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HIGH TECH, LOW VOICE: DUAL-CLASS IPOS IN THE TECHNOLOGY INDUSTRY

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High Tech, Low Voice: Dual-Class IPOs in the Technology Industry

Abstract

An increasing number of companies, especially in the technology sector, decide to go public with a dual-class share structure, where public shareholders have less voting power than insiders. To many observers, this is a matter of serious concern, as controlling shareholders can dominate the firm with fewer shares and much less accountability. But if dual-class structures deprive shareholders of their voting rights, why do many successful companies – including Google, Facebook, and many other innovative firms – adopt them and why do investors accept to be voiceless? In the past, legal and financial scholars have addressed this question with different, and sometimes contradictory, results. But, to date, there is no comprehensive analysis of the post-2010 wave that has made dual-class IPOs a pervasive phenomenon in the American corporate landscape. This paper starts to fill this gap by analyzing a comprehensive dataset of IPOs of U.S. tech companies on a major domestic exchange between January 2012 and September 2017 (filing date). I find a positive correlation between dual-class shares and companies where the CEO is a founder, and a negative correlation with the fraction of equity owned by venture capital and private equity funds before the IPO. These findings are consistent with the view that private benefits of control are an important driver of dual-class IPOs and IPO investors believe that unequal voting rights reduce the value of the firm. I find no evidence, instead, that dual-class structures are adopted by managers to focus on long-term projects, as many tech entrepreneurs claim. In fact, firms with a higher propensity to invest in research and development ("R&D") are not more likely to adopt a dual-class structure, and dual-class companies are not more likely to increase their R&D investments in the two years after the IPO.

CONTENTS

I. INTRODUCTION

On February 2, 2017, Snap Inc., the creator of a messaging application for smartphones used by 158 million people every day[1], unveiled its IPO plans after months of anticipation. The prospectus confirmed the rumors that had been reported in the financial press over the

(*) Senior Fellow, Harvard Law School Program on Corporate Governance. I wish to thank Lucian Bebchuk, Jesse Fried, Reinier Kraakman, Mark Roe, and Holger Spamann for helpful discussions. All errors are my own.

[1] Snap Inc., Registration Statement (Form S-1) 12 (Feb. 2, 2017). In the third quarter of 2017, daily active users were 178 million. Snap Inc., Quarterly Report (Form 10-Q) 23 (Nov. 7, 2017).

previous weeks[2]: Snap's public shareholders would receive shares with no voting rights[3]. The news was harshly criticized by many observers[4]; but, although Snap's decision was extreme and perhaps unprecedented[5], IPOs with unequal voting structures (or, as they are usually referred to, dual-class structures) are not uncommon among U.S. tech companies[6].

In a dual-class firm, public shareholders have only a fraction of the voting rights of pre-IPO owners. In the most extreme of these structures, such as the one adopted by Snap, outside shareholders have no voting rights at all. In this way, public investors are (partially or totally) deprived of their monitoring powers over corporate decisionmakers and controlling shareholders can dominate the firm with a smaller equity interest and much less accountability.

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[2] *See* Maureen Farrell, *Snap Ipo Limits Vote to Founders*, WALL ST. J., Jan. 17, 2017, at B1.

[3] Snap Inc., Registration Statement, *supra* note 1, at 161.

[4] Paresh Dave, *Snap's nonvoting stock — everything sold in the IPO — is junk, investor says*, L.A. Times, Mar. 9, 2017, http://www.latimes.com/business/technology/la-fi-tn-snap-no-vote-shares-20170309-story.html. *See also* articles cited *infra*, note 7.

[5] The company acknowledged that there had never been before an IPO of only nonvoting shares on a U.S. stock exchange. Snap Inc., Registration Statement, *supra* note 1, at 40. According to the Executive Director of the Council of Institutional Investors, an organization of pension and other benefit funds, Snap's IPO "appears to be the first no-vote listing on a U.S. exchange since […] 1940". Ken Bertsch, *Unequal Voting Rights in Common Stock. Remarks to the SEC Investor Advisory Committee* (Mar. 9, 2017), at http://www.cii.org/files/issues_and_advocacy/correspondence/2017/03_09_17_IAC_testimony.pdf.

[6] Strictly speaking, the term "dual-class" refers to any company with two different classes of common stock. However, the expression is commonly used by commentators, policymakers, and scholars alike to identify companies with two or more classes of common stock with unequal voting rights. This widespread acceptation excludes companies with two classes of common stock having identical voting rights and includes companies, such as Snap, with more than two classes of common stock with different voting rights. I will follow the commonly accepted meaning and use "dual-class" and "unequal voting rights" interchangeably.

To many observers, this is a matter of serious concern. Financial experts[7], corporate governance consultants[8], proxy advisors[9], policymakers[10], and institutional investors[11] have expressed their consternation about this development in corporate governance. Shareholder voice is such an evocative element of "corporate democracy" that dual-class shares have even seeped into the national political discourse despite the thorny technicalities of the subject. In June 2013, U.S. Senator Elizabeth Warren, in a letter to the New York Stock Exchange Vice President John Carey and NASDAQ General Counsel Edward Knight, argued that "one-share-one-vote" is the "most basic right" of common stock investors and advocated new listing standards prohibiting dual-class IPOs[12]. The Council of Institutional Investors, an organization representing more than 120 pension and other benefit funds, has vocally criticized the use of dual-class shares and in a letter to

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[7] *See* Steven Davidoff Solomon, *Thorny Side Effects in Silicon Valley Tactic to Keep Control*, N.Y. TIMES, Apr. 9, 2013, at B8; Eleanor Bloxham, *Snap Shouldn't Have Been Allowed to Go Public Without Voting Rights*, FORTUNE (Mar. 3, 2017), at http://fortune.com/2017/03/03/snap-ipo-non-voting-stock/; Brooke Masters, *Snap IPO Is the Foolish Leading the Blind*, FIN. TIMES (Mar. 3, 2017), at https://www.ft.com/content/60308fec-ff3d-11e6-96f8-3700c5664d30.

[8] Kimberly Gladman, *The Dangers of Dual Share Classes*, HARV. L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (May 21, 2012), https://corpgov.law.harvard.edu/2012/05/21/thedangers-of-dual-share-classes/ .

[9] Institutional Shareholder Services, *The Tragedy of the Dual Class Commons* (Feb. 13, 2012), at http://online.wsj.com/public/resources/documents/facebook0214.pdf.

[10] Kara M. Stein, *Remarks at the SEC's Investor Advisory Committee Meeting* (Mar. 9, 2017), at https://www.sec.gov/news/statement/stein-statement-investor-advisory-committee-meeting-030917.html.

[11] Marc Goldstein, *2016-2017 Annual Benchmark Voting Policy Survey*, HARV. L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (Oct. 5, 2016), https://corpgov.law.harvard.edu/2016/10/05/2016-2017-annual-benchmark-voting-policy-survey/ (reporting that "[a]mong investor respondents, 57 percent supported negative recommendations, while 19 percent opposed them, and 24 percent opposed negative recommendations as long as there is a sunset provision on the unequal voting rights").

[12] Letter from Elizabeth Warren, U.S. Senator, to John Carey, Vice President, NYSE Euronext, and Edward Knight, Executive Vice President and General Counsel, NASDAQ OMX (Jun. 5, 2013), at https://www.warren.senate.gov/files/documents/Senator%20Warren%20letter%20to%20NYSE,%20Nasdaq%20-%206-5-2013.pdf ("If a company goes to the public market to raise money, long-term ordinary common stock investors – a category that includes directly or indirectly millions of retirees and workers – should be entitled to certain basic rights. One of the most basic of those rights is one-share-one-vote").

Snap's founders, Evan Spiegel and Robert Murphy, demanded that the company abandon its extreme dual-class structure and shareholders receive "equal treatment" [13].

Despite this criticism, Snap founders moved forward with their dual-class plan, as did before them Mark Zuckerberg of Facebook, Nicholas Woodman of GoPro, David Duffield and Aneel Bushri of Workday, and many other innovative entrepreneurs in the last few years. In fact, dual-class IPOs are increasingly popular. According to a publication of the Council of Institutional Investors, in 2017 23 IPOs out of 124 (19%) had dual-class structures with unequal voting rights[14]. This is the result of a fast-accelerating trend: according to data collected by Professor Jay Ritter of the University of Florida, dual-class IPOs were 8% of the total in the last decade of the last century, 11% between 2005 and 2009, 14.5% between 2010 and 2014, and 20.5% in the last three years (2015-2017)[15]. Interestingly, approximately half of the recent dual-class IPOs are in the technology industry[16].

But if dual-class shares limit shareholder rights, why do companies choose them and why do investors accept to be voiceless? In this paper, I consider three different hypotheses. The most natural explanation ("efficient private benefits hypothesis") is that dual-class IPOs are a rational and (at least in a narrow sense) efficient bargain: investors pay a lower

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[13] Letter from the Council of Institutional Investors to Evan Thomas Spiegel, CEO, Snap, Inc., Robert Murphy, Chief Technology Officer, Snap, Inc., and Michael Lynton, Chairman-Designate, Snap, Inc., on the Proposed Multi-Class Structure for Post-IPO Snap, Inc. (Feb. 3, 2017), at http://www.cii.org/files/issues_and_advocacy/correspondence/2017/02_03_17_SNAP_IPO.pdf.

[14] Council of Institutional Investors, *Large Majority of 2017 IPOs Were One Share, One Vote*, at http://www.cii.org/files/Board%20Accountability/2017%20IPO%20Stats%20for%20Website.pdf. These numbers do not take into account foreign issuers, SPACs, and master limited partnerships.

[15] These figures are an elaboration of the data available at https://site.warrington.ufl.edu/ritter/ipo-data/.

[16] Steven Davidoff Solomon, *Shareholders Vote With Their Dollars to Have Less of a Say*, N.Y. TIMES (Nov. 4, 2015) at https://www.nytimes.com/2015/11/05/business/dealbook/shareholders-vote-with-their-dollars-to-have-less-of-a-say.html.

price for dual-class companies and pre-IPO owners obtain some private benefits in return. According to this view, private benefits of control are the main motivation for a dual-class structures, but public investors are fully compensated for the additional agency costs that dual-class shares create. An alternative theory ("entrepreneurial hypothesis") is that dual-class shares allow exceptionally talented managers and entrepreneurs to focus on complex long-term projects by insulating them from the short-termist pressure of capital markets. This is the narrative embraced by Google, Facebook, and other successful dual-class firms to publicly justify their governance choices. A third explanation ("inefficient entrenchment hypothesis") is that entrenchment is the main motivation of dual-class shares but IPO investors systematically underestimate the costs associated with it and therefore dual-class controllers manage to obtain dual-class structures without bearing the entire agency costs associated with them. Consequently, some companies go public with dual-class shares also when this is not an efficient choice.

In the past, theoretical and empirical studies have addressed these questions with different, and sometimes contradictory, results[17]. But, to date, there is no comprehensive analysis of the post-2010 wave that has made dual-class IPOs an important and pervasive phenomenon in the U.S. corporate landscape. This paper starts to fill this gap by examining a comprehensive dataset of IPOs of U.S. technology companies on a major domestic exchange between January 2012 and September 2017 (filing date).

The findings of the paper can be summarized as follows.

Out of 172 technology companies that have filed an IPO prospectus in the considered period, 141 firms (82%) adopted a traditional, single-class structure, while 31 (18%) issued

[17] For a brief overview of these studies, *see* Section IV.A.

low-vote or nonvoting shares to the public. In the period between 2012 and 2014, dual-class prospectuses were about 12% of the total; from January 2015 through September 2017, they were 29%. Dual-class IPOs seem an increasingly relevant phenomenon.

There are some statistically significant differences between single-class and dual-class companies. Dual-class firms are on average larger (both in terms of market capitalization and assets), have higher revenues, and their IPOs are bigger in absolute terms (but smaller relative to market capitalization). Since the average number of years from foundation to IPO is very similar in dual-class and single-class companies (slightly more than 10 years), dual-class companies seem more successful. These findings seem instead consistent with the private benefits hypothesis (larger firms tend to present more opportunities for the extraction of private benefits) or with the inefficient entrenchment theory (recent success and public visibility might be imperfect heuristics that lead investors to overprice dual-class stock), although it is difficult to draw decisive conclusions in favor of either theory. Another statistically significant difference concerns the immediate market response to these IPOs: the "first day bump" (price increase in the first day of trading) is almost twice as large for dual-class companies, but the difference gets smaller (and no longer statistically significant) after only one week. I consider some possible explanations for this effect, all of which are consistent with the view that dual-class firms increase agency costs or are especially hard to value.

Dual-class voting structures are not created equal but come in many different flavors. Some companies have only two classes of shares, while others have three; the voting power of high-vote shares can be sometimes transferred to family members, and sometimes not; some structures wind up if high-vote shareholders own less than a pre-determined fraction

of shares; other structures expire after a certain number of years from the IPO. However, there are two interesting aspects that should lead us to reconsider this apparent variety. First, for the vast majority of companies, the combined effect of all these features is that dual-class controllers can retain a majority of voting rights with a fraction of equity of 10% or less. Second, despite the presumable diversity among firms in terms of private benefits, quality of management, asymmetry of information, and agency costs, the most visible and transparent feature of these structures is almost always the same (high-vote shares have 10 times the voting power of low-vote shares), with only a small number of exceptions. The actual variations are obtained by means of much less visible features, whose impact is sometimes difficult to measure without some effort. This circumstance might indeed be a symptom that issuers might be trying to take advantage of the bounded attention of IPO investors.

The most interesting findings of this paper, however, concern the ownership and control structure of dual-class and single-class companies. In most sample firms, founders and financial sponsors (venture capital and private equity) are an important presence. However, a regression shows that companies where the CEO is a founder are much more likely to go public with a dual-class structure, while there is a negative correlation between dual-class structures and the fraction of pre-IPO equity held by venture capital and private equity. These findings are consistent with the private benefits hypothesis but are not easily explained under the entrepreneurial hypothesis. If private benefits were the most important motive for dual-class shares, we would indeed expect founders (who, on average, have larger psychological private benefits than hired managers) to be more likely to choose dual-class shares. Furthermore, if IPO investors “discount” low-vote shares because of the

increased agency costs, we would expect financial sponsors (which are interested in the maximization of the IPO price) to be less likely to support a dual-class IPO. The data confirm these predictions. By contrast, these effects are not explained by the theory that dual-class structures are a device to insulate talented managers and allow them to pursue long-term projects; indeed, we would expect quality long-term projects to be equally distributed in firms led by founders and professional managers, and financial sponsors with large equity stakes, closer to the management and more informed than outside investors, should not be more reluctant to accept dual-class shares than other pre-IPO owners.

Finally, I find no evidence that a focus on research and development ("R&D") influences the adoption of dual-class structures, as predicted by the entrepreneurial hypothesis. A regression shows that R&D intensity (R&D/revenues) in the year before and in the two years after the one where the IPO is completed has no statistically significant correlation with dual-class structures.

In conclusion, the data examined are consistent with the view that private benefits of control are a powerful motive behind the adoption of dual-class structures; and some of the findings are consistent with the hypothesis that IPO investors value dual-class shares less than single-class shares, and therefore take into account – at least in part – the increased agency costs of dual-class companies. In contrast, the data do not support the view that dual-class structures are chosen to insulate managers from short-term pressures and to allow them to focus on long-term projects.

The remainder of the paper is structured as follows. Part II discusses the resurgence of dual-class shares and its historical importance. Part III presents and discusses three possible

theories that might explain this phenomenon. Part IV presents the dataset built for this study and the findings of the research. Part V concludes.

II. THE RESURGENCE OF DUAL-CLASS SHARES

A. The Three Ages of Dual-Class Shares

Dual-class shares are hardly a historical novelty. In April 1925, an ad in the Chicago Daily Tribune announced the issue of Class A common stock by Dodge Brothers, Inc., then the third largest car manufacturer in the world. The offering notice explained that Class A and Class B shares were identical in all respects "except that holders of Common Stock Class A ha[d] no voting power for any purpose and Common Stock Class B ha[d] exclusive voting power for all purposes"[18]. A few months later, the Industrial Rayon Corporation, inventor of the "artificial silk", offered on the market 150,000 shares of Class A common stock. As a result, the corporation had 600,000 shares of common stock outstanding, of which a small fraction of Class B stock, corresponding to 0.3% of the total number of shares, had 100% of the voting power[19]. Similar structures were used by the Charles E. Hires Company (where the controlling power over the firm was concentrated in as few as 3872 "Management Shares" out of a total of more than 180,000 common shares), Universal Chain Theater Corporation, the Southern Gas and Power Corporation, and other large corporations of the era[20]. This governance innovation provoked a vivid debate among

[18] Dodge Brothers Inc., Stock offering notice, CHI. D. TRIB., Apr. 9, 1925, at 25.
[19] Industrial Rayon Corporation, Stock offering notice, N.Y. TIMES, Aug. 27, 1925, at 26.
[20] William Z. Ripley, MAIN STREET AND WALL STREET 86-90 (1927).

scholars, experts, and policymakers[21]. Between the end of 1925 and the first few months of 1926, Professor William Ripley of Harvard University criticized the phenomenon in a much-publicized address to the American Academy of Political Science[22], the New York Times devoted articles and comments to the controversy[23], and finally the Board of Governors of the New York Stock Exchange announced that in considering future applications for the listing of common stock it would "give careful thought to the matter of voting control"[24]. Even the President of the United States, Calvin Coolidge, considered the issue of nonvoting common stock, to decide whether his administration should have "recommend[ed] legislation to meet the alleged abuses"[25].

Eventually, the federal government did not take legislative action, but the NYSE changed its policies and started rejecting nonvoting common stock for listing, with some exceptions[26]. This policy became a formal rule in 1940 and since then through the 1970s nonvoting and limited-voting shares became a rare presence in the American corporate landscape[27]. Dual-class structures made a comeback amidst the wave of hostile takeovers of the 1980s (together with a renewed controversy[28]). They were mainly used as a defense

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[21] *Id*. See also W. H. S. Stevens, *Stockholders' Voting Rights and the Centralization of Voting Control*, 40 Q.J. ECON. 353 (1926); and Adolf A. Berle, Jr., *Non-Voting Stock and Bankers Control*, 39 HARV. L. REV. 673 (1926).

[22] *Bankers' Control of Trade Deplored*, N.Y. TIMES, Oct. 29, 1925, at 27.

[23] *See, e.g.*, Evans Clark, *Voteless Stock Stirs Wall Street*, N.Y. TIMES, Feb. 7, 1926, at XX1 (an entire page dedicated to this issue).

[24] *Says Wall Street Must Clean House*, N.Y. TIMES, Feb. 21, 1926, at E1.

[25] *President Studies Non-Voting Stocks*, N.Y. TIMES, Feb. 17, 1926, at 1.

[26] Joel Seligman, *Stock Exchange Rules Affecting Takeovers and Control Transactions*, *in* Knights, Raiders & Targets, The Impact of the Hostile Takeover 465, 471 (ed. John C. Coffee, Jr. *et al.*) (1988).

[27] Stephen M. Bainbridge, *The Scope of SEC's Authority over Shareholder Voting Rights* 7 (UCLA School of Law Research Paper No. 07-16, 2007), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=985707.

[28] *Compare* Joel Seligman, *Equal Protection in Shareholder Voting Rights: The One Common Share, One Vote Controversy*, 54 GEO. WASH. L. REV. 687 (1986); *with* George W. Dent, Jr., *Dual Class Capitalization: A Reply to Professor Seligman*, 54 GEO. WASH. L. REV. 725 (1986).

against unwanted bidders[29] but then, after the three major U.S. securities exchanges prohibited transactions unequally affecting the voting rights of existing shareholders[30], they became again a relatively unusual feature in the U.S. stock markets[31].

B. A Surprising Revival in the Age of Shareholder Value

The recent resurgence in popularity of dual-class shares is therefore one of many historical incarnations of the same phenomenon. There are, however, some aspects that make this revival worthy of careful examination.

First, since the late 1980s, after the last wave of dual-class shares, the shareholder value principle – the idea that the maximization of shareholder value is the main or sole criterion to judge corporate governance – has become the dominant ideology in legal thinking, market practice, and business culture[32]. Two of its key tenets are precisely that corporate managers must be made "strongly accountable to shareholder interests" and noncontrolling

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[29] Between 1985 and 1988, dual-class recapitalizations brought the total number of dual-class public companies from 119 to 306. Jeffrey N. Gordon, *Ties that Bond: Duel Class Common Stock and the Problem of Shareholder Choice*, 76 CAL. L. REV. 1, 4 (1988), citing Linda Sandler, *Class Struggle: Dual Stock Categories Spur Powerful Debate Over Stability vs. Gai*n, WALL ST. J., May 17, 1988, at 1.

[30] In the 1980s, corporations lobbied the NYSE and Amex to loosen their restrictions on dual-class shares. As a response, in 1988, the SEC adopted a rule effectively prohibiting issuances of securities (and other transactions) "nullifying, restricting, or disparately reducing the per share voting rights" of existing shareholders. 17 C.F.R. §240.19c-4. Although the new rule was struck down by the D.C. Circuit Court in Bus. Roundtable v. SEC, 905 F.2d 406 (D.C. 1990), substantially equivalent voting policies were soon adopted by NYSE, NASDAQ, and Amex. Stephen M. Bainbridge, *The Scope of the SEC's Authority Over Shareholder Voting Rights*, *supra* note 27, at 8.

[31] Paul A. Gompers and coauthors find that between 1995 and 2002, dual-class companies listed on NYSE, NASDAQ or Amex were between approximately 5.4% and 6.4% of the total (approximately 6% on average). Paul A. Gompers et al., *Extreme Governance: An Analysis of Dual-Class Firms in the United States* 23 REV. FIN. STUD. 1051, 1057 (2010).

[32] *See* Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, 89 GEO. L.J. 439, 441 (2001) ("there is today a broad normative consensus that shareholders alone are the parties to whom corporate managers should be accountable, resulting from widespread disenchantment with a privileged role for managers, employees, or the state in corporate affairs"); *and* Jeffrey N. Gordon, *The Rise of Independent Directors in the US, 1950-20025: Of Shareholder Value and Stock Prices*, 59 STAN. L. REV. 1465, 1529 (2007) (comparing the language used in two Business Roundtable statements on corporate governance, in 1978 and in 1997, to show how the shareholder value principle had "seeped into managerial culture").

shareholders must receive adequate protection[33]. Second, there has been a profound transformation in the ownership structure of U.S. public companies. Institutional investors have become an overwhelming presence in American companies[34] and have acquired the power to influence the most important choices of the corporation[35]. Shareholders are no longer the uninformed, dispersed, and helpless investors described by Adolf Berle and Gardiner Means in their classic volume on twentieth-century American corporations[36]. Today, public investors are not the anonymous mass of small owners that made up nearly the totality of outside capital in the 1920s (at the time of the first wave of dual-class shares), but they are also significantly different from their 1980s counterparts (during the second wave of dual-class structures). With a much more concentrated ownership and a great level of sophistication, shareholders today are better positioned to exercise their prerogatives, assess management's performance, and bargain at arm's length over corporate arrangements.

Third, mostly as a consequence of the first two trends, corporations have become exposed to substantial pressure to conform to the highest standards of good corporate governance[37]. Many of these accepted precepts recommend strong shareholder rights, effective monitoring of insiders, and accountability of managers. In the 1990s, the very

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[33] Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, *supra* note 32, 441-442.

[34] Jeffrey N. Gordon, *The Rise of Independent Directors*, *supra* note 32, at 1568 (presenting data showing that the fraction of U.S. equity market capitalization owned by institutional investors rose from 9% in 1950, to 43% in 1975, to 68% in 2004).

[35] Lucian A. Bebchuk, Alma Cohen & Scott Hirst, *The Agency Problems of Institutional Investors*, 31(3) J. ECON. PERSP. 89, 92-93 (2017) ("[e]ven among the largest 20 corporations, the largest 20 institutional investors in 2016 had mean ownership of 33.4 percent […]; in each of the 20 corporations, the largest 20 institutional investors own more than 25 percent. Furthermore, among these very large public corporations, the percentage owned by the largest 50 institutional investors has a mean of 44.2 percent").

[36] Adolf A. Berle, Jr. & Gardiner C. Means, THE MODERN CORPORATION AND PRIVATE PROPERTY (1933).

[37] *See, e.g.*, Jill E. Fisch, *Taking Boards Seriously*, 19 CARDOZO L. REV. 265 (1997)

meaning of the term "corporate governance" changed from being associated with the accountability of the corporation to different constituencies to being closely connected with the shareholder value ideology[38].

The increasing popularity of dual-class shares is apparently at odds with these developments. Dual-class structures greatly limit or suppress the most basic governance tool of public shareholders, increase agency costs, defeat shareholder "voice", and contradict one of the most cherished beliefs of corporate democracy – that voting power must be proportional to equity interest. Especially after the "shareholder value revolution" of the 1980s, we would expect, even more than before, that corporate planners would spontaneously choose value-maximizing arrangements, lest they find difficulty in raising equity capital on public markets[39]. So why do rational entrepreneurs and owners increasingly choose such a voting arrangement when they take their firms public? And why do sophisticated investors accept to be voiceless?

Another peculiar aspect of the current trend is that it appears to be especially stronger in the technological sector, which is one of the fastest-growing in the United States[40]. This perception is widespread among industry experts and commentators and seems to be confirmed by the data. A simple elaboration of the IPO data collected by Professor Ritter[41] shows that among tech firms dual-class IPOs as a fraction of the total number of IPOs have

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[38] William Ocasio & John Joseph, *Cultural Adaptation and Institutional Change: The Evolution of Vocabularies of Corporate Governance*, 1972-2003, 33(3-4) POETICS 163, 174.

[39] The traditional law & economics view is that IPO terms that are not value-maximizing will not survive in a competitive capital market. Frank H. Easterbrook and Daniel R. Fischel, THE ECONOMIC STRUCTURE OF CORPORATE LAW 19 (1991) ("terms that are not beneficial to investors will stand revealed; the firm will lose out in competition for investors' money").

[40] Mary Ellen Biery, *The 10 Fastest-Growing Industries In the U.S.*, Forbes, Apr. 9, 2017, at https://www.forbes.com/sites/sageworks/2017/04/09/the-10-fastest-growing-industries-in-the-u-s/#1b93bef61ef2

[41] *Supra* note 15.

recently increased at a faster pace than among other firms. While from the 1980s to the 2000s dual-class IPOs in the tech sector were less frequent than in other sectors, for the period between 2010 and 2017 the opposite is true: 18.56% of tech IPOs had dual-class shares, as opposed to 15.46% of non-tech IPOs.

Table 1: Dual-Class IPOs as a Fraction of Total IPOs

Decade	Tech Companies	Non-Tech Companies
1980-1989	2.69%	5.15%
1990-1999	5.35%	9.73%
2000-2009	7.89%	11.26%
2010-2017	18.56%	15.46%

This table reports the fraction of IPOs with a dual-class share structure among companies in the technology sector ("Tech Companies") and companies in other sectors ("Non-Tech Companies"). Data are taken from the database of Professor Jay Ritter, available at https://site.warrington.ufl.edu/ritter/ipo-data/.

There are, in other words, sufficient reasons to suspect that the dual-class revival might be the symptom of a broader transformation in corporate ideology and practices. If some of the most successful firms in the country ask their shareholders to give up their voting rights for their own sake, the traditional meaning of shareholder value and corporate democracy might be undergoing a profound revision.

III. WHY DO COMPANIES CHOOSE DUAL-CLASS SHARES?

A. The Efficient Private Benefits Hypothesis

The most natural explanation for the phenomenon of dual-class IPOs is that the unequal voting arrangement is, after all, a rational and efficient bargain. I use the term "efficient" here in a narrow sense, meaning that dual-class charters maximize value for shareholders and current controllers and executives. To be sure, this arrangement might be socially inefficient, as it might prevent acquirers from successfully getting control of the company

even when the sum of firm value and private benefits under the new controller would be higher[42].

According to this theory (I will refer to it as the "efficient private benefits hypothesis"), investors pay a lower price for their low-vote shares[43] and insiders bear in full the agency costs of entrenchment in exchange for some private benefits associated with it. These benefits must not necessarily come directly at the expenses of public shareholders. The dual-class controller, for example, might attach a strong sentimental value to a firm founded by herself or her family, or might benefit from the social prestige and connections that come with that role. Even in those cases, however, the dual-class structure, by creating a "wedge" between cash flow rights and control rights, distorts the incentives of the controller and increase agency costs[44]. However, according to this hypothesis, shareholders are perfectly aware of this effect and incorporate it in their valuation of the company. As a result, both sides get a fair deal. On the one side, insiders obtain a powerful tool to maintain the control of the corporation without the need to keep a majority of the shares (which allows them to diversify their wealth and being less exposed to the firms-specific risk of

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[42] See Robert Daines & Michael Klausner, *Do IPO Charters Maximize Firm Value? Antitakeover Protection in IPOs*, 17 J. L. ECON & ORG. 83, 107. (2001) and Lucian A. Bebchuk & Luigi Zingales, *Ownership Structures and the Decision to Go Public: Private Versus Social Optimality*, in CONCENTRATED CORPORATE OWNERSHIP 55, 56 (Randall K. Morck ed., 2000).

[43] For brevity, I will often refer to low-vote shares to indicate shares that have a lower voting power than other shares issued by the company (high-vote shares), including nonvoting shares and shares with limited voting power on specific matters.

[44] Suppose, for example, that the controller extracts private benefits worth $2,000,000 every year and has the opportunity to pursue a new investment opportunity with an expected value of $10,000,000 for all shareholders, but a reduction of the controller's private benefits by $1,000,000 (because, for instance, the project requires a lot of additional managerial work, which leaves her much less time for the media events that the controller enjoys so much). If the controller has 51% of the company (single-class structure), she is incentivized to approve the project, as the increase in firm value is much larger than the reduction in private benefits (51% of $10,000,000 is $5,100,000, which is more than five times $1,000,000). If the controller has only 9.1% of common stock (dual-class structure), her cash flow proceeds ($910,000) are less than the reduction in private benefits and therefore she has no incentives to approve the project, to the detriment of public shareholders.

the company they control). On the other side, public investors are fully compensated for the increased agency costs of this voting structure by buying low-vote stock at an adequately discounted price.

This theory is predicated on three different premises, which I will discuss separately.

1. Agency costs of dual-class shares. – The first premise is that dual-class structures increase agency costs. Hardly anyone disputes that unequal voting structures, by separating cash-flow rights and voting rights, distort the controller's incentives and exacerbate the principal-agent problem inherent in the separation between corporate ownership and control. Although the principle of one-share-one-vote is a relatively recent invention in the history of corporations[45] (and one with many exceptions[46]), there are valid economic

[45] Early corporations in the United States had many different voting structures. One of the most common rules was that each shareholder had only one vote, regardless of the number of shares owned, and those arrangements where the number of votes was connected with the number of shares often provided for some kind of limitations (such as vote ceilings or regressing voting formulas) so that the largest shareholders did not have too much power. *See* Joseph S. Davis, 4 ESSAYS IN THE EARLIER HISTORY OF AMERICAN CORPORATIONS 323 (1917). Initially, one vote per share was the exception, but it became increasingly common towards the end of the nineteenth century, not because of the scientific observation that the one-share-one-vote rule was superior to the alternatives but as a result of "300-year political controversy over the degree and type of control that should be retained over the managers of corporations". David L. Ratner, *The Government of Business Corporations: Critical Reflections on the Rule of One Share One Vote*, 56 CORNELL L. REV. 1, 9 (1970).

[46] The one-share-one-vote rule, although now the default voting rule in the corporate codes of most countries, is hardly the one and only corporate voting arrangement, in the United States or abroad. Direct exceptions to the rule are dual-class shares, nonvoting shares, vote ceilings (which put a cap on the votes that can be exercised by a single shareholder, regardless of the number of shares owned), loyalty shares (which give multiple voting rights to long-term shareholders), cumulative voting, and supermajorities. In this paper, we will consider limited-voting shares and nonvoting common shares as two species of dual-class shares. Different considerations apply to nonvoting preference shares, which usually differ from common stock in many aspects, most importantly a dividend and liquidation priority. For their peculiar economic structure, preference shares are usually considered closer to a hybrid debt-equity instrument and will not be addressed here. Vote ceilings are virtually absent today in U.S. public corporations but are allowed in some European jurisdictions. In Italy, for example, corporate charters may provide for fixed caps or sliding scales formulas that give increasingly less weight per share as the size of the holding increases. *See* Article 2351(3) Italian Civil Code. On loyalty shares, *see* Lynne L. Dallas & Jordan M. Barry, *Long-Term Shareholders and Time-Phased Voting*, 40 Del. J. Corp. L. 541 (2016). For the use of loyalty shares in other jurisdictions, *see* Marco Becht et al., *Loyalty Shares: A Coasian Bargain? Evidence from the* Loi Florange *Experiment* 5, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2996732 (for France) *and* Marco Ventoruzzo, *The Disappearing Taboo of Multiple Voting Shares: Regulatory Responses to the Migration of Chrysler-Fiat* 13, ECGI - Law Working Paper 288/2015, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2574236 (for Italy). Furthermore, there are many indirect, and less transparent, tools that alter the direct relationship

reasons why such default rule is a sensible choice. The traditional argument is that shareholders are the "residual claimants" of the firm, that is, those who are entitled to the assets of the firm only once all other claimants (lenders, suppliers, employees, etc.) have been satisfied[47]. Shareholders are those who bear the ultimate wealth effects of corporate decisions, and they bear them in proportion to their equity stake. Therefore, if we are to allocate voting power to those who are more likely (that is, more rationally incentivized) to make the best use of it, we must give it to shareholders in proportion to their equity interest[48]. The essence of the principal-agent problem – which has troubled lawyers and economists at least since Adam Smith[49] – is precisely this: a decisionmaker that does not bear the consequences of her decisions does not have sufficient reasons to make the best choices. Thus, the one-vote-one-share rule is the one that minimizes this problem. Conversely, a deviation from that rule (such as a dual-class structure) makes the agency problem worse.

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between ownership and voting power, such as stock pyramids (rare in the United States, but widespread in other countries), cross-ownership structures, or equity derivatives that decouple equity interest and voting rights (giving more votes than economic ownership – so called "empty voting" – or vice versa). *See* Rafael La Porta et al., *Corporate Ownership Around the World*, 54 J. FIN. 471 (1999) (presenting evidence on the diffusion of stock pyramids in several jurisdictions); Lucian A. Bebchuk, Reinier H. Kraakman & George Triantis, *Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights*, in CONCENTRATED CORPORATE OWNERSHIP 295-318 (R. Morck ed., 2000) (discussing some of these control-enhancing mechanisms); Henry T. C. Hu & Bernard Black, *The New Vote Buying: Empty Voting and Hidden (Morphable) Ownership*, 79 S. Cal. L. Rev. 811 (2006) (discussing equity derivatives that confer voting power without the corresponding exposure to equity risk, or vice versa).

[47] The most famous formulation of this theory is found in Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

[48] *See, e.g.*, Frank H. Easterbrook & Daniel R. Fischel, *Voting in Corporate Law*, 26 J.L. & ECON. 395, 403 (1983) ("the shareholders are the group with the appropriate incentives (collective choice problems to one side) to make discretionary decisions").

[49] 2 Adam Smith, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 373 (Oxford University Press Edition 1919) ("[t]he directors of [joint-stock] companies, however, being the manager rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own").

This stylized account is certainly partial and incomplete. For example, dispersed ownership makes shareholders rationally apathetic[50] and insufficiently motivated to exercise their voting rights[51]. Furthermore, it has long been demonstrated that the aggregation of collective preferences inevitably leads to contradictions and paradoxes[52]. Finally, in a complex organization such as a public corporation, voting is an intricate process with many detailed rules, and specific arrangements might create significant obstacles between shareholders and an incisive use of their voting power[53].

However, despite these complications, which force us to reconsider the value of voting rights for the individual shareholder both in theory and in practice, voting rights maintain a significant collective value for the shareholders as a group and a potential value in some specific circumstances. The main reason is that an existing shareholder or an outsider that disagrees with the business choices of the current management and believes that the firm would be worth more than its current value if different choices were taken, can buy enough shares (and, therefore, sufficient voting power) to oust the directors. Therefore, the voting power incorporated in each individual share, although not necessarily valuable in normal times, might become extremely precious when a buyer is seeking to gain control of the company. This fact has two main consequences. First, each share has an "option value"

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[50] *See, e.g.,* Robert Charles Clark, *Vote Buying and Corporate Law*, 29 CASE W. RES. L. REV. 776, 781 (1979).

[51] This is a phenomenon not too dissimilar to the one observed in political elections. In a national election, no single citizen can reasonably hope to make a difference with her vote; therefore, many observers have wondered, since the distant past, why voters even bother to vote at all, and have called their choice to vote a paradox. One of the first formulation of this paradox was made in 1793 by the Marquis de Condorcet. CONDORCET: FOUNDATIONS OF SOCIAL CHOICE AND POLITICAL THEORY 245 (transl. and ed. Iain McLean & Fiona Hewitt, 1994) ("[i]n single-stage elections, where there are a great many voters, each voter's influence is very small. It is therefore possible that citizens will not be sufficiently interested"). For a modern discussion of the paradox *see* Anthony Downs, AN ECONOMIC THEORY OF DEMOCRACY 260-274 (1957).

[52] *See, e.g.* Denic C. Mueller, PUBLIC CHOICE III 67-126 (2003).

[53] *See* Lucian A. Bebchuk, *The Myth of the Shareholder Franchise*, 93 VA. L. REV. 675 (2007).

connected with its voting rights. Even if the individual owner never exercises those rights directly, her shares will still have an implicit, dormant power with an economic value attached to it. Second, the distribution of voting rights is a measure of how costly it is, for an outsider, to obtain the control of the corporation and oust an underperforming management[54] - and, therefore, of the *ex-ante* disciplinary effect that such a threat has on management.

In other words, other things being equal, even an apathetic shareholder who does not actively use her voting rights should rationally attach some value to them. By contrast, low-vote or nonvoting shares in a dual-class company should be worth less, because the option value of voting is lower or none, respectively, and because the disciplining threat of a takeover is weaker[55].

The brief overview I have just sketched of the theoretical reasons, and complications, of the one-share-one-vote rule is inevitably succinct and incomplete. Each of the problems I mentioned are much more nuanced and richer than such a short account can acknowledge, and a modest analysis of the economic, historic, political, and practical issues connected

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[54] To illustrate, suppose that the total equity value of a corporation with 10 million shares is $1 billion, and all common stock has equal voting power. In that case, an outsider willing to replace the board must either win the vote of 5 million shares plus one (that is, in the worst-case scenario of a 100% turnout) or buy an equivalent number of shares at $100 per share plus whatever premium shareholders might find sufficiently attractive. In contrast, if the same corporation had a dual-class structure where the controller owned 800,000 high-vote shares with 10 votes per share and the public shareholders owned the remaining 9.2 million low-vote shares with 1 vote per share, the outsider should win the vote of, or buy, 8.6 million low-vote shares (i.e. 86% of all outstanding shares). If the high-vote shares owned by the controller were instead 1 million, the outsider could not possibly obtain control without the incumbent's consent.

[55] It is worth noting that the agency problem of a dual-class structure is peculiar and more severe than the one we find in a single-class controlled company. The reason is that a dual-class minority controller is less incentive than a single-class controller to pursue a value-enhancing project that reduces her private benefits, as the dual-class minority controller obtains a smaller portion of the value enhancement. *See* Lucian A. Bebchuk, Reinier H. Kraakman & George Triantis, *Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights, supra* note 46, 301-305.

with shareholder voting would complicate this relatively terse picture to a great extent. Even the basic idea that shareholders are the "residual claimants", and directors their "agents", is not uncontroversial[56]. However, a discussion of these issues is well beyond the scope of this paper. For our purposes, the basic principal-agent model, and the key economic incentives associated with it, captures quite well the reality of high-tech IPOs.

As I will show in Part IV, founders play an important role in most tech IPOs. A founder-CEO, often backed by financial sponsors, faces a problem that is not too dissimilar from the predicament of Jensen & Meckling's stylized owner-manager, who is considering selling a part of the equity in her firm to finance an entrepreneurial project[57]. The question, then, is why our tech founder and the other pre-IPO owners choose a voting structure that increases agency costs.

2. Efficient pricing. – The second premise of the efficient private benefits hypothesis is that IPO investors correctly price the increased agency costs of dual-class shares. Therefore, pre-IPO owners bear such costs in full. This is the standard conclusion of the agency model of the firm: agency costs are ultimately borne by the owner-manager selling a fraction of the equity to outside investors[58]. In practice, the IPO pricing process is an intricate exercise where different players, with different information and incentives, interact with each other in an effort to discover the correct price for the stock. The issuer clearly has superior information about itself but is not completely credible, because it has a strong incentive to misrepresent the situation and portray the firm in a positive light. The lead underwriter (or investment banker: I will use the two terms interchangeably) plays a

[56] *See, e.g.* Lynn Stout, THE SHAREHOLDER VALUE MYTH 34-46 (2012).
[57] Michael C. Jensen & William H. Meckling, *Theory of the Firm*, *supra* note 47 at 312.
[58] *Id.*

crucial triple role – adviser to the issuer, buyer of the new issue, and re-seller to the public[59] – and needs to collect information, from the issuer and from the investors, to make a correct valuation of the stock. It has an incentive to set a high price (because its fees are a fraction of the offer price) but not so high that investors might decide not to buy the stock (because it bears the risk of not being able to re-sell it). Finally, the potential investors might have superior private information (for example, regarding a competitor of the issuer or certain characteristics of the firms that the issuer cannot credibly convey to the underwriter) but have no incentive to reveal it, in the hope of paying a low initial price for the stock and make a profit by reselling it at the full information price[60]. That is, according to one theory, one of the reasons why IPOs are typically underpriced: to compensate investors for revealing valuable information during the pre-market phase[61].

The role of underwriters is particularly important. They have the expertise to understand the implications of specific charter provisions and part of their task is to explain them to the issuer. In this regard, underwriters effectively act as "the bargaining agent of prospective public shareholders as a group"[62]. In the case of dual-class shares, we would expect underwriters to engage in a continuing conversation with the company, concerning the feasibility of a dual-class IPO, the preliminary "indications of interests" received from investors, the trade-off of the dual-class structure against the discounted price that investors would be ready to pay. Arguably, underwriters would discourage those dual-class issues

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[59] Richard A. Brealey, Stewart C. Myers, & Franklyn Allen, PRINCIPLES OF CORPORATE FINANCE 371 (10th ed. 2011)

[60] Lawrence M. Benveniste & Paul A. Spindt, *How Investment Bankers Determine the Offer Price and Allocation of New Issues*, 24 J. FIN. ECON. 343, 344 (1989).

[61] *Id*.

[62] Jeffrey N. Gordon, *The Mandatory Structure of Corporate Law*, 89 COLUM. L. REV. 1549, 1558 (1989). *See also* Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 Va. L. Rev. 549, 620-621 (1984).

that might presumably result in an outright failure and would guide issuer and investors to find the optimal balance in those cases where buyers are willing to accept low-vote shares, although at a lower price.

The whole process is far from perfect; however, IPO pricing is a complex and problematic exercise for any type of stock, whether single-class or dual-class. For our purposes, to accept the implications of the efficient pricing premise we do not need to stipulate that all IPO investors perfectly and infallibly price the exact effects of dual-class shares. Errors can certainly happen; but to the extent that they are random, overpricing and underpricing errors will cancel each other out and dual-class pricing will accurately reflect, on average, the increased agency costs of unequal voting rights. In fact, we do not need to assume that all errors are random: even if there are systematic errors, pricing is efficient to the extent that there are some smart arbitrageurs that spot, and profit from, the inefficiencies created by irrational investors, thus canceling them out[63].

3. Private benefits of control. – The third and last premise of this hypothesis concerns the motivation behind the decision of the company to accept such a lower price instead of getting a "full" price with a single-class structure. For the arrangement to be a positive-sum game, pre-IPO owners must obtain some benefits that are not shared with the public shareholders (private benefits). These benefits might potentially derive from several sources. In the most extreme cases, the dual-class controller might enrich herself through a distraction of value from the firm (tunneling[64]), self-dealing transactions, excessive compensation or perquisites, private exploitation of corporate opportunities, or even

[63] For a presentation of this argument, although on a very different topic, *see* Milton Friedman, *The Case for Positive Exchange Rates*, in ESSAYS IN POSITIVE ECONOMICS 175-177 (1953).

[64] Simon Johnson et al., *Tunneling*, AM. ECON. REV., May 2000, at 22.

outright theft. Some of these actions are criminal offenses and most others are a violation of the directorial duty of loyalty: an informed investor would expect that these episodes would happen with a relatively low frequency in a jurisdiction with a strong investor protection; or, when they happen, there would be other instruments (such as fiduciary litigation) to seek redress under the law. Other sources of benefits, however, are hardly detectable or perfectly legal, such as a moderate amount of managerial slack, the hiring of incompetent friends, the pursuit of mistaken pet projects, or a business expansion aimed at satisfying the controller's own ego rather than maximizing shareholder value. All these actions might hurt shareholders and privately benefit the dual-class controller. Another significant benefit for dual-class controllers is a lower cost of diversification. Diversification is important for founders[65] and with a dual-class structure a founder can diversify her wealth without giving up control on the firm.

Finally, a dual-class controller might gain nonpecuniary benefits from the mere fact of being the controlling shareholder of the company, because of the social recognition associated with that role, the respect and consideration of the employees, the access to social relationships and opportunities. For the founder, in particular, the psychological benefits of control are likely to be especially high, for the emotional value deriving from being the leader of the firm created and led for many years. This is, according to this view, a very important element in the decision to adopt a dual-class structure. For successful innovators, with a significant amount of private wealth, the marginal utility of a higher firm

[65] Eugene Kandel et al., *Shareholder Diversification and the Decision to Go Public*, 21 REV. FIN. STUD. 2779 (2008).

value can be small compared to the psychological and social advantages of maintaining the control of their creature.

In all these cases, the adoption of a dual-class structure is an efficient bargain to the extent that the dual-class controller values those private benefits more than the monetary loss arising from a lower IPO price. In this narrow sense, dual-class structures are efficient.

B. The Entrepreneurial Hypothesis

An alternative theory is that, on balance, dual-class structures increase the value of the firm. According to a recent account, entrepreneurs value the ability to pursue their particular vision, and control allows them to do so without the fear of being replaced by skeptical shareholders[66]. This ambition, however, falls within the private-benefits framework, as it pertains to the individual utility of the entrepreneur. For the dual-class structure to be a value-enhancing arrangement – at least in the expectations of the bargaining parties – pre-IPO owners and IPO investors must share two distinct beliefs: first, that the entrepreneur's vision is actually value-enhancing; and second, that other investors (possibly in the near future) might misinterpret and oppose it. The first belief, while necessary, is not sufficient. If IPO investors simply trusted the CEO, they could support her strategy without renouncing the prerogative to reassess it at the next board election. This second decision implies that investors not only trust the CEO but also mistrust their fellow shareholders' ability to assess the CEO's strategy and behavior (or, at

[66] Zohar Goshen & Assaf Hamdani, *Corporate Control and Idiosyncratic Vision*, 125 YALE L. J. 560, 565 (2016) ("Under our framework, control allows entrepreneurs to pursue business strategies that they believe will produce above-market returns by securing the ability to implement their vision in the manner they see fit. The entrepreneur values control because it protects her against the possibility of subsequent midstream investor doubt and objections regarding either the entrepreneur's vision or her abilities").

least, that the CEO's mistrust of shareholders is a reasonable concern worth of being addressed with such a costly device).

In other words, the entrepreneurial hypothesis accepts all three premises of the first theory (agency costs, efficient pricing, and some amount of private benefits – at least in the form of the healthy psychological benefits associated with the freedom to pursue one's own vision) but adds a fourth one, which is the following: the value-enhancing effect of the controller's insulation from the market pressure more than compensates for the agency costs created by the unequal voting structure. On balance, dual-class shares increase shareholder value.

To be sure, the premises of these two theories are not mutually exclusive. Each firm, with its business, financial, human, and legal features (including its governance structures) presents a unique mix of characteristics that impact value in a positive or negative way. A dual-class company might benefit from some degree of entrenchment (for the reasons just illustrated), but might still suffer a net negative effect because, after all, the increase in agency costs is greater than such benefit. Different companies will have different net effects, positive or negative, and an efficient pricing process will find the right balance between the interests of all actors. However, for our purposes, I will refer to the entrepreneurial hypothesis to indicate only those cases where the net benefits of dual-class structures for shareholders are positive. Arguably, this is an extraordinary – although not necessarily rare – circumstance. The proponents of the "idiosyncratic vision" theory acknowledge that dual-class structures present a great risk of expropriation for the public

shareholders and believe that this extreme control device is infrequent for this very reason[67].

Therefore, the firms that choose a dual-class arrangement react to some peculiar risk affecting the ability of their leaders to pursue their vision. A possible explanation, widespread in the current academic and policy debate, is that the U.S. capital market has become excessively focused on the short-term: investors pressure managers to take decisions that have an immediate pay-off, to the detriment of long-term value creation[68]. Technology firms are especially vulnerable to this problem, because investments on research and development of innovative products have a long-term horizon and their risk and expected value, due to the complex technical nature of those projects, cannot be easily and credibly conveyed to shareholders[69]. In this regard, dual-class structures might be an efficient tool to provide management with sufficient freedom to focus on long-term projects.

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[67] *Id*. at 591 and note 102. Note, however, that the authors rely on outdated data referring to the end of the last century (when dual-class IPOs were approximately 6% of the total), while the current situation – as I will discuss – is quite different.

[68] The legal and finance literature on this topic is vast. For some important aspects of this problem, s*ee* Brian Bushee, *The Influence of Institutional Investors on Myopic R&D Investment Behavior*, 73 ACCT. REV. 305 (1998); John Asker, Joan Farre-Mensa, & Alexander Ljungqvist, *Corporate Investment and Stock Market Listing: A Puzzle?*, 28 REV. FIN. STUD. 342 (2015); James M. Poterba & Lawrence H. Summers, *A CEO Survey of U.S. Companies' Time Horizons and Hurdle Rates*, SLOAN MAN. REV. 43-52 (Fall 1995); Steven K. Kaplan, *Are U.S. Companies Too Short-Term Oriented: Some Thoughts* (NBER Paper No. 23464, May 2017); Martin Lipton, *Takeover Bids in the Target's Boardroom*, 35 BUS. LAW. 106 (1979); Philippe Aghion, John Van Reenen, & Luigi Zingales, *Innovation and Institutional Ownership*, 103 AM. ECON. REV. 277 (2013); Li Eng & Margaret Shackell, *The Implications of Long-Term Performance Plans and Institutional Ownership for Firms' Research and Development (R&D) Investments*, 16 J. ACCT. AUDIT. & FIN. 117 (2001); John C. Coffee Jr. & Darius Palia, *The Wolf at the Door: The Impact of Hedge Fund Activism on Corporate Governance* 1 ANNALS CORP. GOVERNANCE 1 (2016); Lucian A. Bebchuk, Alon Brav & Wei Jiang, *The Long-term Effects of Hedge Fund Activism*, 115 Col L. Rev 1085 (2015); Martijn Cremers, Erasmo Giambona, Simone M. Sepe & Ye Wang, *Hedge Fund Activism and Long-Term Firm Value* (2015), available at www.ssrn.com/abstract=2603231; Edward P. Swanson & Glen M. Young, *Are Activist Investors Good or Bad for Business? Evidence from Capital Market Prices, Informed Traders, and Firm Fundamentals* (2016), available at http://ssrn.com/abstract=2823067.

[69] *See* Bronwyn H. Hall & Joshua Lerner, *The Financing of R&D and Innovation*, NBER Working Paper 15325, http://www.nber.org/papers/w15325.

This is the narrative embraced by some of the most prominent dual-class firms. In a letter to the potential IPO investors, Google's founders Larry Page and Sergey Brin justified their decision to adopt a dual-class structure (still an unusual move for a tech company in 2004) with the objective of "creating a corporate structure that is designed for stability over long time horizons"[70] and criticized the "outside pressures [that] too often tempt companies to sacrifice long-term opportunities to meet quarterly market expectations"[71]. Several years later, when Google's proposal to create a third class of nonvoting stock resulted in shareholder litigation, the founders' counsel reminded the Delaware Court of Chancery that Google's "[dual-class] capital structure had the effect of concentrating voting power in […] longest-term stockholders, particularly the Founders" and that the company "guided by the Founders' vision […] made big long-term bets on revolutionary products and services, and pursued its ambitious mission"[72]. Facebook, which went public with a dual-class structure in 2012, used similar arguments in 2016 to justify a proposal of reclassification (later abandoned) that would have created a class of nonvoting stock ("allowing the company to maintain focus on Mr. Zuckerberg's long-term vision for the company"[73]). According to this version, dual-class structures are ultimately good for public investors and this is why companies increasingly adopt them.

C. The Inefficient Entrenchment Hypothesis

The two theories discussed so far rely on the ability of IPO investors to price dual-class stock efficiently. However, it is possible that IPO investors systematically misprice dual-

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[70] Google, Inc., Registration Statement (Form S-1) at iii (Apr. 29, 2004).

[71] *Id.* at i.

[72] Opening Pretrial Brief of Defendants Larry Page and Sergey Brin at 2, In re Google, Inc. Class C Shareholder Litigation., 2013 WL 2728581 (Del. Ch. Jun. 3, 2013).

[73] Facebook, Inc., Preliminary Proxy Statement (Form PRE 14-A) 55 (Apr. 27, 2016).

class issues. In the last 35 years, an important number of theoretical and empirical studies have challenged the efficient market hypothesis and have shown that investors' decisions suffer from irrational biases and that real-world arbitrage is risky and limited[74]. Investors who are not able to price dual-class IPOs might underestimate as well as overestimate their real value. However, to explain the current spread of these structures, I will consider the claim that investors systematically underestimate the agency costs associated with unequal voting rights.

A possible explanation for this effect is that investors excessively discount future uncertain events (such as the missed M&A opportunities, mismanagement episodes, or decline in the controller's managerial skills, that are less likely to happen in the immediate future), rely on imperfect heuristics to assess the risk of value-destroying entrenchment (such as the recent success of the firm and its management or the recent success of similarly structured offers), and pay limited attention to some less visible details of corporate arrangements. Therefore, IPO investors might be aware that, other things being equal, a dual-class structure creates a net increase of agency costs but underestimate such effect. Therefore, dual-class controllers might be able to get the relevant private benefits at a bargain price. In this scenario, dual-class structures are adopted even in cases where this choice is inefficient in the narrow sense of the first hypothesis, i.e. when the decrease in firm value caused by the dual-class structure is greater than the corresponding private benefits enjoyed by the controller.

[74] For an overview of the arguments and evidence challenging the efficient market hypothesis, *see* Andrei Shleifer, INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE (2000).

To illustrate, consider two different firms planning to go public. For simplicity, suppose that both firms are identical in all respects (assets, revenues, liquidity, debt, market product, ownership structure, managerial skills, etc.) but their leaders have different tastes for control. For example, the CEO and major shareholder of the first company is the successful founder of the firm and attaches a large value to the possibility of remaining its leader; by contrast, the controller of the second firm is a hired CEO, with a significant equity stake, who puts a relatively higher value on the IPO price. Finally, suppose that – given the identical characteristics of these firms – the agency costs of a dual-class structure would be the same. For the founder, the financial loss connected with these agency costs is lower, in terms of utility, than the psychological private benefit that a dual-class structure would give her. A dual-class structure is therefore an efficient solution. For the hired CEO, instead, the financial loss is too big, because her psychological preference for control is much weaker. In this case, in terms of aggregate utility, a dual-class IPO is inefficient.

Now, if IPO investors are able to correctly measure and price the agency costs of the dual-class structure, the first firm will go public with dual-class shares while the second firm will keep a single-class structure. By contrast, if IPO investors underestimate the agency costs to a sufficient extent, the controller of the second firm might find a dual-class structure advantageous, even if not efficient.

Therefore, according to this view, at least some companies choose a dual-class IPO in spite of its inefficiency. The data collected and analyzed in this paper do not allow to draw any inference on this theory. To test whether dual-class IPOs are inefficiently priced, we would need to compare the long-term returns of dual-class and single-class stock, which is far beyond the scope of this paper. In Part IV, however, I will refer to this theory for two

reasons. First, to remind the reader that a positive correlation between dual-class structures and private benefits of control does not necessarily imply that these structures are efficient for the "bargaining parties" at IPO. In fact, pre-IPO owners might transfer onto outside investors some of the agency costs associated with a dual-class charter. Second, to have a rough framework to explain some apparent oddities in the use of dual-class structures, such as the disproportionate use of these arrangements by larger and more visible firms or the relative homogeneity of structures used in practice by dual-class companies.

IV. DUAL-CLASS IPOS IN THE TECHNOLOGY INDUSTRY

A. Prior Empirical Work and Goals of this Paper

In the past, financial and legal scholars have conducted empirical studies to investigate the reasons behind the adoption of dual-class voting structures. In 1985, a seminal paper by Harry DeAngelo and Linda DeAngelo[75] described the structure of 45 dual-class public companies and showed that family ownership was an important characteristic of these firms. Between the late 1990s and the early 2000s, some studies on dual-class IPOs and reclassifications in Sweden, Canada, Australia, and Europe found that dual-class shares are correlated with family control[76], specific human-capital skills of the founder-owner[77], or

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[75] Harry DeAngelo & Linda DeAngelo, *Managerial Ownership of Voting Rights: A Study of Public Corporations with Dual Classes of Common Stock*, 14 J. FIN. ECON. 33 (1985).

[76] Henrik Cronqvist & Mattias Nilsson, *Agency Costs of Controlling Minority Shareholders*, 38 J. FIN. & QUANT. ANAL. 695 (2003) (presenting evidence from a panel of 395 Swedish firms); Ben Amoako-Adu & Brian F. Smith, *Dual Class Firms: Capitalization, Ownership Structure and Recapitalization Back into Single Class*, 25 J. Bank. & Fin. 1083 (2001) (presenting evidence from stock listed on the Toronto Stock Exchange that family control predicts dual-class structures, technology firms are significantly less likely to be dual-class, and that dual-class structures are used to prevent hostile takeovers but not sale of control *per se*).

[77] Stephen Taylor & Greg Whittred, *Security Design and The Allocation of Voting Rights: Evidence from the Australian IPO Market*, 4 J. Corp. Fin. 107 (1998);

some characteristics that have been interpreted as proxies for larger private benefits of control[78]. In 2010, two large-sample studies on the U.S. market presented evidence that dual-class IPOs are correlated with insiders' ownership. Arugaslan et al., examining IPOs of U.S. firms from 1980 to 2008, found that companies with a larger fraction of equity held by insiders are more likely to choose a dual-class structure and dual-class firms do not invest more than single-class firms in the three years after the IPO[79]. Gompers et al., examining dual-class companies in the United States in the period from 1995 to 2002, found that "the most powerful predictor" of whether a company is going public with a dual-class structure is whether a person's name appears in the company's name at the time of the IPO (interpreted by the authors as an indication that the company is controlled by its founder)[80].

Two empirical studies by prominent legal scholars have addressed the questions discussed in this paper with respect to the adoption of anti-takeover charter provisions in general. Robert Daines and Michael Klausner, examining a sample of IPOs for the period between January 1994 to June 1997, found no convincing explanation on why firms adopt anti-takeover provisions at the IPO stage. In particular, they found that control by founder or backing by venture capital or private equity funds are not significantly correlated with anti-takeover provisions, while – surprisingly – higher asymmetry of information is negatively correlated with anti-takeover provisions[81]. John Coates, analyzing data from

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[78] Anete Pajuste, *Determinants and Consequences of the Unification of Dual-Class Shares*, European Central Bank Working Paper Series No. 465 (2005) (presenting evidence from 493 dual-class stock reunifications that a larger holding by financial investors – more interested in maximizing the stock price and with less opportunities to extract private benefits – is correlated with a higher chance of reunification).

[79] Onur Arugaslan et al., *On the Decision to Go Public with Dual Class Stock*, 16 J. CORP. FIN. 170 (2010).

[80] Paul A. Gompers et al., *Extreme Governance*, *supra* note 31.

[81] Robert Daines & Michael Klausner, *Do IPO Charters Maximize Firm Value?*, *supra* note 42.

357 IPOs in the 1990s, found that variations in the adoption of takeover defenses are explained by the characteristics of the law firms advising the issuer[82].

To date, however, there has been no systematic study on the determinants of the recent resurgence of dual-class IPOs in the tech sector. This paper starts to fill this gap by examining a comprehensive sample of all IPOs of U.S. tech companies from January 2012 to September 2017 (filing date).

B. The Dataset

The dataset constructed for this paper consists of all single-class and dual-class IPOs of U.S. tech companies on a major American exchange between January 2012 and September 2017 (filing date). To build the dataset, I constructed a list of IPOs from three different databases: Thomson Reuters' Securities Data Company (SDC), Standard & Poor's Compustat (Compustat), and Bloomberg's Equity Offering Deal Analytics (Bloomberg). To qualify for the list, the company must have filed with the SEC its registration statement (Form S-1) between January 1, 2012 and September 30, 2017 and must have successfully completed its IPO by the end of January 2018.

To identify technology firms, I use 42 different 4-digit SIC Codes commonly associated with the technology industry[83], to which I add one firm with SIC Code 3861 (Photographic

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[82] John C. Coates IV, *Explaining Variation in Takeover Defenses: Blame the Lawyers*, 89 CAL. L. REV. 1301 (2001). Other empirical works that do not directly investigate the determinants of dual-class IPOs but present evidence that is relevant for some of the hypotheses discussed in this paper are Ronald W. Masulis et al., *Agency Problems at Dual-Class Companies*, 64 J. FIN. 1697 (2009) (presenting evidence that in dual-class companies management extract more private benefits); Kai Li et al., *Do Voting Rights Affect Institutional Investment Decisions? Evidence from Dual-Class Firms*, 37 FIN. MGMT. 713 (2008) (finding that long-term institutional investors invest less in dual-class companies); Laura C. Field & Jonathan M. Karpoff, *Takeover Defenses at IPO Firms*, 57 J. FIN. 1857 (2002) (showing that takeover defenses at the IPO stage are positively correlated with higher management compensation and negatively correlated with the size of management equity).

[83] The 4-digit SIC Codes are: 3570, 3571, 3572, 3575, 3576, 3577, 3578, 3579, 3661, 3663, 3669, 3670, 3672, 3674, 3677, 3678, 3679, 3821, 3822, 3823, 3824, 3825, 3826, 3827, 3829, 3841, 3842, 3843, 3844,

Equipment and Supplies) and nine firms with SIC Code 7389 (Business Services Not Elsewhere Classified) that fit the traditional description of technology firms.

Not all databases report consistent results. I accepted the results consistently reported in all three databases, and for all firms reported in at least one database I manually checked the SEC filings to verify whether the sample criteria were met or not.

The final list consists of 172 IPOs. I reviewed all final prospectuses[84] to identify those companies that went public with a dual-class voting structure[85]. All data concerning filing date, state of incorporation, industry classification, offer price, number of outstanding shares before and after the IPO, ownership structure, and management have been hand-picked from SEC filings. Data on the offering size have been collected from Bloomberg. Data on revenues and assets before the IPO, stock price, and issue dates have been collected from SDC. Founding dates were collected from SDC and Professor Ritter's database[86]. Data on research and development (R&D) expenditures have been collected partly from the IPO prospectus and 10-K filings, and partly through Compustat.

C. Summary Statistics

3845, 3861, 4812, 4813, 4822, 4899, 7370, 7371, 7372, 7373, 7374, 7377, 7389, 8731, 8734. *See* Charles O. Kile & Mary E. Phillips, *Using Industry Classification Codes to Sample High-Technology Firms: Analysis and Recommendations*, 24 J. ACCT. AUDIT. & FIN. 35 (2009). The authors include also pharmaceutical companies in their definition of "technology firms"; however, following a widely accepted convention, I did not consider pharmaceutical companies. *See, e.g.* Tim Loughran & Jay Ritter, *Why Has IPO Underpricing Changed Over Time*, FIN. MGMT., Autumn 2004, at 5, 35.

[84] With "final prospectus", I refer to the prospectus filed pursuant to Rule 424(b)(4), which contains information (such as the final offer price) not included in the S-1 Registration Statements and its amendments.

[85] Some firms of the dataset had multiple classes of common stock with equal voting rights but different cash flow rights. For evident reasons, I treat those companies as single-class. One company has two different classes of shares with unequal voting rights, but the low-vote shares were not issued to the public shareholders but assigned to one pre-IPO shareholder, presumably for regulatory reasons. I treat also this company as single-class.

[86] *Supra* note 15.

1. Filing Year and Industry. – Out of all 172 sample firms, 31 (18%) have a dual-class voting structure. Figure 1 shows that dual-class filings are unequally distributed across time. In 2013, only 4 out of 37 prospectuses (10.8%) had a dual-class structure, while in the first nine months of 2017, five out of eleven prospectuses (45.5%) are dual-class. Consistent with a widespread perception, there seems to be a positive trend in the adoption of dual-class structures. In the first part of the sample period (2012-2014), 11.8% of tech IPO prospectuses are dual class, while in the second part (2015-2017), dual-class filings are 29% of the total. In general, the 3-year moving average in Figure 1 shows an upward trend[87].

2. State of Incorporation and Sub-Industries. – Table 2 and Figure 2 present data on single-class and dual-class IPOs by state of incorporation and sub-industries. Unsurprisingly, almost all sample firms are incorporated in Delaware, even if they are headquartered elsewhere, with no significant difference between dual-class and single-class companies. Some of them reincorporate right before the IPO, thus confirming the dominant role of Delaware law for public corporations. Most tech firms going public belong to the sub-sectors of "Computer and Data Processing Services" (52.33%) or "Medical Instruments and Supplies" (19.19%). The former has the largest concentration of dual-class structures (23%), while the latter has just 1 dual-class company out of 33 (3.03%). The other sub-industries have a very small number of IPOs, from 1 to 9.

3. Age, Firm Size, and Offering Size. – Table 3 presents summary statistics on several characteristics of the sample firms. Dual-class and single-class sample firms go public after

[87] Note, however, that this calculation might be misleading for two reasons. First, 2017 data are limited to the first nine months of the year; second, some IPO filings of 2017 (and perhaps also of 2016) are excluded from the dataset because the offer was not completed by the end of January 2018.

an average of 10 years after their founding, without any statistically significant difference. There are some interesting differences, though, with respect to the size of the offering and of the firm[88]. On average, dual-class companies are much larger than single-class companies, whether in terms of assets, revenues or market capitalization at IPO. Dual-class firms have almost three times the annual revenues, more than four times the assets, and more than six times the market capitalization[89] of single-class firms[90].

Dual-class offerings are much larger in absolute terms. The average dual-class IPO is worth $961 million while the average single-class IPO only $147 million. However, in relative terms, dual-class offerings are significantly smaller. The fraction of total equity offered (measured as the ratio of the offer size to the total market capitalization) is, on average, 25.2% for single-class IPOs and 15.4% for dual-class[91].

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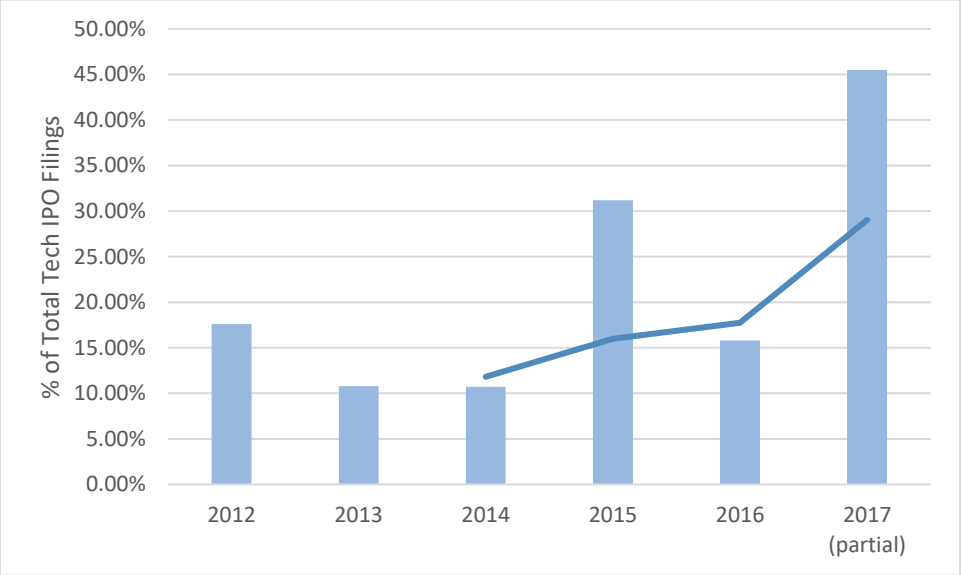
[88] For annual revenues, I exclude 18 companies for which SDC reports no revenues (either because the company has no revenues or because the data are missing). For assets, I exclude 5 companies for which SDC reports no data.

[89] To calculate the market capitalization of the firm at the date of the IPO, I multiply the offer price by the total number of common stock outstanding upon completion of the IPO (both as reported in the final prospectus). For dual-class companies, I assume that the non-traded high-vote shares have the same value as the low-vote shares *See* Tim Loughran & Jay Ritter, *supra* note 83, at 33.

[90] Differences are statistically significant at 5% (revenues) or 1% level (assets and market cap). To mitigate the effect of outliers, I compare these data also using log transformations. Also in this case, dual-class companies are much larger in terms of revenues, assets, and market capitalization. The differences between log values are statistically significant at 1% level even after excluding dual-class outliers Facebook (more than $81 billion market capitalization) and First Data Corp. ($33.4 billion in assets and $7.7 billion in revenues) (untabulated results).

[91] These differences are statistically significant at 1% level (offer size in absolute terms) and 5% level (offer size in relative terms). Also in this case, dropping a dual-class outlier like Facebook (a huge offering of more than $16 billion) does not affect the statistical significance of the results. Note also that, without Facebook, the mean dual-class offering is still more than three times larger than the mean single-class offering and the difference in relative size is substantially unchanged.

Figure 1: Dual-Class Tech IPOs by Filing Year



The light-blue columns represent the fraction of dual-class sample firms by year of filing of the Registration Statement (Form S-1). The dark blue line represents the 3-year moving average of the same data.

Table 2: State of Incorporation

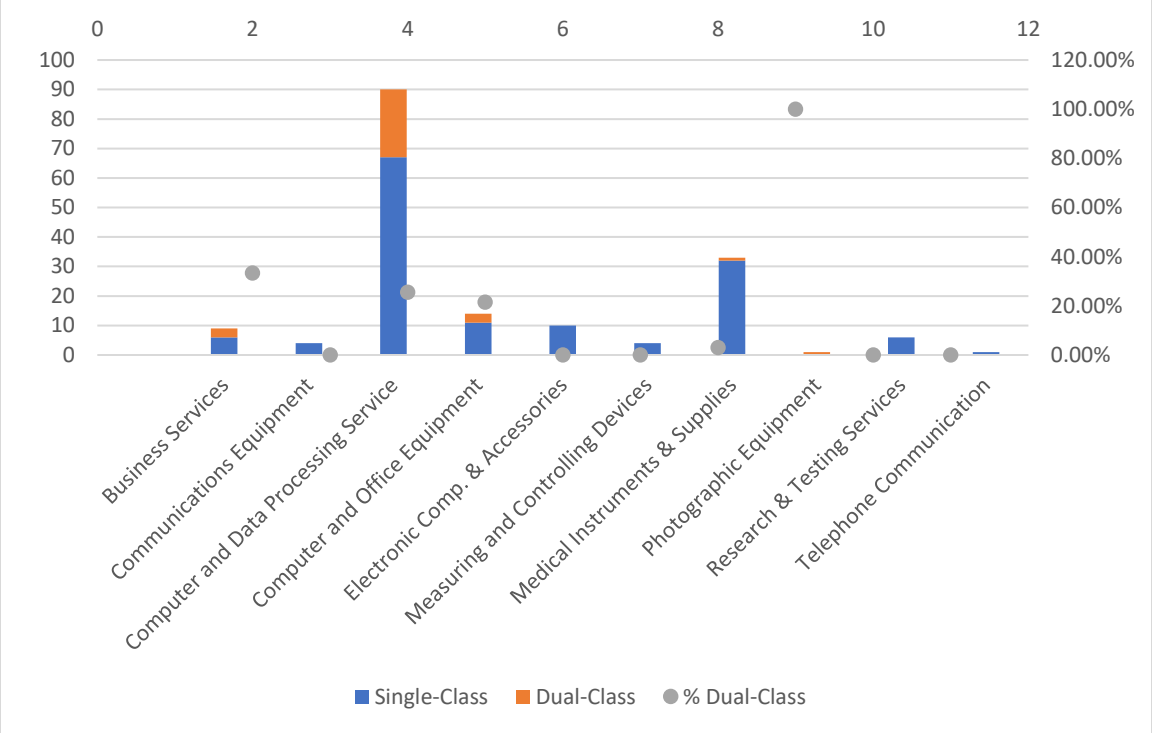
State of Incorporation	Single-Class	Dual-Class	Total
California	1	0	1
Delaware	135	30	165
Michigan	1	0	1
Nevada	2	1	3
Utah	1	0	1
Virginia	1	0	1

This table reports the number of single-class and dual-class sample firms by state of incorporation.

4. First Day Price Bump. – Notwithstanding the harsh criticism received from experts, scholars, and institutional investors, dual-class IPOs are no less "successful" than single-class ones. In fact, the dual-class offers in the dataset are on average more successful than their single-class counterparts. A popular measure of the "success" of an IPO is the difference between the offer price and the market price at the close of the first day of trading. The average first-day "price bump" is 41% for dual-class firms and 24% for single-

class firms. The difference is statistically significant at 5% level. However, the initial enthusiasm for dual-class offerings evaporates quite rapidly. If we look at the variation between offer price and market price one week and four weeks after the IPO, the difference between dual-class and single-class companies becomes smaller and is no longer statistically significant.

Figure 2: Dual-Class Tech IPOs by Sub-Industry



The columns represent the number of IPOs (left axis) in the sample by sub-industry, whether single-class (blue) or dual-class (orange). The gray dots represent the fraction of dual-class IPOs in the sub-industry (right axis).

Table 3: Characteristics of the Firms

	Single-Class	Dual-Class	Difference
Age (years)	10.6	10.9	+0.3
Annual revenues ($ mln)	249.3	707.4	+458.2**
Log Revenues	4.31	5.59	+1.28***
Assets ($ mln)	380.1	1,701.2	+1,321.1***
Log Assets	4.21	5.71	+1.5***
Market Cap ($ mln)	849	5,410	+1,671***
Log Market Cap	5.97	7.60	+1.63***
Offer Size ($ mln)	146.9	985.9	+839***
Log Offer Size	4.44	5.70	+1.26***
Fraction of Offer	25.2%	15.4%	-9.8%**
Price above range	24.8%	32.3%	+7.4%
Price below range	18.4%	12.9%	-5.5%
1st Day Price Increase	24.2%	42%	+17.8%**
1st Week Price Increase	25.%%	38.7%	+13.2%
4th Week Price Increase	27.2%	38.7%	+11.6%

This table compares some characteristics of single-class and dual-class sample firms. The last column ("Difference") reports the difference between dual-class and single-class firms. *, **, and *** denote the statistical significance of such difference in a two-sample t-test at 10%, 5%, and 1% level, respectively.

5. Discussion. – In brief, despite a very similar age, dual-class firms are much larger, a plausible sign of fast growth and success, their IPOs are bigger and richer events, but the fraction of equity offered to outsiders is significantly smaller. All these findings are statistically significant and are potentially consistent with the private benefits hypothesis. A larger firm typically offers a larger amount of private benefits to the management and creates a bigger need for diversification for large shareholders. It might be observed that a more successful company is also evidence of a more talented management, who obtains from investors more freedom to continue to pursue their strategies, consistently with the entrepreneurial hypothesis. However, this theory presupposes also an asymmetry of information or beliefs between investors (or at least some investors) and the management, and this is not evidently connected with the size of the firm. Talent alone does not explain the need for insulation.

To be sure, there is no evidence that these plausibly larger private benefits are efficiently priced. In fact, one might observe that public visibility and recent success are imperfect heuristics that may lead investor to under-weigh the costs associated with entrenchment. The difference in price increases might also be a symptom of irrational euphoria around the event of a large, visible public offer. Another way to look at this difference is that dual-class IPOs are more severely underpriced than single-class IPOs. A possible explanation for this is that dual-class shares are harder to price than traditional single-class shares, and therefore underwriters induce investors to subscribe with a lower price or compensate them with a larger "discount" for revealing more valuable information during the pre-market process. Another explanation might be that dual-class insiders are less opposed to aggressive underpricing. This is usually true when management has a smaller equity stake (and is therefore more interested in the success of the IPO than in price maximization) but in this case it might be a sign that dual-class decision-makers are more inclined to sacrifice financial gains for the success of the IPO[92].

All these explanations seem consistent with the private benefits hypothesis or the inefficient entrenchment hypothesis.

D. Differences Among Dual-Class Structures

Not all dual-class structures are created equal. In theory, the combination of multiple voting rights, caps, sunset provisions, and other features of a voting structure are potentially infinite. In practice, although most studies do not look behind the unifying label of "dual-

[92] These are, of course, conjectures that must be taken with a grain of salt. IPO underpricing is one of the biggest mystery of finance and caution is warranted when considering a theory trying to explain it. *See* Tim Loughran & Jay R. Ritter, *Why don't issuers get upset about leaving money on the table in IPOs?*, 15 REV. FIN. STUD. 413 (2002); Tim Loughran & Jay R. Ritter, *Why has IPO underpricing increased over time?* Working Paper, University of Florida (2001).

class"[93], unequal voting charters differ from each other to a significant extent. In the following paragraphs, I briefly illustrate some of the most salient aspects of such charter provisions.

1. Relative voting power. –The most visible feature of dual-class charters is the relative voting power of the different classes of shares. In this regard, the landscape appears monotonously homogenous: with the exception of Snap, no other sample firm has more than two classes of issued common stock, and in almost all cases the ratio of voting rights between high-vote and low-vote shares (voting ratio) is 10:1. Historically, this structure probably derives from the policy adopted by the Amex in 1976 to allow the dual-class listing of Wang Laboratories, Inc., which had been rejected by the NYSE precisely because of its unequal voting rights. To accommodate the listing of Wang, the new Amex policy allowed dual-class listings but imposed some restrictions on them, including the requirement that the voting ratio could not be greater than 10 to 1[94]. The 10:1 voting ratio became the formally accepted standard for dual-class listings and remained as such after the liberalization of dual-class structures. Today U.S. stock exchanges do not impose any

[93] To my knowledge, no published article examines in the detail the specific differences between dual-class structures. Two recent unpublished studies conduct such analysis with different objectives. Andrew W. Winden describes different features of 124 dual-class charters, including many recent examples. Andrew W. Winden, *Sunrise, Sunset: An Empirical and Theoretical Assessment of Dual-Class Stock Structures*, Rock Center of Corp. Gov. at Stanford Univ. Working Paper Series No. 228 (August 2017) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3001574. A new important study by Lucian Bebchuk and Kobi Kastiel examines the main arrangements used to ensure that dual-class controllers keep their control even with a small or a tiny minority. Lucian Bebchuk & Kobi Kastiel, *The Perils of Small-Minority Controllers* (unpublished manuscript) (February 2018), at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3128375.

[94] Joel Seligman, *Equal Protection in Shareholder Voting Rights*, *supra* note 28, at 704 n. 90 and accompanying text.

limit on the high-vote / low-vote ratio in dual-class companies; nonetheless, the vast majority of dual-class companies use the 10:1 ratio[95].

2. Unissued shares. – However, the actual relative voting power of high-vote stock is not exclusively determined by the number of voting rights or the offering of nonvoting stock at IPO (as in the case of Snap). The presence of authorized but unissued shares can be used by the dual-class controller as a buffer to protect herself against dilution of voting power or even to magnify such power. With respect to the first case, although all sample firms have equal dividend rights for high-vote and low-vote shares, many have a charter provision permitting the distribution of an unequal stock dividend. In particular, the corporation can issue new high-vote shares to holders of high-vote shares and low-vote shares to holders of low-vote shares. Such mechanism allows the controlling shareholder to issue a stock dividend without diluting its total voting power[96]. More importantly, if companies go public with authorized but unissued nonvoting shares, the board can widen the voting ratio without stockholders' consent by simply issuing nonvoting stock. Among the sample firms, Match Group went public in 2015 with a three-class structure of high-vote shares (ten votes per share), low-vote share (one vote per share), and nonvoting

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[95] Bebchuk & Kastiel, *The Perils of Small-Minority Controllers*, *supra* note 93 at nt 72 (presenting evidence that 74% of the dual-class IPOs in their sample – the 50 largest dual-class IPOs in the period between 2009 and 2015 – have a voting ratio of 10:1).

[96] To illustrate, suppose that the corporation has 100,000,000 outstanding shares of common stock, of which 9,091,000 are high-vote shares (with ten votes per share) and the remaining 90,909,000 are low-vote shares (with one vote per share). If the corporation distributes 10,000,000 new shares of common stock as a dividend to its shareholders, high-vote shareholders will receive 909,000 shares and low-vote shareholders will receive the remaining 9,091,000 shares. If the charter required those shares to be equal in all respects, including with respect to voting rights (i.e. all low vote shares), high-vote shareholders voting power would go from slightly above 50% down to 41.2% (an even more drastic dilution would occur if the corporation distributed all high-vote shares, with the (former) controller's voting power going down to 20%). Thanks to this charter provision, which allows the corporation to pay unequal dividends in this specific scenario, the dual-class controller can maintain its relative voting power intact.

shares[97]. Unlike Snap, Match Group offered low-vote shares in the IPO and there was no share of nonvoting stock outstanding following the offering. However, the charter authorizes the board to issue up to 1.5 billion nonvoting shares without stockholder approval. In this way, the controlling shareholder (through a board entirely elected by it) can maintain its relative voting power even if it were to sell a significant portion of its shares[98].

3. Minimum equity. – The combination of the applicable voting ratio and the potential "buffer" of unissued nonvoting shares determines the minimum fraction of cash-flow rights that the dual-class controller must maintain in order to keep the majority of voting rights[99]. For example, in a traditional 10:1 structure without authorized nonvoting stock (which is by far the most common arrangement), such minimum threshold is approximately 9.1%[100]. However, some companies set a minimum ownership requirement below which all high-vote shares automatically convert into low-vote shares. In that case, dual-class controllers need to maintain cash-flow rights above such threshold in order to keep the majority of

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[97] Match Group, Inc., Final Prospectus (Form 424(b)(4)) 130 (Nov. 20, 2015).

[98] To illustrate, suppose that, after the IPO, a three-class company has 10,000,000 high-vote shares (with ten votes per share) held by the controller and 50,000,000 low-vote shares (with one vote per share) held by public shareholders. If the controller sold 5,000,000 shares (half its holding), it would lose the control over the corporation (its remaining shares would have an aggregate voting power of 50,000,000 votes, while public shareholders would now have 55,000,000 shares and votes). However, if the corporation issued 30,000,000 new nonvoting shares, as a dividend paid to all stockholders, the controller would receive 5,000,000 shares and could sell those shares without losing one vote. Since, presumably, the nonvoting stock would trade at a lower price, the controller could sell its nonvoting shares and a small part of its high-vote shares to make up for the lower price, bearing only a small part of the loss in voting power that would have suffered without the possibility to issue nonvoting stock.

[99] There are also other mechanisms – although they were more frequent in the past – through which dual-class controllers can benefit from a "fixed" portion of total voting rights regardless of the number of shares or maintain their right to appoint a majority of directors without necessarily a majority of voting rights.

[100] More in general, in a two-class firm, if we denote the voting multiple of high-vote shares with VM and the fraction of common stock held by high-vote shareholders with α, $VM * \alpha = 1 - \alpha$ represents the equation where high-vote shares and low-vote shares have an equal number of voting rights. Therefore, $\alpha = \frac{1}{1+VM}$ is the fraction of high-vote shares needed to have a voting power equal to the combined voting power of all outstanding low-vote shares. A single high-vote share more ensures the control of the corporation.

voting rights. For example, with a 15% minimum equity threshold, the dual-class controller cannot reduce her holding down to 9.1% but must keep at least 15% of the total common stock in order to have more than half of the votes.

About two thirds of the dual-class companies in the sample have a minimum equity provision. However, most of them set the threshold at 10% of the total common stock, which is only slightly higher than the 9.1% minimum holding already implicit in the standard 10:1 voting ratio. Some charters (such as those of Globus Medical[101] and Workday[102]) provide for an even lower threshold (5% and 9% of common stock, respectively), while one charter (Appian Corporation[103]) sets the threshold at 10% of the voting rights (effectively allowing the survival of the dual-class structure much beyond the point where the high-vote shares have lost the control of the company). A few thresholds higher than 10% (between 15% and 30%) refer not to the total number of outstanding common shares, but to the number of high-vote shares held at IPO (which, in most cases, corresponds to a very small fraction of total common stock). Only in two cases (Mulesoft, Inc.[104] and Apptio, Inc.[105]) the equity threshold is actually higher than 10% (15% and 25%, respectively).

4. Sunset provisions. – An interesting feature of many dual-class charters is a time-based automatic conversion clause that unwinds the unequal voting structure after a given

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[101] Globus Medical, Inc., Registration Statement (Form S-1) 134 (Mar. 28, 2012).

[102] Workday, Inc., Form of Restated Certificate of Incorporation, Exhibit 3.3 to the Registration Statement (Form S-1) 5 (Jan. 1, 2012).

[103] Appian Corp., Amended and Restated Certificate of Incorporation, Exhibit 3.2 to the Amendment No. 2 to the Registration Statement (Form S-1/A) 8 (May 9, 2017).

[104] Mulesoft, Inc., Amended and Restated Certificate of Incorporation, Exhibit 3.2 to the Amendment No. 1 to the Registration Statement (Form S-1/A) 5, 7 (Mar. 6, 2017).

[105] Apptio, Inc., Form of Amended and Restated Certificate of Incorporation, Exhibit 3.1 to the Amendment No. 1 to the Registration Statement (Form S-1/A) 6, 8 (Sep. 12, 2016).

number of years. About four in ten dual-class sample firms have a sunset provision causing the automatic conversion of all high-vote shares into low-vote shares after a period between five to twenty years after the IPO (with most of them being seven or ten years). The opportunity of a time-based sunset putting an end to unequal voting arrangements has been vigorously defended by leading academics[106], institutional investors[107], and SEC Commissioners[108].

5. Other mechanisms. – Many other features distinguish one dual-class structure from another. For example, while all charters provide for the automatic conversion of high-vote shares in case of transfer to another party, the exceptions to this rule (which are called "permitted transfers") are not all the same. For example, in Twilio, Inc., a cloud communication company, co-founder Jeff Lawson can transfer his high-vote shares (together with their superior voting power) for "tax or estate planning purposes", to his "spouse, domestic partner, parents, grandparents, lineal descendants, siblings and lineal descendants of siblings"[109]. In Mulesoft, Inc., an integration software company, high-vote shareholders, including founder Scott Mason and CEO Greg Schott, can pass the multiple voting rights of their shares on to their "immediate family"[110], which includes – in a very broad definition – also nieces, nephews, mother-in-law, father-in-law, and siblings-in-

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[106] Lucian Bebchuk & Kobi Kastiel, *The Untenable Case for Perpetual Dual-Class Stock*, 103 VA. L. REV. 585 (2017).

[107] In its IPO policy, the Council of Institutional Investors expects companies going public to commit to the one-share-one-vote principle or, at least, to its "adoption over a reasonably limited period through sunset mechanisms". *See* Council of Institutional Investors, *Investor Expectations for Newly Public Companies*, at https://www.cii.org/ipo_policy.

[108] Robert J. Jackson, Jr., *Perpetual Dual-Class Stock: The Case Against Corporate Royalty* (Feb. 15, 2018), available at https://www.sec.gov/news/speech/perpetual-dual-class-stock-case-against-corporate-royalty.

[109] Twilio, Inc., Amended and Restated Certificate of Incorporation, Exhibit 3.1 to the Amendment No. 1 to the Registration Statement (Form S-1/A) 3 (Jun. 13, 2016).

[110] Mulesoft, Inc., Amended and Restated Certificate of Incorporation, Exhibit 3.2 to the Amendment No. 1 to the Registration Statement (Form S-1/A) 4 (Jun. 3, 2017).

law[111]. A closely connected provision found in several charters is the one providing for the automatic conversion of high-vote shares in the event of death of the individual shareholder. Also in this case, some companies specify that the conversion is not triggered if the shares are transferred to family members. Other peculiar provisions concern the equal treatment of high-vote and low-vote shares in mergers, consolidations, or other change of control transactions[112] or the limitation of unequal voting to some specific topic[113].

6. Discussion. – Such a variety of contractual solutions might suggest that the specific design of dual-class structures is the result of an informed, firm-specific bargaining between issuer and investors. However, most of these features have no or limited impact on the two most important dimensions of the unequal voting structure: the minimum fraction of equity needed to control the majority of the votes and the duration of the structure over time. If we consider the combination of voting-ratio, unissued nonvoting

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[111] *Id.* at 7.

[112] This is an exception to the well-established principle that controlling shareholders are entitled to a control premium in the sale of the firm. *See* Abraham v. Emerson Radio Corp., 901 A.2d 751, 753 (Del. Ch. 2006) ("Under Delaware law, a controller remains free to sell its stock for a premium not shared with the other stockholders except in very narrow circumstances."); In re Sea–Land Corp. S'holders Litig., 1987 WL 11283, at *5 (Del. Ch. May 22, 1987) ("A controlling stockholder is generally under no duty to refrain from receiving a premium upon the sale of his controlling stock."). By accepting such exception, dual-class controllers promise to share any control premium with the minority shareholders and, under some circumstances, even a charter amendment voted by a majority of low-vote shareholders might be insufficient for the controller to receive a control premium. *See* In re Delphi Fin. Grp. S'holder Litig., No. CIV.A. 7144-VCG, 2012 WL 729232 (Del. Ch. Mar. 6, 2012) (holding that a dual-class controller giving shareholders an ultimatum between waiving the equal treatment clause and not selling the company might be violating a contractual duty of good faith and fair delaing). At first sight, the equal treatment clause might be extremely important for public shareholders. However, at a closer look, this might not be the case. An analysis of these clauses goes well beyond the purpose of this paper. In a companion paper, I examine in detail the differences and similarities between the most common dual-class charter provisions and discuss the possible explanations behind their design.

[113] For example, in Castlight Health, Inc., high-vote shares have 10 votes per share only when stockholders are asked to vote on mergers, consolidations, sale of all or substantially all assets of the corporation, dissolution, or liquidation, but also in the event that a person or a "group" under Section 13D of the 1934 Exchange Act acquires (or has the intent of acquiring) more than 30% of common stock. In Retailmenot, Inc., all shareholders have one vote per share but public shareholders have no vote on director elections.

stock, and minimum equity thresholds, in the vast majority of the cases the high-vote shareholders can keep the control of the company with 10% or less of cash-flow rights and the only relevant difference is the presence or not of a sunset provision. Contrary to the initial intuition, then, the fact that most companies follow very similar schemes in spite of the firm-specific differences in terms of private benefits, management quality, and other fundamental characteristics, and that many differences between the various structures are neither immediately visible nor easily interpreted might be the symptom that the pricing of these terms is not efficient. If dual-class charters were efficient arrangements, freely and rationally chosen by informed actors that assess and price all its components, we would probably expect much more variety and a more transparent design. In particular, if pre-IPO shareholders bore agency costs in full, owners with a relatively weaker preference for control should propose structures with a milder separation between ownership and voting power. Given the presumable variety of individual preferences, opportunity for pecuniary private benefits, and other firm-specific characteristics, this relatively low degree of heterogeneity seems suspect. Furthermore, the use of a standard 10:1 voting ratio and less visible mechanisms to modify its effect might also be a clue that pre-IPO owners might try to take advantage of investors' bounded attention[114] to re-allocate part of the agency costs of dual-class shares onto outside shareholders.

E. Founders and Financial Sponsors in Dual-Class Companies

[114] For the analysis of the role of bounded rationality and bounded attention in the pricing of IPO charters, *see* Lucian A. Bebchuk, *Why Firms Adopt Antitakeover Arrangements*, 152 U. PA. L. REV. 713, 740-742 (2003).

In this section, I examine the relationship between dual-class IPOs and pre-IPO ownership and control structures. In particular, I examine the correlation between dual-class structures and the role and equity ownership of the company's founders and financial sponsors (venture capital and private equity backers).

1. Founders. – Founders play a crucial role in the technology industry. Their personal success stories, innovative vision, and business savvy is part of what makes the high-tech sector particularly appealing in the popular perception, to the point of resembling a modern, secular mythology[115]. The presence of founders, however, is also relevant for exploring the theories on why firms choose a dual-class IPO. Depending on which theory we embrace, we will have different expectations on the presence and role of founders in dual-class and single-class firms.

Let us consider first the private benefits hypothesis. If we believe that the most important motivation for dual-class structures is the private benefits enjoyed by the controller, we would expect that firms where the founder still plays an important role at the time of the IPO would be more likely to choose a dual-class arrangement. While all controlling shareholders and CEOs have the opportunity to enjoy benefits that are not shared with the public investors, founders can also obtain psychological gains that are not accessible to other insiders. These benefits arise from the sentimental value, pride, and social recognition connected with having a role in, or (even better) being the leader of, the

[115] *See, e.g.* David C. Wyld & Robert Maurin, *What Matters More in Growth Companies: The Leader or the Idea*?, ACAD. MGMT. PERSP. 23, May. 2009, at 95 ("these individuals became larger-than-life legends for starting and building businesses that were wildly successful"); Kate Daily, *The Cult of Steve Jobs*, BBC News Magazine, Oct. 7, 2011, at http://www.bbc.com/news/magazine-15194365.

firm they created[116]. In other words, founders are especially attached to their firms[117] and might value their being in charge to the point of accepting a significant financial loss for it. Therefore, if founders are disproportionately benefitted by dual-class structures, firms controlled by their founders should disproportionately choose those voting arrangements. In particular, firms where the CEO is a founder should be particularly prone to adopt dual-class structures. By contrast, the size of the founder's stake must not necessarily have a direct impact on this choice. On the one hand, a larger fraction of common stock gives the founder more bargaining power vis-à-vis other major shareholders, such as venture capitalists (VC) or private equity funds (PE)[118] and therefore more influence on the design of the IPO charter[119]. On the other hand, however, a larger portion of equity means that the founder will bear a larger share of the agency costs associated with a dual-class IPO. On balance, while the presence of a founder-CEO should predict a greater probability of a dual-class structure, the size of the founder's pre-IPO equity cuts both ways and its total effect is uncertain. This is especially true if the IPO investors are able, at least to a certain degree, to assess and price the effects of a dual-class structure.

In contrast, if we accept the "entrepreneurial hypothesis", we should not expect any specific relationship between the role of founders and the adoption of a dual-class structure.

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[116] *See* Noam Wasserman, *The Founder's Dilemma*, HARV. BUS. REV., Feb. 2008, at https://hbr.org/2008/02/the-founders-dilemma.

[117] Noam Wasserman, *Founder-CEO Succession and the Paradox of Entrepreneurial Success*, ORG. SCI. 14, Mar.- Apr., 2003, at 149.

[118] I will use the acronym VC to indicate venture capitalists and venture capital. Similarly, I will use the acronym PE to indicate private equity and private equity funds or firms.

[119] Another reason why a founder with a large stake might obtain greater private benefits from a dual-class structure is that she has more wealth locked in the firm and therefore would benefit more from diversification. A dual-class IPO would allow her to diversify her wealth at a lower cost (i.e. with a smaller dilution of her voting power). This effect, however, depends on the total wealth of the founder and the fraction of it deriving from her investment in the company she controls.

Indeed, while it is plausible that some managers are exceptionally talented, and, in some cases, the worth of their strategy cannot be easily observed by investors, there is no clear reason why a founder should, on average, be in such a position more frequently than a hired professional manager. What is conceivable, and indeed very likely, is that founders may have a strong desire to implement their vision in spite of the skepticism or even the opposition of investors. But, as discussed above, this pertains to the individual utility of the founder, not to the shared beliefs of insiders and outsiders.

The entrepreneurial hypothesis is predicated on the two conditions that the incumbents are talented innovators and that the quality of their long-term projects cannot be easily conveyed to investors. Neither condition, however, seems connected with the presence, role, or size of investment of the firm's founder. While the founder might have been the right person to create and lead the firm in the first stage of its existence, there might be good reasons why this is no longer the case at the time of the IPO. Leading a large organization requires different skills than having a disruptive business idea or creating a new technological product. In fact, empirical studies have shown that most founders of start-ups leave the firm before the IPO, and, in many cases, they are forced to leave by venture capitalists[120]. IPO investors might certainly put a lot of confidence in controllers but there is no apparent reason why founders deserve this exceptional trust more often than other managers or business leaders. Moreover, there is no reason why asymmetry of information or beliefs should be more severe a problem for the founders' strategies than

[120] *See* Noam Wasserman, *The Founder's Dilemma*, supra note 116 ("By the time the ventures were three years old, 50% of founders were no longer the CEO; in year four, only 40% were still in the corner office; and fewer than 25% led their companies' initial public offerings" and "[f]our out of five entrepreneurs, my research shows, are forced to step down from the CEO's post").

for a hired CEO's strategies. In conclusion, if we accept the entrepreneurial hypothesis, we should not expect founder-firms or firms with a founder-CEO to have a dual-class structure more frequently than other firms.

2. Venture capital. – Venture capital funding is an essential component of the financial structure of innovative firms. VCs provide tech start-ups and their founders with the funds needed to develop their business idea and, if successful, to realize it. VCs play also an important role in the planning and design of an IPO. Exit is a crucial aspect of the venture capital investment and, while most VC investments are exited through a sale of the company[121], IPOs remain the most important alternative to M&A to realize the investment and the most lucrative form of exit[122]. Therefore, timing and modalities of an IPO are a critical aspect in the relationship between entrepreneurs and venture capitalists.

In most cases, VCs have a significant influence on the planning and execution of an IPO. First of all, at some point during the life of the investment, most VCs acquire control of the company, whether formally or informally. This generally happens through the direct allocation of board seats[123] or the indirect influence on "independent directors" (who are typically nominated by mutual agreement with the founders)[124]. Since the power to initiate

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[121] Brian Broughman & Jesse M. Fried, *Carrots and Sticks: How VSC Induce Entrepreneurial Teams to Sell Startups*, 98 Cornell L. Rev. 1319, 1322 (2013) ("trade sales are actually much more common than IPOs and, in the aggregate, are likely to be almost as financially important to VCs").

[122] Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks versus Stock Market*, 47 J. FIN ECON. 243, 245 ("a well-developed stock market that permits venture capitalists to exit through an initial public offering (IPO) is critical to the existence of a vibrant venture capital market"). VCs may exit through other channels, such as the redemption of VC's shares by the company (an uncommon way-out) or the liquidation of the company and the consequent write-down (or write-off) of the investment. *See* D. Gordon Smith, *The Exit Structure of Venture Capital*, 53 UCLA L. REV. 315, 339 (2005).

[123] Steven N. Kaplan & Per Strömberg, *Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts*, 70 REV. ECON. STUD. 281, 287-290 (2003).

[124] *See* William W. Bratton, *Venture Capital on the Downside: Preferred Stock and Corporate Control*, 100 MICH. L. REV. 891, 921 (2002) ("Information asymmetries and differentials in bargaining power and skill could mean that the 'independent' third director is highly susceptible to the influence of the VC (or, as seems less likely, to the influence of [the entrepreneur])"). In previous stages of the investment, an important

an IPO typically rests with the board of directors[125], it is unlikely, and perhaps virtually impossible, that VC-backed companies go public with timing and structures that harm VCs' interests. Moreover, VCs generally have contractual "registration rights" that entitle them to obtain that an IPO take place. Although these rights are rarely or never exercised in practice, their mere presence serves as a threat that allows VCs to push a reluctant CEO towards an IPO[126].

Under the "efficient private benefits hypothesis", we would expect VCs' posture towards a dual-class IPO to be the exact opposite of the founder's. According to this theory, dual-class structures' net effect on firm value is negative and IPO investors are aware of this. Therefore, the IPO price with a dual-class structure is lower than it would be with a single-class structure. While the founder, or – to a lesser extent – the current controller, might find the trade-off between a lower IPO price and larger private benefits acceptable, VCs are unlikely to agree. In a dual-class IPO, venture capitalists bear the cost of a lower offer price but do not enjoy the relevant private benefits. This is so not only because private benefits largely go to executives, but also (and perhaps more importantly) because VCs typically complete their divestment in about one year after the IPO[127], and therefore would absorb in full their *pro rata* share of dual-class agency costs but, unlike founders, executives, and long-term controlling shareholders, would not receive anything in return.

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tool to "control" the company is the staging of the investment, so that the venture capitalist maintains the option to discontinue the funding and, thus, the power to discipline the management. *See* William A. Sahlman, *The Structure and Governance of Venture Capital Organizations*, 27 J. FIN. ECON. 473, 506 (1990) ("The most important mechanism for controlling the venture is staging the infusion of capital").

[125] D. Gordon Smith, *The Exit Structure of Venture Capital*, *supra* note 122, 318-319.

[126] *Id.*, 350-354.

[127] Laura C. Field & Gordon Hanka, *The Expiration of IPO Share Lockups*, 66 J. FIN. 471 (2001); Douglas J. Cumming & Jeffrey G, MacIntosh, *A cross-country comparison of full and partial venture capital exits*, 27 J. BANK. & FIN. 511 (2003).

Consequently, we would expect dual-class structures to be less frequent among VC-backed firms.

By contrast, under the "entrepreneurial hypothesis", the benefits of dual-class shares outweigh the costs, and therefore all shareholders would rationally support a dual-class IPO whenever the circumstances call for it. In fact, venture capitalists with a large fraction of equity (which would typically have board appointees and a close familiarity with the company and its management) should be able to bridge the informational gap and signal to outside investors the high quality of the management and of its long-term strategies. Therefore, under the entrepreneurial hypothesis, one might argue that, *ceteris paribus*, firms with a large fraction of pre-IPO equity owned by VCs should be more likely to choose dual-class structures or, at least, should be as likely to choose dual-class structures as other firms.

3. Private equity. – Private equity sponsors in an IPO typically have a control stake or otherwise a large fraction of the equity capital of the company. In many cases, they took the company private and they are now exiting their investment by bringing it back on the public market. In general, however, all these financial backers have incentives towards the maximization of the IPO price and should face no trade-off between IPO price and private benefits. Therefore, under the efficient private benefits hypothesis, we would predict PE-backed firms, exactly as VC-backed firms, to adopt dual-class structures less frequently than other firms. By contrast, if the entrepreneurial hypothesis is correct, PEs should not be systematically opposed to dual-class structures, and might even encourage them, exactly as venture capitalists.

It is worth noting that if the market overpriced dual-class structures (as per the "inefficient entrenchment hypothesis"), VCs and PEs would have fewer reasons to oppose them. However, even if the IPO pricing of dual-class stock were irrationally optimistic, we would expect some discount for low-vote shares, although smaller than it would be in an efficient market. Therefore, VCs and PEs would still be reluctant to accept a dual-class IPO, although less so than in an efficient market scenario.

4. Summary of predictions – To summarize, Table 4 presents the predictions of the three theories we consider in this paper with respect to three characteristics of the ownership and control structure of the firm, namely (a) whether the CEO is a founder, (b) the fraction of equity owned by the founders immediately before IPO, and (c) the fraction of equity owned by the VCs and PEs immediately before IPO:

Table 4: Predictions on the Role of Founders and Financial Sponsors

	Efficient Private Benefits	Entrepreneurial	Inefficient Entrenchment
CEO is a Founder	+	=	+
Pre-IPO Equity of Founders	=	np	np
Pre-IPO Equity of VCs/PEs	−	=/+	np

This table summarizes the correlation between dual-class IPOs and three characteristics of the ownership and control structure of the firm (first column), as predicted by the three different theories discussed in the paper. + indicates that the theory predicts a positive correlation; − indicates that the theory predicts a negative correlation; = indicates that the theory predicts no correlation; np denotes that the theory does not make any specific prediction on this point. Two signs separated by the symbol / indicate that the theory predicts one of those results.

The signs "+" and "–" indicate an expected positive and negative correlation, respectively, while the sign "=" indicates a prediction of no correlation. In some cases, the theory does not make a specific prediction ("np") or is compatible with two alternative predictions ("=/+").

5. Role and Equity Size of Founders and Financial Sponsors. – To test these predictions, I compare the ownership and control structures of dual-class and single-class

sample firms. To this end, I searched all IPO prospectuses as well as technology firms' online databases, company websites, and news sources to identify the presence of founders, VCs, and PEs among pre-IPO shareholders and management. I refer to a company as a "founder-firm" or a "founder-company" if at the time of the IPO there is a founder as CEO, board member, or shareholder with at least 5% of common stock[128]. I use the label "founder-CEO" to indicate a company where the CEO is a founder at the time of the IPO.

As shown in Table 5, the vast majority of the companies in the dataset are founder-firms. In 74% of them the founder is a CEO, board member, or shareholder with more than 5% common stock. The remaining 26% of companies (where the founder has no actual role) are on average older, larger (both in terms of assets and annual revenues), and more frequently backed by a private equity sponsor.

Table 5: Founder-Firms

	Founder-Firms	Other Firms	Difference
Fraction of Sample Firms	74.42%	25.58%	
Age (years)	10.16	11.91	-1.75*
Assets ($ mln)	309	1,508	-1,199**
Revenues ($ mln)	242	584	-342**
Market Cap ($ mln)	1,844	1,165	+679
VC-Backed	78.12%	68.18%	+9.94%
PE-Backed	12.50%	25.00%	-12.50%**

This table compares some characteristics of sample firms where the founder is a CEO, a board member, or a shareholder with more than 5% stock ("Founder-Firms") and other sample firms ("Other Firms"). The last column ("Difference") reports the difference in value between Other Firms and Founder-Firms. *, **, and *** denote the statistical significance of such difference in a two-sample t-test at 10%, 5%, and 1% level, respectively.

[128] To compute the percentage of common stock held before and immediately after the IPO, I refer to the "Principal Stockholders" section of the final prospectus. The total number of common stock is based on the assumption that all preferred shares are converted into common stock according to the applicable conversion ratio. Therefore, pre-IPO ownership is calculated taking into account the dilutive effect of such conversion by VCs and other preferred stockholders.

Table 6 illustrates the frequency of dual-class IPOs in firms where founders play different roles and have different fractions of pre-IPO equity. In general, founder-firms are much more likely to be dual-class (21.9%) than firms where the founder has no longer any role (6.8%). In particular, there seems to be a strong correlation between dual-class structures and firms where the CEO is a founder. At first sight, firms where the founders have a larger equity stake (>20%) are more likely to choose a dual-class structure. However, the size of pre-IPO equity seems relevant only if there is a founder-CEO. In companies with a founder-CEO, the likelihood of a dual-class IPO increases if the founders have a large equity stake. In contrast, in companies with a hired CEO, the founders' stake is irrelevant: Dual-class IPOs are equally likely, regardless of whether the founders own more or less than 20%.

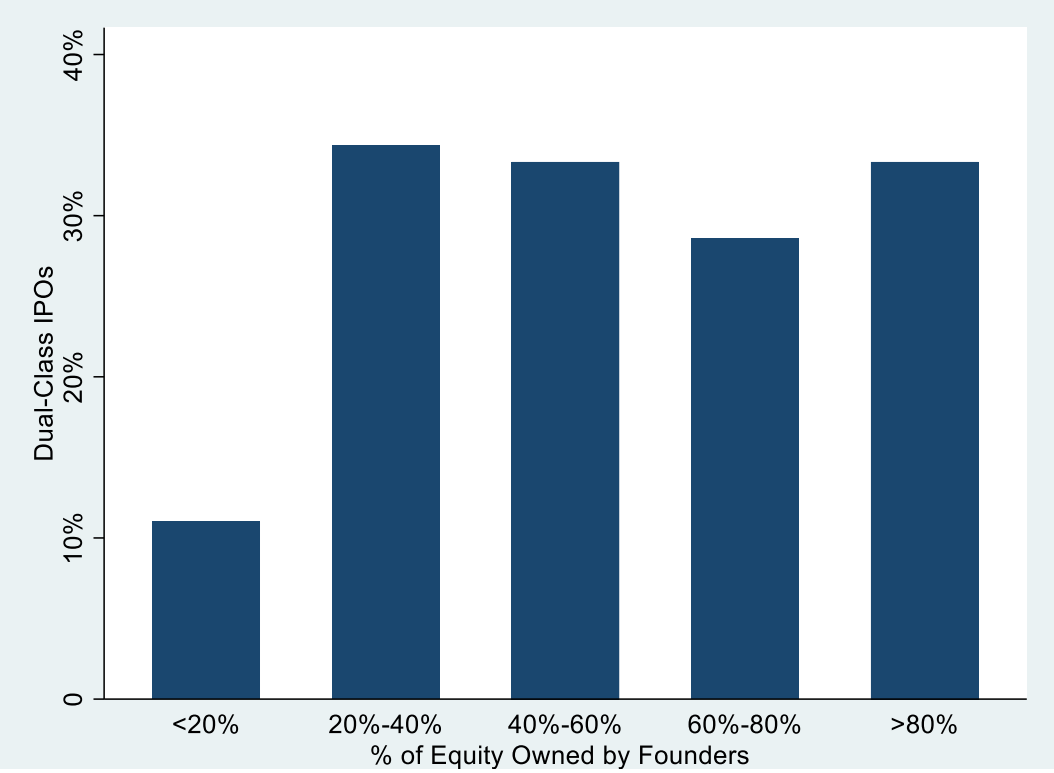
Table 6: Dual-Class IPOs, Founders, and CEOs

Role and pre-IPO Equity of Founders		Dual-Class	Difference
Founder-Firms	a) Yes	21.9%	+15.1**
	b) No	6.8%	
Founder-CEO Firms	a) Yes	31.6%	+25.2***
	b) No	6.4%	
Founders > 20%	a) Yes	33.3%	+22.3***
	b) No	11%	
Founder-CEO Firms	a) Founders >20%	45.9%	+26.0**
	b) Founders ≤20%	19%	
Hired-CEO Firms	a) Founders >20%	5.9%	-0.7
	b) Founders ≤20%	6.6%	

This table reports the percentage of dual-class IPOs with specific characteristics regarding founders and CEOs. The first column ("Role and pre-IPO Equity of Founders") reports the relevant characteristics. The second column identifies two sub-sets – a) and b) – based on whether the firm has the characteristic identified in the first column (Yes or No) or whether, in addition to the characteristic of the first column ("Founder-CEO Firms" or "Hired-CEO Firms") the firm has a given level of pre-IPO equity owned by the founders (Founders >20% or Founders ≤20%). The third column ("Dual-Class") indicates the percentage of dual-class firms in each of the two sub-sets identified in the second column. The fourth column reports the difference in percentage points (a-b) and the statistical significance of such difference in a two-sample t-test. *, **, and *** denote the statistical significance at 10%, 5%, and 1% level, respectively.

Furthermore, as shown in Figure 3, while the likelihood of a dual-class IPO increases when the founders' equity goes from 0%-20% to 20%-40% equity, further increases in equity ownership seem irrelevant. In conclusion, having a founder-CEO increases the chances of choosing a dual-class structure, while the size of the founders' equity has an unclear effect. This seems consistent with the efficient private benefits theory.

Figure 3: Dual-Class IPOs and Pre-IPO Equity Owned by Founders



This chart represents the fraction of dual-class IPOs among sample firms with specified levels of pre-IPO founders' ownership.

Most sample IPOs are backed by VCs and/or PEs. To identify VC-backed and PE-backed firms, I rely on the "Principal Stockholders" section of the final IPO prospectuses, which reports all beneficial owners of common stock with more than 5% of the outstanding shares. VC's preferred stock is typically converted into common stock simultaneously with

the IPO. Therefore, the percentage of common stock held by VCs and other shareholders immediately before the IPO is computed on the assumption that all preferred stock is converted. When I refer to the common stock held by a shareholder (including VCs and PEs), I intend the percentage of common stock on an "as-converted" basis.

To determine whether an investment firm is a venture capital or private equity firm, I rely on information contained in the prospectus, on the investment firm's website, and on the start-up ecosystem database Crunchbase. Whenever an investor makes different types of investment, I use my prudent judgment based on the available information. To identify VC investors with less than 5% of pre-IPO equity (generally not reported in the prospectus) and to identify PE-backed companies I rely on the information reported in SDC ("VC-Backed IPO Issue", "PE-Backed IPO Issue"). In this section, I will use the term "VC-backed" or "PE-backed" or "VC/PE-backed" to indicate a company with one or more VC/PE shareholders at the time of the IPO, regardless of their fraction of equity. However, when I refer to the number or percentage of shares held by VCs or PEs, I include only data regarding VCs and PEs with more than 5% common stock before the IPO.

Table 7 compares the main characteristics of VC-Backed firms with those of PE-backed firms and the remaining companies in the dataset. As expected, VCs are a pervasive presence. The vast majority of the IPOs in the dataset (75.6%) are VC-backed. Of the remaining firms, about half are backed by a private equity fund, while the others are subsidiaries of other public companies (such as Match Group, Inc., which is a subsidiary of InterActive Corp.; or SecureWorks, Inc., which is controlled by Dell Technologies, Inc.), companies backed by angel investors or other private investors (such as Switch, Inc., whose second largest pre-IPO shareholder, after founder Rob Roy, was billionaire

businessman Dennis Troesh), or founder-controlled firms that decided to raise growth funds through an IPO instead of seeking private capital (such as Monster Digital, Inc.). VC-backed firms are smaller than PE-backed firms and have a larger presence of founders.

Furthermore, in the vast majority of VC/PE-backed firms (88%), the percentage of stock held by VCs and PEs is greater than that of the founders. Therefore, in most firms there seem to be the proper conditions for financial sponsors to materially influence the design of the IPO.

Table 7: VC-Backed IPOs and PE-Backed IPOs

Panel A

	VC-Backed	PE-Backed	Other IPOs
Fraction of Sample Firms	75.6%	15.7%	12.8%
Market Cap ($ mln)	1,680	2,239	742
Assets ($ mln)	228	2,911	203
Annual Revenues ($ mln)	165	1,200	180
Offer Size ($ mln)	301	398	107
Fraction of Offer (%)	24.2%	19.7%	22.4%
Age (years)	10.3	10.4	8.5
Founder-Firms	76.9%	59.3%	81.8%
Founder-CEO	47.7%	40.7%	40.9%
VC/PE > Founders	88%		
Dual-Class	18.5%		15.4%

Panel B

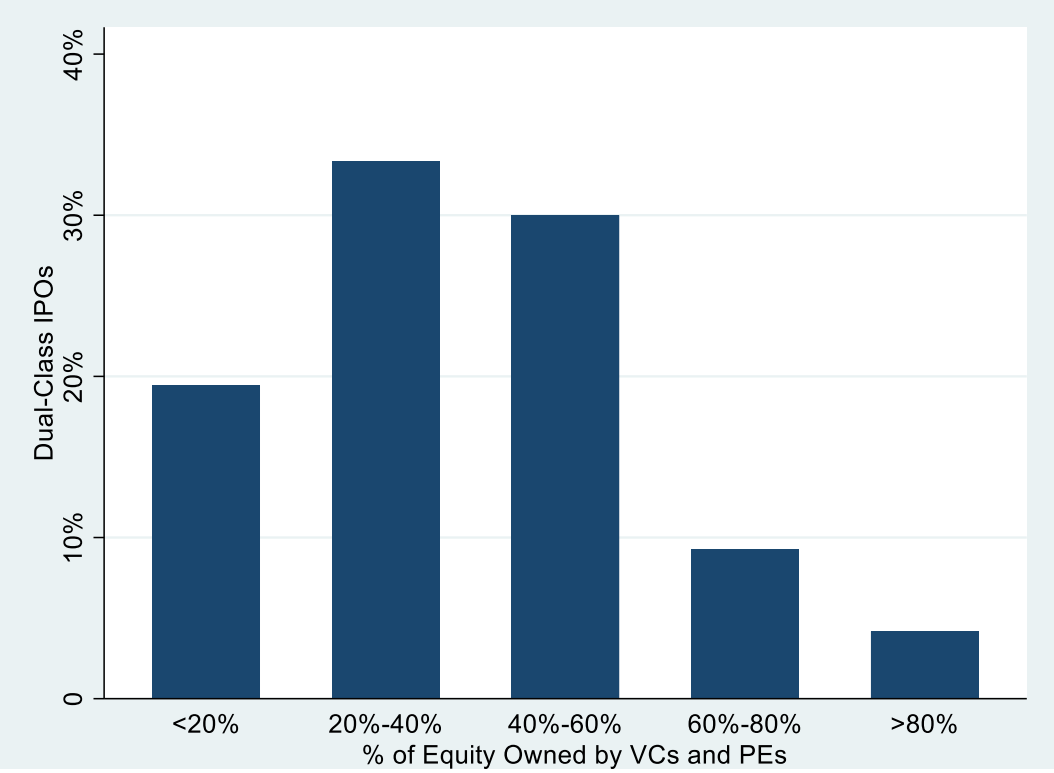
	VC/PE > Founders	VC/PE < Founders	Difference
Dual-Class	13.9%	30.2%	+16.3%**

Panel A compares certain characteristics of VC-backed firms, PE-backed firms, and firms that are not backed by VCs or PEs. Panel B reports the fraction of dual-class IPOs among firms where VCs and PEs have a larger fraction pre-IPO equity than founders ("VC/PE > Founders") and firms where VCs and PEs have a smaller fraction pre-IPO equity than founders ("VC/PE < Founders"). The difference is statistically significant (p-value = 0.0162).

The mere presence of VC and PE does not seem to have a significant effect on the choice of a dual-class structure. Dual-class IPOs are slightly more frequent in firms with VC/PE sponsors (18.5%) than in firms with no VC/PE sponsor (15.4%), but the difference is not statistically significant. However, if we look at the size of pre-IPO equity owned by

the financial sponsors, dual-class IPOs are much less frequent in firms where VCs or PEs have an aggregate holding larger than the founders', and the difference is statistically significant. Less clear, however, is the relationship between dual-class structures and the size of VC/PE pre-IPO stake in absolute terms. As shown in Figure 4, dual-class IPOs become more frequent when VCs and PEs increase their stake from 0%-20% to 20%-40% but less frequent for larger holdings.

Figure 4: Dual-Class IPOs and Pre-IPO Equity Owned by VCs and PEs



This chart represents the fraction of dual-class IPOs among sample firms with specified levels of pre-IPO equity owned by VCs and PEs.

6. Regression. –To test the effect of all these variables on the decision to adopt a dual-class structure, I run an ordinary least squares linear regression. As dependent variable, I use a dummy for the adoption of a dual-class structure at IPO. As explanatory variables, I

use a dummy indicating whether the CEO of the company is a founder ("Founder-CEO"), the fraction of pre-IPO equity owned by the founders ("Pre-IPO Founders' Equity), and the fraction of pre-IPO equity owned by VCs and PEs ("Pre-IPO VC/PE Equity"). I control for different characteristics of the firm (market capitalization, assets, and revenues), the IPO filing year, and a sub-industry fixed effect. Table 8 reports the regression coefficients with their standard error and statistical significance. The results are consistent with the predictions of the private benefits hypothesis.

The presence of a founder-CEO is positively correlated with dual-class IPOs, while the size of equity owned by VCs and PEs is negatively correlated with dual-class IPOs. Both coefficients are statistically significant. These results are consistent with the predictions of the "efficient private benefits hypothesis": founder-CEOs disproportionately benefits from dual-class structures and therefore are more inclined to choose them, while VCs and PEs do not extract private benefits but bear the financial loss of a suboptimal governance structure.

By contrast, the coefficient of the size of the founders' equity ownership is not significant. As discussed before, this might be due to the fact that while a large equity stake allows the founder to influence the design of the charter (and therefore makes dual-class IPOs more likely) an increase in equity also entails greater agency costs for the founder (and therefore makes dual-class IPOs less likely). Therefore, the effect of founders' pre-IPO equity is ambiguous.

These results do not seem consistent, instead, with the entrepreneurial hypothesis. According to this theory, the driver of dual-class structures is the desire to insulate the management from value-destroying short-term pressures and to allow it to pursue valuable

long-term strategies. However, founders are not expected to be systematically more talented or more subject to short-termist pressures than hired CEOs. Furthermore, financial sponsors would benefit from this value-enhancing insulation and should be in a better position to assess the quality of these long-term projects; therefore, they should not be systematically less inclined to accept dual-class structures (as they seem to be in reality).

Table 8: Regression

	Coefficient	S.E.
Log Market Cap	.1755862***	.0457709
Log Assets	-.0709837	.0446096
Log Annual Revenues	.0575817	.0414089
Founder-CEO	.1587358***	.0599546
Pre-IPO Founders' Equity	.103301	. 1774537
Pre-IPO VC/PE Equity	-.2744343**	. 1189607

This table reports the OLS regression of dual-class structure (dummy dependent variable) on a dummy indicating whether the CEO is a founder, the fraction of equity owned by the founders immediately before IPO, and the fraction of equity owned by VCs and PEs immediately before IPO. Control variables: (log) market capitalization, (log) assets, (log) annual revenues, year of filing of Form S-1. Fixed effect: sub-industry. The first column reports the regression coefficients with their statistical significance at 10% (*), 5% (**), or 1% (***) levels. The second column reports standard errors. The number of observation is 145.

It is impossible to say, based on these results, whether IPO investors correctly assess and price dual-class shares. The fact that the likelihood of a dual-class IPO does not correlate significantly with the size of the founder's stake indicates that dual-class shares are "discounted" by the market, and therefore the founders face some trade-off between firm value and private benefits (at least after a certain threshold). A similar conclusion might be drawn from the negative correlation between dual-class IPOs and the fraction of pre-IPO equity owned by VCs and PEs. The opposition of financial sponsors to dual-class structures suggests that IPO investors do discount dual-class stock. However, none of these

results provides evidence that the "discount" applied by outside investors accurately reflects the structure's agency costs.

F. Research & Development

A more direct way to test the entrepreneurial hypothesis is to measure the correlation between dual-class structures and R&D intensity, which is the company's annual expenses in research and development relative to its annual revenues. Normally, the payoff of R&D investments is delayed in time and the quality of these projects is difficult to convey to outside investors[129]. Therefore, if short-termism is an inefficient constraint on R&D spending and dual-class structures are an effective remedy to this problem, a firm with a high propensity to invest in R&D would disproportionately benefit from a dual-class arrangement. Thus, the entrepreneurial hypothesis predicts that firms with higher R&D intensity are more likely to go public with a dual-class structure and/or that dual-class companies, after the IPO, are more likely to increase their R&D intensity compared to single-class companies.

The data do not confirm these predictions.

Table 9 reports OLS regressions of a dummy variable indicating a dual-class structure on R&D intensity before and after the IPO. In particular, I respecify the model presented in section IV.E by adding explanatory variables that measure R&D intensity. In Column A, I add a variable indicating the R&D intensity of the company in the last fiscal year before the fiscal year of the IPO ("Pre-IPO R&D Intensity"). In Column B, I use instead a dummy variable indicating whether the company increased its R&D intensity in the fiscal

[129] *See* Bronwyn H. Hall & Joshua Lerner, *The Financing of R&D and Innovation*, *supra* note 69, and accompanying text.

year following the one where the IPO was completed, relative to the pre-IPO R&D intensity ("IPO+1 R&D Increase"). In Column C, I use a dummy variable indicating whether there was such an increase on average over the two fiscal years following the one where the IPO was completed ("IPO+2 R&D Increase").

Table 9: Regressions with R&D Intensity

	A	B	C
Log Market Cap	.1788462***	.1891369***	.2442886***
	(.0555464)	(.0542666)	(.0579034)
Log Assets	-.0540714	-.0510856	-.0698767
	(.0579539)	(.0586423)	(.0638637)
Log Annual Revenues	.0423752	.038607	.0524041
	(.0690673)	(.0552914)	(.0560864)
Founder-CEO	.1172423*	.1119425	.0873384
	(.0673938)	(.0699184)	(.0829599)
Pre-IPO Founders' Equity	.1144957	.1717789	.1077205
	(.2067895)	(.2151277)	(.2152667)
Pre-IPO VC/PE Equity	-.2958752**	-.2958927**	-.3913291***
	(.1339126)	(.1384676)	(.1456085)
Pre-IPO R&D Intensity	-.0093462		
	(.0716432)		
IPO+1 R&D Increase		-.0004601	
		(.0636366)	
IPO+2 R&D Increase			-.0004909
			(.0710528)

This table reports the OLS regression of dual-class structure (dummy dependent variable) on a dummy indicating whether the CEO is a founder ("Founder-CEO"), the fraction of equity owned by the founders immediately before IPO ("Pre-IPO Founders' Equity"), the fraction of equity owned by VCs and PEs immediately before IPO ("Pre-IPO VC/PE Equity"), the R&D intensity (R&D expenses/revenues) in the fiscal year before the one of the IPO ("Pre-IPO R&D Intensity"), the increase in R&D intensity in the fiscal year after the one of the IPO compared to the Pre-IPO R&D Intensity ("IPO+1 R&D Increase") (dummy variable), and the increase in the average R&D intensity in the two fiscal years after the one of the IPO compared to the Pre-IPO R&D Intensity ("IPO+2 R&D Increase") (dummy variable). Control variables: (log) market capitalization, (log) assets, (log) annual revenues, year of filing of Form S-1. Fixed effect: sub-industry. The first column reports the regression coefficients with their statistical significance at 10% (*), 5% (**), or 1% (***) levels. The second column reports the standard error. The number of observations is 106 (Column A), 100 (Column B), and 72 (Column C).

The regressions show that the coefficient of the R&D variables used in the three models are negative (whereas the entrepreneurial hypothesis predicts that they should be positive)

and are not statistically significant. In untabulated results, I respecify these models by using continuous variables measuring the percentage change of variation in R&D intensity, but none of those coefficients are statistically significant, either[130].

G. Open Questions and Future Research

The hypotheses tested in this paper concern the beliefs and motives of the main actors involved in the public offering (founders, financial sponsors, IPO investors); however, they leave an open question on the actual effect of dual-class structures on firm value. It might be the case, for example, that dual-class structures actually increase shareholder value even if managers, financial sponsors and investors do not believe so at the time of the IPO. Or, alternatively, in accordance with the inefficient entrenchment hypothesis, it might be that financial sponsors are reluctant to support a dual-class IPO because investors do "discount" dual-class shares, but the "discount" is less than it should be and therefore not enough to discourage founders to choose such structures inefficiently. To explore these open questions, future research will need to examine the abnormal return of dual-class IPOs in the long run. If the market correctly prices the combination of entrenchment costs and benefits at IPO, there should be no abnormal return in the long-run; if dual-class structures lead to value creation in spite of the skepticism of the market, long-term abnormal return should be positive; if dual-class structures destroy more value than IPO investors believe (as per the inefficient entrenchment hypothesis), long-term abnormal returns should be negative.

[130] The study concerns the most recent IPOs and therefore only a subset of companies has already completed one or two full fiscal years after the one where the IPO took place.

V. CONCLUSION

Overall, the findings presented in this paper provide evidence that an important determinant of dual-class IPO is the controller's desire to extract private benefits of control. Dual-class structures are positively correlated with the presence of a founder-CEO, who on average has access to psychological benefits of control that are not typically available to hired CEOs. Furthermore, dual-class structures are negatively correlated with the fraction of equity owned by venture capital and private equity investors, which do not enjoy private benefits of control and aim at maximizing the IPO price. These results also indicate that IPO investors are aware that dual-class structures increase agency costs and have a net negative effect on firm value. However, these findings do not tell us whether the "discount" applied by the market correctly reflects the agency costs of dual-class companies. The aforesaid correlations are also consistent with the view that investors systematically underestimate the agency costs of dual-class structures and, therefore, in some cases firms adopt them inefficiently. In fact, some characteristics of dual-class firms might be interpreted as symptoms that the pricing of dual-class shares is, to some extent, inaccurate.

Finally, the results are not consistent with the view that dual-class structures are chosen to insulate talented managers from the short-termist pressures of the capital market and allow them to focus on long-term projects. In fact, there is no correlation between dual-class IPOs and the propensity of the firms to invest in R&D, either before or after the IPO.