the living memory of Enron, Worldcom, Parmalat and the like as well as more recent scandals such as Volkswagen or Wirecard remind us that regulation can only do so much to prevent corporate fraud.¹⁷¹ Moreover, even though we believe 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.¹⁷²

The same approach is even 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 public markets only 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 be applicable to firms regardless of their public or private status.

¹⁶⁷ See, e.g., Elizabeth Pollman, 'Startup Governance' (2019) 168 *University of Pennsylvania Law Review* 155.

¹⁶⁸ 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>>, last accessed 23 February 2023 (finding that private firms with multiple transacting stakeholders voluntarily disclose audited information, muting the need for regulatory intervention).

¹⁶⁹ See also Jennifer Fan, 'Regulating Unicorns: Disclosure and the New Private Economy' (2016) 57 *Boston College Law Review* 583.

¹⁷⁰ 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. 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.

¹⁷¹ See also Alexander I Platt, 'Unicorniphobia' *Harvard Business Law Review* (forthcoming 2022) 78, available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3915793>, last accessed 23 February 2023, 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."

¹⁷² 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.

Otherwise, they pave the way for regulatory arbitrage and the business activities these rules target will be taken on by players that are not subject to the same rules.¹⁷³ 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).¹⁷⁴ 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.¹⁷⁵

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 integrity¹⁷⁶ cannot control the use of disclosed data. Once public, stakeholders, like firm customers, non-government agencies, and media can exploit the disclosed information to put pressure on the firm and affect its behavior.¹⁷⁷ This can have unintended consequences as the information that facilitates stakeholder discipline is made available only by public firms. 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.

¹⁷³ 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.

¹⁷⁴ See generally Alperen A. Gözlügöl and Wolf-Georg Ringe, 'Private Companies: The Missing Link on the Path to Net Zero' (ECGI Law Working Paper No. 635/2022), available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4065115>, last accessed 23 February 2023.

¹⁷⁵ 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/>>, last accessed 23 February 2023.

¹⁷⁶ For this classical rationale 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, 'The Limits of Arbitrage' (1997) 52 *Journal of Finance* 35.

¹⁷⁷ 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>>, last accessed 23 February 2023.

6.2 Growing the total pie

Furthermore, when regulators aim to encourage or facilitate capital raising on markets, which can be for a number of reasons,¹⁷⁸ they should not, as a rule, target or prioritize public markets over private or vice versa. From the viewpoint of public policy, there is no *a priori* reason why one market would be more suitable than or preferable to the other.¹⁷⁹ Regulators should rather aim to grow the total pie. In a competitive setting, growth in one market segment will not necessarily lead to growth in the market overall, 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 efficiency of capital markets as such 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.¹⁸⁰

Notwithstanding the fundamental goal of increasing the overall pie, there are certain factors that might induce regulators' preference for capital raising in public markets and thus for the growth of public markets relative to private ones. 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,¹⁸¹ there are positive effects that seem to be unique to the regulatory environment of public markets. Firstly, public market disclosure is associated with positive externalities. Investors benefit from increased transparency not only in specific firms but across the market. Price discovery becomes more accurate and therefore those institutions of corporate governance that penalize revealed inefficiencies (e.g., the threat of activist campaigns or takeovers, and high-powered incentive compensation) work better as well.¹⁸² 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.¹⁸³ In addition, policymakers and the general public would have better knowledge of the impact of large firms on the economy as

¹⁷⁸ 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.

¹⁷⁹ "Multiple channels for capital raising are a good idea in terms of greater assurance of supply at competitive prices." Merton & Bodie (n 17) 37.

¹⁸⁰ Matthew T Gustafson and Peter Iliev, 'The Effects of Removing Barriers to Equity Issuance' (2017) 124 *Journal of Financial Economics* 580.

¹⁸¹ 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 15.

¹⁸² See generally, Fox (n 131) 695-702.

¹⁸³ 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.

a whole.¹⁸⁴ To be sure, similar positive externalities would also accrue on private markets if they were subject to a similar disclosure regime. Yet, such a sweeping extension of disclosure mandates could hardly be justified on the grounds of foregone positive externalities alone. Instead, it would require a comprehensive case of private markets failing to produce adequate information for contracting parties in the first place. Secondly, retail investors have easier access to public markets and 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.¹⁸⁵

Yet, the extent to which these two factors are valid remains debatable. Disclosure (and transparency) that comes with public markets is not cost-free, not only at firm level where it creates compliance costs, but also from a social welfare perspective. Revealing proprietary information via disclosure can curb welfare-improving activities such as innovation.¹⁸⁶ 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.¹⁸⁷ 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.¹⁸⁸ In addition, retail investors can gain some exposure to value creation in private markets indirectly via mutual funds or pension funds.¹⁸⁹

7 Conclusion

Recent market developments have seen private markets grow while public markets seem to have declined. This has attracted much attention from regulators, scholars, and various stakeholders, with different conclusions reached about the determinants of the current trend, and distinct verdicts arrived at about the future of the capital markets, as well as varying policy implications being proposed. In this work, we provide an alternative theory on the interaction between public and private

¹⁸⁴ 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 133).

¹⁸⁵ See Partnoy (n 23); Doidge and others (n 89); 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> last accessed 23 February 2023; Brown and Wiles (n 39).

¹⁸⁶ Breuer, Leuz, and Vanhaverbeke (n 95).

¹⁸⁷ See also Stulz (n 31) 287.

¹⁸⁸ See ‘What’s behind the falling number of public companies?’ (n 33) 5-7; Gupta and others (n 24).

¹⁸⁹ 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 17) 28.

markets which is more in line with the historical perspective. Rather than a linear trend from one market to the other, we argue that the significance of these 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 that are also subject to adaptation will create a countervailing effect and push the balance in favor of the other market. This will result in a continuous cycle whereby the domains of public and private markets constantly oscillate. This dynamic divide, we believe, better captures capital market developments and thus provides a better perspective from which to understand markets and to act informedly. Furthermore, these two markets also feature complementarities, reinforcing each other in their functions rather than being truly competing institutions, which is an impression one might arrive at when adopting a static perspective. Regulation, in this context, is arguably an important determinant. Yet, regulatory effects are mitigated by other (second-round) effects it induces, which in turn call for another set of regulatory rules. In other words, as the time horizon lengthens, regulation becomes determined *by* market developments rather than shaping them. Under our understanding of capital markets, the best course of action for regulators is to adopt a functional approach. This suggests that regulators should avoid regulating one market only if policy objectives evenhandedly apply to both. We add further specifications to this fundamental insight based on our findings. Secondly, they should not aim to facilitate capital raising in one market relative to the other unless there are compelling reasons to do so. We have argued that such reasons are currently missing. Regulators should instead grow the pie, being mindful of the cross-market effects of their actions.

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