european corporate governance institute

The Life-Cycle of Dual Class Firm Valuation

Finance Working Paper N° 550/2018
Revised August 2022

Martijn Cremers
University of Notre Dame and ECGI

Beni Lauterbach
Bar-Ilan University and ECGI

Anete Pajuste
Stockholm School of Economics, Riga, Harvard Law School and ECGI

© Martijn Cremers, Beni Lauterbach and Anete Pajuste 2022. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
https://doi.org/10.67929/ecgi-fin-550-2018

european corporate governance institute

ECGI Working Paper Series in Finance

The Life-Cycle of Dual Class Firm Valuation

Working Paper N° 550/2018

August 2022

Martijn Cremers
Beni Lauterbach
Anete Pajuste

We have benefited from the comments of Yakov Amihud, Lucian Bebchuk, Avner Kalay, Kobi Kastiel, Cliff Holderness, Bill Johnson, Tim Loughran, Michelle Lowry, Kasper Nielsen, Ting Xu, two journal referees, and the Editor (Andrew Ellul), as well as from presentations at Bar Ilan University, Tel Aviv University, the 2018 Ackerman Corporate Governance Conference, the 2018 European Financial Management Association Meetings, and the 2018 European Finance Association Meetings. We also thank our research assistants Diana Karhu, Anton Nartov, Konstantins Šeļegs, and Violeta Toncu. All remaining errors are our own. Financial support by the Raymond Ackerman Family Chair in Israeli Corporate Governance is gratefully acknowledged.

© Martijn Cremers, Beni Lauterbach and Anete Pajuste 2022. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

We examine U.S. dual and single class firms in 1980-2019 and document their valuation differences over their corporate life cycle. At the IPO, dual class firms have higher mean valuations than single-class firms, and there is some evidence that this premium may emanate from dual class firm founders' unique vision and leadership skills. As firms age, the valuation premium of dual class firms tends to dissipate, possibly because dual class agency problems increase due to a gradual widening of the wedge (difference between insider voting and cash flow rights) in the post-IPO years.

Keywords: Dual class shares; life cycle; anti-takeover defenses; unifications; founder-led firms; sunset provisions

JEL Classifications: G32, G34

Martijn Cremers*
Bernard J. Hank Professor of Finance
University of Notre Dame, Mendoza College of Business
258 Mendoza College of Business
South Bend, IN 46556, United States
phone: +1 574 631 4476
e-mail: mcremers@nd.edu

Beni Lauterbach
Professor of Finance, Raymond Ackerman Family Chair in Israeli Corporate Governance Governance
Bar-Ilan University, School of Business Administration
Bldg 504
Ramat Gan, 5290002, Israel
phone: +972 353 189 01
e-mail: beni.lauterbach@biu.ac.il

Anete Pajuste
Professor
Stockholm School of Economics in Riga, Department of Economics
Strelnieku iela 4a
Riga LV 1010, Latvia
phone: +371 670 158 41
e-mail: anete.pajuste@sseriga.edu

*Corresponding Author

The Life-Cycle of Dual Class Firm Valuation

by

Martijn Cremers*, Beni Lauterbach** and Anete Pajuste***

June 2022

Abstract

We examine U.S. dual and single class firms in 1980-2019 and document their valuation differences over their corporate life cycle. At the IPO, dual class firms have higher mean valuations than single-class firms, and there is some evidence that this premium may emanate from dual class firm founders' unique vision and leadership skills. As firms age, the valuation premium of dual class firms tends to dissipate, possibly because dual class agency problems increase due to a gradual widening of the wedge (difference between insider voting and cash flow rights) in the post-IPO years.

* Mendoza College of Business, University of Notre Dame, USA, and ECGI. E-mail: mcremers@nd.edu
** School of Business Administration, Bar-Ilan University, Ramat Gan 52900, ISRAEL, and ECGI. E-mail: beni.lauterbach@biu.ac.il , cellular: +972542082447.
*** Stockholm School of Economics in Riga, LATVIA, and ECGI. E-mail: anete.pajuste@sseriga.edu

---

We have benefited from the comments of Yakov Amihud, Lucian Bebchuk, Avner Kalay, Kobi Kastiel, Cliff Holderness, Bill Johnson, Tim Loughran, Michelle Lowry, Kasper Nielsen, Ting Xu, two journal referees, and the Editor (Andrew Ellul), as well as from presentations at Bar Ilan University, Tel Aviv University, the 2018 Ackerman Corporate Governance Conference, the 2018 European Financial Management Association Meetings, and the 2018 European Finance Association Meetings. We also thank our research assistants Diana Karhu, Anton Nartov, Konstantins Šeļegs, and Violeta Toncu. All remaining errors are our own. Financial support by the Raymond Ackerman Family Chair in Israeli Corporate Governance is gratefully acknowledged.

Electronic copy available at: https://ssrn.com/abstract=3062895

Introduction

IPOs of dual class shares have become relatively popular in the recent decade (see Figure 1), following the example of technological "superstars" such as Google and Facebook. According to a recent report by the Council of Institutional Investors (2021), dual class IPOs accounted for 15% of the IPOs in the U.S. in 2020 (and 60% of the total capital raised in these IPOs). Firms adopting the dual class equity structure have at least two classes of common shares: high-voting shares, owned primarily by firm founders or other controlling shareholders, and low-voting shares, held typically by non-controlling or outsider shareholders.

(Insert Figure 1 about here)

Dual class structures grant the controlling shareholders, who own primarily high-voting shares, control (voting power) above their equity stake. Thus, the potential agency problems associated with controlling shareholders (self-serving behavior and tunneling, for example) may be more severe at dual class firms relative to single class firms. The existing literature documents lower mean valuations of dual class firms relative to single class firms (Gompers, Ishii, and Metrick 2010; Masulis, Wang, and Xie 2009; Smart, Thirumalai, and Zutter 2008) and attributes this discount to dual class firms' larger agency problems.

On the other hand, a strand of research identifies potential benefits of controlling shareholders and dual class structures, especially for young firms (Lehn, Netter, and Poulsen 1990; Bebchuk 2003). Dual class structures may be beneficial if they isolate the entrepreneurs from potentially myopic pressure of less-informed public investors, allowing the entrepreneurs to pursue their business vision (Lehn, Netter and Poulsen 1990; Bebchuk 2003). Consistent with this view, Jordan, Kim, and Liu (2016) show that dual class firms face lower short-term market pressures

Electronic copy available at: https://ssrn.com/abstract=3062895

(for example, have fewer transient short-term institutional investors). Controlling shareholders may also promote a firm's ability to commit to strong relationships with stakeholders and trading partners (Laffont and Tirole 1988; Shleifer and Summers 1988; Johnson, Karpoff, and Yi 2015; Cremers, Litov, and Sepe 2017).

Bebchuk and Kastiel (2017) argue that the costs and benefits of dual class structures vary along the corporate life cycle. Initially, at the IPO, it may be value-increasing to grant "full" control to the visionary founders. However, a) the initial benefits of founders' vision and leadership dissipate over time, as their vision is accomplished and the firm matures; and b) the agency costs of dual class structures tend to intensify over time, as controlling shareholders typically dilute their holdings in firm equity after the IPO. Hence, they predict that dual class firms become more inefficient as these firms age.

We empirically examine this prediction in an extensive sample of single- and dual-class firms in 1980-2019. At the IPO year-end, the mean Tobin's Q of dual class firms is 14% higher than that of the matched single class firms, which difference is strongly statistically significant. However, this initial valuation premium of dual class firms dissipates in the years after the IPO, and on average dual class firms start trading at a discount relative to comparable single class firms about seven to nine years after the IPO. These results appear robust in various tests.

Next, we explore some potential reasons for the life cycle behavior of dual class firms' relative valuations. Regarding dual class structure benefits, we focus on founder-managers, i.e., founders who retain a top management position at the firm after the IPO, such as founders who continue serving as CEO, senior executive, or Chair of the Board. More than half of our dual class firms have a founder-manager. We find that the IPO-year valuation premium of dual class firms relative to their matched single class firm counterparts is higher in dual class firms with founder-

Electronic copy available at: https://ssrn.com/abstract=3062895

managers. The dual class founder-manager value premium at the IPO is concentrated in firms with relatively young (i.e., below median age) founder-managers. This suggests that for such "young founder-manager" firms, the vision and leadership (or special skills) of the founders appear most relevant and value-increasing, such that these firms benefit from the fuller control afforded these founder-managers by the dual class structure at the IPO.

Regarding dual class structure costs, namely their potential for more severe agency problems, we show that the difference between the insider voting and equity stakes (henceforth, the "wedge") tends to increase as the dual class firm ages. Wider wedges are associated with aggravated dual class agency problems (see Masulis, Wang, and Xie 2009). Consistent with this, we find that dual class firms with an increased wedge in the post-IPO years suffer a relatively sharp and statistically significant market valuation drop in these years.

Finally, we examine voluntary dual class share unifications (i.e., firm-initiated recapitalizations into a single class structure). Voluntary firm-initiated unifications may be considered an efficient self-correcting mechanism by the firm when its benefits of the dual class structure have been exhausted. We find that only about 20% of the dual class firms unify their shares within a decade of their IPO, and that unification frequency eventually decreases with firm age. Accordingly, stale dual class structures persist, which raises the issue of regulatory intervention.

An important caution of any interpretation of our results is that dual class structure is endogenous. Most of our results are also consistent with the proposition that higher valuation firms at the time of the IPO choose (or are allowed by the market to choose) the dual class structure. With time, the reason for the higher valuation dissipates and the dual class value premium evaporates. We examine some potential rational drivers for the higher valuation of dual class firms

Electronic copy available at: https://ssrn.com/abstract=3062895

at the IPO date. For example, we search and do not find any difference in post-IPO sales growth between single and dual class IPO firms in our matched sample.

Our paper offers several contributions. First, it documents the life cycle of the relative valuation of dual class firms vis-à-vis single class firms, including an initial premium and eventual discount of dual class firms relative to comparable single class firms. A concurrent paper by Kim and Michaely (2019) also documents a valuation premium of young dual class firms and a valuation discount of mature dual class firms (using a dummy variable for older than 12 public years firms). However, our documentation is more detailed.

Second, we contribute to the economic discussion of the benefits and costs of dual class financing (e.g., Burkart and Lee 2008; Adams and Ferreira 2008; Bebchuk and Kastiel 2017). This economic analysis is our main differentiation from Kim and Michaely (2019).[1] Our evidence supports the proposition that when firms are led by a young entrepreneur (with a unique vision or leadership), a dual class IPO structure may be most valuable, as it isolates the "tender" firm and founders from market pressure. The complementary story featuring the decline of the value of leadership and vision and the rise of agency problems in the post-IPO years is also consistent with our findings. We also note an alternative interpretation which stipulates that high public market demand for some private firms inflates their valuations, granting their owners strong bargaining power vis-à-vis the market (Aggarwal et. al. 2021), and letting them do an IPO with a dual class structure. Notably, the two alternative interpretations are not mutually exclusive and may co-exist.

[1] Kim and Michaely (2019) focus on evidence establishing the erosion of the initial valuation premium of dual-class firms. For example, they offer evidence consistent with the proposition that the operational efficiency and innovative output of dual class firms (relative to single-class firms) deteriorate as these firms mature.

Electronic copy available at: https://ssrn.com/abstract=3062895

Third, our evidence relates to the literature on founder impact. Consistent with other studies (Hendricks and Howell 2021) we find a significant valuation premium for founder-led firms at the IPO that dissipates over time as a firm matures and founders may become less suited to lead the firms. Our contribution to this literature is in showing that this phenomenon, the IPO premium and the following deterioration, is particularly strong and significant in dual class firms, possibly because dual class founders are more powerful at the IPO and become more entrenched later on.

Fourth, we contribute to the regulatory debate. Bebchuk and Kastiel (2017) and Jackson (2018) propose a time-based sunset clause for dual class firms. The sunset clause would require the "non-interested" public shareholders of the firm to vote on whether to extend the dual class structure at a pre-determined number of years after the IPO. If the extension proposal is declined, firms would unify the low- and high-vote shares, i.e., convert all shares into a single class of shares with "one share one vote". Our evidence tends to support such a regulation, providing the sunset vote takes place seven years after the IPO, when dual class shares start on average trading at a discount. The potential efficacy of a time-based sunset is further supported by our finding that dual class firms are reluctant to abort the dual class structure on their own.

Last, our paper closely relates to Johnson, Karpoff, and Yi (2021) that study the life cycle of anti-takeover defenses in single-class firms. They find that anti-takeover defenses, such as a staggered board, are associated with a higher firm value in the first four post-IPO years, and with a lower firm value later on. Together with our findings, there is a clear indication that the impact of various governance arrangements changes along public firms' life cycle, which could be incorporated in financial regulation.

Section 1 provides a concise background on dual class financing and develops the hypotheses. Section 2 describes the sample and data. Section 3 documents the life cycle of the

Electronic copy available at: https://ssrn.com/abstract=3062895

relative valuations of dual- and single-class public firms, and Section 4 examines potential explanations for this observed life cycle. Section 5 studies dual class shares unifications, and Section 6 concludes.

1. Hypotheses

1.1 Some background

A significant minority of publicly traded firms have dual class structures. In 2015, about 8% of the S&P 500 and 9% of the Russell 3000 firms were dual class (Mattheus 2016). Dual class financing is also widespread in Europe, accounting for over 20% of the traded firms (Bennedsen and Nielsen 2010). The history of dual class firms is reviewed in Howell (2017), and a list of currently trading dual class firms is available, for example, at https://www.cii.org/dualclass_stock.

The costs and benefits of dual class shares can be summarized as follows:

$$(1) \qquad Q_{dual} = Q_{single} + \Delta Q_{LV} + \Delta Q_{Agency},$$

where Q_{dual} is the relative valuation (e.g., Tobin's Q) of a dual class firm, Q_{single} is the relative valuation of an otherwise comparable firm that has one class of shares only; ΔQ_{LV} is the unique value contribution of the dual class firm's entrepreneurs attributed to their leadership and vision (This vulnerable special contribution requires a dual class structure to protect it from outside pressure.); and ΔQ_{Agency} is the contribution of additional agency problems (arising from having the dual class structure) to firm valuation.

It is plausible that ΔQ_{LV} is positive, while ΔQ_{Agency} is negative. Further, equation (1) also illustrates that the market valuation of a dual class firm (Q_{dual}) may exceed that of a similar single class firm (Q_{single}) if $\left|\Delta Q_{LV}\right| > \left|\Delta Q_{Agency}\right|$.

Electronic copy available at: https://ssrn.com/abstract=3062895

1.2 The life cycle of dual class firm valuations

It is well known that firm's valuation tends to change with firm age. Loderer, Stulz, and Waelchli (2017) use an extensive sample of U.S. firms in 1978-2013 to document a significant deterioration of firm's Q with "listing age" (i.e., with time since the IPO). They argue that firm rigidities develop over time, making firms more focused on managing assets in place and less successful in generating growth opportunities. This implies that in Equation (1) $\partial Q_{single}/\partial T < 0$, where T is the firm's listing age.

1.2.1 The life cycle of entrepreneur's special value

According to Rajan (2012), entrepreneurs stand out in their differentiation ability, the talent to introduce a new product or service that disrupts or at least elaborates existing ones.

It is plausible that young founders are especially disruptive in their ideas, as the previous literature provides plenty of evidence for the relationship between age and capability of producing great scientific and entrepreneurial contributions (see Jones, Reedy, and Weinberg (2014) for an extensive review). The dual class structure affords a positive ΔQ_{LV} because it isolates these uniquely-talented and disruptive entrepreneurs (whose vision has yet to be accomplished) from the pressure and attrition of public investors.[2]

We propose that ΔQ_{LV} is a function of firm age. ΔQ_{LV}, the valuation benefits due to the entrepreneurs' leadership, vision and special skills that cannot be protected unless a dual class firm is formed, erodes with firm maturity, as the firm scale and the general economic environment change. In the years after the IPO, the vision of the founders is largely fulfilled and the special

[2] Some founding entrepreneurs are relatively incompetent in running businesses and are replaced in the VC-backed stage (Ewens and Marx 2018). However, there also exist founders who possess excellent general-management skills. These skillful founder-managers are value enhancing for the firm even long after the IPO – see Fahlenbrach (2009); hence, they keep a managerial position at the IPO and later on.

Electronic copy available at: https://ssrn.com/abstract=3062895

skills of the founders may no longer be necessary, leading to $\partial \Delta Q_{LV}/\partial T < 0$. In fact, mature firms need a different set of managerial skills than young firms (Hambrick and Crozier 1985), and thus, as a firm matures, a founder-manager who remains in control may eventually become a burden and contribute to a discount of the firm's value.

1.2.2 The life cycle of entrepreneur's agency problems

As a controlling shareholder, the founder may extract some private benefits. In young firms the founder strives for firm success and moderates her agency behavior, as the future pecuniary and non-pecuniary benefits are much larger (DeMarzo and Fishman 2007). However, in the years after the IPO, monitoring by VCs diminishes as they exit, and founder entrepreneurs start diluting their holdings in the firm (i.e., sell shares), possibly because of wealth diversification considerations. Thus, as firms mature, the forces and barriers mitigating agency behavior weaken.

According to Bebchuk and Kastiel (2017), the decrease in entrepreneur's holdings aggravates agency problems because it decreases the entrepreneur's marginal cost of consuming private benefits. It is also plausible that as time passes and vision is fulfilled, the founder tires and diverts attention to the personal rewards she can extract from the successful firm she built. In other words, while at the beginning private benefits may not be at the focus of entrepreneurs, over time they may become a key consideration for them.

Agency problems aggravation is probably more extreme in dual class firms as in such firms the founder typically loses less control upon share dilution. In dual class firms, founders may sell primarily their inferior-vote shares, increasing the wedge (difference between their voting rights and equity rights) that tempts them into "agency" behaviors. The conclusion that agency problems worsen with dual class firm's age more than they worsen at a regular comparable single class firm,

Electronic copy available at: https://ssrn.com/abstract=3062895

implies an increase in the agency-induced value discount of dual class firms with firm age. In terms of our basic valuation equation, equation (1), the prediction is that $\partial \Delta Q_{Agency}/\partial T < 0$.

1.2.3 Summing the unique life cycle effects of dual class firms

If both $\partial \Delta Q_{Agency}/\partial T < 0$ and $\partial \Delta Q_{LV}/\partial T < 0$, i.e., the value gain from entrepreneur's leadership decreases over time and the costs of her agency behavior increase over time, it becomes clear that at some point in time (a few years after the IPO) the dual class structure becomes on average detrimental to a firm's market value. Thus, even if at the IPO the entrepreneurs' unique value contribution, that must be protected from shareholder interference, ΔQ_{LV}, outweighs the agency-induced discount, ΔQ_{Agency}, the changes of benefits and costs over the post-IPO years eventually make the dual class structure inefficient in terms of market valuation ($Q_{dual} < Q_{single}$). Accordingly, our basic testable hypothesis is

Hypothesis 1*:* The relative valuation of dual- vs. comparable single-class firms, Q_{dual} minus Q_{single}, decreases with a firm's listing age.

Regarding the potential benefits of dual class structures, we have alluded to the special value of founder-managers and to the existence of young founders whose vision and continuous leadership are still needed after the IPO. This implies

Hypothesis 2*:* Founder-managers increase dual class firm valuations at the IPO, and their effect is particularly strong when founders are relatively young.

Last, our analysis of the cost of dual class structures regards the potentially enhanced agency problems of dual class firms. As a measure of the misalignment of incentives, we focus on the 'wedge', defined as the difference between insider (including founders) voting and cash flow rights in a firm. In single class firms, insiders have the same voting and equity proportion in the

Electronic copy available at: https://ssrn.com/abstract=3062895

firm, i.e., the wedge is zero. In contrast, in dual class firms the wedge is typically positive, as insiders hold primarily high-vote shares.

We observe that the average wedge of dual class firms widens in the post-IPO years, following high-vote shareholders other than the founder (i.e., primarily venture capitalists) selling their remaining positions, and following secondary low-vote shares public offerings – see the Google example in Appendix B.

Since wedge widening is associated with increased agency problems (Masulis, Wang, and Xie 2009), we propose:

Hypothesis 3*:* Dual class firms' valuation drops in the post-IPO years are positively associated with their wedge increase.

Finally, Bebchuk and Kastiel (2017) argue that dual class firms are unlikely to voluntarily unify their shares (i.e., transform all shares into a single class with one vote per share) even when Q_{single} exceeds Q_{dual} because it is not optimal for the controlling shareholder to do so. Controlling shareholders would typically lose considerable voting power upon unification, while gaining only a fraction (equal to their equity stake) of the firm's market value increase. Hence, the potential market value gain has to be relatively large before the controlling shareholders agree to give up their superior voting power and unify all firm shares, especially if there are significant private benefits associated with having voting control. Furthermore, if controlling shareholders' equity stake declines in the post-IPO years, their potential gain upon unification diminishes with firm age, which should further reduce unification frequency in mature dual class firms. Hence, regarding unifications, we will test

Electronic copy available at: https://ssrn.com/abstract=3062895

Hypothesis 4*:* Voluntary firm-initiated dual class share unifications are rare, and their frequency declines with firm listing age.

2. Sample

We study life-cycle phenomena in dual-class firms using two samples, denoted as the "full sample" and the "matched sample", respectively. The initial sample includes all U.S. companies, listed on the NYSE, NYSE MKT or NASDAQ, that had an initial public offering (IPO) in 1980 – 2019. Following previous literature, we exclude firms in the regulated sectors and in the banking and insurance sectors (Fama and French (1997); industry groups 31, 45 and 46, respectively). The sample starts in 1980, as our information on dual-class IPOs commences on that year.

2.1 The full sample

To construct a sample of dual-class firms, we employ several sources. First, we use Gompers, Ishii, and Metrick's (2010, henceforth GIM) comprehensive list of dual-class firms spanning 1994 – 2002. GIM's sample includes dual-class IPOs during 1994-2002, as well as the firms that went public earlier but retained a dual-class share structure during this period.[3] From the GIM sample we exclude firms that went public before 1980 (because we could not reliably trace their IPO share structure) and a small number of firms that recapitalize into the dual class structure subsequent to their IPO. Second, for the more recent period, 2003-2019, we use Ritter (2020)'s comprehensive list of dual-class IPOs.[4] Last, we check the latest share structures of all dual class IPO firms and

[3] We are grateful to Andrew Metrick for making this data set available on his website. We identify which firms in GIM's list had dual class IPOs with the help of Ritter (2020)'s comprehensive list of IPOs.

[4] Following previous studies we include in our sample dual-class structures that grant different voting rights for different share classes, as well as firms that grant different voting rights only on directors' elections and a few firms in which the number of votes of a stock class differs from year to year (based on, for example, the number of units in a limited liability company). In contrast, dual share structures that do not have any disproportional voting rights for different share classes (for example, those that are set up for tax purposes) are excluded.

Electronic copy available at: https://ssrn.com/abstract=3062895

search for the unification date of firms that are single class at the end of the sample period or at the time of exit. The unification date is obtained from the proxy statements (DEF 14A) and public announcements.

We next construct a sample of single-class firms from the universe of CRSP/Compustat merged firms listed on the NYSE, NYSE MKT or NASDAQ that had their IPO without a dual class structure during 1980-2019. This procedure generates our sample of 7,582 single-class firms. Altogether, our "full sample" comprises 8,277 firms that went public during 1980-2019, out of which 695 (8.4%) had a dual-class share structure at their IPO.

2.2 The matched sample and the matching procedure

We seek the best single-class match for each dual-class firm in our full sample. The matching parameters employed are:

1) Firm industry. The matched single and dual class firms must be in the same Fama and French (1997) industry group.
2) IPO date. The single class firm must have an IPO not more than twenty-four months apart from its matched dual-class IPO.
3) Firm size. The matched firms must be similar in size on the eve of the IPO, i.e., the total assets of the single class match must be between 50% and 200% of that of its dual-class match.

Electronic copy available at: https://ssrn.com/abstract=3062895

4) ROA. After satisfying the above screens, and in case there is more than one single class matching candidate, we choose the single class firm whose Return on Assets (ROA) prior to the IPO is closest to that of the dual class firm.[5]

We consider the above criteria as minimal requirements for generating a comparable single- and dual-class firm matched sample. In our empirical work we will examine to what extent various other IPO firm characteristics are similar across our matched dual- and single-class firms, and offer some robustness tests. We hope that the four matching criteria outlined are a reasonable compromise between having fewer matching criteria but a larger sample of dual class firms, and having more extensive and tighter matching criteria with a significantly smaller sample of dual class firms (thereby rendering our sample less representative of dual class firms in general). It is also noteworthy that the selected procedure enables us to prioritize firm listing age (IPO date proximity) that is the key element for our life cycle analysis.

The final matched sample comprises 563 dual-class firms and 563 matched single-class firms.[6] Given that we have 695 dual class firms in the full sample, our matched sample size of 563 firms implies that for 132 dual class IPOs (about 19% of the full sample) we cannot find a proper match using the criteria above. The absence of a match is primarily due to the size criterion, as single class firms are on average smaller at the IPO.

Table 1 reports the means and medians of various firm characteristics at the IPO year-end. In the full sample, dual class firms tend to be larger, more capital intensive (higher PPE) and more leveraged than single class firms, though with lower sales growth, lower cash balances and lower

[5] In almost all cases, we match based on the ROA at the fiscal year-end preceding the IPO; in a few cases of missing ROAs, we base matching on the ROA from the fiscal year prior to that.

[6] Each single class firm is chosen as a match for only one dual class firm, which guarantees that our matched sample includes the same number of dual and single class firms.

Electronic copy available at: https://ssrn.com/abstract=3062895

R&D expenditures. It is also interesting that dual class firms are older at the IPO (median of 11 years since incorporation compared to 7 years of single-class firms). This suggests that dual class firms postpone their going public and utilize debt financing prior to the IPO.

In our matched sample, single and dual class firms appear to have similar characteristics at the time of their IPO. Notably, the characteristics of single and dual class firms are not significantly different not only for the two characteristics that are employed in the matching procedure (total assets and ROA) but also for the other key firm characteristics such as sales growth and R&D intensity. This provides some reassurance regarding our matching procedure.

(Insert Table 1 about here)

3. Dual Class Firms' Relative Valuation Changes over their Life Cycle

This section examines how firm value, approximated by Tobin's Q, is affected by having a dual class structure, and how any such effect (or association) depends on firm's listing age. Table 2 reports that in the full sample the relative valuation (Q) of dual class firms is lower than that of single class firms, both at the time of the IPO and in all of the following years. This finding is consistent with previous classic evidence such as Gompers, Ishii, and Metrick (2010) in the U.S., and Bennedsen and Nielsen (2010) in Europe.

(Insert Table 2 about here)

Our matched sample analysis in Panel B reveals a more intricate picture. When we compare dual class firms to ex-ante similar matched single-class firms (where matching is based on industry, IPO date, firm size and firm ROA, as explained above), we identify a clear valuation premium for dual class firms around the time of their IPO. Specifically, at the end of the first fiscal

Electronic copy available at: https://ssrn.com/abstract=3062895

year following the IPO, the mean Tobin's Q of dual class IPOs, 3.20, exceeds that of single class firms, 2.81, by about 14%, which difference is statistically significant at the 5% level.

Table 2 also shows that the values (Tobin's Qs) of both single and dual class firms tend to decrease significantly in the years after the IPO. This is the classic life cycle effect (see, for example, Loderer, Stulz, and Waelchli 2017). However, this life cycle effect is particularly strong for firms with dual class structures. Specifically, while firms with dual class structures have on average a higher valuation than their matched single class firms shortly after the IPO, five years afterwards this mean valuation premium disappears, and seven years after the IPO, dual class firms start trading at a significantly lower mean Tobin's Q.

The difference between the full and matched sample results clarifies that dual class firms cannot be simply compared to a sample of all single class firms. Dual class firms at the IPO are typically larger and older than single class firms (see Table 1), and concentrated in different industries than single class firms.

We run pooled panel regressions of Tobin's Q on various control variables previously demonstrated in the literature as being associated with Tobin's Q. Our baseline regression is:

$$(2) \qquad Q_{i,t} = \alpha_{j,\tau} + \pi_{IPO(Time=1)} DUAL_{i,t} + \sum_{t=2}^{n} \gamma_t \, L_AGE_{i,t} + \sum_{t=2}^{n} \pi_t \, DUAL_{i,t} \times L_AGE_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t} \,,$$

where $Q_{i,t}$ is the Tobin's Q of firm *i* at year-end *t*; $\alpha_{j,\tau}$ represents the set of FF48 industry by fiscal year fixed effects, $DUAL_{i,t}$ is a dummy variable equal to 1 if firm *i* has a dual class structure at year-end *t* after the IPO (and equal to zero otherwise); $L_AGE_{i,t}$ is a dummy variable equal to 1 for all firms at year-end *t* after the IPO (and equal to zero otherwise); and $X_{i,t}$ is a vector of control

Electronic copy available at: https://ssrn.com/abstract=3062895

variables, including firm size, ROA, capital expenditures, cash balances, R&D expenses, leverage, and PPE (see Appendix A for definitions). In equation (2), the coefficient $\pi_{IPO(Time=1)}$ measures the valuation premium (excess Tobin's Q) of dual class firms over single class firms at the IPO year-end; the coefficient π_t is the change in dual class firms' valuation premium from the IPO year-end to year-end *t* after the IPO (essentially a difference-in-differences); γ_t measures the change in single-class firms' valuation from the IPO year-end to year-end *t* after the IPO; β is a vector of control group coefficients; and $\varepsilon_{i,t}$ is an error term. We cluster standard errors at the firm level.

In equation (2) the valuation premium of dual- relative to single-class firms on year-end *t* after the IPO can be computed as: $\pi_{IPO} + \pi_t$. We run the regression of equation (2) in the full sample, and estimate the set of yearly dual class firm valuation premiums depicted in Figure 2. It appears that dual class firms enjoy a statistically significant valuation (Tobin's Q) premium of about 0.20 over single class firms in the first 5 years after the IPO. On year 6 after the IPO the valuation premium drops to about 0.10 and in year 7 it turns negative, i.e., dual class firms start trading at a discount relative to single class firms. In later years this Tobin's Q discount stabilizes at about 0.15.

When we run the equation (2) regression using the matched sample, the picture is slightly nuanced. We notice a 0.30 valuation premium of dual class firms at the IPO year end, a 0.10-0.20 valuation premium at year-ends 2 through 4 after the IPO, and an about 0.10 valuation premium at year-ends 5 and 6. Similarly to the full sample, an average discount emerges in years 7 and 8, after which the average discount of dual class firms relative to comparable single class firms stabilizes at about 0.20.

(Insert Figure 2 about here)

Electronic copy available at: https://ssrn.com/abstract=3062895

Following Johnson, Karpoff, and Yi (2021), who study antitakeover provisions for single class firms over the life cycle, we generate bins of years. The purpose of the bins is to sharpen the picture and statistical inference. A more refined set of bins, suggested by our matched sample results summarized above, comprises five bins: the IPO year-end; years 2–4; years 5–6; years 7–8; and the 9+ years after the IPO. A coarser set comprises two bins only: year-ends 1 through 6, where dual class firms manifest a valuation premium over comparable single class firms, and the 7+ years' bin, where dual class firms trade at a discount.

Table 3 presents the panel regression results using bins. In the five-bins' analysis, summarized in Panel A, we find a statistically significant valuation (Tobin's Q) premium of dual class firms at the IPO year-end. This IPO dual class premium is estimated as 0.18 in the full sample and at 0.32 in the matched sample, with t-statistics of 1.9 and 2.3, respectively. Next, the coefficients of the 'Dual dummy × Years from IPO (a-b)' set of variables estimate the $\pi_t's$ of equation (2), i.e., the premium increase or decrease between the IPO year-end and year-end *t* after the IPO. These coefficients reveal a gradual dissipation of the IPO valuation premium of dual class firms to a point where about seven years after the IPO they start trading at a discount relative to single class firms, on average.

The eventual "steady state" valuation discount of dual class firms can be calculated as the sum of the initial premium and the years 9+ coefficient. Thus, the eventual valuation discount of dual class firms ranges between 0.17 and 0.23 in the full and matched samples, respectively. This eventual discount is statistically significant; its p-value is 0.018 (0.031), in the full (matched) sample, respectively.

(Insert Table 3 about here)

Electronic copy available at: https://ssrn.com/abstract=3062895

In Panel B we present results based on a simpler dichotomous division by listing age, similarly to Johnson, Karpoff, and Yi (2021). The Tobin's Q premium of dual class firms in their first six years of public life, estimated by the Dual dummy coefficient, is between 0.17 and 0.20 in the matched and full sample, respectively. This statistically significant valuation premium of dual class firms (relative to single-class firms) evaporates in later years and turns into an eventual Tobin's Q discount of 0.15 and 0.20 in the full and matched samples, respectively. Generally, the more compact listing-age division in Panel B manifests the same behavior as the more refined bin division in Panel A: relative to single-class firms, dual class firms start with an average valuation premium and eventually drop into a valuation discount.

Panel C presents the results of three robustness tests that are conducted using the matched sample. The first test employs Total Q as an alternative proxy for firm valuation. As explained by Peters and Taylor (2017), Total Q may better capture the firm's assets in place for firms where intangible capital is more important. The second robustness test explores tightening the matching criteria by considering only pairs of single- and dual-class firms that issued within 12 months of each other. Cutting the allowed difference in matched firms' IPO dates from 24 months to 12 months decreases sample size by about a half, from 563 pairs to 296 pairs. Last, McConnell and Servaes (1990) report a humped-shaped relation between Tobin's Q and insider ownership. Thus, our third test adds insider equity stake (and its square) to the list of explanatory variables in our Tobin's Q regressions. We have not used insider ownership as an explanatory variable in our baseline Table 3 regressions because ownership data is available only since 1995, which reduces the sample size considerably.

The results in Panel C reveal the recognized relative valuation pattern, yet, in two of these tests a dual-class discount is observed only nine years and more after the IPO. Thus, our robustness

Electronic copy available at: https://ssrn.com/abstract=3062895

tests suggest that our main-analysis conclusions may be a bit conservative or impatient regarding the prudent life expectancy of dual class structures.

Additional unreported tests reveal that the life cycle valuation results hold when we exclude the dual-class firms that grant lower or no dividend rights to the superior vote class (15% of the sample), and when we exclude IPOs related to spin-offs (25% of the sample). Using the natural logarithm of Q as the dependent variable, a common transformation in previous research, also yields similar results and identical conclusions.

In sum, the evidence in this section is consistent with our Hypothesis 1. At the IPO, dual class firms tend to have a valuation premium relative to comparable single class firms. However, this premium tends to dissipate over the following years, until, on average, 7-9 years after the IPO, dual class firms drop into a valuation discount. In terms of our equation (1) model, $Q_{dual} = Q_{single} + \Delta Q_{LV} + \Delta Q_{Agency}$, the results imply that $\Delta Q_{LV} > \Delta Q_{Agency}$ for dual class firms at the beginning of their life cycle as publicly traded firms, and $\Delta Q_{LV} < \Delta Q_{Agency}$ for seven or more years after the IPO.

These findings are consistent with our proposed thesis that protecting leadership and vision generates a valuation premium for some dual class firms in the first years of their public life, while increasing agency problems eventually drop dual class firms into a valuation discount. However, an alternative hypothesis exists: pre-IPO firms with higher valuations choose the dual class structure, and their initial valuation premium gradually dissipates over time until eventually they start trading at a discount due to the larger agency problems associated with a dual class structure. In the next section, we will examine further both hypotheses.

Electronic copy available at: https://ssrn.com/abstract=3062895

4. Potential Explanations of the Life Cycle of Dual Class Firms' Valuations

4.1 Evidence on the beneficial effect of founder-managers at the IPO

Our Hypothesis 2 proposes that founders who keep a managerial or leadership position (as CEO, top executive, or Chair of the Board of Directors) at a firm's IPO are associated with higher firm value. When founders still serve in a key role at the firm at the IPO, they probably possess some unique skills that the firm needs to accomplish its purpose and vision. In such cases, isolating the founder and firm from market pressures via a dual class structure might be economically beneficial to the firm at the IPO stage.

We collect information about founder-managers by inspecting the IPO prospectuses, available on EDGAR in 1995-2019 (see Appendix A for more details). The overall matched sample in these years comprises 379 dual- and 379 single-class firms. Table 4 describes the sample. In Panel A we document that founders occupy a top managerial position at the IPO in almost half of the issuing firms. The frequency of founder-managers at a firm's IPO is significantly higher among dual-class firms (52%) compared to their matched single-class firms (40%). In dual class firms the proportion of founder-managers that are CEOs (154/196 = 78.6%) is high compared to the respective proportion in single class firms (106/151 = 70.2%), again suggesting a larger impact and dominance of founders in dual class firms.

(Insert Table 4 about here)

Other differences between dual- and single-class founders-managers are reported in Panel B. First, founders' mean equity stake at the IPO is significantly higher in dual class firms (25.2% in dual- vs. 14.6% in single-class firms). Second, dual-class founders stay longer with their firms. In 87.8% of dual class firms with founder-managers at the IPO, the founder-managers are still in

Electronic copy available at: https://ssrn.com/abstract=3062895

a leadership position in the firm (possibly only as Board directors) eight years after the IPO. The respective percentage in single class firms, 76.2%, is still high, yet significantly lower than in dual class firms. Third, dual class founders cash out (i.e., sell) a lower proportion of their holdings in the post-IPO years. Within 5 (8) years after the IPO, dual class founders sell 16.5% (18.7%) of their initial holdings, whereas their single class counterparts sell 23.3% (25.0%) of their holdings.

Last, Panel C examines the association between founder-managers and firm survival. When founders lead the firm at the IPO, their firms are more likely to survive. Approximately 65% (44%) of the firms with a founder manager at the IPO survived for at least 5 (8) years after the IPO. The corresponding statistics in firms without a founder-manager at the IPO (where founders left in the years before the IPO) are significantly lower: 55% and 34%, respectively. Also noteworthy in Panel C, a larger proportion of dual class firms survives eight years after the IPO. The difference in survival rate between dual- and single-class firms in this sample is statistically insignificant, yet it is consistent with the thesis that dual class structures and strong founders tend to prolong the firm's life expectancy.

Hendricks and Howell (2021) argue that founder-led firms perform better and are more valuable than non-founder-led firms in the first years after the IPO, yet the founder's positive effect dissipates with firm's listing age as the firm matures and changes. Our Hypothesis 2 agrees with Hendricks and Howell (2021); however, it proposes that founder's beneficial effect is particularly strong when the founder is protected by a dual class structure that allows the founder to focus on accomplishing the company's vision and long-term growth plan.

Table 5 tests Hypothesis 2. We follow our Tobin's Q panel regressions of Table 3 with an additional split of dual-class firms into two groups: those led by founder-managers at the IPO and those led by non-founder-managers at the IPO. A similar split is used for single class firms, with

Electronic copy available at: https://ssrn.com/abstract=3062895

single class non-founder-manager firms serving as the baseline group. Panel A uses the more-detailed listing-age bins structure, while Panel B employs two bins.

(Insert Table 5 about here)

In Table 5, it is interesting to compare the effect of founder-managers on firm valuation in dual and single class firms. We find that founder-managers have a positive association with firm value only for dual class firms. In single class firms, the IPO valuation (Tobin's Q) premium of founder-firms is negligible, as manifested by the statistically insignificant coefficient of 0.018 in Panel A. In contrast, founder-managers in dual class firms achieve a significant valuation premium at the IPO relative to both single class firms led by founder-managers and single class firms led by non-founder-managers. Relative to single class firms led by non-founder-managers, dual class firms with founder-managers attain a Tobin's Q premium of approximately 0.70, and relative to single class firms led by founder-manager, the IPO year-end Tobin's Q gain is 0.68, economically and statistically significant (p-value of 0.03). One possible interpretation of the above results is that the dual class structure helps protecting and preserving the special value that the founder brings along to the firm; hence, the choice of the dual class structure is optimal in such cases.

The downside of the dual class choice in firms with founder-managers is also evident in Panel A. After the IPO year-end the Tobin's Q of dual class firms with founder-managers tends to decline more sharply than that of single class firms. The eventual excess decline of 1.06 (see the statistically significant coefficient of Dual Founder x Years from IPO (7-8) in the table) wipes out the IPO Tobin's Q premium and drops dual class firms with founder-managers into a valuation discount of about 0.37 relative to non-founder single class firms.[7]

[7] To calculate the eventual discount, we add the Dual founder and the Dual Founder x Years from IPO (7-8) coefficients in the table. Also note that in this analysis, "eventual" refers to years 7-8 after the IPO.

Electronic copy available at: https://ssrn.com/abstract=3062895

The eventual Q discounts of both single- and dual-class founder-manager firms relative to non-founder single class firms deserve further discussion. Although these discounts are statistically insignificant, they are consistent with prior evidence (e.g. Hendricks and Howell 2021) that the founder firms' IPO valuation premium generally disappears and turns into a discount as these firms mature. The management literature explanation of the Q discount, i.e., the argument that in general founders are not the optimal leaders for mature public firms that are more complex and require a different kind of leadership, is an interesting and relevant proposition that seems complementary to the agency problems' interpretation favorable among finance scholars.[8]

Hypothesis 2 further proposes that founder-managers' beneficial effect is particularly strong when founders are young. Tests of this proposition are summarized in Panel B of Table 5. For brevity we employ the more compact two listing-age-bins formulation of the Tobin's Q regression. Young founder-managers are defined as founders aged 49 years or below at the IPO (the median founder age in our sample).

Panel B documents that only young founder-managers in dual class firms are associated with a statistically significant valuation premium of about 0.57 in the first six post-IPO years. Founder-managers in single class firms and older founder-managers in dual class firms are not associated with higher firm value relative to the baseline group of non-founder managers in single class firms. This finding supports our interpretation that the dual class structure is beneficial at the IPO when founder's vision and leadership are still essential for the firm. Young founder-manager-

[8] If we employ the coefficients estimated in Panel A, then the years 7-8 coefficient of single-class founder-manager firms, -0.592, may approximate the lack-of-fit discount of a founder-manager in mature firms (the management literature argument), while the years 7-8 coefficient of dual-class founder manager firms, -1.061, may approximate the combined "damage" generated by lack-of-fit and increased agency problems in dual-class founder-manager led firms. These approximations, suggesting that both lack-of-fit and extra agency problems are relevant arguments, are however preliminary and should be examined in future research.

Electronic copy available at: https://ssrn.com/abstract=3062895

led firms are likely to be more disruptive and more dependent on the founder; hence, protecting the founder manager via a dual-class structure at the IPO appears prudent in most cases.

However, Panel B also documents that after the first years of superior valuation, dual-class firms with young founder-managers tend to suffer a sharp drop in valuation relative to single class non-founder firms, as evidenced by the relatively large -1.13 statistically significant coefficient of Dual Young Founder x Years from IPO (7-8). This valuation drop is more than three-fold the corresponding valuation drop of dual class firms with older founder-managers. We explore (but do not tabulate for brevity) differences between younger and older founder-managers that might explain the sharper valuation drop of dual class firms with younger founder-managers. We find no differences in entrenchment: at the time the firm exits our sample (merges or is delisted) or 8 years after the IPO (the earliest of the dates) 89% (86%) of older (younger) founder-managers still serve the firm. In addition, we find only small insignificant differences in the wedge between young and old founder-managers at the IPO and at various year-ends after it.

4.2 Evidence on the agency costs of dual class firms

Hypothesis 3 refers to the notion that agency problems are more severe at dual class (relative to single class) firms. The unique dual class property that aggravates insiders' agency behavior is the difference between insider voting and cash flow rights, commonly referred to as the wedge. Masulis, Wang, and Xie (2009) show that as the wedge widens, firm efficiency tends to deteriorate, as evidenced by less successful acquisitions and higher CEO compensation, for example.

Table 6 reviews the evolution of dual class firms' insider ownership, estimated by the insiders' equity stake and their wedge in the years following the IPO. In Panel A, the full sample is examined. On the IPO fiscal year end, the mean equity ownership of the insiders is 43.8% of

Electronic copy available at: https://ssrn.com/abstract=3062895

total firm's equity. In subsequent years these holdings drop considerably, such that about four years after the IPO the mean ownership of insiders in dual class firms equals 35.0%. After year-end 4 the equity ownership of insiders stabilizes, fluctuating between 33% and 35.2%.

(Insert Table 6 about here)

For dual class firms, the decrease in the equity holdings of insiders is accompanied by an increase in the wedge between their voting and equity stakes. Table 6 reports that the mean wedge increases gradually from 14.7% on the IPO year end to 19.5% four years after the IPO, and to 22.7% eight years after the IPO. The increase in the wedge subsequent to the IPO is created by other shareholders (for example, venture capitalists) selling some of their high-voting shares in the years after the IPO,[9] and/or by a secondary equity offering by the firm, issuing additional inferior vote equity. (See Appendix B for an illustration and analysis of the time variation in the wedge of Google.)

The number of dual class firms in our sample decreases sharply in the years after the IPO. We start with 497 dual class firms for which we are able to find insider ownership data at the IPO year end. Eight years after the IPO, only 199 of them remain in our sample with a dual-class share structure.[10] As a robustness test, we focus on the 251 dual class firms for which we have complete holdings data for the first five years after the IPO (see Panel B of Table 6). In this balanced sample, the mean insiders' equity stake decreases from 47.5% on the IPO year-end to 34.1% on year-end 5, and the mean wedge increases from 17.8% to 20.4% in the same period. The decrease in holdings and the increase in wedge are statistically significant at the 1% level.

[9] Typically, superior vote shares are converted into low-vote shares at a one to one ratio before they are sold on the market.

[10] Notably, out of original 497 dual class firms, 107 unified their shares within eight years after the IPO (including firms that delisted sometime after the unification).

Electronic copy available at: https://ssrn.com/abstract=3062895

Panel C reports the time series evolution of equity holdings and wedge in founder-manager dual class firms, dividing insiders into two groups: founder-managers and other insiders. In a balanced sample, founder-managers' equity stake declines from 30.9% at the IPO year-end to 22.7% at the end of year 5, while the wedge of their holdings increases 20.8% to 24.3% in the same period. In comparison, non-founders' equity stake decreases by a similar proportion over the first five post-IPO years, from 19.3% to 13.5%, yet their wedge drops from 1.64% to 1.15% in the same period. Thus, the increase in dual class firm founder-managers' agency problems may be more severe than predicted based on the insiders' wedge increase. Nevertheless, since non-founder insiders maintain a relatively large position in the firms, we continue to employ the insider wedge as the representative wedge throughout our analysis.[11]

Hypothesis 3 of the paper proposes that a post-IPO wedge increase at a dual class firm would aggravate its agency problems and, consequently, negatively affect its valuation relative to a comparable single class firm. We test this prediction by separating dual class firms into two groups in each year starting from the year-end 2: firms with and without a wedge increase relative to the IPO year-end.

Table 7 presents the results. Panel A employs our baseline two age-bins formulation of Table 3 Panel B, breaking the 'Dual dummy x Years from IPO (7-8)' explanatory variable into two: 'DualWedgeIncrease (Years from IPO 7-8)' and 'DualNoWedgeIncrease (Years from IPO 7-8)'. The coefficients of these explanatory variables would show the Q decline of dual class firms (relative to comparable single class firms) in the post-IPO years when their insiders' wedge widens and when it does not. We find a statistically significant relative Tobin's Q drop of 0.49 to 0.53 for

[11] The correlations between insider and founder ownership variables (equity stake, votes, and wedge) range from 0.62 to 0.84, and are statistically significant.

Electronic copy available at: https://ssrn.com/abstract=3062895

the group of dual class firms whose wedge increases. For the group of dual class firms whose wedge did not increase, the dual class firms Q drop relative to comparable single class firms is much milder, 0.18 to 0.20, and is statistically insignificant. These findings support Hypothesis 3. Wedge increases appear to hurt dual class firm value, probably because of the potential aggravation of agency problems.

(Insert Table 7 about here)

Panel B tests Hypothesis 3 in a slightly different way. It excludes IPO year (year 1) observations because this year is the baseline. Then, it separates the dual class firms in each post-IPO year into firms where the wedge is higher than in year 1, 'DualWedgeIncrease', and firms where it is not higher, 'DualNoWedgeIncrease'. The findings of Panel B appear to confirm our previous results. By year 8 after the IPO, the Q loss of dual class firms that increase their wedge (relative to single class firms) is 0.52, economically and statistically significant.

Bebchuk and Kastiel (2019) show that 96.7% of the dual class firms in the S&P 1500 have controlling shareholders who currently own less than 50% of firm's equity, where 21.3% have controlling shareholders that own less than 15% of firm equity. They advocate promoting transparency about the equity and vote stakes of controlling shareholders and discuss possible regulatory interventions that would limit the wedge. Our results can be interpreted as supporting their recommendations.

4.3 Alternative explanations

Despite the generally supportive evidence for our Hypotheses 1-3 documented thus far, alternative interpretations exist. For example, it is possible that controlling shareholders of private firms with particularly strong growth opportunities are reluctant to lose control; hence public

Electronic copy available at: https://ssrn.com/abstract=3062895

markets compromise and let these firms issue dual class shares. This alternative interpretation reverses the causality by arguing that an initially higher Tobin's Q (capturing superior future growth opportunities) elicits the firm's choice of the dual class structure.

We argue that our basic empirical design of constructing a matched sample of single and dual class firms with similar ex-ante characteristics (see Table 1) and similar issue dates minimizes the likelihood of substantial initial differences between single- and dual-class firms, mitigating any selection effect at the IPO. In Table 1 we observe that firm characteristics that are not used as a criterion for matching single-and dual-class firms are also similar (see, for example, "capital expenditures" and "sales growth" in Table 1). Thus, at the IPO single- and dual-class firms resemble each other on many dimensions.

We further examine the matched sample firms' sales growth in the first three years after the IPO. In these years, dual class firms demonstrate a mean sales growth rate of 41.9% per year. In comparison, the single class firms in the matched sample have a mean annual sales growth rate in the first three years after the IPO of 39.9%, which is insignificantly different from that of dual class firms. Thus, again, the single- and dual-class firms in the matched sample appear similar and comparable, and do not provide support of the 'higher growth prospects' thesis.

Another possibility is that for some temporary exuberance or perhaps another "irrational" reason a private firm's value overshoots its fundamental value at the time of the IPO. For example, a skillful visionary young entrepreneur may lead her firm to an inflated valuation relative to other IPO candidate firms. In such circumstances the controlling shareholders may utilize market's over-enthusiasm about their firms to issue via the more protective dual class structure. With time the "hype" around these young-founder firms calms down and their premium evaporates.

Electronic copy available at: https://ssrn.com/abstract=3062895

While the above thesis of temporary aberration from rationality and clever exploitation of the situation by controlling shareholders is possible, it cannot explain all of our findings. For example, it does not explain why dual class firms with higher wedge increases in the post-IPO years suffer a relatively more severe Tobin's Q decline in those years. Hence, one would also need to add the potential aggravation of agency problems argument to the temporary overvaluation story. In addition, the thesis that dual class shares IPO prices are exaggerated assumes that public shareholders do not learn much from past mistakes, an assumption that is debatable.

In sum, while we admit that other explanations are possible, we prefer our economics-based interpretation of the findings. However, we cannot fully disprove these alternative and non-exclusive explanations. In reality, all above explanations might be relevant and might co-exist.

5. Dual class share unifications

If the dual class structure becomes less efficient as a firm matures, a natural solution is dual class share unification in which all share classes are transformed into "one share one vote". The availability of a "self-correct" mechanism, namely the option that firm controlling shareholders initiate and pass a resolution to unify all share classes, raises the question of whether dual class firms eliminate stale and inefficient dual class structures by themselves. In this section, we examine our Hypothesis 4 that voluntary "self-correcting" firm-initiated dual class unifications are rare and more so as the firm becomes more mature.

Figure 3 depicts the frequency of unifications in each post- IPO year. The yearly number of unifications increases in the first post-IPO years, reaches a peak at about 4 – 6 years after the IPO, and then decreases. Only 124 of the 695 dual class IPO firms in our sample, about 18%, unify

Electronic copy available at: https://ssrn.com/abstract=3062895

their shares within nine years after the IPO (counting also firms that were delisted in the years after their unification).

The line in Figure 3 presents the percentage of remaining dual class firms at the beginning of the year that elect to unify in that year (read the left axis scale). Given that the number of dual class firms decreases considerably in the post-IPO years, the percentage of surviving dual class firms that choose to unify may be a more indicative measure of unification frequency. However, the percentage unifications graph resembles that of the number of unifications. Thus, both analyses suggest that the self-correcting voluntary unification tendency has its peak period, after which it dwindles.

(Insert Figure 3 about here)

We further examine more formally the listing age effect on the probability of unifications using Probit regressions that predict unifications in the following fiscal year within our sample of dual class firms. The set of explanatory variables is based on previous literature (Maury and Pajuste 2011), with the addition of our new variables: Ln Years from IPO (together with its square), designed to capture life cycle effects. In the fitted Probit, available from the authors upon request, the coefficient of the log number of years from the IPO is positive and the coefficient of its square is negative. Both coefficients are statistically significant at the 1% level. The fitted parabolic relation is consistent with Hypothesis 4 and our previous findings: after a wave of self-correcting unifications in the first post-IPO years, the unification propensity wanes, and some (likely inefficient, under the agency cost hypothesis) dual class structures persist.

Last, we estimate (but do not tabulate) a positive market valuation response to unifications. The mean (median) change in firm's Tobin's Q in the unification year, from the pre-unification year-end to the unification year-end, is 0.14 (0.083), and it is statistically significant. The observed

Electronic copy available at: https://ssrn.com/abstract=3062895

market valuation gain is consistent with Lauterbach and Pajuste (2015), who study the Tobin's Q change for unifying dual-class firms in Europe. It appears that unifications add value to public shareholders, probably by eliminating some inefficiencies that are afforded by the dual class structure.

6. Summary and Conclusions

We employ an extensive dataset of single- and dual-class U.S. firms in the 1980-2019 period to examine life cycle effects in dual class firm valuations. We find that dual class firms exhibit a valuation premium over comparable single class firms at the IPO, which is maintained for about 6 years afterwards. In our sample, mature (older than six years) dual class firms tend to have lower valuations compared to single class firms.

We examine potential explanations of the initial valuation premium and eventual valuation discount of dual class firms (relative to matched single class firms). Consistent with our hypothesis that the initial premium can be partly attributed to firm founders' visionary leadership and special skills, we show that when the founder remains in a leadership position at the IPO, the initial valuation premium of dual class firms is higher. The IPO valuation premium of dual class firms is particularly high when a firm's still active and involved founder is relatively young at the time of the IPO, suggesting that those young founder-managers are in greater need for isolation from market pressures.

In the post-IPO years, the valuation premium of dual class firms may dissipate for two reasons: 1) the founder's vision is accomplished; hence, the benefits of keeping the founder in control evaporate, and 2) controlling shareholders cash out (sell some of their holdings), increasing the wedge between their voting and equity stakes; hence, valuation decreasing agency problems

Electronic copy available at: https://ssrn.com/abstract=3062895

intensify. We document the dual class firms' wedge increases in the years after the IPO and show that such wedge increases are associated with lower dual class firms' valuations.

Interestingly, the mature-age valuation discount does not spur most dual class firms to abolish the dual class structure and unify all share classes (i.e., convert all shares to "one share one vote"). Stale dual class structures that appear to depress market valuations may persist because they serve well their controlling shareholders' interests. Controlling shareholders shy away from unifications because they are reluctant to give up their superior voting power and the associated private benefits.

As a remedy to stale dual class structures, Bebchuk and Kastiel (2017) propose to adopt an age-based sunset provision for dual class structures. The proposed sunset clause would allow public shareholders to eliminate the dual class structure (i.e., force unification of all share classes) a pre-specified number of years after the IPO. Our empirical evidence illustrates that, on average, public shareholders with an inferior vote may benefit from or not be harmed by a dual class structure in at least the first six years after the IPO. This, together with other considerations as well, would suggest that any age-based sunset provision not set in until at least seven years after the IPO.[12,13]

[12] Interestingly, the Council of Institutional Investors' (2018) "Summary of Key Academic Literature on Multi-Class Structures and Firm Value" notes (on page 2) that our results support a time-based sunset of 6 to 9 years, explaining that this time frame includes "*the common 7 years sunset"* (italics added by us). On October 24, 2018, CII sent a letter to NASDAQ and NYSE demanding that newly listed companies with dual class shares have time-based sunsets no more than 7 years after the IPO. On October 1, 2021, a panel of the House of Representatives considered a bill requiring a 7 years sunset for all dual class IPOs - https://www.reuters.com/business/us-house-panel-considers-bill-curbing-dual-class-stock-2021-10-01/

[13] For an opinion opposing an age-based sunset provision, despite our evidence, see Fisch and Davidoff Solomon (2019). An alternative might be a regulatory cap on the wedge (Bebchuk and Kastiel 2019).

Electronic copy available at: https://ssrn.com/abstract=3062895

References

Adams, R., and D. Ferreira. 2008. One-share one-vote: The empirical evidence. *Review of Finance* 12(1):51-91.

Aggarwal, D., O. Eldar, Y. Hochberg, and L. Litov. 2021. The rise of dual class stock IPOs. ECGI Finance Working Paper No. 806/2021.

Bebchuk, L. 2003. Why firms adopt antitakeover arrangements. *University of Pennsylvania Law Review* 152:713-753.

Bebchuk, L., and K. Kastiel. 2017. The untenable case for perpetual dual-class stock. *Virginia Law Review* 103:585-631.

Bebchuk, L., and K. Kastiel. 2019. The perils of small-minority controllers. *Georgetown Law Journal* 107:1453-1514.

Bennedsen, M., and K. Nielsen. 2010. Incentive and entrenchment effects in European ownership. *Journal of Banking and Finance* 34:2212-2229.

Burkart, M., and S. Lee. 2008. One-share one-vote: The theory. *Review of Finance* 12(1):1-49.

Council of Institutional Investors. 2018. CII Summaries of Key Academic Literature on Multi-Class Structures and Firm Value. https://www.cii.org/files/CII%20Summary%20of%20DC%20Studies.pdf.

Council of Institutional Investors. 2021. Dual Class IPO Snapshots: 2017-2020 Statistics. https://www.cii.org/dualclass_stock.

Electronic copy available at: https://ssrn.com/abstract=3062895

Cremers, M., L. Litov, and S. Sepe. 2017. Staggered boards and firm value, revisited. *Journal of Financial Economics* 126:422–444.

DeMarzo, P., and M. Fishman. 2007. Optimal long-term financial contracting. *Review of Financial Studies* 20:2079-2128.

Ewens, M., and M. Marx. 2018. Founder replacement and startup performance. *Review of Financial Studies* 31(4):1532-1565.

Fahlenbrach, R. 2009. Founder CEOs, investment decisions, and stock market performance. *Journal of Financial and Quantitative Analysis* 44:439-466.

Fama, E., and K. French. 1997. Industry costs of equity. *Journal of Financial Economics* 43:153–94.

Fisch, J., and S. Davidoff Solomon. 2019. The problem of sunsets. *Boston University Law Review* 99:1057-1094.

Gompers, P., J. Ishii, and A. Metrick. 2010. Extreme governance: An analysis of dual-class companies in the United States. *Review of Financial Studies* 23:1051-1088.

Hambrick, D., and L. Crozier. 1985. Stumblers and stars in the management of rapid growth. *Journal of Business Venturing* 1:31-45.

Hendricks, B., and T. Howell. 2021. The founder premium revisited. Working paper, University of North Carolina.

Howell, J. 2017. The survival of the U.S. dual class share structure. *Journal of Corporate Finance* 44:440-450.

Electronic copy available at: https://ssrn.com/abstract=3062895

Jackson, R. 2018. Case against corporate royalty - data appendix. http://www.sec.gov/files/case-against-corporate-royalty-data-appendix.pdf.

Johnson, W., J. Karpoff, and S. Yi. 2015. The bonding hypothesis of takeover defenses: Evidence from IPO firms. *Journal of Financial Economics* 117:307–332.

Johnson, W., J. Karpoff, and S. Yi. Forthcoming. The lifecycle effects of corporate takeover defenses. *Review of Financial Studies*.

Jones, B., E. Reedy, and B. Weinberg. 2014. Age and Scientific Genius. In *The Wiley Handbook of Genius*, ed. D. Simonton, 422–50. West Sussex, UK: John Wiley & Sons, Ltd.

Jordan, B., S. Kim, and M. Liu. 2016. Growth opportunities, short term market pressure, and dual-class share structure. *Journal of Corporate Finance* 41:304-328.

Kim, H., and R. Michaely. 2019. Sticking around too long? Dynamics of the benefits of dual class structures. Working paper, Cornell University.

Laffont, J., and J. Tirole. 1988. Repeated auctions of incentive contracts, investment and bidding parity, with an application to takeovers. *RAND Journal of Economics* 19:516–537.

Lauterbach, B., and A. Pajuste. 2015. The long-term valuation effects of voluntary dual class share unifications. *Journal of Corporate Finance* 31:171-185.

Lehn, K., J. Netter, and A. Poulsen. 1990. Consolidating corporate control: Dual-class recapitalizations versus leveraged buyouts. *Journal of Financial Economics* 27:557–580.

Loderer, C., R. Stulz, and U. Waelchli. 2017. Firm rigidities and the decline in growth opportunities. *Management Science* 63(9):3000–3020.

Electronic copy available at: https://ssrn.com/abstract=3062895

Masulis, R., C. Wang, and F. Xie. 2009. Agency problems and dual-class companies. *Journal of Finance* 64(4):1697-1727.

Matthews, G. 2016. Valuation of shares of companies with a dual class structure. *ASA Advanced Business Valuation Conference* (September 14, 2016). https://www.researchgate.net/publication/340314112_Valuation_of_Shares_in_Dual_Class_Companies.

Maury, B., and A. Pajuste. 2011. Private benefits of control and dual-class share unifications. *Managerial and Decision Economics* 32:355-369.

McConnell, J., and H. Servaes. 1990. Additional evidence on equity ownership and corporate value. *Journal of Financial Economics* 27:595-612.

Peters, R., and L. Taylor. 2017. Intangible capital and the investment- q relation. *Journal of Financial Economics* 123:251–272.

Rajan, R. 2012. Presidential address: The corporation in finance. *Journal of Finance* 67(4):1173-1217.

Ritter, J. 2020. A list of IPOs from 1980-2019 with multiple share classes outstanding. https://site.warrington.ufl.edu/ritter/ipo-data/.

Shleifer, A., and L. Summers. 1988. Breach of trust in hostile takeovers. In *Corporate Takeovers: Causes and Consequences*, ed. A. Auerbach, 33-68. University of Chicago Press, Chicago, IL.

Smart, S., R. Thirumalai, and C. Zutter. 2008. What's in a vote? The short- and long-run impact of dual-class equity on IPO firm values. *Journal of Accounting and Economics* 45:94-115.

Villalonga, B., and R. Amit. 2006. How do family ownership, control and management affect firm value? *Journal of Financial Economics* 80:385-417.

Electronic copy available at: https://ssrn.com/abstract=3062895

Appendix A. Variable definitions

Age	Defined as the fiscal year minus the year of founding. The founding year data are from Ritter (2020) https://site.warrington.ufl.edu/ritter/ipo-data/ or companies' web-sites.
$Assets_t$	Total Assets measured in millions of dollars at the end of fiscal year *t*. Source: Compustat (item AT).
Capital $expenditures_t$	The ratio of capital expenditures (CAPX) in year *t* to total assets (AT) at the end of *t*. Source: Compustat.
Cash $balance_t$	The ratio of cash and short-term investments (CHE) to total assets (AT) at the end of fiscal year *t*. Source: Compustat.
Equity $stake_t$	The fraction of cash flow rights held by the insiders, i.e. directors and executive officers as a group. The voting and equity rights are calculated from the shareholdings of insiders on the record date closest to the end of fiscal year *t*. For years 1995-2002, we use the dataset kindly provided by Andrew Metrick. For later years we follow GIM's methodology, and calculate the aggregate holdings (owned either directly or through beneficiaries) of all executive officers and directors. Source: GIM (2010) and EDGAR (DEF 14A or 10-K).
Founder-manager dummy	A dummy variable that equals one if the firm has a founder and s/he is the Chairman of the Board, the CEO or a senior executive officer at the IPO. Founders' names are retrieved from the IPO prospectuses (S-1) by searching phrases 'founder', 'co-founder' or 'founded'. If the IPO prospectus does not mention a founder, Google search is performed using a phrase "Company name AND founder". Source: EDGAR (S-1, DEF 14A) and Google Search.
Founder-managers' equity stake	The aggregate fraction of cash flow rights held by all founder-managers. Source: EDGAR (DEF 14A or 10-K). (See also Equity stake and Founder-manager dummy.)
Industry dummies	Dummy variables for each of the 48 Fama and French (1997) industry groups.
$Leverage_t$	The ratio of long-term debt (DLTT) to total assets (AT) at the end of fiscal year *t*. Source: Compustat.
PPE_t	The ratio of property, plant, and equipment (PPE) to total assets (AT) at the end of fiscal year *t*. Source: Compustat.
Research and $development_t$	The ratio of research and development expense (XRD) in year *t* to total assets (AT) at the end of *t*. The variable is set to zero when research and development expense is missing. Source: Compustat.
ROA_t	Return on assets; net income (NI) in year *t* to total assets (AT) at the end of fiscal year *t*. Source: Compustat.
ROE_t	Return on equity; net income (NI) in year *t* to book value of common stock (CEQ) at the end of fiscal year *t*. Source: Compustat.
Sales $growth_t$	Percentage change in revenues (REVT) from year *t-1* to year *t*. Source: Compustat.
Size	Natural logarithm of assets (in MUSD).
Tobin's Q_t	The ratio of the book value of assets (AT) plus the market value of common stock (=number of shares outstanding (CSHO) times share price (PRCC-F)) less the book value of common stock (CEQ) and deferred taxes (TXDB) to book value of assets (AT). When assessing the market value of dual class firms, we follow Villalonga and Amit (2006), and assume that the market value of any non-trading high-vote share is equal to the price of the trading low vote share. All figures come from the end of fiscal year *t*. Tobin's Q is winsorized at the 5 and 95 percentiles on each calendar year. Source: Compustat.
Total Q_t	The total q measure as defined by Peters and Taylor (2017). Total q is measured by scaling firm value by the sum of physical and intangible capital. The firm's market value (the numerator) is measured by the market value of common stock (=number of shares outstanding (CSHO) times share price (PRCC-F)), plus the book value of debt (DLTT + DLC), minus the firm's current assets (ACT). The denominator is the replacement cost of physical capital, i.e. the book value of property, plant, and equipment (PPEGT), plus the replacement cost of intangible capital. The replacement cost of intangible capital is the externally purchased intangible capital (INTAN), plus the internally created intangible capital consisting of the knowledge capital (the capitalized R&D expense) and the organizational capital (the capitalized 30% of SG&A expenses).
Voting $stake_t$	The fraction of voting rights held by the insiders. (See also Equity stake.)
Wedge (insiders) = Vote minus $equity_t$	The voting stake minus equity stake held by the insiders. (See also Equity stake.)

Electronic copy available at: https://ssrn.com/abstract=3062895

Appendix B: Founder's ownership, vote and wedge evolution in Google

The table presents the evolution of the Google/Alphabet ownership stakes of its two founders – Lawrence Page and Sergey Brin (aggregated). The number of shares held by the founders and the total number of shares are from the proxy statements (Form DEF 14A filings), as of April 8, 2005, March 28, 2014, and April 27 2018, respectively. Class A shares carry 1 vote per share, Class B – 10 votes per share, and Class C (authorized in 2012 and issued in 2014) – zero votes per share. According to Form S-8 filed on April 4, 2014, "On January 29, 2014, the Board of Directors of Google Inc. declared a dividend of one share of Class C capital stock for each share of Class A common stock and each share of Class B common stock outstanding on March 27, 2014 (the "Record Date"). The Dividend was paid on April 2, 2014." Class A and C shares are both traded on NASDAQ, while Class B is not publicly traded, but can be converted to Class A at any time (and then traded on the market). Once converted to Class A, no new Class B shares are issued.

Panel A: Wedge widening description

		2005	2014*	2014	2018
Class A shares held by founders (Million)	1 vote	0.00	0.08	0.08	0.00
Class B shares held by founders (Million)	10 votes	72.86	46.75	46.75	39.24
Class C shares held by founders (Million)	0 votes	0	0	46.83	39.36
Total Class A shares (Million)		162.55	280.84	280.84	298.66
Total Class B shares (Million)		114.73	55.80	55.80	46.94
Total Class C shares (Million)		0	0	336.64	348.95
Voting stake (founders)		55.6%	55.7%	55.7%	51.1%
Equity stake (founders)		26.3%	13.9%	13.9%	11.3%
Wedge (founders)		29.3%	41.8%	41.8%	39.8%

** 2014 (before Class C stock dividend) vs. 2005:*	
Class B shares (Million) sold by founders, converted to A shares	26.11
Class B shares (Million) sold by non-founders, converted to A shares	32.82
New Class A shares issued (Million), in addition to converted B shares	59.36

Panel B: Wedge widening triggers in the period 2005-2014

			What if between 2005 and 2014		
	Actual 2005	Actual 2014 (before Class C)	only founders sold B shares	only non-founders sold B shares	only new A shares were issued
Class A shares held by founders (M)	0.00	0.08	0.08	0.08	0.08
Class B shares held by founders (M)	72.86	46.75	46.75	72.86	72.86
Total Class A shares (M)	162.55	280.84	188.66	195.37	221.91
Total Class B shares (M)	114.73	55.80	88.62	81.91	114.73
Voting stake (founders)	55.6%	55.7%	43.5%	71.8%	53.2%
Equity stake (founders)	26.3%	13.9%	16.9%	26.3%	21.7%
Wedge (founders)	29.3%	41.8%	26.6%	45.5%	31.6%

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 1. Key descriptive statistics of single- and dual-class firms at their IPO

The table presents means and medians of several financial variables for dual- and single-class firms at the fiscal year-end following their IPO. Both the full and matched samples of dual- and single-class firms are described over the period 1980-2019. The matched sample includes 563 dual- and 563 single-class firms that are matched according to their IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. See Appendix A for variable definitions. We test the equality of the means using a two-sided t-test, and the equality of the medians using Pearson's Chi-squared test.

Panel A: Mean comparison

	Full sample			Matched sample		
	Single class	Dual class	*p-value of difference*	Single class	Dual class	*p-value of difference*
Control variables:						
Capital expenditures	8.1%	8.0%	*0.780*	7.9%	8.2%	*0.634*
Cash balance	37.8%	26.2%	*0.000*	25.6%	27.8%	*0.173*
Leverage	11.8%	20.2%	*0.000*	20.1%	18.8%	*0.374*
Property, Plant, Equipment (PPE)	19.6%	22.9%	*0.000*	23.7%	21.9%	*0.181*
Research and development	7.5%	4.2%	*0.000*	4.0 %	4.7%	*0.260*
Return on assets	-10.6%	-4.0%	*0.000*	-6.1%	-5.0%	*0.515*
Size (Ln Assets)	4.03	5.49	*0.000*	5.08	5.21	*0.171*
Other statistics:						
Age	12.7	20.3	*0.000*	16.2	18.4	*0.182*
Assets (million dollars)	330.1	1628.2	*0.000*	570.9	804.3	*0.319*
Return on equity	-17.9%	-11.6%	*0.039*	-15.6%	-14.1%	*0.770*
Sales growth	95.8%	75.4%	*0.003*	89.3%	82.1%	*0.468*

Panel B: Median comparison

	Full sample			Matched sample		
	Single class	Dual class	*p-value of difference*	Single class	Dual class	*p-value of difference*
Control variables:						
Capital expenditures	4.5%	4.4%	*0.694*	4.4%	4.3%	*0.881*
Cash balance	32.1%	16.9%	*0.000*	13.9%	19.0%	*0.184*
Leverage	2.3%	9.7%	*0.000*	9.5%	8.3%	*0.474*
PPE	10.9%	14.5%	*0.000*	15.3%	13.4%	*0.199*
Research and development	1.1%	0%	*0.000*	0%	0%	*0.676*
Return on assets	1.5%	1.8%	*0.606*	1.5%	1.8%	*0.677*
Size (Ln Assets)	3.96	5.50	*0.000*	5.05	5.23	*0.170*
Other statistics:						
Age	7	11	*0.000*	10	10	*0.712*
Assets (million dollars)	50.8	242.1	*0.000*	154.7	182.3	*0.157*
Return on equity	2.9%	3.9%	*0.196*	3.2%	3.9%	*0.763*
Sales growth	39.1%	31.9%	*0.001*	32.1%	34.1%	*0.497*

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 2. The relative valuation of dual- and single-class firms and its change along the life cycle: A univariate Tobin's Q analysis

Tobin's Q is measured as the market-to-book ratio of the firm (see Appendix A for exact definition). Panel A reports the means of Tobin's Q at the post-IPO year-ends for the full sample of dual- and single-class firms, spanning the 1980-2019 period. Panel B reports the corresponding means of Tobin's Q for the matched sample of 563 dual- and 563 single-class firms, where matching is based on the IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. N is the number of firms. In case of a dual class firm unification (conversion of all firm shares to "one share one vote") we drop the unifying firm from the sample after the unification. *Years from IPO* equals 1 at the IPO fiscal-year-end, and Column *Years from IPO 9+* reports an average of Q at year-ends 9 and later. (In column "9+" we compute first the average per firm, and then the average across firms.) Differences in the mean Tobin's Q between dual- and single-class firms are also reported, along with their p-values (computed using the two-sided t-test).

Panel A: Tobin's Q in the Full sample

		Years from IPO								
Variable		1	2	3	4	5	6	7	8	9+ (average)
Dual Tobin's Q (mean)		3.12	2.61	2.34	2.25	2.10	2.00	1.78	1.73	1.74
	N =	689	649	566	479	402	335	300	264	239
Single Tobin's Q (mean)		3.22	2.61	2.43	2.42	2.35	2.30	2.29	2.24	2.13
	N =	7,380	6,887	6,049	5,338	4,682	4,101	3,587	3,193	2,915
Dual class premium (in terms of Tobin's Q)		-0.10	0.00	-0.09	-0.17	-0.25	-0.30	-0.51	-0.51	-0.39
p-value		*0.348*	*0.976*	*0.350*	*0.109*	*0.027*	*0.014*	*0.000*	*0.000*	*0.000*

Panel B: Tobin's Q in the Matched sample

		Years from IPO								
Variable		1	2	3	4	5	6	7	8	9+ (average)
Dual Tobin's Q (mean)		3.20	2.68	2.40	2.27	2.10	2.00	1.76	1.69	1.72
	N =	559	531	467	402	341	287	255	224	204
Single Tobin's Q (mean)		2.81	2.40	2.22	2.09	2.10	2.01	2.06	1.97	1.89
	N =	558	517	460	395	346	304	261	230	208
Dual class premium (in terms of Tobin's Q)		0.39	0.28	0.18	0.18	0.00	-0.01	-0.30	-0.28	-0.17
p-value		*0.011*	*0.047*	*0.190*	*0.228*	*0.994*	*0.905*	*0.050*	*0.087*	*0.158*

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 3. The life-cycle of the valuation difference between dual- and single-class firms

This table reports the results of fitting the pooled OLS regressions described by equation (2), in the full and matched samples that include single- and dual-class firms over the period 1980-2019. The matched sample matches single- and dual-class IPO firms based on their IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. The dependent variable is *Tobin's Q*. Among explanatory variables, *Dual dummy* equals one in all post-IPO years if the company has a dual-class share structure at that fiscal year-end – see equation (2); otherwise it is equal to zero. *Years from IPO* equals 1 at the IPO fiscal-year-end, and equals j at the j-th post IPO year-end. *Size* is the natural logarithm of total assets in million US dollars (MUSD). *ROA* is return on assets, measured as the ratio of net income to total assets. *Capital expenditures* is the ratio of capital expenditures to total assets. *Research and development* is the ratio of research and development expenditures to total assets. *PPE* is the ratio of property, plant and equipment to total assets. *Cash balance* is the ratio of cash and short-term investments to total assets. *Leverage* is the ratio of book value of long-term debt to total assets. See Appendix A for exact variable definitions. In case of a unification (dual class firm's transfer to a single-class status), we drop the dual-class firm from the sample after the unification. Panel A reports results using various *Years from IPO* age bins. For example, *Years from IPO (2-4)* pool together post-IPO year-ends 2, 3 and 4. Panel B presents regressions employing only two listing-age bins: 1-6 and 7+. All regressions include year times Fama-French-industry-group fixed effects. T-statistics are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Analysis using five age bins

	Full sample		Matched sample	
	Coefficients	t-statistics	Coefficients	t-statistics
Dual dummy	0.181*	1.898	0.317**	2.269
Dual dummy x Years from IPO (2-4)	0.046	0.536	-0.163	-1.252
Dual dummy x Years from IPO (5-6)	-0.077	-0.657	-0.231	-1.316
Dual dummy x Years from IPO (7-8)	-0.285***	-2.630	-0.407**	-2.376
Dual dummy x Years from IPO (9+)	-0.348***	-2.995	-0.549***	-3.200
Years from IPO (2-4)	-0.471***	-16.062	-0.319***	-3.618
Years from IPO (5-6)	-0.518***	-13.557	-0.469***	-4.042
Years from IPO (7-8)	-0.513***	-12.204	-0.474***	-3.738
Years from IPO (9+)	-0.471***	-9.534	-0.413***	-2.936
Size	-0.018	-1.491	-0.049*	-1.695
ROA	-0.353***	-5.075	0.513***	2.594
Capital expenditures	0.041***	18.433	0.036***	6.245
Research and development	0.028***	13.030	0.056***	5.512
PPE	-0.912***	-9.926	-0.686***	-2.885
Cash balance	0.017***	20.377	0.024***	8.961
Leverage	0.246**	2.525	0.756***	2.619
Constant	2.114***	29.251	1.916***	9.650
Industry-year fixed effects	Yes		Yes	
Observations	72,861		9,899	
Adjusted R-squared	0.267		0.342	

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 3 (cont.)

Panel B: Analysis with two age bins

	Full sample		Matched sample	
	Coefficients	t-stats	Coefficients	t-stats
Dual dummy	0.203***	3.319	0.175**	1.978
Dual dummy x Years from IPO (7+)	-0.353***	-4.736	-0.379***	-3.290
Years from IPO (7+)	-0.076**	-2.272	-0.112	-1.054
Controls (same as in Panel A)	Yes		Yes	
Observations	72,861		9,899	
Adjusted R-squared	0.263		0.338	

Panel C: Robustness tests

In the first regression the dependent variable is Total Q instead of Tobin's Q. (*Total Q*, proposed by Peters and Taylor 2017, is measured by scaling firm market value by the sum of physical and intangible capital.) The second regression examines the effect of tighter matching by using only pairs of dual-and single-class firms whose IPO dates are not more than 12 months apart. (Our original analysis allows up to 24 months difference between IPO dates.) The last column examines the effect of controlling for ownership concentration. *Equity stake of insiders* is the proportion of firm equity held by all directors and executive officers as a group.

	Total Q	12 months	Ownership
	(1)	(2)	(3)
Dual dummy	0.570*	0.606***	0.529***
	(1.906)	(3.104)	(3.037)
Dual dummy x Years from IPO (2-4)	-0.043	-0.411**	-0.267
	(-0.161)	(-2.094)	(-1.639)
Dual dummy x Years from IPO (5-6)	-0.345	-0.434*	-0.303
	(-1.043)	(-1.727)	(-1.379)
Dual dummy x Years from IPO (7-8)	-0.574*	-0.515*	-0.501**
	(-1.804)	(-1.943)	(-2.361)
Dual dummy x Years from IPO (9+)	-0.821**	-0.797***	-0.596***
	(-2.394)	(-3.310)	(-2.619)
Years from IPO (2-4)	-1.095***	-0.283**	-0.297***
	(-6.074)	(-2.014)	(-2.677)
Years from IPO (5-6)	-1.536***	-0.523***	-0.467***
	(-6.880)	(-3.129)	(-3.270)
Years from IPO (7-8)	-1.653***	-0.583***	-0.523***
	(-7.391)	(-2.767)	(-3.354)
Years from IPO (9+)	-1.573***	-0.570***	-0.427**
	(-5.885)	(-2.906)	(-2.261)
Equity stake of insiders			-0.880
			(-1.465)
Equity stake of insiders squared			0.893
			(1.214)
Controls (same as in Panel A of Table 3)	Yes	Yes	Yes
Observations	8,718	5,035	7,268
Adjusted R-squared	0.255	0.330	0.338

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 4. Founder-managers in single- and dual-class firms

This table reports descriptive statistics for the sample of matched single and dual-class firms. The sample includes firms over the period 1995-2019, with matching done according to the IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. Dual class firms are firms with a dual-class share structure at their IPO.

Panel A: Founder-manager frequency and role

	Dual-class firms		Single-class firms		Difference
	Proportion	N	Proportion	N	p-value
All firms (in 1995-2019's matched sample)	100%	379	100%	379	
Founder is a CEO or senior executive officer or Chairman of the Board at the IPO	51.7%	196	39.8%	151	*** *0.001*
Founder is Chief Executive Officer (CEO) at the IPO		154		106	
Founder is Chairman of the Board (but not CEO) at the IPO		31		29	
Founder is a senior executive officer (but not CEO or COB) at the IPO		11		16	

Panel B: Founder-manager entrenchment and exit

	Dual-class firms		Single-class firms		Difference
	Proportion or mean	N	Proportion or mean	N	p-value
Founder-manager firms	100%	196	100%	151	
Founder-manager is a director or officer 8 years after the IPO or at firm's exit from the sample	87.8%	196	76.2%	151	*** *0.005*
Founder-managers' mean equity stake at the IPO	25.2%	196	14.6%	151	****0.000*
Mean proportion of founder-managers' initial shares sold after 5 years	0.165[#]	113	0.233	96	**0.086*
Mean proportion of founder-managers' initial shares sold after 8 years	0.187[#]	66	0.250	61	*0.248*

[#] Founder-manager dual class firms that unified their dual class structure are excluded from this analysis.

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 4 (cont.)

Panel C: Founder-manager and firm survival

	Non-founder firms		Founder firms		Difference
	Proportion	N	Proportion	N	p-value
All single- and dual-class firms (in 1995-2019's matched sample)	100%	411	100%	347	
Firms that survived 5 years after the IPO	54.7%	411	64.6%	347	*** *0.006*
Firms that survived 8 years after the IPO	34.3%	411	43.8%	347	*** *0.007*
Dual-class firms that survived 8 years after the IPO	36.1%	183	46.4%	196	** *0.041*
Single-class firms that survived 8 years after the IPO	32.9%	228	40.4%	151	*0.137*

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 5. The valuation effects of founder-managers by firms' listing age

The table reports the results of our basic pooled OLS regressions of equation (2) and Table 3, when we distinguish between founder-manager and non-founder-manager led firms. The regressions are fitted in the matched sample of single- and dual-class firms over the period 1980-2019. The sample matches single- and dual-class IPO firms based on their IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. The dependent variable is *Tobin's Q*. *Dual (Single) Founder-manager* equals one if the company has a dual- (single) class share structure and the founder is a CEO, Chairman of the Board or senior officer at the IPO. *Single Non-Founder-manager* is the baseline category. *Young founder-manager* marks founder-managers aged 49 years or less at the IPO (the median founder-manager age in our sample is 49), while *Older founder-manager* marks older than 49 years founder-managers. See Appendix A for exact variable definitions. In case of a unification (dual class firm's transfer to a single-class status), we drop the dual-class firm from the sample after the unification. Panel A reports founder's effects using various *Years from IPO* age bins. For example, *Years from IPO (2-4)* pool together post-IPO year-ends 2, 3 and 4. Panel B explores founder's age effects employing for parsimony only two listing-age bins (as in Panel B of Table 3): 1-6 and 7-8. All regressions include year times Fama-French-industry-group fixed effects. T-statistics are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Founder-manager's valuation effect

	Matched sample	
	Coefficients	t-statistics
Dual Founder-manager	0.696***	2.660
Dual Founder-manager x Years from IPO (2-4)	-0.413	-1.644
Dual Founder-manager x Years from IPO (5-6)	-0.647*	-1.863
Dual Founder-manager x Years from IPO (7-8)	-1.061***	-2.725
Single Founder-manager	0.018	0.065
Single Founder-manager x Years from IPO (2-4)	-0.042	-0.154
Single Founder-manager x Years from IPO (5-6)	-0.340	-0.935
Single Founder-manager x Years from IPO (7-8)	-0.592	-1.480
Dual Non-Founder-manager	0.392	1.643
Dual Non-Founder-manager x Years from IPO (2-4)	-0.201	-0.838
Dual Non-Founder-manager x Years from IPO (5-6)	-0.235	-0.632
Dual Non-Founder-manager x Years from IPO (7-8)	-0.564	-1.558
Years from IPO (2-4)	-0.158	-1.043
Years from IPO (5-6)	-0.129	-0.566
Years from IPO (7-8)	-0.097	-0.351
Controls (same as in Panel A of Table 3)	Yes	
Observations	3,805	
Adjusted R-squared	0.324	

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 5 (cont.)

Panel B: The effect of young founder-managers

	Matched sample	
	Coefficients	t-statistics
Dual Young Founder-manager	0.574**	2.170
Dual Young Founder-manager x Years from IPO (7-8)	-1.127***	-2.680
Dual Older Founder-manager	0.124	0.627
Dual Older Founder-manager x Years from IPO (7-8)	-0.355	-0.968
Single Young Founder-manager	-0.045	-0.176
Single Young Founder-manager x Years from IPO (7-8)	-0.636*	-1.683
Single Older Founder-manager	-0.119	-0.593
Single Older Founder-manager x Years from IPO (7-8)	-0.300	-0.940
Dual Non-Founder-manager	0.230	1.493
Dual Non-Founder-manager x Years from IPO (7-8)	-0.390	-1.304
Years from IPO (7-8)	0.064	0.284
Controls (same as in Panel A of Table 3)	Yes	
Observations	3,805	
Adjusted R-squared	0.323	

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 6. The change in insiders' holdings along dual class firms' life cycle

The table presents the mean insiders' equity and the mean wedge for dual-class firms in various post-IPO years. *Equity stake* is the fraction of cash flow rights held by the insiders (directors and officers as a group). *Wedge* is the difference between insiders' voting and equity stakes. In Panel A we report means for all dual-class firms with available ownership data (for the period 1995-2019); a firm is dropped from the sample after a unification. In Panel B we report means for a balanced panel of dual-class firms that preserved the dual-class structure for at least 5 years after the IPO. (This balanced sample is a subset of the sample in Panel A.) In Panel C we report the mean equity stake and wedge of founder-managers and non-founder-managers in our balanced five years sample of Panel B. *Founder-manager* equals one if the company has a founder that is a CEO, Chairman of the Board or senior officer at the IPO.

Panel A: Dual-class firms

	Years from IPO								
Insider	1	2	3	4	5	6	7	8	Year 1 vs. Year 5 (p-value)
Equity stake, %	43.83	42.01	38.30	34.99	35.20	33.05	33.90	34.38	*0.000*
Wedge, %	14.74	16.24	17.88	19.45	20.08	21.39	22.02	22.74	*0.000*
Number of observations	497	456	409	352	300	252	228	199	

Panel B: Dual-class firms that survived at least 5 years after the IPO

	Years from IPO					
Insider	1	2	3	4	5	Year 1 vs. Year 5 (p-value)
Equity stake, %	47.48	44.44	40.14	36.17	34.05	*0.000*
Wedge, %	17.84	18.73	20.66	20.74	20.35	*0.002*
Number of observations	251	251	251	251	251	

Panel C: Dual-class firms (with founder-managers) that survived at least 5 years after the IPO

	Years from IPO					
	1	2	3	4	5	Year 1 vs. Year 5 (p-value)
Founder-managers' equity stake, %	30.86	29.01	26.13	24.39	22.71	*0.000*
Founder-managers' wedge, %	20.81	23.27	24.42	25.17	24.29	*0.005*
Non-founders' equity stake, %	19.34	15.83	14.66	12.88	13.54	*0.001*
Non-founders' wedge, %	1.64	1.24	2.36	1.46	1.15	*0.684*
Number of observations	113	113	113	113	113	

Electronic copy available at: https://ssrn.com/abstract=3062895

Table 7. The valuation consequences of the post-IPO widening of insiders' wedge

The table reports the results of our basic pooled OLS regressions of equation (2) and Table 3, when we distinguish between firms with and without a wedge increase in the post-IPO period. The regressions are fitted in the matched sample of single- and dual-class firms over the period 1980-2019. The sample matches single- and dual-class IPO firms based on their IPO date, the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. The dependent variable is *Tobin's Q*. *Dual dummy* equals one in all post-IPO years if the company has a dual-class share structure at that fiscal year-end; otherwise it is equal to zero. *Dual(No)WedgeIncrease (Years from IPO 7-8)* equals one for dual-class firms with (without) a wedge increase relative to the IPO year-end, in the respective age cohort. The second regression of Panel A excludes firms with a negative wedge at the IPO year-end. Panel B omits the IPO year observations (because there is no wedge increase or decrease in year 1, the baseline year). In case of a unification, we drop the dual-class firm from the sample after the unification. All regressions include year times Fama-French-industry-group fixed effects. T-statistics are based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: First test

	Matched sample		Excluding firms with a negative initial wedge	
	Coefficients	t-stats	Coefficients	t-stats
Dual dummy	0.321***	2.632	0.330***	2.635
DualWedgeIncrease (Years from IPO 7-8)	-0.494**	-1.985	-0.529**	-2.042
DualNoWedgeIncrease (Years from IPO 7-8)	-0.204	-0.701	-0.182	-0.605
Years from IPO (7-8)	-0.165	-1.045	-0.173	-1.087
Controls (same as in Panel A of Table 3)	Yes		Yes	
Observations	3,805		3,657	
Adjusted R-squared	0.321		0.324	

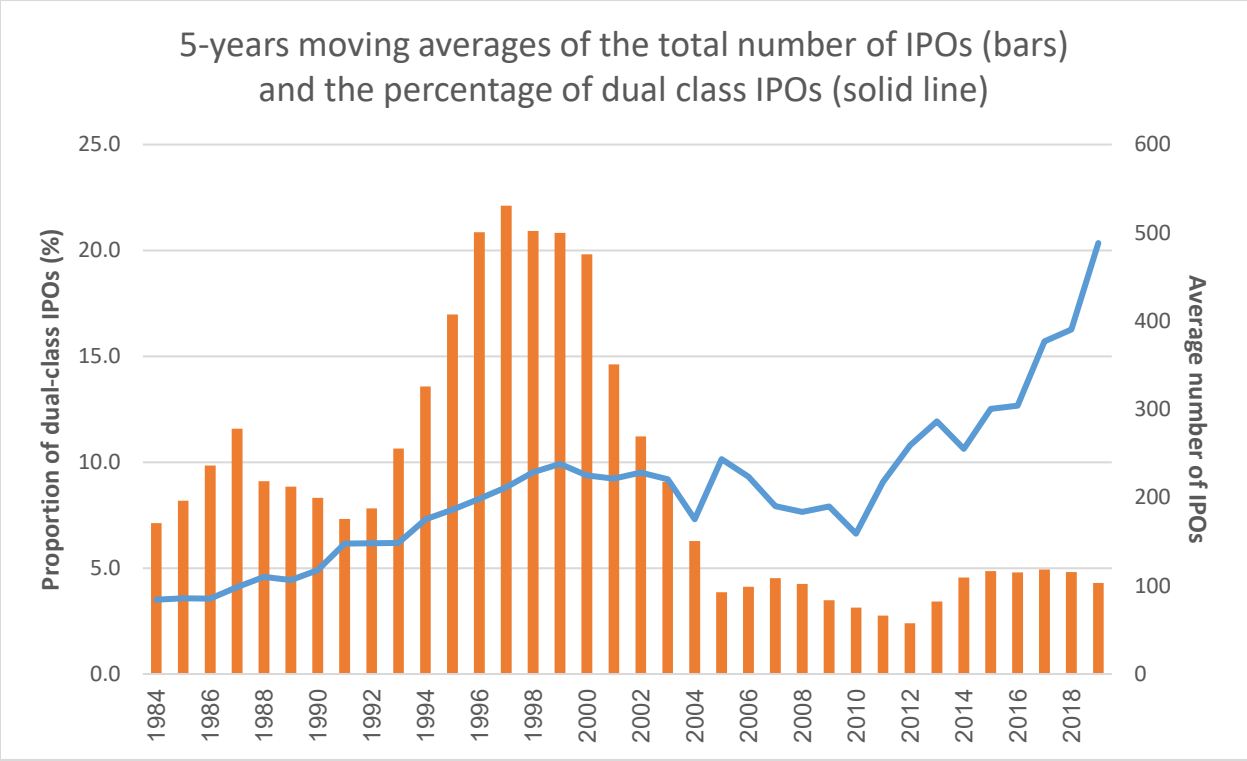
Panel B: Second test (excluding the IPO year-end)

	Matched sample	
	Coefficients	t-stats
DualWedgeIncrease	0.378**	2.045
DualWedgeIncrease x Years from IPO (7-8)	-0.517**	-2.035
DualNoWedgeIncrease	0.169	1.164
DualNoWedgeIncrease x Years from IPO (7-8)	-0.002	-0.008
Years from IPO (7-8)	-0.188	-1.194
Controls (same as in Panel A of Table 5)	Yes	
Observations	3,047	
Adjusted R-squared	0.310	

Electronic copy available at: https://ssrn.com/abstract=3062895

Figure 1. Popularity of dual class IPOs: 1980-2019

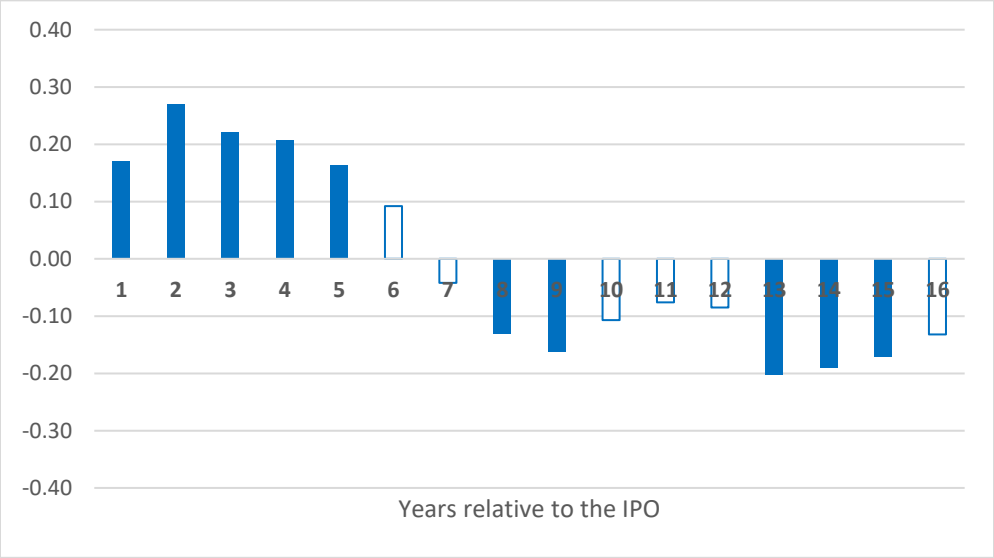
The bars in the figure depict the 5-years moving average of the total number of IPOs in NYSE, NYSE-MKT and Nasdaq, while the solid line presents the 5-years moving average of the proportion of IPOs that employed the dual-class structure. Moving averages are computed over the five years ending in each calendar year, i.e. for 1984 we display the average number of IPOs and the average percentage of dual class IPOs in 1980-1984.



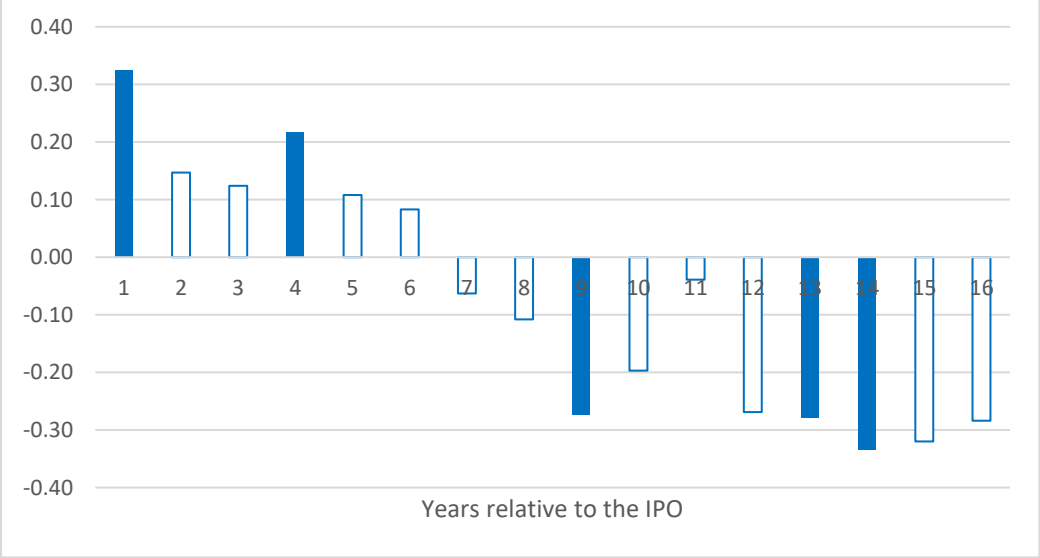
Electronic copy available at: https://ssrn.com/abstract=3062895

Figure 2. The valuation difference between dual- and single-class firms Tobin's Q in post-IPO years

The figure depicts estimates of the yearly valuation premium of dual class firms (vis-à-vis single-class firms), based on the OLS regression of Tobin's Q detailed in equation (2), and fitted using a pooled sample of single- and dual-class firms over the forty years period 1980-2019. (The valuation premium is assessed as $\pi_{IPO} + \pi_t$ in the fitted equation 2.) The top figure is based on estimates derived from the Full sample regression while the bottom figure is based on the Matched sample regression. Filled bars indicate valuation differences (dual class firms' premiums or discounts) that are statistically significant at the 10% level or better, and empty bars show insignificant valuation differences.



Valuation differences estimated in the Full sample

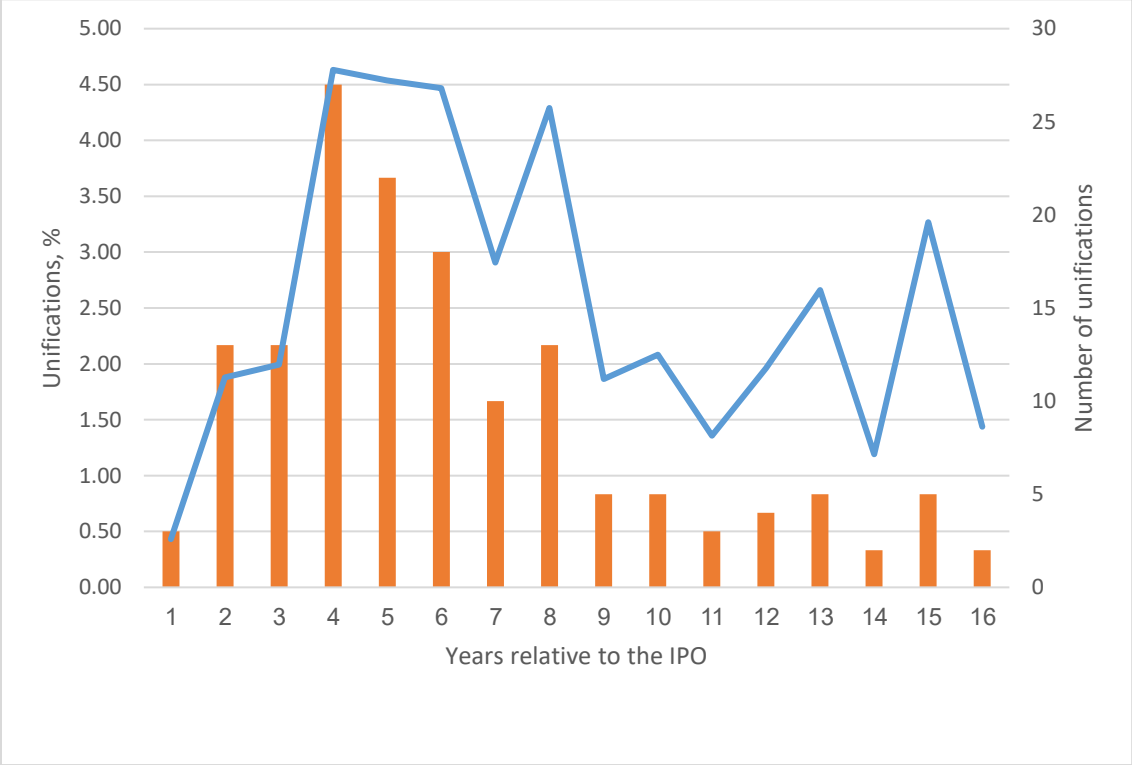


Valuation differences estimated in the Matched sample.

Electronic copy available at: https://ssrn.com/abstract=3062895

Figure 3. Voluntary dual class share unifications along the life cycle

The bars in the figure depict the number of unifications in each post-IPO year (year 1 is the IPO year), and the solid line shows the proportion of dual class firms at the beginning of the year that unified their shares during that year. The sample of all dual-class firms is used over the period 1980-2019.



Electronic copy available at: https://ssrn.com/abstract=3062895

european corporate governance institute

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

european corporate governance institute

ECGI Working Paper Series in Finance

Editorial Board

Editor	Mike Burkart, Professor of Finance, London School of Economics and Political Science
Consulting Editors	Renée Adams, Professor of Finance, University of Oxford Franklin Allen, Nippon Life Professor of Finance, Professor of Economics, The Wharton School of the University of Pennsylvania Julian Franks, Professor of Finance, London Business School Mireia Giné, Associate Professor, IESE Business School Marco Pagano, Professor of Economics, Facoltà di Economia Università di Napoli Federico II
Editorial Assistant	Asif Malik, Working Paper Series Manager

www.ecgi.global/content/working-papers

european corporate governance institute

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html

www.ecgi.global/content/working-papers