The Life-Cycle

of Dual Class Firms

by

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Abstract

We examine an extensive matched sample of U.S. dual and single class firms in 1980-2015 from the time of their IPO, and document that the valuation difference between dual and single class firms varies over their life cycle. On average, around the time of the IPO, dual class firms have higher valuations than single-class firms. Over time, this valuation premium tends to dissipate, whereas the difference between voting and equity stakes of the controlling shareholders of dual class firms (the "wedge") tends to increase. Further tests examine firm survival and the desirability of a sunset provision for dual class structures.

JEL classification: G32; G34

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

1. Introduction

IPOs of dual class shares have become relatively popular in the recent decade, following the example of some technological "superstars", e.g. Google and Facebook. For example, according to Matthews (2016), in 2015, 15% of U.S. IPOs had dual class stock. Firms adopting the dual class equity structure have at least two classes of common shares: high-voting-power shares, owned primarily by firm founders or controlling shareholders, and low-voting-power shares, held typically by non-controlling or outsider shareholders.

Dual class firms constitute an extreme example of anti-takeover provisions, as the controlling shareholders who own primarily high-voting-power shares generally have sufficient control to repel any unwanted takeover or any other shareholder activist campaign. Thus, agency problems at dual class firms are potentially more severe than at single class firms. Previous literature suggests that private benefit extraction may be higher in dual class firms, causing, in general and on average, a lower relative valuation of dual class firms (Gompers, Ishii and Metrick, 2010; Masulis, Wang and Xie, 2009; Smart, Thirumalai and Zutter, 2008).

However, another strand of research identifies some potential benefits of the dual class structure (Lehn, Netter and Poulsen, 1990; Bebchuk, 2003). These benefits accrue especially when outsider public shareholders are less informed than the controlling shareholders (Alchian and Demsetz, 1972) or overly concerned about short-term performance (Stein, 1988; 1989). Granting more power (i.e., voting and intervention rights) to public shareholders may also limit firm's ability to commit to strong relationships with other stakeholders (Laffont and Tirole, 1988; Shleifer and Summers, 1988) and to make long-term, firm-specific investments (DeAngelo and DeAngelo, 1985).

We contribute to the debate on dual class firms by examining how the costs and benefits of dual class stocks change over the life cycle of their firms. For example, we are the first to present evidence on how the relative valuation of dual versus single class firms varies with firm listing age (i.e., time since the IPO). Our two main (and not mutually exclusive) hypotheses are, first, that the potential benefits of dual class structures – such as protecting the unique vision of the entrepreneur and encouraging firm-specific human capital investments by the entrepreneur (Lehn, Netter and Poulsen, 1990; Bebchuk, 2003) – may be decreasing over time after the IPO, and, second, that the agency costs associated with dual class structures may be increasing over time. Combining both hypotheses, Bebchuk and Kastiel (2017) argue that, consequently, dual class structures become more inefficient as the firm ages, such that they advocate an explicit sunset clause for dual class firms. The sunset clause regulation would require the "non-interested" public shareholders of the firm to vote on whether or not to extend the dual class structure, scheduled some 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".

We also explore other life-cycle phenomena of dual class firms often discussed in the literature, such as their survivorship as public firms and their likelihood of being acquired, relative to ex-ante comparable single class firms. We employ both a sample of all publicly traded firms, as well as a matched sample, where we match firms with a dual class structure at the time of their IPO to ex-ante similar single class firm – i.e., in the same industry, with a similar size and similar profitability at the time of the IPO – that also had its IPO about the same time. In general, previous empirical evidence on life cycle phenomena in dual class firms is limited, such that our extensive 1980-2015 sample fills a gap.

We document six sets of results. First, we find that dual class firms survive longer as stand-alone firms than their matched single class firms. The longer survival is caused both by dual class firms being less likely to delist due to distress and less likely to be taken over. For example, 27% of our sample of dual class firms are taken over within nine years after the IPO, versus 35% of single class firms, a difference of 8% that is highly statistically significant. Similarly, 6.7% of dual class firms delist in the nine year period after their IPO due to financial distress, versus 13% of single class firms, a difference of 6.3% that is also strongly significant.

Second, we examine the stock returns of dual class firms and estimate their abnormal return (alpha) using the four-factor Fama-French-Carhart model. Our main finding is that portfolios of dual class stocks have similar abnormal returns as portfolios of single class stocks, as both have in general statistically insignificant alphas over the life cycle.

Third, we show how the equity and voting stakes of the controlling shareholders in dual class firms change in the years after the IPO. We find that the difference between the voting and equity stakes of the controlling shareholders of dual class firms (the "wedge") tends to increase as the firm ages. According to one of our estimates, the mean wedge increases from 16% one year after the IPO to 22% five years after the IPO, and to 26% nine years after the IPO.

Fourth, we compare firm valuation, as proxied by Tobin's Q and 'Total Q' (see Peters and Taylor, 2017). We find that the difference in firm valuation between dual and single class firms strongly varies over the corporate life cycle. At the IPO, dual class firms tend to have higher valuations, as at the IPO year-end the market valuation of dual class firms is, on average, 11% higher than that of the matched single class firms. However, this initial valuation premium of dual

class firm declines in the years after the IPO, and on average it becomes insignificantly negative in the matched sample about six to nine years after the IPO.[1]

Fifth, we explore the variation in the valuation life cycle of dual class firms. We divide the dual class firms into those that have a valuation premium relative to comparable single class firms at the IPO, and those with a valuation discount at the IPO. Only dual class firms with an initial valuation premium exhibit the life cycle effect, with the initial valuation premium declining over time such that their average valuation in the long term is similar to that of their matched single class counterparts. For dual class firms with an initial valuation discount, we find no evidence that this valuation discount becomes larger over time. Therefore, to the extent that the dual class firms with an initial valuation premium at the IPO stage are more likely to benefit from their dual class structure, this evidence supports the hypothesis that such benefits matter for at least a subset of dual class firms, and that these benefits tend to decline over time. On the other hand, dual class firms with an initial valuation discount continue to manifest a discount in the long run, suggesting that at least for these firms agency problems do not aggravate over time. .

Sixth and lastly, we examine voluntary firm-initiated dual class share unifications (i.e., recapitalizations into a single class structure), and find that unification frequency initially increases and then declines with firm age. We estimate that the probability of unification reaches its maximum around 3.6 years after the IPO. A fair proportion (135/607=22%) of dual class firms in our sample convert into single class, yet unifications become rare as firms age.

For policy makers – including regulators, index providers, proxy advisors, and stock exchanges – our finding that many dual class firms have a valuation premium over single class

[1] In the full sample, the valuation difference between dual- and single-class firms becomes significantly negative six years after the IPO.

firms during the first few years after the IPO, should provide some legitimacy to dual class financing. This initial valuation premium suggests that dual class stocks should not indiscriminately be excluded from stock exchanges or financial indices. On the other hand, our evidence that for dual class firms with an initial valuation discount, this discount seems to persist in the long-term, suggests that their public shareholders and the firm itself may benefit from some form of a sunset clause of dual class structures.

Section 2 provides a concise background of the literature on dual class financing and presents the hypotheses. Section 3 describes the sample and data. Sections 4 and 5 report our results. Section 6 discusses the regulatory implications of our evidence, and Section 7 concludes.

2. Dual class stocks' life cycle

2.1. Some background

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 wide-spread in Europe, accounting for over 20% of the traded firms (Bennedsen and Nielsen, 2010). The dual class structure has been advocated as a solution to two economic weaknesses of public shareholders. Outsider shareholders may be less informed than insiders (Alchian and Demsetz, 1972), and may be overly concerned about short-term performance (Stein, 1988; 1989).

The potential deficiencies of public shareholding may be particularly problematic for firms at the early stage of their lives, such as the first few years following the IPO. Lehn, Netter and Poulsen (1990) argue that at the IPO stage, characterized by fast-growth of the firm, the insiders managing the firm have to invest substantial and largely firm-specific human capital resources in the firm, in order to advance firm's long-term potential and goals. Thus, for a few years following

the IPO date, competent entrepreneurs should not be disturbed, and it might be efficient to largely grant them sole control and isolate them from outside pressures. Public shareholders rationally agree to acquire inferior-vote shares and grant the entrepreneurs disproportionate power because at the IPO the entrepreneurs' leadership and vision offer a unique value to the firm.

Bebchuk (2003) highlights the entrepreneur's perspective.[2] The entrepreneur may possess substantial private information that cannot be disclosed to the public at the IPO, resulting in a higher private valuation of the corporation than the valuation estimated by less-informed outside shareholders. This discrepancy in valuation renders the entrepreneur reluctant to issue shares. Dual class financing, through an IPO with inferior-vote shares, alleviates the asymmetric information problem because it reassures the entrepreneurs that they would not lose control, and that all of their private information and plans would be utilized and implemented. In short, the dual class structure may be necessary to convince the entrepreneurs to go public.

Finally, dual class financing may be reassuring for some stakeholders, such as its large customers or its partners in joint ventures, who may prefer stable firms and stable relationships (Johnson, Karpoff and Yi, 2017). Therefore, the preservation of control afforded by dual class stock fortifies the stability and credibility of the firm in the eyes of its trading partners. This "bonding hypothesis" on the constructive value of limited shareholder rights is explored recently regarding staggered boards in Cremers, Litov and Sepe (2017), who show that limiting the shareholders' ability to dismiss directors – through granting directors staggered three-year terms – is associated with higher shareholder value for firms where stakeholder relationships and firm-specific investments seem more important.

[2] Bebchuk (2003) discusses antitakeover arrangements in general rather than dual class structure in particular. However, given that dual class financing is a potent takeover deterrent as well, we employ this logic to our case.

Opponents of the dual class stock structure argue that it constitutes an extreme example of antitakeover provisions. The insiders owning high-voting-power shares generally have sufficient control to prevent any unwanted takeover or other shareholder discipline. Gompers, Ishii and Metrick (2010) and Masulis, Wang and Xie (2009) argue that this excess power affords enlarged private benefit extraction by entrenched insiders and results in lower firm valuations.

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.

The discussion above suggests that ΔQ_{LV} is positive, while ΔQ_{Agency} is negative. Further, equation (1) also illustrates that dual class financing can be optimal for young firms. In particular, on the IPO date, the market valuation of the dual class firm (Q_{dual}) may exceed that of the single class firm (Q_{single}) if $\left|\Delta Q_{LV}\right| > \left|\Delta Q_{Agency}\right|$.

2.2. The life cycle of dual class firms

It is well known that firm valuations tend 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 in our framework that $\partial Q_{single}/\partial T < 0$, where T is the firm's listing age.

Bebchuk and Kastiel (2017) propose that ΔQ_{LV} and ΔQ_{Agency} are a function of firm age. ΔQ_{LV}, the valuation benefits due to the entrepreneurs' leadership, vision and special skills that is subject to information asymmetry vis-à-vis the shareholders, erodes over time as the firm scale and attributes and the general economic environment change and as investors learn more about the firm. In the years after the IPO, the vision of the founders is largely fulfilled and the special skills of the founders may no longer be necessary. This suggests that $\partial \Delta Q_{LV}/\partial T < 0$.

According to Bebchuk et al. (2017), the agency problems effect on firm valuation, ΔQ_{Agency}, also changes with firm's age. They argue that entrepreneurs tend to dilute their holdings in the firm (i.e., sell shares) in the years following the IPO due to wealth diversification considerations. The decline in controlling shareholders' equity holdings cuts the marginal cost of private benefits consumption and incentivizes them to further increase private benefits. Under such a scenario, agency problems worsen with dual class firm's age, leading to an increase in the agency-induced value discount, i.e., $\partial \Delta Q_{Agency}/\partial T < 0$.

If both $\partial \Delta Q_{Agency}/\partial T < 0$ and $\partial \Delta Q_{LV}/\partial T < 0$, the value difference between otherwise-identical dual and single class firms would decrease over time, or turn more negative over time. 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 time imply that, at some point of time after the IPO, the dual class structure becomes inefficient and decreases the market valuation ($Q_{dual} < Q_{single}$).

Bebchuk and Kastiel (2017) also 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 for the controlling shareholder it is not optimal to do so. Controlling shareholders would typically lose considerable voting power upon unification while gaining only a fraction (equal to their equity stake) of any 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. Firms' failure to unify on time is the basis of Bebchuk and Kastiel's proposition to add a sunset provision to dual class share IPOs, which provision would mandate a binding shareholder vote to unify the dual class shares, a pre-specified number of years after the IPO.

2.3. Hypotheses

We seek to provide evidence on the life cycle of dual class firms. Such evidence is scarce, and really overdue given the recent interest in dual class firms. At the same time, we aspire to examine the empirical validity of Bebchuk and Kastiel (2017) contentions.

First, we consider the plausible popular belief that dual class structures protect entrepreneurs from market pressures and market discipline, and prolong dual class firm's public life relative to single class firms, especially by deterring (hostile) takeover attempts. Hence, our

Hypothesis 1: Dual class firms survive longer and are engaged in less mergers and takeover activity than matched single class firms.

Empirical evidence on Hypothesis 1 is scarce and incomplete. For example, Smart and Zutter (2003) study a sample of IPOs between 1990 and 1998 and show that dual class firms experience fewer control events. We re-examine their takeover activity findings in our more extensive 1980-2015 sample. We also extend research by testing formally the relative survivorship

of matched dual and single class firms, and examining the difference between single and dual class firms in each delisting category (mergers, financial distress and other reasons).

Second, we consider dual class shares' stock returns. Public criticism of dual class structures has led some exchanges to ban dual class shares listing or to exclude them from major market indices. Smart, Thirumalai, and Zutter (2008) find that dual class shares offer normal returns, an important finding that needs corroboration in a larger sample such as ours. Hence,

Hypothesis 2: Dual class firms' stock returns are normal and similar to those of comparable single class firms.

The third basic life cycle convention we examine is that controlling shareholders' equity holdings are diluted over time. This is the basis of many scholars belief that the dual class shares' agency problems aggravate with firm's public age. We will test this dilution of holdings proposition, and compute a measure of the conflict of interest between controlling and outside shareholders for dual class firms, defined as the difference between controlling shareholders' voting rights and their cash flow rights (the "wedge"). In single class firms the wedge is zero, while in dual class firms it is positive. If controlling shareholders of dual class shares dilute primarily their equity stake (by issuing inferior-vote shares and/or by selling predominantly their inferior-vote holdings) the wedge would increase along the firm's life cycle. The wedge is associated with increased agency problems (Masulis, Wang and Xie, 2009), thus it appears an appropriate proxy for the extra agency problems generated by the dual class structure.

Given the above discussion, we propose:

Hypothesis 3: The stake of controlling shareholders in dual class firm's equity tends to decrease with firm's age, and the wedge tends to increase.

We turn now to our most interesting variable: the relative valuation of single- and dual-class firms, and its change along firm's life cycle. Bebchuk and Kastiel (2017) conclude that it is plausible that the benefits of the dual class structure dissipate in the years following the IPO while the (agency) costs increase. This gives rise to our central corollary,

Hypothesis 4: In a matched sample of single and dual class firms, Q_{dual} minus Q_{single} decreases with a firm's age.

Finally, we examine voluntary dual class share unifications. Voluntary unifications are an interesting "self-correct" mechanism initiated by the firm itself when it senses that the dual class structure has become stale and counterproductive. Bebchuk and Kastiel (2017) propose that unifications are rare, i.e. that dual class structures persist longer than they should, even when they decrease market valuation. This is because unifications typically counter the interests of the controlling shareholders. Upon unification, controlling shareholders typically lose considerable voting power and thus considerable private benefits, while they receive only a fraction of the market valuation gain (equal to their equity stake). Furthermore, if controlling shareholders' equity stake declines over time, their potential gain upon unification diminishes with firm's age, which should further reduce unification frequency. Hence, regarding unifications, we can test

Hypothesis 5: Voluntary firm-initiated dual class share unifications are rare, and their frequency declines with firm age.

2.4. Contribution and relation to previous research

Our study fits into two strands of the literature: studies of dual class shares and studies of life cycle phenomena. In the context of dual class firms, we contribute to the long academic debate about the merit of dual class financing. Burkart and Lee (2008) summarize some theoretical

arguments, and Adams and Ferreira (2008) summarize the mixed empirical results on the economic desirability and consequences of dual class financing.

Our main contribution to the literature on dual class firms is in testing Bebchuk and Kastiel (2017)'s hypothesis that the efficiency of dual class structures declines over time. No less important is our contribution to the existing knowledge on the properties and behavior of dual class firms. We document several important attributes of dual class firms, such as their higher survival rate and lower takeover activity, and we extend research on voluntary firm-initiated dual class share unifications (see Lauterbach and Pajuste, 2015, 2017).

The second strand of literature we contribute to is life cycle research. The valuation and performance aspects of the life cycle have been recently discussed in Loderer, Stulz and Waelchli (2017), who show how Q tends to deteriorate with firm age. In this literature, a closely related paper is Johnson, Karpoff and Yi (2017), who examine the life cycle of takeover defenses. They find that takeover defenses – such as staggered boards and voting supermajority requirements – tend to be put in place in corporate charters and bylaws at the IPO, and generally remain "sticky" across time afterwards. Consequently, takeover defenses that could enhance firm value at the IPO become less efficient over time.

Our findings are generally consistent with those of Johnson, Karpoff and Yi (2017). This is not surprising because dual class structures are arguably an extreme form of the ant-takeover provisions studied in Johnson et al. (2017). Both their and our papers highlight that the impact of various governance arrangements may depend on firm-age.

3. Sample

We study life-cycle phenomena in dual-class firms using two samples, denoted as the "full sample" and the "matched sample", respectively. The full sample comprises of 9,222 U.S. companies, listed on the NYSE, NYSE MKT or NASDAQ, that had an initial public offering (IPO) during 1980-2015. A subset of the full sample, the matched sample includes 504 dual- and 504 single-class firms that are matched in the IPO year according to several key characteristics. The sample starts in 1980, as our information on dual-class IPOs commences on that year.

3.1. The full sample

To construct a sample of dual-class firms, we employ several sources. First, we collect data on dual-class IPOs during 1980-2015 from Ritter (2016). Second, we use Gompers, Ishii and Metrick (2010, henceforth GIM)'s comprehensive list of dual-class firms spanning 1994 – 2002.[3] All firms on GIM's list that are not found in Ritter (2016)'s data are added to the sample if their stock price first appears on CRSP in January 1980 or later. Last, as our focus is on the life cycle of dual class firms, we only consider dual class firms that already have a dual class structure at their IPO, thus excluding a small number of firms that recapitalize into the dual class structure subsequent to their IPO. The above procedure generates a sample of 667 firms that went public with a dual-class share structure during 1980-2015.

We next construct a sample of single-class firms from the universe of CRSP/ Compustat merged firms listed on the NYSE, AMEX or NASDAQ that have their IPO without dual class structure during 1980-2015. This procedure generates our 'full sample' of 8,555 single-class firms.

[3] We are grateful to Andrew Metrick for making this data available on his website.

Altogether, our sample comprises 9,222 firms that went public during 1980-2015, out of which 7.2% had a dual-class share structure at their IPO.

3.2. 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, henceforth FF) industry group. Following the previous literature, we exclude all firms in the banking and insurance sector firms (FF industry groups 45 and 46) and in regulated sectors (FF industry group 31), leaving us with forty-five industry groups. This reduces sample size to 7,850 firms, of which 8.2% (607 firms) had dual class structures.
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.
4) ROA. After satisfying the above screens, and in case there are 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. All data are based on annual data at the end of the fiscal year. In almost all cases, we match on the ROA at the fiscal year-end preceding the IPO, though if that is missing, we match in a few cases on the ROA from the fiscal year prior to that.

We consider these criteria as presenting only the minimum requirements for the control firms to be reasonably comparable to the dual class firms. We will consider in detail to what extent various other firm characteristics at the time of (as well as after) the IPO are comparable across our matched dual class and single class firms. The main empirical challenge is that adding or tightening the above criteria reduces the matched sample size. 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 but a significantly smaller sample of dual class firms (thereby rendering our sample less representative of dual class firms in general). When we examine how successful our matching procedure is, we also offer some robustness tests.

The final matched sample comprises of 504 dual-class firms and 504 matched single-class firms.[4] Given that we have 607 non-financial dual class firms in the full sample, our matched sample size of 504 firms implies that for 103 dual class IPOs (about a sixth of the initial sample) we cannot find a proper match using the criteria above.

4. Single and Dual Class Firms – How Do They Differ?

4.1. Differences in basic characteristics

Table 1 explores differences in several key characteristics between single and dual class firms in our full sample. We provide the medians of various firm characteristics for the samples of single and dual class firms separately, as well as the p-value for whether the medians are statistically different across the samples at those particular snapshots in time. This provides a first

[4] 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.

look at how these firm characteristics vary over time, and how stable any differences of single and dual class firms are. All variables and their data sources are detailed in Appendix A.

Dual class firms have significantly larger total book value of assets than single class firms, consistent with Smart, Thirumalai and Zutter (2008). Dual class firms are also significantly more levered and more profitable, both in terms of return on assets (ROA) and return on equity (ROE). However, their firm valuations, as reflected by Tobin's Q, tend to be lower than those of single class firms. We also find insignificant differences in sales growth and capital expenditures between single and dual-class firms. However, single class firm tend to invest more in R&D.

(Insert Table 1 about here)

Table 2 reports the medians of various firm characteristics at the end of the fiscal year right after the IPO. We distinguish single- and dual-class firms, and present statistics for both the full sample and the matched subsample. In the full sample, most of the differences between single and dual class firms noted above (and shown in Table 1) occur already at the time of the IPO. For example, dual class firms tend to be larger and more leveraged than single class firms, though with lower Tobin's Q and lower R&D expenditures, at the time of the IPO. 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.

However, the comparison between single and dual class firms at the IPO in the full sample does not consider significant differences between single and dual class firms in, for example, industry composition. Once we match dual class firms at the time of their IPO with single class firms whose IPO occurred around the same time – and that are in the same industry group, with

similar book value of assets and similar profitability at the time of their IPO – we find that single and dual class firms appear to have similar characteristics at the time of their IPO.

Specifically, in the resulting matched sample the characteristics of single and dual class firms are similar – with statistically insignificant differences – not only for the two characteristics that were used in the matching procedure (assets size and ROA) but also for the other firm characteristics considered. This suggests that matching on only assets size and ROA, together with industry group and similar time of the IPO, seems to be sufficient to generate a matched sample where dual and single class firms are comparable across many other dimensions as well.

(Insert Table 2 about here)

4.2. Differences in survival and likelihood to be acquired

We start by considering the association between having a dual class structure and the likelihood of surviving as a stand-alone publicly traded firm on CRSP. Given that dual class firms give insiders strong control over the firm and afford them strong isolation from market discipline and especially from the market of corporate control, we would expect that dual class firms survive longer, as proposed in Hypothesis 1. On the other hand, if insider control at dual class firms significantly worsens agency problems (and, accordingly mismanagement), then this may increase the likelihood of delisting either due to financial distress or due to the equity becoming so cheaply valued that the firm becomes an attractive (perhaps hostile) takeover candidate. Tables 3 through 5 summarize our tests of the association between a dual class structure and survival.

In Table 3, we compare the likelihood that dual and single class firms survive in the nine years following the IPO using the matched sample. Panel A reports the cumulative number and

cumulative percentage of dropouts in each year following the IPO, while in Panels B, C and D we break out three different reasons for non-survival, based on the delisting codes on CRSP.

As shown in Panel A, the number and percentage of dropouts are significantly larger amongst single class firms. Nine years after the IPO, more than half (58.8%) of single class firms no longer survive on CRSP as stand-alone firms, compared to 46.1% for the sample of dual class firms, which difference is statistically strongly significant.[5] Therefore, consistent with Hypothesis 1, dual class firms appear to survive longer as stand-alone publicly traded firms.

(Insert Table 3 about here)

Panels B, C and D of Table 3 reveal the source of the longer survival of dual class firms. In particular, dual class firms are both less likely to be taken over (see Panel B) and to delist due to financial distress (see Panel C) in the nine years subsequent to the IPO. Single- and dual-class firms are similarly likely to drop out for other reasons (see Panel D, mostly capturing delistings due to non-compliance with listing rules). These results suggest that both being acquired and financial distress contribute similarly to the greater likelihood of dual class firms to survive as stand-alone publicly traded firms after nine years. For example, 26.9% of dual class firms are taken over within nine years after the IPO, versus 35.2% of single class firms, a difference of 8.3% that is highly statistically significant. Similarly, 6.7% of dual class firms delist in the nine year period after their IPO due to financial distress, versus 13.0% of single class firms, a difference of 6.3% that is again strongly significant.

[5] The dropout rate of single-class firms reported in Table 3 is consistent with Fama and French (2004). According to Fama and French (2004), the average percent of single-class firms that went public during the period 1980-1989 and suvived for five years is 61.8%.

Next, we compare survival differences between single and dual class firms in a multivariate setting using Cox proportional hazard models. Results for the matched sample are shown in Table 4. Our controls are industry-adjusted Q, firm size, leverage, industry-adjusted ROA and cash, which are known to influence firm survival. Even with all of these controls included, the coefficient of the dual class dummy is negative and statistically significant at the 5% level in column 1. The coefficient estimate of the dual class dummy of -9.81% implies a 23% lower hazard rate for dual class IPO firms, relative to the unconditional hazard rate.[6] This is consistent with Hypothesis 1, suggesting that the dual class structure is strongly associated with a longer survival rate. An alternative dual class specific variable – the wedge between vote and ownership of the controlling shareholders, also has a negative and significant coefficient in column 2 of Table 4. An increase in the wedge from zero to 20 percent (the dual class average in our sample) is associated with a 26% lower hazard rate, relative to the unconditional one.[7] Similarly, a one standard deviation increase in the industry-adjusted Tobin's Q (equal to 1.675) is associated with a 19% lower hazard rate (calculated as 1.675*0.0484/0.430=19%).

(Insert Table 4 about here)

In Table 5, we examine the likelihood of the most frequent cause of delisting, namely being acquired. We estimate Probit and OLS models of the likelihood to be acquired in the next year using the matched sample.

(Insert Table 5 about here)

[6] The relative hazard for the sample in column 1 of Table 4 equals 0.430. The marginal effect of a dual-class IPO structure is -0.0981, and is thus 0.0981/0.430 = 23% lower.
[7] The relative hazard for the sample in column 2 of Table 4 equals 0.425. The marginal effect of the wedge is -0.556. If the wedge increases by 0.2, the hazard rate decreases by 26% = (0.2*0.556)/0.425.

The results in Table 5 are in line with the results in Table 4, showing that dual class firms are less likely to be taken over. The coefficient of the dual class dummy in the Probit analysis is negative and statistically significant - see column (1) of the table. Similarly, the coefficient of the wedge between the controlling shareholders' vote and equity holdings is negative and even more statistically significant than the dual class dummy – see column (2). Columns (3) through (6) present alternative ways of adjustments for calendar time and industry. Introducing the yearly number of takeovers in the industry as an explanatory variable in the Probit analysis (columns 3 and 4) or using OLS with industry-year fixed effects (columns 5 and 6) does not change the conclusion: dual class firms are significantly less likely to be taken over. This reduced takeover activity finding supports Hypothesis 1.

4.3. Stock return comparison

In order to estimate whether stocks of dual class firms have different performance than stocks of single class firms over their life cycle, we form separate calendar-time portfolios of dual class and single class firms over various segments of the life cycle. For all firms in our matched sample, we compute in each month how many fiscal-years the firm is from its IPO, and place each firm in a cohort based on the number of fiscal years since the IPO. Five cohorts are formed for dual- and single-class firms separately: 1) firms in their IPO fiscal year, 2) firms in the first three fiscal years after the IPO-fiscal-year (the 1 – 3 years cohort), 3) firms in the subsequent two years (the 4 – 5 years cohort), 4) firms in the subsequent three years (the 6 – 8 years cohort), and 5) firms in any fiscal-year after that (the > 8 years cohort). The choice of these cohorts is motivated in the valuation analysis in the next section. As a robustness check, we further show results for consolidated cohorts combining the first five years after the IPO year (the 1 – 5 years cohort) and all subsequent years (the > 5 years cohort).

Next, we generate a value-weighted portfolio of the stocks in each cohort in each calendar month, separately for dual class and single class firms, weighting each stock by the lagged market capitalization, and calculate the portfolio monthly returns in excess of the risk-free rate. We also calculate the long-short portfolio that holds the dual class portfolio and shorts the single class portfolio. Then, for each portfolio, we regress monthly excess returns on the four factors of the Fama-French-Carhart model plus an intercept, over the full period of 1980 – 2015. The coefficient on the intercept is the estimated abnormal return of the portfolio over the period.

Table 6 presents the estimates of the abnormal returns and factor exposures for the portfolios of stocks of dual class firms (Panel A), single class firms (Panel B) and the long-short portfolio of long stocks of dual class firms and short stocks of single class firms (Panel C).[8] As shown in Panel A, the alphas of dual class stock portfolios at various age-cohorts are generally insignificant The exception is the 1 – 3 year cohort that has a monthly abnormal return of -53 basis points (t-statistic of 2.01), which is consistent with previous findings of stocks' underperformance after the IPO (see Ritter, 1991, for example). However, neither the IPO-year cohort nor the cumulative 1 – 5 years cohort show significantly negative performance for the stock portfolio of dual class firms.

Panel B of Table 6 shows that stocks of single class firms have insignificant alphas across all cohorts we have considered. Interestingly, a comparison to Panel A reveals that in most age-

[8] Months with any missing returns, caused by having no stocks in the relevant portfolio, are dropped. We drop the largest number of months for the portfolios for mature firms, as our sample start in 1980 with only IPO firms. We verified that our results are robust to requiring, for example, a minimum of five or ten stocks in the portfolio in a given month for that month to be included in the time series for the portfolio. Further, results for equal-weighted portfolios are similar qualitatively, and lead to the same conclusions of generally no statistical significant differences in the abnormal returns of portfolios of stocks of dual class and single class firms.

cohorts the alphas of single class stocks are lower than the alphas of the dual class stocks. The differences, however, are statistically insignificant after the IPO year, as shown in Panel C.

(Insert Table 6 about here)

Our main conclusion from Table 6 is that stocks of dual class firms have normal returns that are definitely comparable to their single class counterparts. This reinforces prior evidence by Smart et al. (2008).

4.4. Wedge widening after the IPO

We retrieve data of the equity ownership by insiders from SEC filings available on EDGAR. As EDGAR data starts in 1995, equity ownership and wedge data are available for 1995-2015 only. Further, firms are allowed to file their first 10-K report within 18 months of the IPO. Hence, comprehensive data on equity ownership is available starting in the year following the IPO (i.e., year IPO+1). These data limitations somewhat decrease our sample size.

Table 7 reviews the evolution of controlling shareholders' holdings and wedge in the years following the IPO, in consideration of Hypothesis 3. In Panel A, the full sample is examined. One year after the IPO, the mean equity ownership of the founders or controlling shareholders is 50.13% of the total firm equity. In subsequent years, these holdings sharply drop, such that five years after the IPO the mean ownership of controlling shareholders in dual class firms equals 37.44%. After this, the equity ownership of the controlling shareholders is fairly stable, and nine years after the IPO the mean equity ownership of the controlling shareholders equals 37.43%.

(Insert Table 7 about here)

For dual class firms, the decrease in the equity holdings of controlling shareholders is accompanied by an increase in the wedge between their voting and equity stakes. Table 7 reports

that the mean wedge increases from 16.27% one year after the IPO to 21.77% five years after the IPO, and to 26.48% nine years after the IPO. The increase in the wedge subsequent to the IPO is caused either by controlling shareholders selling some of the inferior-vote shares they may hold, or by the firm issuing new equity with inferior-votes, as typically only inferior-vote shares are traded on the public markets.

The number of dual class firms in our sample decreases sharply in the years after the IPO, consistent with the survival analysis results in Table 3. We start with 346 dual class firms for which we were able to find insider ownership data, yet nine years after the IPO only 150 dual class firms remain. This raises the possibility that the life cycle variation documented in Table 7 – such as the decline in controlling shareholders' equity ownership and the increase in the wedge – is biased by survivorship factors. For example, if surviving dual class firms already had lower insider ownership and a higher wedge from the time of their IPO, then the decrease in equity proportion and increase in wedge documented in Panel A are exaggerated or even spurious.

As a robustness test, we focus on 147 dual class firms for which we have complete holdings data for the first five years after the IPO (see Panel B in Table 7). The mean controlling shareholders' equity stake decreases from 53.44% on year IPO+1 to 38.16% on year IPO+5, and the mean wedge increases from 18.96% on IPO+1 year-end to 21.91% on IPO+5 year end. The decrease in holdings and the increase in wedge are statistically significant at the 1% level. This indicates that the equity stake dilution and wedge widening are robust post-IPO phenomena in dual-class firms, consistent with Hypothesis 3.

5. Life Cycle Impact on the Relative Valuation of Dual Class Firms

5.1. Valuation premium change

This section considers how firm value, as proxied by Tobin's Q, is associated with having a dual class structure, and how this association changes over the firm's life cycle. Specifically, we test Hypothesis 4 stating that the valuation difference between dual and single class firms decreases over time.

First, Table 8 reports the mean Tobin's Q in separate samples of single and dual class firms as a function of firm's public age (the number of years from the IPO). In the full sample, the relative valuation (Q) of dual class firms is on average significantly lower than that of single class firms, both at the time of the IPO and in all of the following years. This is consistent with a central result in the existing literature, including, for example, Gompers, Ishii and Metrick (2010). The valuation discount of dual class firms equals about 9% (=0.29/3.21) at the time of the IPO, increases to about 28% six years after the IPO, and then declines to about 19% in older dual class firms (aged 9 years and above). Bennedsen and Nielsen (2010), studying European dual and single class structures, find a similar average valuation discount of 20%. Previous literature has generally interpreted this discount as suggesting that dual class structures are inefficient because they are associated with higher agency costs, serving mainly their controlling shareholders interests at the detriment of outside shareholders.

(Insert Table 8 about here)

However, our matched sample analysis discloses a different 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 find a valuation premium for

dual class firms around the time of their IPO. Specifically, at the end of the first fiscal year following the IPO, the mean Tobin's Q of dual class IPOs (3.04) exceeds that of single class firms (2.75) by about 11%, which difference is statistically significant at the 10% level.

Table 8 also shows that the values of both single and dual class firms tend to decrease significantly in the years subsequent to the IPO. However, this life cycle valuation effect is particularly strong for firms with dual class structure. Specifically, while firms with dual class structure have on average a higher valuation than their matched single class firms shortly after the IPO, four years afterwards the valuation premium of dual class firms relative to matched single class firms disappears, and after six years, dual class firms tend to have a significantly lower firm value. However, a multivariate analysis is required before any conclusions can be drawn.

Table 9 examines the relative valuation of dual versus single class structures in multivariate regressions using the full and matched sample. 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, adding to the list of explanatory variables a dual class dummy variable.

We first run these regressions combining all observations of the full sample. Then, we use separate subsamples of cohorts of firms, progressing along firm's life cycle. This approach follows Johnson et al. (2017), who study antitakeover provisions for single class firms over the life cycle. The four life cycle cohorts suggested by the matched sample results in Table 8, Panel B, are the 1 – 3 years cohort, the 4 – 5 years cohort, the 6 – 8 years cohort, and the > 8 years cohort (or 9+ years cohort) after the end of the fiscal year of the IPO.[9]

(Insert Table 9 about here)

[9] Within each of these firm age cohorts, the mean valuation premium of dual versus single class firms is similar – see Panel B of Table 8.

In column 1 of Panel A, we combine all firm-year observations across the firms' life cycle, and find no evidence that, on average, dual class firms and single class firms have a different Tobin's Q. The coefficient on the dual class dummy equals -0.003 with a t-statistic of -0.06. This shows that the results in previous literature that show an average valuation discount for dual class firms do not hold in our more extensive 1980-2015 sample.

In column 2, using only observations for firms from the 1 – 3 years cohort, the coefficient of the dual class dummy equals 0.22, suggesting that dual class firms have a Tobin's Q that is about 9% higher than that of comparable single class firms (=0.22/2.46, where 2.46 is the average Q of single class firms in the full sample in years 1 – 3 after the IPO year - see Table 8). This first three years' valuation premium of dual class firms is statistically significant at the 1% level.

However, on average, the initial dual class valuation premium tends to decline as firms mature. In the 4 – 5 years cohort, the dual class premium is only slightly positive and statistically insignificant, and for the two later life cycle cohorts it becomes significantly negative. For example, using the sample of firms that are nine years or more after the IPO, the dual class dummy has a coefficient of -0.19, suggesting that those dual class firms have a Tobin's Q that is on average about 9% (=0.19/2.10) lower than that of single class firms.

In Panel B of Table 9, we show results for the matched sample. The picture is almost identical, albeit with weaker statistical significance. In the first three years after the IPO year, dual class firms have on average a 0.23 higher Tobin's Q than single-class firms (compared to 0.22 in the full sample), and this premium turns into a discount in Q of 0.15 nine years or more after the IPO year (compared to a discount of 0.19 in Panel A). This indicates that the life-cycle of the relative valuation of dual- and single-class firms is robust to using the matched sample.

As a robustness test, we employ Total Q as an alternative proxy for firm value. Peters and Taylor (2017) introduce Total Q, which scales firm's market value by the sum of physical and intangible capital, whereas the standard proxy for Tobin's Q scales it by the book value of total assets. 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 evidence using Total Q is summarized in Table 10. In the full sample (Panel A) we observe similar results to those of the Tobin's Q analysis. In the first three full calendar years after the IPO dual class firms have a statistically significant valuation premium which turns negative 6-8 years from the IPO. However, in the matched sample analysis summarized in Panel B, the Total Q based valuation premium of dual class firms becomes insignificantly negative only nine years after the IPO. In sum, the Total Q matched analysis favors dual class firms, and suggests the dual class structure may not be detrimental at all.

(Insert Table 10 about here)

In sum, the valuation evidence in this section supports our Hypothesis 4. Dual class firms tend to have a valuation premium relative to comparable single class firms at the IPO, which premium tends to dissipate in the years following the IPO. On average, only after six or even nine years from the IPO, the dual class structure starts being associated with lower valuations. Relative to the prior literature, the main new results are twofold. First, on average, there is no evidence that dual class firms have a different value than single class firms, if one does not incorporate the firm's life cycle. Second, the relative valuation of dual- and single-class firms changes along firm's life cycle, with an initial valuation premium for dual class firms in the early years after the IPO, and a

ultimate valuation discount for dual class firms starting about six years (using Tobin's Q) or nine years (using Total Q) after the IPO.

In terms of our basic model in equation (1), $Q_{dual} = Q_{single} + \Delta Q_{LV} + \Delta Q_{Agency}$, the results imply that $\Delta Q_{LV} > \Delta Q_{Agency}$ for firms at the beginning of their life cycle as publicly traded firms. Hence, on average, in the first public years of the firm, the valuation premium due to founders' vision and leadership more than offsets the discount caused by any higher agency problems associated with dual class structures.

However, our results need to be interpreted with considerable caution. In particular, the choice of a dual class structure at the IPO is an endogenous decision. For example, private firms with particularly strong growth opportunities may be more likely to choose a dual class structure when they first sell shares in public markets. This alternative interpretation reverses the causality and argues that the initially higher Tobin's Q (capturing better growth opportunities) triggers the choice of the dual class structure. In short, a selection (or endogeneity) effect might exist, such that the relative valuation of dual class firms compared to single class firms at the time of their IPO cannot be interpreted as being informative about the relative (in)efficiency of the dual class structure as compared to the single class structure. Our empirical design of constructing a matched sample of single and dual class firms with similar ex-ante characteristics (see Table 2) and similar issue date is intended to minimize the likelihood of a substantial initial difference between single and dual class firms, mitigating the influence of selections effect at the IPO.

However, we recognize that we cannot rule out reverse causality or other selection effects. Rather, we argue that under both interpretations the firm plausibly benefits from the dual class structure. In the first interpretation, the firm benefits from dual class structure by allowing less market discipline in order to better facilitate the long-term implementation of the founders' vision,

such that both public and controlling shareholders are better off. In the alternative interpretation, it is possible that young firms with the strongest growth opportunities would achieve an even higher firm value at the time of their IPO if they would have chosen a single class structure rather than a dual class structure. However, the choice of the dual class structure suggests that the controlling shareholders have a relatively strong preference for keeping strong control after the IPO, and thus may have chosen to delay their IPO for a number of years in case the dual class financing structure would not have been available. Such a delay harms both firms and public shareholders because without public funds break-through firms such as Google and Facebook could not develop that fast, and because without these firms IPOs, public could not buy their shares and could not participate in the nice profits accompanying their success.

In short, even if the alternative interpretation is correct and any valuation premium of dual class firms at the IPO is driven by selection effects, it seems plausible that both public shareholders and controlling shareholders benefit from an earlier IPO and thus from having the dual class structure available.

5.2. Cross-sectional evidence

We next explore the cross-sectional variation in the life cycle of dual class firm valuation, by comparing the valuation life cycle of dual class firms with a valuation discount relative to their single class matches at the time of the IPO to that of dual class firms with a valuation premium. Of the 493 matches examined,[10] there are 230 (47%) pairs of firms where at the IPO year end the dual class firms traded at a discount relative to its single class match.

[10] For 11 of our 504 matches we miss data for calculating the Q of either the single-class or the dual-class firm.

Table 11 reports Tobin's Q regressions in two subsamples of matched dual and single class firms: matched samples where the dual class firms have a positive initial valuation premium relative to their single class control firm (Panel A), and matched samples where the dual class firms have a negative initial valuation premium, i.e., a valuation discount (Panel B).[11] In Panel A, for the set of dual class firms with an initial valuation premium, we find that this initial valuation premium declines over time and does not turn into a valuation discount as these firms mature. For example, the coefficient of the dual class dummy in the group in the 9+ years cohort equals 0.086 (t-statistic of 0.65). This indicates that dual class firms with a valuation premium at the end of their IPO year gradually tend to lose this premium over the five years after the IPO year, until their valuations become very similar to those of their single class counterparts.

(Insert Table 11 about here)

The finding of no discount in the subsample of mature dual class firms with an initial valuation premium is important because it illustrates that either: 1) in some dual class firms agency problems may not be more severe than in their matched single class counterparts; or 2) in some dual class firms the unique value of the controlling shareholders persists for a long period and can offset the negative effect of extra agency costs even nine years and more after the IPO. Both these interpretations highlight the importance of the cross-sectional analysis – entrepreneurs' and controlling shareholders leadership might be needed even ten years after the IPO, and/or at some dual class firms, agency problems may not be significantly higher than at ex-ante comparable single class firms or not substantially increase over time relative to these single class control firms.

[11] Results using Total Q are similar and left unreported to save space.

Panel B describes that life cycle valuations of dual class firms with an initial valuation discount relative to their single class match. For this set of dual class firms, in all life cycle cohorts (except for the 4 – 5 years cohort), their valuation discount persists. The behavior of initially discounted dual class firms manifests no significant life cycle drift, as the valuation discount for the years 9+ cohort is similar to the valuation discount for the 1 – 3 years cohort. The only exception is the 4 – 5 years cohort, for which the valuation difference between the dual class and single class firms in the subsample is insignificant.[12] While it is difficult to interpret these results, they suggest that their agency problems do not aggravate over time.

We also explore differences between negative and positive initial premium dual class firms in other life cycle attributes (not tabulated to save space). We repeat the survival and takeover analysis of Tables 4 and 5, and find no significant differences between positive and negative premium dual class firms. Likewise, portfolio alphas of negative and positive premium dual class shares appear similar and are insignificantly different. Thus, it appears that the difference in the valuation life cycle between negative and positive initial premium dual class firms, reported in Table 11, is specific to their valuations.

5.3. Dual class share unifications

The decline in the relative valuation of dual versus single class firms documented in Tables 8 through 11 suggests that the dual class structure becomes less efficient over time. Accordingly, a natural solution is dual class share unification, in which all share classes are transformed into

[12] We speculate that this may be related to the unification wave in years 3 – 5 after the IPO – see our next subsection. Perhaps the market expected many of these negative premium dual class firms to voluntary unify. For the firms that did not unify their shares, the discount remains afterwards.

"one share one vote", which generally requires approval of the shareholders of the superior-vote-shares.

The availability of a "self-correct" mechanism, namely the possibility 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 5, that voluntary "self-correcting" firm-initiated dual class unifications are rare and more so when the firm is more mature.

Figure 1 depicts the frequency of unifications by the number of years from the IPO. Unification frequency increases in the first few years after the IPO, reaches a peak at about 3 – 5 years after the IPO, and then decreases. All of these unifications are voluntary firm-initiated unifications, and except for very few cases, controlling shareholders in these firms do not receive any compensation from the firm or other shareholders for giving up their extra voting power. The occurrence of unifications suggests that some firms and controlling shareholders recognize that the dual class structure becomes less efficient over time and decide to opt out.

(Insert Figure 1 about here)

We also estimate the valuation response to unifications. The median change in Tobin's Q in the unification year (from pre-unification year end to unification year-end) is 0.108, and it is statistically significant. In European dual class unifications, Lauterbach and Pajuste (2015) estimate a Q increase of 0.13 from the pre-unification year-end to the post-unification years end. Evidently, voluntary dual class unifications tend to increase the unifying firm market valuation.

The peak period for unifications is 3 – 5 years after the IPO, which is also the period when the initial valuation premium of dual class firms at the IPO becomes insignificant. Perhaps firms

that unify their shares during this period see the vanishing dual class valuation premium, and facing a possible upcoming valuation discount, they decide to eliminate the dual class structure.

However, it is important to note that, according to our estimates, only about 20% of dual class firms unify their shares within 9 years after the IPO. Most of the dual class firms elect to retain a dual class structure, perhaps because it is not in the interest of their controlling shareholders to unify. Upon unification, controlling shareholders lose significant voting control and nontrivial amounts of private benefits, and gain in return a fraction (equal to their equity stake) of the market valuation increase. It appears that in most dual class firms, the market valuation increase upon unification does not entice the controlling shareholders to initiate a unification process.

Figure 1 displays a decline in the frequency of unifications starting about five years after the IPO. This dwindling unification rate is consistent with our Hypothesis 5 that is based on Bebchuk and Kastiel (2017), who suggest, and our Table 7 confirms, that controlling shareholders' equity position declines in the years after the IPO. This decline reduces the controlling shareholders' gains from the market value increase upon unification. Hence, unifications become less attractive to controlling shareholders as the firm ages and their relative equity position declines, which can explain why unifications become even more rare about five years after the IPO.

Table 12 examines the listing age effect on the probability of unifications using Probit regressions that predict unification in the following fiscal year for our matched sample dual class firms during the years 1995-2015. Our set of explanatory variables is based on previous literature, adding our new variables: Ln Years from IPO (together with its square) in order to capture life cycle effects.

(Insert Table 12 about here)

The Probit analysis results are generally consistent with previous literature. For example, the coefficient of the wedge (the vote minus the equity stake of controlling shareholders) is negative and statistically significant. Upon unification controlling shareholders lose their extra voting power. This extra voting power, approximated by the wedge, represents the cost of unification from the perspective of controlling shareholders. Thus, when the wedge is relatively wide, unifications are more costly to controlling shareholders; and thus their firms are less likely to initiate unifications. Previous studies, such as Maury and Pajuste (2011), also document a negative impact of wedge on the probability of dual class share unification.

Other standard variables in unification analysis are industry growth opportunities and pending seasoned equity offers. Firms that plan seasoned equity offers or are growing rapidly and need frequent access to market financing suffer from the price discount of the low-voting-shares. For such firms, the dual class structure may be relatively inefficient, such that they are more likely to unify their share classes.[13] Consistent with this hypothesis and with findings in previous literature, Table 12 shows that better growth opportunities and pending equity offerings are strongly positively associated with the probability of unifications.

However, our main interest is in the life cycle effects, represented by the variable capturing the log of number of years from the IPO. Using only this variable in column 1 of Table 12, we find a negative association between the number of years since the IPO and the likelihood to unify. Using the square of the log number of years as well in columns 2 and 3, we find a non-linear association, where the coefficient of the log number of years from the IPO is positive and its square is negative (where both are statistically significant). The fitted parabolic relation is consistent with

[13] Abolishing the dual class structure ahead of an equity offering also helps create a public relations hype that generates relatively high share prices ahead of the offering – see Lauterbach and Pajuste (2015).

Figure 1, and the fitted coefficients imply that the probability of dual class share unification reaches its maximum at a public age of 3.6 years, after which it decays. Therefore, both Figure 1 and Table 12 support Hypothesis 5. After a wave of self-correcting unifications, the unification tendency wanes, and some stale inefficient dual class structure persist.

A final comment regards the variable used for best capturing the controlling shareholders' reluctance to opt out of the dual class structure and unify the share classes. Bebchuk and Kastiel (2017) propose that the overall equity holdings of controlling shareholders are the key variable, which we use in column 3 of Table 12, as an alternative to the wedge used in columns 1 and 2. The coefficient of equity holdings is negative, as expected, yet it is statistically insignificant. Thus, the wedge between the controlling shareholders' vote and equity proportion in the firm, appears more relevant for abolishing the dual class structure, perhaps because it represents more precisely the costs of unifications to controlling shareholders.

The apparent failure of most dual class firms to self-correct raises the question of the need for external regulatory intervention. The regulatory dilemma is discussed next.

6. Regulatory Implications and Discussion

The opposition to dual class financing is based on both popular and academic arguments.[14] Popular views seem to object to the inequality between shareholders of superior-voting and inferior-voting shares. It is widely contended that dual class firms want public investors' money but not their "voice". Academic scholars treat the problem as an agency problem. With their

[14] As an example, see new SEC Commissioner Jackson speech, in which he said that "Asking investors to put eternal trust in corporate royalty is antithetical to our values as Americans" (https://www.sec.gov/news/speech/perpetual-dual-class-stock-case-against-corporate-royalty).

commanding voting power, controlling shareholders may extract various private benefits from the firm at the cost of more efficient use of corporate resources.

Proponents of dual class firms reply that the founders' vision, leadership and skills are crucial for firm's continued success, and that in situations where outside shareholders are less informed and the firm requires specific investments (such as in firms engaged in long-term innovation or requiring the entrepreneur to invest significant firm-specific human capital), it is more efficient to let insiders make decisions at a greater distance from shareholder interference. Thus, the added value of a structure that isolates founders from "market discipline" offsets the increased agency problem costs from the 'extreme' limits on outside shareholder rights that dual class structures represent. Furthermore, to the extent that the agency costs of the dual class structure can be assessed in advance, the price the public pays for the inferior-vote shares is "fair".

To this debate, we add our life cycle observations. According to our evidence, dual class structures tend to have a valuation premium at the IPO and in first few years following it. On average, firms electing a dual class structure achieve a higher market value in their early years as public firms relative to young firms with single class financing that had their public offering at the same time, in the same industry, with similar asset size and profitability. As discussed previously, one interpretation is that dual class structures are more efficient for a subset of young firms. An alternative interpretation is that, notwithstanding our matched sample construction, dual class firms tend to have better growth opportunities in their early life as publicly traded firms. However, even under the second interpretation, the controlling shareholders have revealed a preference for a dual class structure for these firms with strong growth opportunities. Accordingly, it seems plausible that without the control afforded by the dual class structure, some firm founders would

not issue shares to the public, such that their firms would not have been able to expand as quickly. In sum, our evidence strongly supports allowing dual class IPOs.

We also find that the initial dual class valuation premium is temporary, and on average it disappears within 6 to 9 years after the IPO, depending on the proxy for firm value used. The declining valuations of dual- versus single-class firms and the eventual average valuation discount may provide tentative support for a mandatory sunset provision for dual class structures, as advocated by Bebchuk and Kastiel (2017). Such a provision would mandate a shareholder vote at a certain listing age on whether the dual class structure should be abolished, which could potentially eliminate inefficient dual-class structures among mature firms. Noticeably, we find that dual class firms with an initial valuation discount (relative to comparable single-class firm at the IPO year-end) tend to maintain this valuation discount even as mature firms. A mandatory sunset provision may revitalize these firms in particular.

The prospective sunset provision, as any regulation, may have some negative consequences. First, some founders may be reluctant to issue publicly traded shares if their reign over the firm is likely to be more limited in time. Second, controlling shareholders may intensify their private benefits extraction in the period before their extra power expires, which might also divert their attention from firm's genuine goals. Third, it is possible that shareholders may elect to abolish dual class structures even when they are beneficial. Regarding the timing of any sunset provision, our study suggest to wait at least six years after the IPO.

It is important to note that our results are also relevant for the broader universe of all antitakeover defenses. Dual class structures may be viewed as an extreme form of anti-takeover defense. Johnson, Karpoff and Yi (2017) find that anti-takeover defenses contribute positively to firm market value in the first years after the IPO, and only later on begin to be negatively associated

with firm value. The implication is that sunset provisions could be debated for other takeover defenses as well.

7. Summary and Conclusions

We employ an extensive dataset of single- and dual-class U.S. firms in the 1980-2015 period to examine life cycle effects in dual class firms. Our findings appear important in several ways. First, using our extensive data and formal tests we establish some important differences between dual-and single-class firms such as the longer survival and lower takeover activity of dual class firms. Previous research in this area was scarce and incomplete.

Second, and perhaps more novel, we find that dual class firms exhibit a valuation premium over comparable single class firms at the IPO, which is maintained for 6 to 9 years afterwards. In our sample, mature (older than 9 years) dual class firms tend to have lower valuations compared to single class firms. Interestingly, this 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 seem to depress market valuations persist, perhaps because they serve well their controlling shareholders' interests. Empirically, we find that the wedge between the voting and equity stakes of the controlling shareholders tends to increase as the firm ages, which can help explain the controlling shareholders' reluctance to unify.

Third, our evidence may have some regulatory implications, and can inform the debate regarding dual class stock financing, including the proposal in Bebchuk and Kastiel (2017) to adopt a 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 contributes to this debate by

showing 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 five years after the IPO. Thus, given other considerations as well, a typical sunset provision should not set in until at least six years after the IPO.

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Appendix A. Variable definitions

Age	Defined as the fiscal year minus the year of founding. The founding year data are from Ritter (2016) https://site.warrington.ufl.edu/ritter/ipo-data/
$Assets_t$	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.
$Control\ rights_t$	The fraction of voting rights held by the insiders. (See also Ownership rights.)
$Ownership\ rights_t$	The fraction of cash flow rights held by the insiders. The control rights and ownership rights are calculated from the share holdings 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 methodology, and calculate the aggregate holdings (owned either directly or through beneficiaries) of all executive officers and directors. Source: GIM (2010) and SEC disclosures (proxy statements or 10-Ks).
Control minus $Ownership_t$	The control rights minus the ownership rights held be the insiders. (See also Ownership rights.)
Equity Issue $Dummy_t$	Equals one if the company had sales of common or preferred stock (SSTK) greater than zero in year *t*; otherwise the variable is equal to zero. Source: Compustat.
Growth $opportunities_t$	The median Tobin's Q ratio of single-class firms in the respective 48 Fama and French (1997) industry group.
Industry-adj.	The variable is industry-adjusted, which is done by subtracting the industry median based on the 48 Fama and French (1997) industry groups.
Industry Dummies	Dummy variables for 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.
Ln Years from IPO	Natural logarithm of the number of years from IPO. Years from IPO are calculated from monthly data, i.e. 6-17 months are rounded to 1 year from IPO, 18-29 months—to 2 years from IPO, etc.
Media Dummy	Media industries are defined as SIC Codes 2710-11, 2720-21, 2730-31, 4830, 4832-33, 4840-41, 7810, 7812, and 7820. 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). All figures come from the end of fiscal year *t*. 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).

Table 1. Differences between dual- and single-class firms: Snapshots 1985-2015

The table presents medians of several financial variables for dual- and single-class firms in different calendar years. For one variable—Research and Development—means are reported instead of medians because the medians equal zero. The full sample of dual- and single- class firms is used over the period 1985-2015. *Assets* is total assets measured in millions of dollars. *Capital Expenditures* is the ratio of capital expenditures to total assets. *Leverage* is the ratio of book value of long-term debt to total assets. *Research and Development* is the ratio of research and development expenditures to total assets. *Return on Assets* is the ratio of net income to total assets. *Return on Equity* is the ratio of net income in year *t* to book value of common stock at the end of year *t*. *Sales growth is* a percentage change in revenues from year *t-1* to year *t*. *Tobin's Q* is measured as the market-to-book ratio of the firm. Equality of medians is tested using the Pearson's chi-squared test (and equality of means—using the two-sided t-test).

	1985	1991	1997	2003	2009	2015
Assets (Millions)						
Dual Class	67.5	169.4	238.6	784.7	846.7	1490.9
Single Class	27.7	44.1	63.8	143.1	276.7	409.2
p-value of Median equality test	*0.005*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Capital Expenditures						
Dual Class	7.36%	4.96%	4.73%	3.11%	2.07%	3.05%
Single Class	6.93%	4.09%	4.77%	2.33%	1.99%	2.30%
p-value of Median equality test	*0.726*	*0.344*	*0.901*	*0.002*	*0.490*	*0.015*
Leverage						
Dual Class	13.9%	24.2%	22.5%	19.6%	15.1%	18.8%
Single Class	7.2%	5.7%	4.9%	3.9%	3.3%	12.5%
p-value of Median equality test	*0.036*	*0.000*	*0.000*	*0.000*	*0.000*	*0.061*
Research and Development (means)						
Dual Class	3.05%	2.80%	3.07%	2.57%	3.11%	3.12%
Single Class	5.93%	6.34%	8.83%	8.53%	9.16%	10.25%
p-value of Mean equality test	*0.141*	*0.002*	*0.000*	*0.000*	*0.000*	*0.000*
Return on Assets						
Dual Class	6.21%	3.05%	2.76%	2.04%	1.66%	2.60%
Single Class	3.04%	2.47%	1.49%	0.91%	0.84%	0.03%
p-value of Median equality test	*0.002*	*0.403*	*0.023*	*0.062*	*0.024*	*0.000*
Return on Equity						
Dual Class	14.2%	8.2%	6.9%	6.8%	6.2%	7.8%
Single Class	6.4%	6.1%	4.0%	2.3%	2.0%	0.5%
p-value of Median equality test	*0.000*	*0.080*	*0.010*	*0.010*	*0.003*	*0.000*
Sales growth						
Dual Class	21.0%	9.5%	21.4%	5.8%	-7.3%	6.3%
Single Class	20.1%	11.0%	20.7%	8.7%	-4.6%	5.2%
p-value of Median equality test	*1.000*	*0.752*	*0.711*	*0.032*	*0.263*	*0.865*
Tobin's Q						
Dual Class	1.60	1.43	1.61	1.37	1.27	1.54
Single Class	1.67	1.57	1.87	1.87	1.51	1.71
p-value of Median equality test	*0.484*	*0.344*	*0.000*	*0.000*	*0.000*	*0.035*
Number of Observations (median across the above descriptive variables; actual is within 5% of the median)						
Dual Class	34	97	290	214	146	168
Single Class	835	1345	3142	2191	1668	1567

Table 2. Key statistics of single and dual-class firms at the IPO

The table presents medians of several financial variables for dual- and single-class firms at the fiscal year-end following the IPO. For one variable—Research and Development—means are reported instead of medians because the medians equal zero. Both the full and matched samples of dual- and single-class firms are used over the period 1980-2015. The matched sample includes 504 dual- and 504 single-class firms that are matched in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Age* is defined as the fiscal year minus the year of founding. *Assets* is total assets measured in millions of dollars. *Capital Expenditures* is the ratio of capital expenditures to total assets. *Leverage* is the ratio of book value of long-term debt to total assets. *Research and Development* is the ratio of research and development expenditures to total assets. *Return on Assets* is the ratio of net income to total assets. Return on Equity is the ratio of net income in year *t* to book value of common stock at the end of year *t*. *Sales growth is* a percentage change in revenues from year *t-1* to year *t*. *Tobin's Q* is measured as the market-to-book ratio of the firm. Equality of medians is tested using the Pearson's chi-squared test (and equality of means—using the two-sided t-test).

	Full sample			Matched sample		
	Single Class	Dual Class	*p-value of Difference*	Single Class	Dual Class	*p-value of Difference*
Age	7	11	*0.000*	9	10	*0.407*
Assets (Millions)	48.6	203.7	*0.000*	137.8	162.9	*0.156*
Capital Expenditures	4.68%	4.60%	*0.867*	4.81%	4.57%	*0.356*
Leverage	2.3%	11.5%	*0.000*	9.6%	9.7%	*0.800*
Research and Development (means)	7.0%	3.4%	*0.000*	3.5%	3.8%	*0.841*
Return on Assets	1.85%	2.30%	*0.252*	2.17%	2.27%	*0.950*
Return on Equity	3.9%	5.4%	*0.156*	5.2%	4.9%	*0.750*
Sales growth	39.7%	31.4%	*0.000*	32.8%	33.9%	*0.794*
Tobin's Q	2.37	1.93	*0.000*	2.00	2.04	*0.825*

Table 3. Survival differences between dual- and single-class firms: Cumulative dropouts' analysis

Panel A reports the total number of dropouts for a matched sample of dual- and single-class firms in years relative to the IPO. Dropouts (or delistings) are firms that do not survive as stand-alone entities on CRSP. In panels B, C and D, we break out three different reasons for non-survival, based on the delisting codes on CRSP. Panel B reports the number of mergers, Panel C—the number of delistings due to distress, and Panel D—the number of delistings due to other reasons. In this table we use a matched sample of 432 dual and 432 single-class firms that had an IPO in the year 2006 or earlier, i.e. firms that could have lived for 9 years (by the end of 2015) after the IPO. Firms are matched in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA.

Panel A. Cumulative number of total dropouts

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	IPO+9
Dual class firms (N)	8	37	76	107	131	149	168	184	199
Single class firms (N)	23	65	112	150	175	202	219	235	254
Dual class firms (% of total)	1.9%	8.6%	17.6%	24.8%	30.3%	34.5%	38.9%	42.6%	46.1%
Single class firms (% of total)	5.3%	15.0%	25.9%	34.7%	40.5%	46.8%	50.7%	54.4%	58.8%
p-value of difference	*0.006*	*0.003*	*0.003*	*0.002*	*0.002*	*0.000*	*0.001*	*0.001*	*0.000*

Panel B: Cumulative number of mergers

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	IPO+9
Dual class firms (N)	7	24	44	62	75	83	96	108	116
Single class firms (N)	15	41	71	94	113	126	136	142	152
Dual class firms (% of total)	1.6%	5.6%	10.2%	14.4%	17.4%	19.2%	22.2%	25.0%	26.9%
Single class firms (% of total)	3.5%	9.5%	16.4%	21.8%	26.2%	29.2%	31.5%	32.9%	35.2%
p-value of difference	*0.084*	*0.028*	*0.007*	*0.005*	*0.002*	*0.001*	*0.002*	*0.011*	*0.008*

Panel C. Cumulative number of delistings due to distress

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	IPO+9
Dual class firms (N)	0	3	7	10	15	22	24	28	29
Single class firms (N)	4	14	25	31	35	43	47	52	56
Dual class firms (% of total)	0.0%	0.7%	1.6%	2.3%	3.5%	5.1%	5.6%	6.5%	6.7%
Single class firms (% of total)	0.9%	3.2%	5.8%	7.2%	8.1%	10.0%	10.9%	12.0%	13.0%
p-value of difference	*0.045*	*0.007*	*0.001*	*0.001*	*0.004*	*0.007*	*0.004*	*0.005*	*0.002*

Panel D. Cumulative number of other dropouts, typically, non-compliance with listing rules

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	IPO+9
Dual class firms (N)	1	10	25	35	41	44	48	48	54
Single class firms (N)	4	10	16	25	27	33	36	41	46
Dual class firms (% of total)	0.2%	2.3%	5.8%	8.1%	9.5%	10.2%	11.1%	11.1%	12.5%
Single class firms (% of total)	0.9%	2.3%	3.7%	5.8%	6.3%	7.6%	8.3%	9.5%	10.6%
p-value of difference	*0.179*	*1.000*	*0.150*	*0.181*	*0.077*	*0.189*	*0.169*	*0.434*	*0.395*

Table 4. Survival differences between dual- and single-class firms: Cox regressions

The table reports the results of Cox proportional hazard model regressions, where failure is equal to one in the year preceding a delisting. Delisting is recorded when a firm ceases to exist as a stand-alone entity on CRSP. The reported coefficients represent the marginal effects (dy/dx). The relative (predicted) hazard (y) is 0.430 in regression (1) and 0.425 in regression (2). The matched sample of dual- and single-class firms is used over the period 1995-2015; matching is done in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Dual IPO dummy* equals one if the company went public with a dual-class share structure, otherwise the variable is equal to zero. *Vote minus Equity (wedge)* is the difference between controlling shareholders' vote and equity shares. *Tobin's Q* is measured as the market-to-book ratio of the firm. *Size* is the natural logarithm of total assets (in MUSD). *ROA* is return on assets, measured as the ratio of net income to total assets. *Leverage* is the ratio of book value of long-term debt to total assets. *Cash balance* is the ratio of cash and short-term investments to total assets. *Industry-adj*. means that the variable is industry-adjusted, which is done by subtracting the industry median based on the 48 Fama and French (1997) industry groups. Standard errors are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
Dual IPO dummy	-0.098**	
	(0.040)	
Vote minus Equity (wedge)		-0.56***
		(0.160)
Industry-adj. Tobin's Q	-0.048***	-0.049***
	(0.016)	(0.016)
Size	-0.050***	-0.049***
	(0.006)	(0.006)
Leverage	0.18**	0.20**
	(0.088)	(0.088)
Industry-adj. ROA	-0.39***	-0.38***
	(0.093)	(0.090)
Cash Balance	-0.003***	-0.003***
	(0.001)	(0.001)
Observations	7,141	7,141
Pseudo R-square	0.0248	0.0268

Table 5. Takeover likelihood

The first four columns of the table report results of pooled probit regressions, where the dependent variable is an indicator variable equal to one in the year preceding a takeover. The last two columns report OLS regression results with industry-year fixed effects. The matched sample of dual- and single-class firms is used over the period 1995-2015; matching is done in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Dual IPO dummy* equals one if the company went public with a dual-class share structure, otherwise the variable is equal to zero. *Vote minus Equity (wedge)* is the difference between controlling shareholders' vote and equity shares. *Tobin's Q* is measured as the market-to-book ratio of the firm. *Size* is the natural logarithm of total assets (in MUSD). *ROA* is return on assets, measured as the ratio of net income to total assets. *Leverage* is the ratio of book value of long-term debt to total assets. All specifications include year and 48 Fama-French industry groups fixed effects. Z-statistics are based on robust standard errors clustered at the firm level and are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dual IPO dummy	-0.15***		-0.13**		-0.015***	
	(-2.71)		(-2.48)		(-2.74)	
Vote minus Equity (wedge)		-0.73***		-0.59***		-0.060***
		(-3.92)		(-3.29)		(-4.65)
ROA	0.041	0.052	0.054	0.063	0.0026	0.0037
	(0.37)	(0.47)	(0.51)	(0.59)	(0.28)	(0.39)
Leverage	-0.13	-0.12	0.053	0.077	-0.015	-0.013
	(-0.96)	(-0.88)	(0.45)	(0.65)	(-1.18)	(-1.10)
Size	0.027	0.025	0.022	0.021	0.0026	0.0024
	(1.35)	(1.29)	(1.15)	(1.12)	(1.37)	(1.26)
Tobin's Q	-0.023	-0.025	-0.026	-0.028	-0.0017	-0.0019
	(-1.19)	(-1.26)	(-1.50)	(-1.59)	(-1.15)	(-1.27)
Number of takeovers in industry			0.0047***	0.0047***		
			(2.62)	(2.58)		
Constant	-2.01***	-1.97***	-1.94***	-1.94***	0.042***	0.042***
	(-5.84)	(-5.85)	(-11.37)	(-11.44)	(3.76)	(3.71)
Industry effects	Yes	Yes				
Year effects	Yes	Yes				
Industry-year effects					Yes	Yes
Observations	7,024	7,024	7,024	7,024	7,024	7,024
Pseudo R-squared	0.0358	0.0395	0.0236	0.0258		
Adjusted R-squared					0.00122	0.00247

Table 6. Stock returns of dual class shares

The table documents results of Fama-French-Carhart four-factor calendar-time regressions in the matched sample. Separate portfolios are generated for single- and dual-class firms at various life cycle stages (i.e., by time from IPO clusters). The dependent variable is the value-weighted excess return of the portfolio stocks. Market factor is the excess return on the value-weighted market index. HML factor is the return on a zero investment portfolio constructed by shorting low book-to-market stocks and buying high book-to-market stocks. SMB factor is the return on a zero investment portfolio constructed by shorting a portfolio of large firms and investing in a portfolio of small firms. UMD factor is the return on a zero investment portfolio constructed by shorting a low prior return portfolio and investing in a high prior return portfolio. T-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Four factor model regressions for dual-class stocks

Years since IPO:	0	1-3	4-5	6-8	> 8	1-5	> 5
Alpha (monthly)	0.00577	-0.00529**	-0.000691	-0.000439	0.00415	-0.00151	0.000942
	(0.95)	(-2.01)	(-0.25)	(-0.17)	(1.45)	(-0.64)	(0.46)
Market factor	1.178***	1.297***	1.093***	1.081***	1.085***	1.160***	1.106***
	(7.06)	(15.61)	(14.91)	(17.43)	(14.83)	(14.63)	(22.47)
HML	-0.736**	-0.471***	-0.300***	-0.190*	-0.258**	-0.531***	-0.221***
	(-2.53)	(-4.84)	(-2.73)	(-1.94)	(-2.14)	(-5.62)	(-2.70)
SMB	0.590**	0.623***	0.412***	0.596***	0.407***	0.500***	0.525***
	(2.20)	(6.25)	(4.20)	(5.93)	(2.76)	(5.29)	(5.45)
UMD	-0.143	-0.0691	-0.231***	0.155***	-0.0974	-0.111**	0.0108
	(-0.74)	(-1.19)	(-3.72)	(2.75)	(-1.51)	(-2.20)	(0.26)
Observations	356	408	372	348	312	408	348
R-squared	0.325	0.642	0.577	0.607	0.554	0.661	0.696

Panel B. Four factor model regressions for single-class stocks

Years since IPO:	0	1-3	4-5	6-8	> 8	1-5	> 5
Alpha (monthly)	-0.00875	-0.00286	-0.00230	-0.00362	-0.00153	-0.00267	-0.00101
	(-1.29)	(-1.03)	(-0.72)	(-1.16)	(-0.44)	(-1.08)	(-0.43)
Market factor	1.346***	1.215***	1.133***	1.242***	1.106***	1.184***	1.092***
	(7.79)	(19.84)	(15.26)	(17.96)	(12.02)	(20.06)	(18.69)
HML	-0.748***	-0.669***	-0.114	0.269**	-0.0187	-0.566***	-0.0484
	(-2.62)	(-6.13)	(-0.90)	(2.28)	(-0.16)	(-6.00)	(-0.53)
SMB	0.801***	0.693***	0.576***	0.905***	0.567***	0.686***	0.582***
	(2.95)	(6.89)	(5.56)	(9.11)	(5.03)	(8.18)	(7.91)
UMD	0.219	-0.195***	-0.165**	-0.303***	0.0681	-0.173***	-0.0392
	(0.98)	(-3.12)	(-2.39)	(-2.63)	(0.98)	(-3.17)	(-0.78)
Observations	361	414	378	354	308	414	354
R-squared	0.357	0.654	0.487	0.609	0.484	0.687	0.646

Panel C. Four factor model regressions for dual- minus single-class stock portfolios

Years since IPO:	0	1-3	4-5	6-8	> 8	1-5	> 5
Alpha (monthly)	0.0177**	-0.00151	0.000618	0.00199	0.00604	0.00204	0.000757
	(2.24)	(-0.45)	(0.15)	(0.52)	(1.38)	(0.65)	(0.26)
Market factor	-0.179	0.0681	-0.0505	-0.137	-0.0303	-0.0358	0.0363
	(-0.94)	(0.71)	(-0.47)	(-1.50)	(-0.26)	(-0.37)	(0.49)
HML	0.00249	0.175	-0.250	-0.476***	-0.250	0.0100	-0.186
	(0.01)	(1.37)	(-1.46)	(-2.98)	(-1.60)	(0.07)	(-1.50)
SMB	-0.0856	-0.0493	-0.174	-0.312**	-0.162	-0.166*	-0.0564
	(-0.30)	(-0.44)	(-1.33)	(-2.19)	(-0.75)	(-1.66)	(-0.39)
UMD	-0.480*	0.144*	-0.0729	0.467***	-0.169*	0.0810	0.0559
	(-1.76)	(1.85)	(-0.74)	(3.43)	(-1.81)	(1.16)	(0.76)
Observations	329	408	372	348	308	408	348
R-squared	0.026	0.013	0.011	0.150	0.020	0.013	0.015

Table 7. The change in controlling shareholders holdings along dual class firm's life cycle

Controlling shareholders' equity share is the fraction of cash flow rights held by the controlling shareholders. *Controlling shareholders' vote* is the fraction of voting rights held by the controlling shareholders. *Vote minus equity (wedge)* is the difference between controlling shareholders voting and equity rights. Panels A and B present the mean controlling shareholders' equity and the mean wedge for dual-class firms in years relative to the IPO. In Panel A, we report data for all dual-class firms with available ownership data (for the period 1995-2005); a firm is dropped from the sample after the unification. In Panel B, we report data for a balanced panel of dual-class firms with complete ownership data that preserved the dual-class structure for at least 5 years. Matching is done according to the IPO year, industry, firm size, and ROA.

	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	IPO+9	IPO+1 vs. IPO+5 (p-value)
Panel A. Dual-class firms										
Controlling shareholders' equity share, %	50.13	45.52	41.79	40.67	37.44	37.09	36.74	37.63	37.43	*0.000*
Vote minus equity (wedge), %	16.27	17.53	19.64	20.82	21.77	22.23	23.57	24.79	26.48	*0.001*
Number of observations	346	320	276	238	204	193	172	163	150	
Panel B. Dual-class firms with complete ownership data that survived at least 5 years										
Insider ownership rights, %	53.44	49.12	44.41	40.46	38.16					*0.000*
Control minus Ownership (wedge), %	18.96	20.58	22.23	22.06	21.91					*0.004*
Number of observations	147	147	147	147	147					

Table 8. The relative valuation of dual- and single-class firms and its change along the life cycle (Tobin's Q analysis)

Tobin's Q is the ratio of the book value of assets plus the market value of common stocks less the book value of common stocks and deferred taxes to book value of assets. Panel A shows Tobin's Q in years relative to the IPO for the full sample of dual- and single-class firms. Panel B shows Tobin's Q in years relative to the IPO for the matched sample of 504 dual- and 504 single-class firms that are matched in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. 'IPO' denotes the fiscal year end following the IPO. 'IPO+1' denotes the fiscal year end one year after the IPO, and so on. Equality of means is tested using the two-sided t-test.

Panel A: Full sample

Variable	IPO	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	9+ (average)
Dual Tobin's Q (mean)	2.92	2.39	2.13	1.98	1.82	1.80	1.63	1.61	1.69	1.70
Single Tobin's Q (mean)	3.21	2.59	2.40	2.39	2.31	2.25	2.26	2.22	2.21	2.10
Dual class premium (in terms of Tobin's Q)	-0.29	-0.19	-0.27	-0.41	-0.49	-0.46	-0.63	-0.61	-0.53	-0.40
p-value of difference	*0.010*	*0.048*	*0.008*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*

Panel B: Matched sample

Variable	IPO	IPO+1	IPO+2	IPO+3	IPO+4	IPO+5	IPO+6	IPO+7	IPO+8	9+ (average)
Dual Tobin's Q (mean)	3.04	2.46	2.19	2.00	1.83	1.80	1.61	1.59	1.68	1.69
Single Tobin's Q (mean)	2.75	2.30	2.05	1.89	1.89	1.82	1.91	1.94	2.05	1.85
Dual class premium (in terms of Tobin's Q)	0.30	0.16	0.15	0.11	-0.06	-0.02	-0.30	-0.35	-0.36	-0.16
p-value of difference	*0.061*	*0.249*	*0.275*	*0.377*	*0.634*	*0.884*	*0.036*	*0.022*	*0.036*	*0.219*

Table 9. Tobin's Q analysis of dual class firms' valuation premium by firms' listing age

The table reports the results of OLS regressions from different year-clusters relative to the IPO, where the dependent variable is Tobin's Q. *Tobin's Q* is measured as the market-to-book ratio of the firm. Panel A (B) reports the results in the full (matched) sample of single and dual class firms. The matched sample of dual- and single-class firms is used over the period 1980-2015; matching is done in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Dual dummy* equals one if the company has a dual-class share structure at the respective fiscal year-end, otherwise the variable is equal to zero. *Size* is the natural logarithm of total assets (in 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. The first column reports the results from all the firm-years, column (2)—from 1-3 years relative to the IPO, etc. All specifications include year and 48 Fama-French industry groups fixed effects. T-statistics are based on robust standard errors clustered at the firm level and are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Full sample

		Years relative to the IPO			
	All	1-3	4-5	6-8	9+
Dual dummy	-0.003	0.22***	0.044	-0.18**	-0.19***
	(-0.061)	(3.32)	(0.54)	(-2.55)	(-2.65)
Size	-0.045***	-0.092***	-0.086***	-0.075***	0.015
	(-3.71)	(-5.57)	(-4.15)	(-3.52)	(0.81)
ROA	-0.41***	-0.30***	-0.61***	-0.54***	-0.301*
	(-6.10)	(-3.58)	(-4.63)	(-3.50)	(-1.77)
Capital Expenditures	0.042***	0.029***	0.041***	0.046***	0.057***
	(20.66)	(11.52)	(9.52)	(9.12)	(11.16)
Research and Development	0.028***	0.027***	0.021***	0.025***	0.040***
	(12.35)	(10.17)	(5.43)	(5.67)	(8.78)
PPE	-0.93***	-0.64***	-0.88***	-0.80***	-1.14***
	(-10.58)	(-5.55)	(-5.68)	(-4.58)	(-7.44)
Cash Balance	0.018***	0.015***	0.020***	0.015***	0.014***
	(21.89)	(12.28)	(11.26)	(7.64)	(8.39)
Leverage	0.17*	-0.21*	0.066	0.36**	0.47***
	(1.75)	(-1.86)	(0.41)	(2.22)	(2.82)
Constant	1.79***	2.11***	1.87***	1.83***	1.34***
	(27.18)	(23.88)	(16.30)	(15.50)	(12.07)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	65,474	18,358	8,624	9,699	21,285
Adjusted R-squared	0.269	0.233	0.252	0.243	0.289

Panel B. Matched sample

		Years relative to the IPO			
	All	1-3	4-5	6-8	9+
Dual dummy	-0.012	0.23**	0.17	-0.15	-0.15
	(-0.17)	(2.25)	(1.31)	(-1.17)	(-1.47)
Size	-0.035	-0.024	-0.006	-0.065	-0.007
	(-1.21)	(-0.48)	(-0.12)	(-0.88)	(-0.19)
ROA	0.26	0.49**	0.41	-0.015	0.22
	(1.43)	(1.97)	(1.08)	(-0.022)	(0.63)
Capital Expenditures	0.036***	0.018***	0.024*	0.029***	0.037***
	(6.35)	(2.69)	(1.86)	(2.91)	(3.82)
Research and Development	0.052***	0.034***	0.027	0.052*	0.075***
	(4.88)	(3.00)	(1.62)	(1.70)	(4.68)
PPE	-0.59***	-0.012	-0.14	-0.45	-0.82***
	(-2.78)	(-0.045)	(-0.44)	(-1.51)	(-2.69)
Cash Balance	0.024***	0.028***	0.021***	0.022**	0.015***
	(8.98)	(5.63)	(4.04)	(2.20)	(4.31)
Leverage	0.37	-0.39*	-0.027	0.84*	0.98**
	(1.40)	(-1.76)	(-0.087)	(1.74)	(2.44)
Constant	1.46***	1.52***	1.25***	1.49***	1.21***
	(7.70)	(4.76)	(3.65)	(3.77)	(4.71)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	8,623	2,393	1,113	1,296	2,845
Adjusted R-squared	0.302	0.255	0.326	0.404	0.414

Table 10. Total Q analysis of dual class firms' valuation premium by firms' listing age

The table reports the results of OLS regressions from different year clusters relative to the IPO, where the dependent variable is Total Q. *Total Q*, as defined by Peters and Taylor (2017), is measured by scaling firm value by the sum of physical and intangible capital. Panel A (B) reports the results in the full (matched) sample of single and dual class firms. The matched sample of dual- and single-class firms is used over the period 1980-2015; matching is done in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Dual dummy* equals one if the company has a dual-class share structure at the respective fiscal year-end, otherwise the variable is equal to zero. *Size* is the natural logarithm of total assets (in 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. The first column reports the results from all the firm-years, column (2)—from 1-3 years relative to the IPO, etc. All specifications include year and 48 Fama-French industry groups fixed effects. T-statistics are based on robust standard errors clustered at the firm level and are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Full sample

		Years relative to the IPO			
	All	1-3	4-5	6-8	9+
Dual dummy	0.063	0.35**	0.068	-0.28**	-0.30***
	(0.69)	(2.37)	(0.47)	(-2.41)	(-3.44)
Size	0.075***	0.098***	0.13***	0.104***	0.12***
	(3.59)	(3.21)	(3.99)	(3.31)	(3.65)
ROA	0.29***	0.40***	0.24	0.43***	1.03***
	(3.56)	(3.49)	(1.59)	(3.50)	(5.72)
Capital Expenditures	0.046***	0.038***	0.045***	0.046***	0.045***
	(17.42)	(10.56)	(7.70)	(9.21)	(7.88)
Research and Development	-0.035***	-0.027***	-0.025***	-0.016***	-0.005
	(-16.31)	(-8.50)	(-6.15)	(-4.43)	(-1.29)
PPE	-2.30***	-2.90***	-1.84***	-1.41***	-1.14***
	(-16.69)	(-12.40)	(-7.52)	(-7.51)	(-6.43)
Cash Balance	0.048***	0.038***	0.033***	0.024***	0.023***
	(32.45)	(15.76)	(11.35)	(9.26)	(8.30)
Leverage	0.21*	0.062	-0.17	0.39**	0.11
	(1.79)	(0.32)	(-0.80)	(2.06)	(0.71)
Constant	0.89***	1.49***	0.61***	0.47***	0.13
	(8.14)	(9.50)	(3.60)	(2.91)	(0.72)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	62,755	17,602	8,323	9,371	20,368
Adjusted R-squared	0.220	0.163	0.140	0.109	0.129

Panel B. Matched sample

		Years relative to the IPO			
	All	1-3	4-5	6-8	9+
Dual dummy	0.14	0.62***	0.48**	0.083	-0.18
	(1.20)	(2.95)	(2.33)	(0.44)	(-1.33)
Size	0.042	0.15	0.16*	0.023	0.014
	(0.79)	(1.30)	(1.71)	(0.22)	(0.16)
ROA	0.69***	1.13***	0.22	0.81**	1.70***
	(2.80)	(3.21)	(0.55)	(2.36)	(3.56)
Capital Expenditures	0.038***	0.022*	0.041***	0.038***	0.025***
	(5.19)	(1.84)	(2.74)	(3.21)	(2.87)
Research and Development	-0.022**	-0.028*	-0.009	-0.000	0.007
	(-2.03)	(-1.79)	(-0.42)	(-0.000)	(0.45)
PPE	-1.93***	-2.34***	-1.29**	-1.17***	-0.82**
	(-6.74)	(-3.97)	(-2.52)	(-3.24)	(-2.49)
Cash Balance	0.051***	0.056***	0.017*	0.014	0.019***
	(10.02)	(5.27)	(1.88)	(1.58)	(3.45)
Leverage	0.51*	0.081	-0.18	0.89**	1.09***
	(1.94)	(0.17)	(-0.37)	(2.03)	(2.66)
Constant	0.79**	0.76	0.16	0.62	0.52
	(2.42)	(1.10)	(0.25)	(1.01)	(0.95)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	8,415	2,349	1,084	1,266	2,768
Adjusted R-squared	0.225	0.151	0.230	0.145	0.153

Table 11. Cross-sectional variation in the valuation life cycle of dual class firms

The table reports the results of OLS regressions from different year clusters relative to the IPO, where the dependent variable is Tobin's Q. *Tobin's Q* is measured as the market-to-book ratio of the firm. Panel A (B) reports the results in a matched sample of dual class firms that had higher (lower) initial (IPO year) Tobin's Q than their single-class matches. The matched sample of dual- and single-class firms is used over the period 1980-2015; matching is done in the IPO year according to the 48 Fama and French (1997) industry groups, firm size (assets), and ROA. *Dual dummy* equals one if the company has a dual-class share structure at the respective fiscal year-end, otherwise the variable is equal to zero. *Size* is the natural logarithm of total assets (in 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. The first column reports the results from all the firm-years, column (2)—from 1-3 years relative to the IPO, etc. All specifications include year and 48 Fama-French industry groups fixed effects. T-statistics are based on robust standard errors clustered at the firm level and are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Matched single- and dual-class firms with a positive initial dual class Tobin's Q premium

		Years relative to the IPO			
	All	1-3	4-5	6-8	9+
Dual dummy	0.50***	0.88***	0.20	0.034	0.086
	(5.47)	(6.14)	(1.06)	(0.20)	(0.65)
Size	0.006	-0.022	0.104	-0.13	0.035
	(0.14)	(-0.31)	(1.15)	(-1.08)	(0.70)
ROA	0.045	0.37	0.59	-1.18	-0.36
	(0.18)	(1.20)	(1.23)	(-1.08)	(-0.97)
Capital Expenditures	0.031***	0.009	0.027	0.022*	0.033**
	(4.10)	(0.88)	(1.52)	(1.78)	(2.38)
Research and Development	0.027***	0.030**	0.027	-0.017	0.021
	(3.10)	(2.15)	(1.19)	(-0.51)	(1.43)
PPE	-0.43*	0.21	-0.53	-0.50	-0.42
	(-1.93)	(0.59)	(-1.24)	(-1.45)	(-1.17)
Cash Balance	0.027***	0.027***	0.024***	0.029**	0.013***
	(7.95)	(4.25)	(3.13)	(2.08)	(3.20)
Leverage	-0.035	-0.48	0.18	0.59	0.31
	(-0.20)	(-1.38)	(0.40)	(1.57)	(1.16)
Constant	1.025***	1.21***	0.59	1.93***	0.98***
	(4.004)	(2.91)	(0.98)	(2.97)	(3.09)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	4,447	1,249	588	682	1,407
Adjusted R-squared	0.267	0.261	0.334	0.394	0.377

Panel B. Matched single- and dual-class firms with a negative initial dual class Tobin's Q premium	Years relative to the IPO				
	All	1-3	4-5	6-8	9+
Dual dummy	-0.54***	-0.43***	0.16	-0.22	-0.37**
	(-5.04)	(-2.73)	(0.601)	(-1.10)	(-1.99)
Size	-0.14***	-0.11	-0.14	-0.14	-0.073
	(-2.70)	(-1.41)	(-1.24)	(-1.28)	(-0.84)
ROA	0.43	0.60	0.12	1.25	0.89
	(1.54)	(1.41)	(0.18)	(1.56)	(1.55)
Capital Expenditures	0.033***	0.014	0.007	0.038**	0.049***
	(4.25)	(1.21)	(0.27)	(2.36)	(3.16)
Research and Development	0.069***	0.046*	0.015	0.098***	0.099***
	(5.03)	(1.85)	(0.56)	(3.36)	(7.50)
PPE	-0.61*	-0.14	0.47	-0.15	-0.66
	(-1.71)	(-0.30)	(0.65)	(-0.25)	(-1.19)
Cash Balance	0.019***	0.025***	0.029***	0.009	0.013**
	(4.76)	(2.61)	(3.30)	(0.86)	(2.58)
Leverage	0.79*	-0.44	-0.073	0.64	1.63**
	(1.92)	(-1.19)	(-0.11)	(0.64)	(2.35)
Constant	2.35***	2.46***	1.91***	2.01***	1.52***
	(6.95)	(4.58)	(2.65)	(3.17)	(2.82)
Industry-Year effects	Yes	Yes	Yes	Yes	Yes
Observations	3,914	1,085	495	574	1,316
Adjusted R-squared	0.366	0.264	0.419	0.550	0.495

Table 12. The effect of dual class firm's listing age (time from IPO) on unification frequency

The table reports the results of pooled probit regressions, where the dependent variable is an indicator variable equal to one in the year preceding a share class unification. The sample of all dual-class firms is used over the period 1995-2015. *Controlling shareholders' equity* is the fraction of cash flow rights held by the controlling shareholders. *Controlling shareholders vote* is the fraction of voting rights held by the controlling shareholders. *Control minus Ownership (wedge)* is the difference between controlling shareholders' vote and equity rights. *Ln Years from IPO* is the natural logarithm of the number of years since the IPO. *Media dummy* equals one if the company belongs to the media industries that are defined as SIC Codes 2710-11, 2720-21, 2730-31, 4830, 4832-33, 4840-41, 7810, 7812, and 7820. *Size* is the natural logarithm of total assets (in MUSD). *Growth opportunities* is measured as the median Tobin's Q ratio of single-class firms in the respective 48 Fama and French (1997) industry group *Equity issue dummy (Years +1, +2 or +3)* equals one if the company issues common or preferred stocks in years t+1, t+2 or t+3, otherwise the variable equals zero. All specifications include year fixed effects. Z-statistics are based on robust standard errors clustered at the firm level and are given in parentheses. ***, **, and * refers to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
Control minus Ownership	-1.25***	-1.27***	
	(-4.52)	(-4.53)	
Controlling shareholders' equity			-0.0024
			(-1.16)
Ln Years from IPO	-0.077*	0.32**	0.25
	(-1.80)	(2.02)	(1.58)
Squared Ln Years from IPO		-0.13**	-0.13**
		(-2.47)	(-2.32)
Media dummy	-0.33*	-0.36**	-0.44***
	(-1.92)	(-2.07)	(-2.58)
Size	-0.044*	-0.040	-0.037
	(-1.71)	(-1.55)	(-1.44)
Growth opportunities	0.18***	0.17***	0.19***
	(3.33)	(3.22)	(3.23)
Equity issue dummy (Years +1, +2 or +3)	0.32***	0.33***	0.24**
	(2.59)	(2.65)	(1.96)
Constant	-1.78***	-1.96***	-1.94***
	(-7.25)	(-7.76)	(-7.25)
Year dummies	Yes	Yes	Yes
Observations	3,307	3,307	3,219
Pseudo R-squared	0.0794	0.0859	0.0580

Figure 1. Voluntary dual class share unifications along the life cycle

The figure presents the number of unifications in years relative to the IPO. In this figure, we use a sample of 432 dual-class firms that had an IPO in the year 2006 or earlier, i.e. firms that could have survived for 9 years (by the end of 2015) after the IPO.