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What's in a vote? The short- and long-run impact of dual-class equity on IPO firm values

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Abstract

We find that relative to fundamentals, dual-class firms trade at lower prices than do single-class firms both at the IPO date and for at least the subsequent five years. The lower prices attached to dual-class firms do not foreshadow abnormally low stock or accounting returns. However, CEO turnover events do occur less frequently among dual-class firms and the circumstances surrounding CEO turnover vary between single- and dual-class companies. When dual-class firms unify their share classes statistically and economically significant value gains occur. Collectively, our results suggest that the governance associated with dual-class equity influences the pricing of dual-class firms.

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Prompted by the wave of corporate scandals around the turn of the century, Congress passed the Sarbanes-Oxley (SOX) Act of 2002. This legislation, ostensibly designed to protect investors, contains provisions which presuppose that firms' governance practices affect shareholder value. Several research papers published in the wake of SOX look for possible connections between governance and value, but no professional consensus exists regarding whether or how governance and value are linked. In this paper, we contribute to the debate by comparing several attributes of dual- and single-class firms, following them from their IPO dates forward for five years. We focus on IPO firms because it is prior to the IPO that firms establish the governance rules by which they will abide as public companies. Subsequent changes to governance policies, such as the adoption of poison pills, may be precipitated by imminent takeover threats, making it more difficult to disentangle any relation between governance provisions and firm value. Furthermore, tracking firms from their IPO dates provides a clear starting point from which we can assess the efficiency with which the market prices dual-class firms. By focusing exclusively on newly public dual-class firms, we avoid issues which arise when firms switch from single-class to dual-class status through a recapitalization plan, which may be tied to other simultaneous value-relevant events. Our research design emphasizes comparisons between dual-class and single-class firms because dual-class equity is a particularly effective method by which managers may entrench themselves. By separating cash flow rights from voting rights, dual-class equity enables corporate insiders to exert voting control over a firm in which they may hold a comparatively small economic interest. Hence, dual-class shares potentially exacerbate problems associated with the separation of ownership and control inherent in the corporate organizational form.

An additional motivation for our study comes from evidence that the importance of dual-class equity in U.S. markets appears to be rising as new firms adopt this particular ownership structure. Smart and Zutter (2003) report that from January 1990 to May 1994 about 7 percent of all U.S. IPOs adopt dual-class equity structures, and that these firms account for about 11 percent of the aggregate market capitalization of IPO firms during this period. However, from June 1994 to

October 1998, these figures increase significantly. In the latter period, almost 12 percent of all IPOs were dual-class deals accounting for about 31 percent of IPO market capitalization.

The Finish Line Inc. provides a prototypical example of a dual-class IPO. Holders of the Finish Line's Class A shares, originally offered to the public through a 1992 IPO, receive one vote per share, while the Finish Line's Class B shareholders control ten votes per share. All other rights of the two share classes are identical. After its IPO, The Finish Line sold seasoned equity (Class A shares only) on three occasions in order to raise the capital it needed to open roughly 400 new retail stores. With each subsequent sale of Class A shares, the fractional ownership of insiders steadily decreased, while the Class B shares enabled insiders to retain control. Recent S.E.C. filings reveal that The Finish Line's three founders collectively own just 205,934 of the firm's 21,208,451 Class A shares, yet they own all of the 2,865,284 Class B shares outstanding. Combining their holdings of both classes, the founders' percentage claim on the firm's cash flows barely reaches 12.8 percent, but they still control almost 57.9 percent of the votes that can be cast on any matter requiring shareholder approval. Does the wedge between insiders' voting rights and cash-flow claims that dual-class equity facilitates influence the pricing of dual-class equity at the IPO date and beyond?

Some of the largest and most vocal institutional investors subscribe to the view that dual-class stock arrangements entrench managers at the expense of shareholders. For example, in its proxy voting guidelines, the California Public Employees' Retirement System (CalPERS) says that it votes against any proposal to create unequal voting rights across share classes. In response to Google's announcement in 2004 that it would go public with dual-class equity, a high-ranking official at TIAA-CREF remarked that Google's shares should be priced at "a substantial

discount" and that the dual-class stock "effectively disenfranchises outside shareholders."[1] Determining whether investors apply a discount to the shares of dual-class firms or more generally to the shares of firms that adopt governance provisions that strengthen the position of corporate insiders remains a challenging empirical question.

In a recent influential paper, Gompers, Ishii, and Metrick (2003) measure the protections afforded shareholders through firms' corporate governance structures. They construct a corporate governance index (dubbed simply, G) and find that firms with poor governance index scores underperform the market and have lower Tobin's Q values than firms with better governance scores.[2] However, Core, Guay, and Rusticus (2005) assert that a causal relation between bad governance and low stock returns should appear empirically in the form of negative operating performance surprises for firms with weak governance. They find no evidence that poorly governed firms as defined by Gompers, Ishii, and Metrick achieve unexpectedly poor operating results. Furthermore, they claim that the subpar stock performance of badly-governed firms eventually reverses. Core, Guay, and Rusticus conclude that their evidence does not support the

[1] See London (2004). Some high-profile regulators also subscribe to this view. Charlie McCreevy, the internal market commissioner of the European Union, said in a Financial Times interview, "It is my goal to get the one-share, one-vote principle accepted across the 25 member states." See Buck (2005).

[2] Gompers, Ishii, and Metrick (2003) calculate G by simply adding up the number of provisions that reduce shareholders' rights. Therefore, a higher G corresponds to worse corporate governance. Whether each of the component provisions of G has a meaningful impact on either the degree to which managers are entrenched or on firm value is an open question. Comment and Schwert (1995), for example, argue that poison pills do very little to deter takeovers and have negligible wealth effects in most cases. It is interesting to note that Gompers, Ishii, and Metrick (2006) report that dual-class firms on average have lower G index scores than do single-class firms. Presumably this is because dual-class equity is a rather extreme form of entrenchment, and firms adopting this structure do not need to adopt many other provisions to protect insiders' interests.

hypothesis that bad governance leads to low stock returns, and they propose that the anomalous returns reported in Gompers et al. may simply be a manifestation of the "new economy pricing puzzle of the (late) 1990s."

Most papers in this literature acknowledge that the relation between governance and firm value is endogenous, making it difficult to establish clear lines of causality. Do poor governance structures lead to lower valuations, or do firms with low valuations adopt provisions to minimize the threat of a takeover? Challenging Gompers et al. on that front, Lehn, Patro, and Zhao (2006) find that valuation multiples in the early 1980s, before most firms had adopted the governance provisions captured by the G index, exhibit a high correlation with multiples in the 1990s. Moreover, after controlling for valuation multiples in the early 1980s, Lehn et al. find no relation between contemporaneous valuation multiples and governance measures in the 1990s. They conclude that causality runs from firm value to governance, not the other way around.

Ideally, a variable correlated with firms' governance structures but not with their values would permit researchers to disentangle the relation between governance and value. Unfortunately, the literature offers no consensus instrument. In this paper, we conduct a variety of tests to build a case that dual-class equity leads to lower share prices. After a brief literature review, in Section II we describe our data and provide descriptive statistics. In Section III we compare the market prices of dual- and single-class companies, starting at the IPO date and continuing for the next five years. The data show that firms choosing voting-right structures that favor management face a significant and persistent valuation discount in the market. This valuation gap persists even after controlling for cross-sectional differences in industry valuation multiples as well as firm-specific attributes including growth, profitability, and leverage. In this regard, our results align with those of Gompers et al. and several other studies reporting a valuation discount for firms with governance mechanisms which favor insiders over shareholders.

In contrast to the results in Gompers et al., we find no connection between governance and mispricing. Section IV evaluates the long-run stock returns realized by dual- and single-class

IPOs and finds little or no evidence that dual-class firms underperform. This result is robust to several alternative methods for calculating abnormal returns including buy-and-hold returns (both market adjusted and style adjusted) and Fama-French regressions. By this standard, the market's valuation of dual-class IPOs is efficient.

If the difference in valuation multiples between duals and singles does not reflect a pricing error, what does it reflect? The line of argument suggesting that causality runs from valuation to governance says that poorly performing firms adopt governance systems to protect incumbents. In this case, we expect to see low operating performance from poorly governed firms. We also examine this possibility in Section IV, reporting the results from tests for differences in operating performance between single- and dual-class firms. As with stock returns, there is at best only scant evidence suggesting that duals exhibit abnormally low operating performance.

Although singles and duals generate similar accounting returns over time, a valuation gap between singles and duals could still be tied to operating performance if dual-class firms are riskier than singles. That is, holding expected cash flows constant, dual-class firms would trade at lower multiples if they carry more systematic risk than singles. The asset pricing literature does not give us a universally accepted method for evaluating risk differences between portfolios of stocks. Nevertheless, we can offer two observations suggesting that the valuation discount applied to duals does not reflect a higher systematic risk. First, three-year buy-and-hold returns are significantly higher on the value-weighted portfolio of single-class IPOs as compared to the dual-class firms. Second, in Fama-French pricing regressions, we observe no systematic tendency for the factor betas for dual-class firms to exceed those of singles. Neither of these findings lead to the conclusion that dual-class firms are more risky than their single-class counterparts.

Lacking evidence linking differences in operating performance to the valuation gap between singles and duals, we turn to a governance explanation. Section V examines differences in CEO turnover events for singles and duals. Two interesting and suggestive findings emerge. First, the incidence of CEO turnover is slightly lower for duals than singles, consistent with the hypothesis

that dual-class shares entrench incumbents. Second, the circumstances surrounding turnover events vary between singles and duals. We place turnover events into one of two categories. An external turnover event occurs when the CEO departs the firm due to it being acquired. We classify all other turnover events as internal turnover. For single-class firms, negative abnormal returns precede internal turnover events, but not external turnover events. This suggests that internal governance mechanisms for single-class firms work well enough to remove the CEO of an underperforming firm without intervention from the market for corporate control. However, for dual-class firms the pattern reverses. Negative abnormal returns precede external turnover events, but no correlation exists between internal turnover and prior returns.

Our final test, presented in Section VI, focuses on firms that unwind their dual-class voting structures. We track our sample of dual-class firms during the five years following their IPOs and find that 37 eventually unify their share classes. Conducting an event study around the effective date of these unifications, we find positive abnormal returns on the order of 5 to 6 percent using either the market model or Fama-French model. Because unifications often occur gradually as insiders divest their Class B shares, and because firms typically make no formal announcement regarding their plans to unify shares, our event study estimates likely understate the true value increase associated with share unifications.

Together, these results suggest a causal relation going from governance to value. However, we must acknowledge that we cannot completely rule out alternative explanations. For example, perhaps we observe abnormal returns around share unifications because investors interpret that action as a signal of forthcoming operating performance improvements. Like the decision to adopt dual-class shares at the IPO, the decision to unify share classes is endogenous, and it may be that firms anticipating positive performance shocks are those that choose to eliminate their dual-class shares. The predominantly recent unification dates in our sample prevent tracking post-unification performance for more than a few firms. Similarly, we cannot yet say whether CEO turnover events at firms that unify their share classes occur more frequently or are more sensitive

to negative performance than prior to the unification. As a result, our evidence, like that reported in other studies which attempt to link governance to firm value, remains suggestive. We now turn to a brief review of the relevant literature in order to provide a broader context within which our results may be interpreted.

I. Literature on Governance and Firm Value

Empirical research on the link between governance and firm value has a long history. Much of the research in this area uses event-study methods to determine the short-term impact of changes in firms' governance practices on share prices. For example, the literature on poison pills generally takes this approach. Work by Ryngaert (1988) and Malatesta and Walkling (1988) suggests that poison pill adoptions reduce shareholder wealth. However, Brickley, Coles, and Terry (1994) find that the effect of poison pill adoptions on shareholder wealth depends on the mix of inside and outside directors serving on the adopting firm's board. Comment and Schwert (1995) conclude that poison pills do little to deter takeovers, and except in the first few years when firms began to use poison pills, and in cases where firms adopt them after becoming a takeover target, pills do not decrease shareholder wealth. Dozens of other studies use similar methods to study the wealth effects of the adoption of antitakeover amendments, the passage of state antitakeover laws, and changes in the composition of corporate boards.[3]

Some of the early work on dual-class firms fills a niche in this literature. While our paper focuses on firms which adopt a dual-class structure at the IPO, some firms that currently have dual-class voting arrangements created them in a recapitalization transaction. Partch (1987) examines firms that recapitalize by creating a new class of shares with superior voting rights and

[3] See McWilliams (1990), Linn and McConnell (1983), DeAngelo and Rice (1983), and Jarrell and Poulsen (1987). For event-study evidence on wealth effects connected with changes to and the composition of corporate boards, see Cotter, Shivdasani, and Zenner (1997), Shivdasani (2006), Fich and Shivdasani (2005), Shivdasani and Yermack (1999), Perry and Shivdasani (2005), Choi, Park, and Yoo (2006), Dahya and McConnell (2006), Paul (2006), and Faleye (2006).

finds no evidence that these events trigger a significant change in shareholder wealth. Jarrell and Poulsen (1988) find negative abnormal returns around dual-class recap announcements, while Millon-Cornett and Vetsuypens (1989) find just the opposite. This ambiguity in the empirical evidence mirrors conflicting predictions from theory. Ruback (1988) shows how shareholders acting individually can be coerced to approve dual-class recaps that would be rejected if shareholders could act collectively. Grossman and Hart (1988) propose that in most cases, the one-share, one-vote rule should be optimal, while Harris and Raviv (1988) construct a model in which the separation of cash flow and voting rights can maximize firm value at the expense of social optimality. Other authors conjecture that dual-class voting arrangements could maximize firm value by solving various types of underinvestment problems (see, e.g., underinvestment by managers in firm-specific human capital).[4]

Though we supplement our primary results with event-study evidence, our main emphasis is on the long-run impact of dual-class stock on valuation ratios such as (the inverse of) Tobin's Q and the earnings-to-price ratio. Our approach aligns closely with that of Yermack (1996), Gompers, Ishii, and Metrick (2003), Bebchuk and Cohen (2005), and Gompers, Ishii, and Metrick (2006). In a study designed to assess the relation between the size and effectiveness of corporate boards, Yermack reports that firms with smaller boards have higher Q values in the period 1984-1991. Yermack presents additional evidence suggesting a causal link between board size and firm value. For example, he finds that smaller boards are more likely to dismiss CEOs following a period of poor performance, and that the sensitivity of CEO turnover to performance is greater among firms with small boards. We report similar results when we compare circumstances surrounding CEO turnover among dual-class versus single-class firms.

Bebchuk and Cohen focus on firms with staggered boards, arguing that a staggered board provides incumbents with a high degree of insulation from outside monitoring. They construct a

[4] See for example DeAngelo and DeAngelo (1985), Fischel (1987), and Denis and Denis (1994).

sample of firms covered by the Investor Responsibility Resource Center (IRRC), and they find that firms with staggered boards have significantly lower Tobin's Q values. This relation holds only for firms with staggered boards established in the corporate charter, which shareholders cannot amend. For the relatively small subsample of firms that establish staggered boards in their bylaws, which shareholders can amend, no significant correlation between the staggered board and Tobin's Q exists. Bebchuk and Cohen argue that staggered boards represent, "…the key arrangement that protects incumbents from removal in U.S. publicly traded companies." However, they exclude dual-class firms from their analysis, commenting that, "…in such firms, the holding of superior voting rights is likely to be the key for entrenching incumbents."

Gompers, Ishii, and Metrick (2006) examine the relation between firm value, cash flow rights, and voting rights in a sample of U.S. dual-class firms.[5] They acknowledge that financial economists widely agree that insider stock ownership can have both positive and negative effects on firm value. Higher managerial ownership leads to greater wealth maximizing incentives, but more voting power provides incumbents with more insulation from external monitoring. Empirical work on this issue is hampered because only one variable, ownership, is available to disentangle the effects of incentives from those of entrenchment.[6] Gompers, Ishii, and Metrick (2006) recognize that dual-class firms offer a solution to this problem. They estimate a model of the determinants of dual-class status and use that to make adjustments within the universe of dual-class firms for sample selection and endogeneity. Their most interesting result is that the

[5] See Villalonga and Amit (2006) for a similar analysis of large, family-owned U.S. corporations.

[6] See Stulz (1988) for theoretical work on the offsetting effects of managerial ownership. Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990) offer empirical evidence that higher insider ownership at first increases, then decreases firm value.

value of dual-class firms depends positively on insiders' cash flow rights and negatively on insiders' voting rights.[7]

Our analysis differs from that in extant literature in several important ways. First, Gompers, Ishii, and Metrick (2003) as well as Bebchuk and Cohen (2005) exclude dual-class firms from their analysis and focus instead on cross-sectional variation in governance provisions among single-class firms. Although dual-class firms constitute less than 10 percent of the universe of firms covered by the Investor Responsibility Research Center (IRRC), the primary source of data on firm-specific governance characteristics, in the late 1990s the percentage of new firms coming to market with dual-class equity was greater than 10 percent. Because they are typically larger than single-class IPOs, dual-class companies account for a larger percentage of aggregate equity value than their numbers alone indicate.

Second, while our paper offers evidence on the relation between dual-class equity and firm value in the spirit of Gompers, Ishii, and Metrick (2006), our analysis departs from theirs in several interesting and important ways. Their sample includes a broader cross-section of dual-class firms, but our analysis uses a longer time series. Moreover, their sample includes much older and larger dual-class firms than the IPO firms which we study.[8] This difference in sampling

[7] Evidence that the separation of cash flow and voting rights leads to lower firm value is not restricted to U.S. markets. In a study of emerging market firms, Lins (2003) finds lower firm value when managers' voting ownership exceeds their cash flow ownership. Similarly, in a study of firms in Asian countries, Claessens et al. (2002) report lower firm value when the largest shareholder's voting ownership exceeds their cash flow ownership. The legal environments and the protections they offer investors vary dramatically across countries, so it is not clear whether the results of these studies can be extended to the United States.

[8] They report a mean (median) age, as of 2000, for dual-class firms in their sample of 12.87 (7.21) years. All of the dual-class firms in our sample went public between 1990 and 1998, so by the end of 2000,

choices allows us to address an interesting question—does the market apply a discount to dual-class IPOs from their inception, or does the discount emerge gradually over time? Immediately after the IPO, it is common for insiders to own a large fraction of the outstanding shares in both single-class and dual-class companies. However, as firms grow and return to the market to raise equity through seasoned offerings, the voting power of single-class insiders' declines at the same rate as their cash flow rights, while dual-class insiders' voting rights change at a much slower rate than their economic ownership does. Smart and Zutter (2006) report that more than forty percent of IPO firms in the 1990s issued seasoned equity within five years of the IPO date, and the probability of an IPO firm conducting a seasoned offering is much higher if that firm is a dual-class company. Therefore, over time the gap between the economic incentives and voting power of dual-class firms widens. Our evidence suggests that investors discount dual-class equity starting at the IPO date and that the discount is persistent for at least five years following the IPO.

Third, we also provide two important previously undocumented pieces of evidence supporting the hypothesis that investors discount dual-class firms. Similar to the evidence on large versus small corporate boards presented by Yermack (1996), we find that CEO turnover in single-class firms follows a period of subpar performance, a pattern that dual-class turnover events do not mimic. Intuitively, one might guess that the valuation discount we document exists because investors expect dual-class managers to be firmly entrenched. Using a broad definition of CEO turnover, we find that turnover events are slightly less common among dual-class firms compared to single-class companies. We also show that the sign and magnitude of abnormal returns surrounding turnover events depend on the type of turnover (e.g., acquisition related or not) and whether the firm is a single or a dual. We now turn to a description of our data.

II. Data

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the maximum age of a dual-class firm in our study is just 11 years. The definition of age here is years since the CRSP listing date.

Our primary data source is the *Disclosure New Issues* database from Disclosure, Inc. The data set provides a wealth of information about debt and equity offerings on an issue-by-issue basis for any original or subsequent registration or prospectus filed with the Securities and Exchange Commission (SEC). Compared to another well-known IPO data provider, Securities Data Corp., Disclosure under-samples small IPOs, though it does not exclude them. Types of firms excluded from our data set include closed-end funds, unit offers, investment companies, real-estate investment trusts, and limited partnerships.

We extract issues from Disclosure by selecting records for firm-commitment IPOs of common stock from 1990 through 1998. We stop collecting data in 1998 because we want to track each IPO firm for several years after the IPO date. The search yields 3,628 issues. We eliminate duplicate records, reducing our sample to 2,787 issues. We further eliminate 165 issues because we cannot match data with Standard and Poors' COMPUSTAT. Our final sample covers 2,622 IPOs (including 253 dual-class issues) with offer prices ranging from $5 to $35.

Table I presents some descriptive statistics for our sample. Dual-class firms raise more money at the IPO and have a higher average market capitalization than single-class firms. Perhaps surprisingly given the difference in size, dual-class firms experience faster revenue growth than singles in the first two years after the IPO, though that difference is not significant. Duals have higher average institutional ownership, less pre-IPO venture financing, and less frequent listings on NASDAQ. Duals employ more leverage and invest less in R&D than singles. By most measures, dual-class firms are more profitable than singles.

[Place Table 1 here]

III. Market Pricing of Dual- and Single-class IPOs

Our primary interest is in comparing the market values of singles and duals. In this section we examine the market's pricing of dual- and single-class IPOs by testing for systematic differences in valuation ratios across the different firm types. We offer two measures: the earnings-to-price

ratio and the inverse of Tobin's Q (replacement cost over market value; hereafter, 1/Q).[9] If the market imposes a cost on companies who insulate managers through dual-class ownership, then we expect to find that these companies trade at lower prices, relative to earnings or replacement cost, than firms with the more typical one-share, one-vote structure, and we expect this valuation discount to persist.

A. Univariate Analysis

We begin by calculating the earnings-to-price (E/P) and inverse of Tobin's Q ratios. In the ratios using earnings, we divide by price because the more conventional approach of putting earnings in the denominator results in a highly skewed distribution.[10] For example, many IPO firms have very low earnings, so the distribution of price-to-earnings ratios has a very long right tail. If the market believes that dual-class equity entrenches insiders to the detriment of outside shareholders then dual-class firms should have higher E/P and 1/Q ratios relative to singles.

In Table II, we calculate each of these ratios at the time of the IPO and at one-year intervals for the first five years after the IPO. In each year, we collect data at the fiscal year end to calculate ratios. For example, each year we take the earnings and market price of the stock at the end of the fiscal year to calculate the E/P ratio. Time zero in our tests refers to the IPO year, not the IPO date. In other words, the E/P ratio at time zero is the first fiscal year end after the IPO. We follow the approach taken by Kaplan and Zingales (1997) and calculate Tobin's Q by adding the market value of equity to the book value of debt, less the book value of deferred taxes, and then dividing that by the book value of total assets.

[9] Note that in both ratios a measure of market value appears in the denominator, so a higher market value, relative to fundamentals, results in a lower ratio.

[10] In the tables reported here we also exclude firms with negative earnings, though including these firms does not change our fundamental conclusions.

In Table II, the mean E/P value for dual-class firms at the IPO date is 0.053, and for singles the mean value is 0.048. If we invert these to obtain P/E ratios we obtain 18.87 for duals and 20.83 for singles, a difference of $1.96 per dollar of earnings. Correspondingly, the mean 1/Q value for dual-class firms at the IPO date is 0.561, and for singles the mean value is 0.484. If we invert these to obtain Q ratios we obtain 1.78 for duals and 2.07 for singles, a difference of 0.29 cents per dollar of replacement cost. Said differently, these ratios indicate 9.4 and 14.0 percent discounts per dollar of earnings and replacement cost, respectively, for duals relative to singles.

To further illustrate the economic significance of this difference, we compare our differences in mean Q ratios to those reported in Gompers, Ishii, and Metrick (2003). In their study of single-class firms, Gompers et al. sort firms into deciles based on the G index. They refer to firms in the top decile (which have the most restrictions on shareholder rights) as the "dictatorship portfolio," and they designate firms in the bottom decile as the "democracy portfolio." In their summary statistics, they report that the difference in mean Q ratios for firms in the dictatorship and democracy portfolios is 0.30, almost exactly the gap that we find between singles and duals.[11] Thus, we can say that the difference in Q ratios between the average single-class IPO and the average dual-class IPO is equivalent to the difference in Q ratios between the best and worst governed firms according to the G index. Unreported differences in the mean sales-to-price and book-to-market ratios also point to higher market values for single-class IPOs relative to duals.

Table II also shows the mean values for each ratio for the five years following the IPO year and indicates whether the difference in means between singles and duals is significant each year. The differences are significant in every year, with the values for dual-class firms consistently

[11] Gompers et al. report a 1.77 Q for firms in the democracy portfolio and a 1.47 Q for firms in the dictatorship portfolio. Observe that our Q ratios tend to be higher, presumably because our sample focuses on smaller firms with more growth potential. Bebchuk and Cohen (2005) examine the impact of staggered boards on Q ratios and find that firms with staggered boards in 1990 have Q ratios which are 0.17 lower than firms without staggered boards from 1995-2002.

exceeding those of single-class companies. Thus based on yearly average pricing multiples, dual-class firms have lower relative valuations than do single-class companies, and that valuation gap persists for at least five years after the IPO.

[Place Table II here]

Although taking the inverse of conventional pricing ratios (e.g., P/E) reduces the potential for skewness it is still possible that outliers drive the differences in means reported in Table II. Figure 1 shows the median value for each ratio in each year for both single- and dual-class firms.[12] Panel A plots the median E/P ratio starting at time zero and going forward for five post-IPO years.[13] In the IPO year, the median single-class firm has an E/P ratio equal to 0.040, and the median dual-class firm's E/P ratio equals 0.046. To put these figures in a more familiar context, we can invert them to calculate the P/E ratio. The median P/E ratio equals 25 for singles and 21.7 for duals, a difference of 15.2 percent. The median time zero market capitalization for a dual-class firm equals $193 million, so the difference in P/E ratios implies an economically significant dollar difference of about $29.4 million.

The difference in E/P ratios is not a phenomenon exclusive to the IPO year. In each of the five post-IPO years, the median dual-class E/P ratio exceeds the median single-class E/P ratio, and in most years the difference between the two groups is larger than in year zero. Pooling results across all years, the median E/P ratio equals 0.058 for duals and 0.049 for singles.

Panel B plots median values of 1/Q. Single-class firms have a lower 1/Q value in every year compared to duals, and the differences are large. In the third post-IPO year the value of 1/Q is 14.5 percent higher for duals, and in the other years the difference ranges from 20.9 percent to

[12] Unreported differences in medians tests reveal essentially the same patterns as reported in Table 2. By most measures and in most years dual-class firms trade at a discount compared to single-class firms.

[13] For the E/P ratios, we exclude any firm-year when earnings are negative.

35.5 percent. Unreported results using sales-to-price and book-to-market ratios reveal a similar pattern.

[Place Figure 1 here]

In Panel C we plot the percentage difference in the median value of each valuation metric between duals and singles. All ratios point to lower relative market valuations for duals. In most cases, the difference in valuation ratios falls between ten and thirty percent. Fitting a trend line through each series, we find a positive slope coefficient for both valuation ratios, indicating some tendency for the valuation gap between singles and duals to widen over time. A widening valuation gap between singles and duals is not surprising. At the IPO date, dual-class insiders typically own a relatively high fraction of both classes of stock. As illustrated by the Finish Line example, dual-class insiders reduce their cash flow ownership over time while their voting control diminishes at a far lower rate. Recognizing that many duals sell equity during their first five years as public entities, the tendency for the valuation gap to widen over time is consistent with the Gompers, Ishii, and Metrick (2006) finding that dual-class valuations fall when insiders' cash flow rights are lower. However, the positive slope of the trend line is statistically insignificant.

Though the dual-class firms in our sample come from a wide range of industries, it is possible that a disproportionate share of them compete in industries where we might expect low valuation ratios. Similarly, we know that dual-class firms tend to be larger than their single-class counterparts and they invest less in R&D, so perhaps the valuation differences we are seeing merely represent differences in other characteristics and are not tied to the dual-class structure per se. In the next section we control for various firm-specific characteristics to address these concerns.

B. Multivariate Analysis

To attribute the valuation differences between singles and duals to the dual-class voting structure, we must also control for other characteristics of these firms that can affect their market values (relative to earnings, replacement cost, etc.). In this section we report regression results

that control for differences in industry composition, firm size, leverage, growth opportunities, and other characteristics that may be value relevant.

Recognizing that the industrial composition of singles and duals may vary, we control for industry differences in two ways. First, in our regression model we include SIC dummies at the one-digit level. Industry dummies control for inter-industry valuation differences that are time invariant. Second, for each firm in our sample we identify a set of comparable firms that come from the same industry. Our definition of a comparable firm is a firm that has the same four-digit SIC code as the sample firm. When we cannot find at least five comparable firms for a given sample firm, we broaden our definition of comparability to include firms in the same three-digit SIC code. Next, for each firm-year, we calculate the median valuation ratio for the comparable firms. In any given year we compare every sample firm with its "industry comparable" median valuation ratio. This approach controls for inter-industry valuation differences that vary over time. This industry comparable median appears as a control variable in our regression model.[14]

On average, duals are larger than singles, so the pricing differences we observe in the previous section might be attributable to differences in firm size rather than to the dual-class equity structure. In our regressions below, we include the logged S&P 500 adjusted market capitalization as a control for firm size.

Firms that investors expect to grow rapidly can have lower valuation ratios. To control for this possibility, we include a sales growth variable in our regressions. Specifically, we include the prior two-year sales growth rate in the regressions. Measuring sales growth prior to an IPO is sometimes impossible because data prior to the IPO is unavailable. Therefore, in event years zero, one, and two, we measure sales growth from year zero to year two. This means that the sales

[14] Our approach here is similar in spirit to that used to value IPOs in Kim and Ritter (1999).

growth control variable varies across firms but not across time until event year three.[15] From event year three and beyond, the sales growth rate is simply the compound annual growth rate over the previous two event years.

Table I indicates that dual-class firms use more leverage, so we include the ratio of long-term plus short-term debt divided by total assets as a control variable. To address the possibility that dual-class firms may go public at a later stage in their life cycles, we include a dummy variable equal to one for firms which pay dividends. We also add to the regression model the ratio of research and development expense over assets and a dummy variable equal to one for firms included in the S&P500. Finally, we control for differences in profitability across firms by including the ROA ratio, which equals net income divided by total assets.

We run our regression models on each valuation ratio and on each year. In a regression that uses E/P or 1/Q as the dependent variable, a positive sign on a dual-class dummy variable indicates lower relative valuations for duals. Table III reports the year-by-year results for specifications using the "industry comparable" control variable. Panel A shows the results when our dependent variable is the E/P ratio, and Panel B reports results when we use 1/Q as the dependent variable. For both valuation ratios, the regressions confirm the results shown in Figure 1 and Table II in a multivariate setting. Dual-class firms have higher E/P ratios in each year except year zero. In most years the point estimates indicate an E/P difference greater than 0.01, which is large relative to the difference in mean E/P ratios reported in Table I. Similarly, the regressions in Panel B indicate that dual-class firms have higher 1/Q ratios than do single class companies. The difference is significant in four out of six years, and the point estimates suggest an economically significant difference in value between the two firm types.

[15] Regressions that use pre-IPO sales growth figures when available produce similar results, as do regressions which use sales-to-price or book-to-market as the dependent variable.

The coefficients on the control variables are generally significant with the expected signs. In every model, the results indicate that faster growing firms have lower valuation ratios as expected. The same holds true for firms which invest heavily in R&D. The coefficient on the R&D-to-assets ratio is negative and highly significant in all regressions. One seemingly counterintuitive result from these regressions is that larger firms also have lower valuation ratios. In most of our sample years, larger IPOs (as measured by the IPO offer value) earn higher initial returns than do smaller deals. This leads to the negative coefficient on size in our regressions.

The factors (other than dual-class shares) that lead to higher valuation ratios are not surprising. The coefficient on the industry comparable control variable has a positive sign, so firms that come from industries with high valuation ratios tend to have high valuation ratios themselves. The regressions also point to higher valuation ratios for dividend-paying firms, firms included in the S&P500 index, and firms that employ more leverage. All of these results are highly significant.[16] We obtain mixed results for the relation between valuation ratios and profitability. When we use E/P as the dependent variable, then the coefficient on ROA is positive and highly significant. However, that relation is sometimes positive, sometimes negative, and sometimes insignificant when the dependent variable is 1/Q.

With two dependent variables and six year-by-year regressions, we have 12 distinct estimates of the effect of dual-class equity on firm value. All of the point estimates are positive, and nine out of 12 are significant. In unreported regressions using either the sales-to-price or the book-to-market ratio as the dependent variable, we obtain similar results. These findings provide evidence that the market discounts the shares of companies with dual-class equity. The significance and

[16] Gompers, Ishii, and Metrick (2003; 2006) subtract the industry control variable from their independent variable rather than placing it on the right hand side. Our results are broadly similar if we adopt their approach or if we use SIC dummies on the right hand side rather than the industry comparable control variable.

magnitude of this discount is striking, and indirectly it provides some evidence of the value that managers place on having control. It is hard to imagine that firms going through the IPO process fail to hear, either from their investment bankers or from institutional investors on the road show, that the issuers pay a price for insulating managers through a dual-class equity offering.

[Place Table III here]

If the market discounts dual-class shares, then that discount may reflect investors' concerns about management's ability to deliver acceptable financial performance in the future. In the next section, we try to assess whether the market's discount on dual-class shares is consistent with the future performance of these firms. That is, we ask whether dual- or single-class firms' exhibit abnormal performance after the IPO. Excess performance indicates that investors are overly pessimistic, while abnormally low performance indicates the opposite.

IV. Performance of Dual-class Firms

A. Long-run Stock Returns

In this section we measure the returns of dual- and single-class firms following the IPO. Because the literature has not settled on a single way to measure long-run returns, we offer two different measures. First, we calculate three-year buy-and-hold returns, both equal and value weighted. We report raw buy-and-hold returns as well as market-adjusted returns and style-adjusted returns. Second, we estimate Fama-French three-factor regressions over three- and five-year horizons. Again, we report these estimates on both an equal- and value-weighted basis.

Our interpretation of the pricing gap between singles and duals is that the market imposes a penalty on firms that go public with dual-class equity. Examining post-IPO returns provides a way to assess whether the market's penalty is consistent with *ex post* performance. If dual-class shares exhibit abnormal positive returns, then we would conclude that over time investors decide that the initial penalty was too severe. Of course, entrenched managers might perform even worse than expected, in which case dual-class stocks would earn negative abnormal returns.

By the same token, the valuation gap between singles and duals may reflect excessive optimism about the performance of single-class companies. Ritter (1991) was the first to document that going-public firms earned abnormally low returns after their IPOs. Brav and Gompers (1997) argue that underperformance is not a general IPO phenomenon, but instead is concentrated among small firms without backing from venture capitalists. In either case, because we observe a difference in the valuation ratios of singles and duals that persists for at least five years beyond the IPO, it does not appear that any underperformance by single-class firms entirely eliminates the valuation gap.

A.1. Buy-and-hold Returns

Table IV reports three-year buy-and-hold returns (BHR) for singles and duals by IPO cohort year and for all years combined. In the third column we report the mean raw BHR. Column 4 shows the market-adjusted abnormal return, calculated by subtracting the corresponding BHR on the CRSP value-weighted market index from each individual firm's BHR. The difference is a market-adjusted buy-and-hold abnormal return (BHAR). Column 5 lists a BHAR calculated using a style adjustment. Specifically, we calculate the style-adjusted return as in Ritter and Welch (2002), matching each sample firm to a control firm based on market capitalization and book-to-market ratio.

As previous studies have reported, we find that choices regarding the benchmark used to define abnormal returns and the weighting scheme used to aggregate returns have a significant impact on whether or not we detect abnormal returns. For instance, when we combine results across all dual-class firms in our sample, we find no statistically significant evidence that duals earn abnormal returns when we aggregate using equal weights. Even so, the spread between our abnormal-return estimates for duals is wide. Using the market-adjusted BHAR, duals trail the benchmark by almost 8 percent over three years, but using the style-adjusted BHAR it appears that duals exceed their benchmark by almost 31 percent. Again, neither of these estimates is significant. Turning to the value-weighted results, duals underperform slightly when we use

market-adjusted returns. However, duals outperform by a statistically significant 26.7 percent when we calculate abnormal returns using the style adjustment.

For singles, the evidence is somewhat cloudy as well. Using market-adjusted returns aggregated with equal weights, single-class IPOs appear to earn negative abnormal returns of almost -15 percent over three years. But by all other measures, single-class IPOs earn slightly positive (and sometimes significant) abnormal returns. Consistent with the evidence in Brav and Gompers (1997), when we use value weights (market capitalization on the IPO date) to aggregate the market-adjusted BHARs, the performance of singles improves. The market-adjusted BHAR for singles is a slightly positive 9.1 percent, and it is even higher when we adopt the style-adjusted approach.

Given the wide range of BHAR estimates we obtain, and the sensitivity of those estimates to the choice of benchmark and the aggregation method, it is difficult to reach firm conclusions about the long-term performance of dual- and single-class IPOs. The market-adjusted results offer no evidence that the valuation discount we observe on dual-class firms reflects the opinions of overly pessimistic investors, though there is some evidence from the style-adjusted BHARs consistent with that view. However, the style-adjusted results also point to relatively small but significant positive abnormal returns for single-class IPOs (using value weights).

[Place Table IV here]

A.2. Fama-French Three-factor Regressions

Table V shows the results from three- and five-year Fama-French three-factor regressions. Loughran and Ritter (2000) propose that when running Fama-French style regressions on IPO firms the factors should be purged of firms that themselves have recently issued new securities. The results reported in Table V use the conventional Fama-French factors, but our results do not change when the Loughran and Ritter purged factors are used. The test of abnormal performance here is whether the regression intercept is different from zero. We estimate these regressions in

calendar time rather than event time to avoid the problem of overlapping returns for different IPO firms. We estimate the regressions using monthly returns from CRSP.

Panel A of Table V reports results by combining firms into calendar-time portfolios using equal weights. Both three- and five-year horizons have regression intercepts that are statistically insignificant for both singles and duals. Panel B of Table 5, shows results when portfolios are formed using value weights. Here again at both the three-and five-year horizons, duals display no significant abnormal performance. The regression intercept for single-class firms is insignificant at the three-year horizon, but it is negative and significant at the five-year horizon.

[Place Table V here]

In Panel C of Table V, we pool all firms together and add a dummy variable for dual-class firms. At the three-year horizon, the dual-class coefficient is negative but insignificant in both the equal- and value-weighted models. Likewise, the five-year results show no sign of significant abnormal returns for dual-class firms.

In summary, the previous section established that investors appear to discount the shares of dual-class IPO firms relative to shares issued by new single-class firms. This discount does not reflect a pricing error and is rational in the sense that dual-class firms show little or no sign of significant positive or negative abnormal stock returns after the IPO. Next, we examine the operating performance of firms in our sample to see if the lower valuations for duals simply reflect inferior operating results.

B. Operating Performance

In this section we estimate regressions with various measures of operating performance as dependent variables. In the valuation-multiple regressions presented in Table III, we used one measure of profitability, return on assets, as a control variable. In doing so, we attempted to limit the possibility that dual-class firms trade at lower prices relative to earnings or replacement cost simply because they are less profitable than single-class firms. Here, we consider this possibility

more deeply by asking whether dual-class firms underperform singles based on measures of operating performance.

To accomplish this, we conduct year-by-year regressions of operating performance measures against a dual-class dummy and control variables for firm size, growth, and industry profitability. The operating performance measures we include in our analysis are return on equity (earnings over book equity) and return on assets (earnings over total assets).

Because we anticipate that firm size and profitability are related, we use the natural logarithm of market capitalization as a control variable. We state the market cap figures using 1990 as a base year, and adjusting subsequent years using the S&P 500 index. Likewise, we control for differences in growth rates by including in each yearly regression the rate of growth in sales for the prior two years. Finally, for each sample firm, we find at least five matching firms with the same 4-digit (or when necessary 3-digit) SIC code and include the median profitability measure for this control group in the regression.

Table VI shows the results of our operating performance regressions. When we use ROE as the dependent variable, the coefficient on the dual-class dummy is insignificant in four of the six regressions. In two regressions the dual-class dummy is significant, but in one regression the coefficient is positive and in the other it is negative. Accordingly, our evidence suggests that singles and duals generate comparable earnings, relative to book equity.

Switching the dependent variable to ROA, we find that the dual-class coefficient is insignificant in all years. The adjusted R-square values are much higher in these regressions, indicating that our model explains roughly 15 to 25 percent of the cross-sectional ROA variation. In both sets of regressions, our control variables tend to have the expected signs. For example, the coefficients on the industry median profitability control are positive and significant in most cases, firm size is typically positive and significant, and sales growth is negative and significant in all but one of the ROA regressions.

[Place Table VI here]

Although not reported, we also ran the regressions in Table VI using the net profit margin and the gross profit margin as dependent variables with nearly identical results. The dual-class dummy is insignificant, leading us to conclude that duals exhibit neither better nor worse operating performance than singles. Thus, having ruled out the possibilities that the lower prices of dual-class shares reflect pricing errors or inferior operating performance, we shift our focus to search for evidence consistent with a governance explanation. If lower dual valuations reflect investors' concerns that the voting structures adopted by these firms serve to entrench managers at the expense of shareholders, then we might observe significant differences in turnover of senior management between singles and duals. It is to that evidence that we now turn.

V. CEO Turnover

The Class B shares that dual-class insiders typically own give senior managers a voting majority even when they own a relatively small fraction of cash flow rights. Perhaps the valuation discount applied by the market to duals reflects investors' assessment of the difficulty of replacing underperforming dual-class managers. In this section we examine the incidence of CEO turnover in our sample to assess the relative job security of executives in single- and dual-class firms. We also measure stock returns surrounding turnover events to see how the market reacts to turnover news, and to characterize the differences in stock performance leading up to turnover events for singles and duals.

To identify turnover events, we check the identity of each firm's CEO at the time of the IPO and five years afterwards. When a firm lists a different CEO in their fifth year, we search electronic news sources to determine when the original CEO departed.[17] In constructing our

[17] For those firms with more than one CEO turnover event in the first five years, we only included the first instance of CEO turnover. Also, perhaps because the firms in our sample are less visible relative to more established firms, news accounts generally do not point to a specific reason for the CEO's departure, so we can not easily classify these events using labels such as "disciplinary" or "routine."

sample of turnover events, we also include CEO changes that are the result of mergers. When an IPO firm in our sample is acquired, we include this as a turnover event. We refer to acquisition-related turnover events, which account for slightly less than 40 percent of all turnover events, as "external turnover" events. We use the term "internal turnover" to refer to all other turnover events.[18]

Though news accounts do not help us identify which CEOs lose their jobs due to poor performance, we conjecture that the internal mechanisms for disciplining dual-class CEOs are weaker than those in single-class firms. When a dual-class firm underperforms, even if there is minimal internal pressure to replace the CEO, an acquirer may find it profitable to pay a large premium to persuade incumbent managers to relinquish their control. Smart and Zutter (2003) report higher takeover premiums for dual-class IPOs, and they interpret this as evidence that dual-class equity protects incumbent managers' private control benefits. Therefore, we anticipate that external turnover events in dual-class firms are preceded by negative performance.

Within five years of the IPO date, we identify turnover events for 58 percent of our dual-class firms. Almost 62 percent of the single-class firms in our sample experience some form of CEO turnover; however this difference in turnover percentages is not significant. At horizons shorter than five years, the same pattern exists—turnover occurs less frequently among dual-class firms, but the difference in raw turnover percentages between singles and duals is not significant.

Controlling for differences in singles and duals that may be correlated with turnover probabilities changes the results slightly. From Table I we know that, compared to singles, dual-class firms are larger, are less likely to have venture capital backing, are less likely to list on NASDAQ, and have higher institutional ownership. Table VII shows estimates from a logistic regression in which the dependent variable equals one if a sample firm experiences CEO turnover

[18] For internal turnover events, the event date is the announcement date that the CEO will depart. For external turnover, the event date is the acquisition announcement date.

within five years of the IPO date and zero otherwise. Control variables in the regression include a dummy equal to one if the firm has VC backing when it goes public, a dummy equal to one if the firm lists on NASDAQ, market cap, book-to-market ratio, and fraction of outstanding shares held by institutional investors. All of the control variables in this regression are measured as of the IPO date. In this analysis, the likelihood of a CEO change is significantly smaller for duals than for singles. However, the magnitude of this difference is relatively small. The probability derivative from this regression indicates that the likelihood of CEO turnover is about 6.5 percent higher for singles than for duals. All of the regression's other control variables are insignificant, although the dummy variable for venture capital backing has a p-value just over 15 percent. Given the role that venture capitalists play in governing IPO firms as well as financing them, it is not surprising that the coefficient on this dummy is positive.

[Place Table VII here]

When we examine stock returns surrounding turnover events, some interesting differences emerge between singles and duals, particularly when we separate internal and external turnover events. The distribution of internal versus external turnover is fairly similar for singles and duals. About 39 percent of all single-class turnover events are acquisition related, whereas, for duals that figure is roughly 42 percent. Panel A of Table VIII reports cumulative abnormal returns (CARs) over several event windows for firms experiencing any type of CEO turnover. We calculate a CAR simply by cumulating the daily difference in the CRSP value-weighted index from the individual firm's return. For both singles and duals, the turnover event follows a period of below-average stock performance, with mean CARs of -15.3 percent for duals and -8.1 percent for singles between the IPO date and the day before the turnover event. Though the negative pre-event CAR for duals is almost twice as large in absolute value as the pre-event CAR for singles, the difference is not statistically significant. During the three trading days surrounding the event, the market greets turnover news as positive for both types of firms with abnormal returns just under six percent for singles and duals. Interestingly, over the 126-day trading period following

the event, single-class firms earn a small but significant positive CAR, while duals earn neither negative nor positive abnormal returns.

Panel B of Table VIII examines abnormal returns only for internal (non-acquisition related) turnover events. In the pre-event period, single-class firms earn significant CARs of -16.8 percent, suggesting a disciplinary motive for the event. In contrast, duals earn normal returns leading up to internal turnover events, consistent with the hypothesis that internal CEO turnover events at dual-class firms are uncorrelated with performance. Furthermore, the market reaction immediately surrounding announcements of internal turnover events is muted, with no abnormal returns for singles or duals. Following internal turnover events, singles outperform duals by 10.4 percent.

[Place Table VIII here]

In Panel C of Table VIII we examine cumulative abnormal returns for external (acquisition-related) turnover events. Except for the three days surrounding the event, the differences in performance between duals and singles is striking. Single-class firms exhibit no abnormal pre-event performance. For dual-class firms the story is quite different. Duals that are acquired earn negative CARs that are both highly significant and large in economic terms, but underperformance reverses after the event.

In summary, Table VIII shows that for both singles and duals, poor performance precedes turnover events. However, while that statement is, on average, true for all turnover events, the pre-event abnormal returns depend on whether the firm is a single or dual and what type of turnover event we examine. For single-class firms, poor stock returns occur prior to internal turnover, but not prior to external turnover. Duals exhibit just the opposite pattern. Before, during, and after internal turnover events, the stock performance of duals is unremarkable. In contrast, dual-class external turnover events are preceded by severe underperformance and followed by significant positive abnormal returns. Although we are hesitant to make a definitive statement about the role of internal and external turnover in disciplining managers, our results are

consistent with the hypothesis that internal mechanisms discipline underperforming single-class managers, whereas the evidence for duals is consistent with the hypothesis that external turnover events displace underperforming and entrenched managers.

VI. Dual-class Unifications

If dual-class voting structures entrench managers, and if shareholders discount dual-class shares as a result, then we should expect the market to react positively when firms eliminate the Class B shares owned by insiders. Of course, a firm's decision to unify its share classes is endogenous and could signal many things in addition to a change in voting structure. Nevertheless, it is interesting to examine what happens when firms unwind dual-class voting arrangements.

Of the 253 dual-class IPOs in our sample, we identify 37 firms that unify their share classes and continue as independent firms.[19] In most cases, share unifications occur over a period of time, often without a single announcement date. This of course limits our power to detect the market's response to unifications. Even so, for the 37 firms unifying their share classes, we identify the effective dates of these transactions and conduct an event study around that date. Table IX reports our findings.

Using five-day and eleven-day windows around the effective date, and using both a market model and a three-factor Fama-French model to calculate abnormal returns, we find a significant, positive reaction to the event. During the -5, +5 event window, stock prices of firms unifying their share classes rise by more than five percent. This represents a narrowing of between one-third to one-fifth of the valuation gap between singles and duals discussed earlier. Given the uncertainty we face about clear announcement dates for unifications, the positive returns

[19] That is, we are not including in this group firms that become takeover targets and eliminate Class B shares as part of an acquisition.

observed during the event window likely understate the true magnitude of share unifications on stock prices.

[Place Table IX here]

VII. Conclusion

This paper provides evidence that investors discount the shares of dual-class IPOs relative to newly public single-class firms. Dual-class firms trade at lower prices relative to earnings and replacement cost than do single-class firms. These valuation differences are not driven by systematic differences between singles and duals related to size, industry, profitability, leverage, or growth opportunities. The discount assessed to dual-class equity at the IPO date appears to be rational in the sense that post-IPO dual-class abnormal returns are zero. Moreover, we find no evidence that inferior operating results achieved by duals can explain the discount we observe.

The likelihood of CEO turnover is slightly higher for single-class firms than for duals, though that difference is not large in absolute terms. However, abnormal returns leading up to turnover events vary depending on the type of firm and the type of turnover. For single-class firms, negative abnormal returns precede instances of internal CEO turnover, but not external turnover. For dual-class companies, just the opposite pattern obtains. These patterns suggest that internal governance mechanisms and the external market for corporate control play different roles in disciplining managers at single-class and dual-class firms.

Though only a handful of the dual-class firms in our sample eventually unify their share classes, those that do experience positive abnormal returns around the effective date of the unification. Collectively, these results suggest that investors discount dual-class shares because the superior voting rights held by insiders makes it difficult for outsiders to replace incumbents.

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Table I
Descriptive Statistics

This table presents sample means by offer type. Offer value is the total number of shares offered times the CPI-adjusted final offer price. Market capitalization is the total number of shares outstanding after the offering times the CPI-adjusted first-day closing price. Two-year sales growth is the compound annual growth rate measured from the IPO year to two years after the IPO. Institutional ownership is end-of-quarter 13f institutional ownership of publicly traded shares for the quarter in which the IPO took place. Indicator variables are set equal one, respectively, for venture-backed deals, NASDAQ-listed, dividend paying, and S&P 500 deals. Leverage is long-term debt plus short-term debt over total assets. R&D over total assets is research and development expense divided by total assets. Return on equity is earnings divided by common equity. Return on assets is earnings divided by total assets. Return on equity, return on assets, gross profit margin, net profit margin, and pricing multipliers are calculated at the end of the first fiscal year following IPO. P-values refer to t-tests of equal means across offer types. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

	Means		
	Dual Class	Single Class	P-Value
Number of deals	253	2,369	
Offer value in millions	$130.73	$63.06	0.0001***
Market capitalization in millions	$739.35	$253.49	0.0001***
Two-year sales growth	0.491	0.454	0.7615
Fraction of institutional ownership	0.282	0.198	0.0001***
Number of institutional owners	30.232	22.085	0.0001***
Venture-backed deals	0.162	0.398	0.0001***
NASDAQ-listed deals	0.640	0.844	0.0001***
Dividend-paying deals	0.118	0.065	0.0156**
S&P 500 firm	0.000	0.001	0.0833*
Leverage	0.289	0.151	0.0001***
R&D over total assets	0.013	0.057	0.0001***
Return on equity	0.136	-0.046	0.5721
Return on assets	0.021	-0.004	0.0591*

Table II
Pricing Multipliers

This table presents mean ratio values by event year and offer type. E/P is earnings per share divided by price per share. 1/Q (inverse Tobin's Q) is replacement cost per share divided by price per share. Year 0 refers to the first fiscal year end following the IPO, Year 1 to the second fiscal year end following the IPO, and so on. P-values refer to t-tests of equal means across offer types. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

E/P Means				
Event Year	Full Sample	Dual-Class	Single-Class	P-Value
Year 0	0.048	0.053	0.048	0.0548*
Year 1	0.056	0.062	0.055	0.0429**
Year 2	0.059	0.074	0.057	0.0001***
Year 3	0.063	0.082	0.061	0.0004***
Year 4	0.060	0.074	0.058	0.0040***
Year 5	0.064	0.076	0.063	0.0612*
1/Q Means				
Event Year	Full Sample	Dual-Class	Single-Class	P-Value
Year 0	0.491	0.561	0.484	0.0001***
Year 1	0.588	0.631	0.583	0.0195**
Year 2	0.645	0.731	0.636	0.0002***
Year 3	0.678	0.756	0.670	0.0061***
Year 4	0.686	0.788	0.676	0.0014***
Year 5	0.712	0.848	0.699	0.0001***

Table III
OLS Regressions of Pricing Multipliers

This table presents ordinary least squares regression analysis of pricing multipliers by event year on offer type. Earnings-to-price is earnings per share divided by price per share. Inverse Tobin's Q (1/Q) is replacement cost per share divided by price per share. Dual-class (offer type) indicator equals one for dual-class IPOs. Two-year sales growth in year t is the compound annual growth rate in sales from year t-2 to year t. For years 0 and 1, the two-year sales growth is the compound annual growth rate in sales from year 0 to year 2. LN mkt. cap. in millions is the natural logarithm of the S&P 500 index-adjusted (to the beginning of 1990) fiscal year-end market capitalization. Industry median multipliers are the respective median multiplier for a group of at least five industry-comparable firms. Dividend paying deal equals one for dividend paying firms. Leverage is long-term debt plus short-term debt over total assets. R&D over total assets is research and development expense divided by total assets. S&P 500 deal equals one if the firm is in the S&P 500 index. ROA is earnings divided by total assets. Tests of significance refer to t-tests of parameter estimates equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

Panel A. Regression of Earnings-to-Price on Offer Type

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Intercept	0.068***	0.078***	0.085***	0.097***	0.087***	0.093***
Dual-class deal	0.001	0.005*	0.011***	0.012**	0.018***	0.013**
Two-year sales growth	-0.019***	-0.009***	-0.001	-0.008	-0.007	0.008
LN mkt. cap. in millions	-0.009***	-0.011***	-0.014***	-0.016***	-0.014***	-0.012***
Industry median E/P	0.280***	0.300***	0.256***	0.114***	0.187***	0.108***
Dividend paying deal	0.029***	0.021***	0.026***	0.023***	0.014***	0.014***
Leverage	0.029***	0.032***	0.043***	0.047***	0.045***	0.036***
R&D over total assets	-0.072***	-0.065***	-0.074***	-0.096***	-0.059**	-0.115***
S&P 500 deal	0.017	0.025**	0.027**	0.039***	0.025**	0.013
ROA	0.151***	0.185***	0.253***	0.309***	0.305***	0.203***
Adj. R^2	37.77%	36.36%	32.79%	28.59%	28.54%	22.97%
Number of observations	1,429	1,399	1,279	1,072	888	764

Table III—*Continued*

Panel B. Regression of Inverse of Tobin's Q on Offer Type						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Intercept	0.550***	0.742***	0.825***	0.848***	0.875***	0.803***
Dual-class deal	0.018	0.019	0.038**	0.060***	0.069***	0.075***
Two-year sales growth	-0.022***	-0.019***	0.000	-0.016**	-0.021**	-0.033**
LN mkt. cap. in millions	-0.085***	-0.115***	-0.120***	-0.127***	-0.122***	-0.116***
Industry median 1/Q	0.491***	0.524***	0.507***	0.574***	0.546***	0.598***
Dividend paying deal	0.208***	0.171***	0.148***	0.135***	0.137***	0.131***
Leverage	0.244***	0.201***	0.105***	0.053*	-0.015	0.008
R&D over total assets	-0.345***	-0.372***	-0.405***	-0.307***	-0.632***	-0.437***
S&P 500 deal	0.188*	0.213**	0.272***	0.318***	0.201***	0.156***
ROA	-0.078***	-0.026	0.059**	0.121***	-0.037	-0.041
Adj. R^2	46.62%	54.33%	51.86%	51.27%	53.24%	52.70%
Number of observations	1,835	1,906	1,910	1,666	1,408	1,188

Table IV
Three-Year Buy-and-Hold Returns

This table presents three-year buy-and-hold returns by cohort year and offer type. IPO buy-and-hold returns are calculated from the first closing price listed on CRSP to the closing price listed on the three-year anniversary date or the delisting date whichever occurs first. Market-adjusted returns are calculated by subtracting the CRSP value-weighted three-year buy-and-hold return from the corresponding IPO return. Style-adjusted returns are calculated by subtracting the buy-and-hold return on a control firm matched on market capitalization and book-to-market ratio from the corresponding IPO return. Value weighting uses market capitalization at the IPO to determine value weights within each group. Tests of significance refer to t-tests of return equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

Dual Equal-Weighted 3-Year Buy-and-Hold Return				
Cohort Year	Number of IPOs	IPOs Ret.	Mkt. Adj. Ret.	Style Adj. Ret.
1990	5	-0.1596	-0.646*	-0.7562
1991	23	0.298*	-0.0114	0.1845
1992	18	0.4515	0.0884	0.5518
1993	31	0.5693	0.0457	-0.0061
1994	28	0.6832**	-0.2336	0.2823
1995	29	0.4234*	-0.5358**	0.1147
1996	61	0.4286**	-0.408**	0.1569
1997	45	1.0395	0.4617	0.7119
1998	12	0.6997	0.5415	0.8641
1990-1998	252	0.5723***	-0.0786	0.3075
Single Equal-Weighted 3-Year Buy-and-Hold Return				
Cohort Year	Number of IPOs	IPOs Ret.	Mkt. Adj. Ret.	Style Adj. Ret.
1990	67	0.2864	-0.1637	-0.0161
1991	232	0.3755***	0.0449	-0.1548
1992	325	0.426***	0.0544	0.0339
1993	373	0.5054***	-0.0232	0.2128*
1994	281	0.8191***	-0.0039	0.1018
1995	305	0.369***	-0.4953***	0.1152
1996	423	0.3407**	-0.4822***	0.0814
1997	276	0.6231**	0.0209	0.1229
1998	86	0.142	-0.0873	-0.2048
1990-1998	2,368	0.4661***	-0.1475***	0.0717

Table IV—*Continued*

Dual Value-Weighted 3-Year Buy-and-Hold Return				
Cohort Year	Number of IPOs	IPOs Ret.	Mkt. Adj. Ret.	Style Adj. Ret.
1990	5	-0.1369	-0.6429	-1.1702
1991	23	0.3919***	0.0758	0.2
1992	18	0.4232**	0.1518	0.5632**
1993	31	0.4665	-0.0569	0.1196
1994	28	0.7982***	-0.0453	0.3976
1995	29	0.6659***	-0.2724*	0.674**
1996	61	0.5783***	-0.3032*	0.0318
1997	45	0.5635	-0.0676	0.2901
1998	12	0.256	0.069	0.5118
1990-1998	252	0.546***	-0.1627	0.2672*
Single Value-Weighted 3-Year Buy-and-Hold Return				
Cohort Year	Number of IPOs	IPOs Ret.	Mkt. Adj. Ret.	Style Adj. Ret.
1990	67	0.4792	0.0379	0.1639
1991	232	0.506***	0.1675**	0.064
1992	325	0.5644***	0.1889**	0.0349
1993	373	0.3601***	-0.2***	-0.1048
1994	281	0.8396***	-0.0109	0.165
1995	305	0.2769***	-0.5601***	0.0436
1996	423	1.4645***	0.6465***	0.2067
1997	276	0.9701***	0.3668	0.5693*
1998	86	0.1378	-0.105	0.1091
1990-1998	2,368	0.7183***	0.0906*	0.1342*

Table V

Three- and Five-Year Fama-French Three-Factor Calendar-Time Regressions

This table presents three- and five-year Fama-French three-factor calendar-time regressions by offer type. Market factor is the excess return on a value-weighted market index. 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. 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. Tests of significance refer to t-tests of parameter estimates equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

	Dual-Class IPOs		Single-Class IPOs	
	3-Year	5-Year	3-Year	5-Year
Panel A. 3-Factor Equal-Weighted Portfolios Regressions				
Intercept	-0.004	0.000	0.001	0.004
Market factor	1.267***	1.180***	1.205***	1.186***
SMB factor	0.765***	0.904***	1.084***	0.962***
HML factor	0.206	0.474***	-0.103	-0.057
Adj. R^2	61.99%	54.09%	66.37%	80.34%
Number of observations	135	153	138	154
Panel B. 3-Factor Value-Weighted Portfolios Regressions				
Intercept	0.000	-0.004	0.001	-0.004*
Market factor	1.540***	1.476***	1.268***	1.433***
SMB factor	0.358**	0.438***	0.788***	0.467***
HML factor	-0.787***	-0.271**	-0.542***	-0.433***
Adj. R^2	69.05%	73.43%	79.60%	88.28%
Number of observations	135	153	138	154
Panel C. 3-Factor Pooled Regressions				
	Equal-Weighted Portfolios		Value-Weighted Portfolios	
Intercept	0.000	0.004	0.000	-0.005
Dual-class	-0.004	-0.003	0.000	0.001
Market factor	1.236***	1.183***	1.402***	1.454***
SMB factor	0.925***	0.933***	0.575***	0.452***
HML factor	0.049	0.208**	-0.664***	-0.352***
Adj. R^2	63.39%	65.83%	72.69%	80.49%
Number of observations	273	307	273	307

Table VI
OLS Regressions of Operating Performance

This table presents ordinary least squares regression analysis of operating performance on offer type. Return on equity is earnings divided by common equity. Return on assets is earnings divided by total assets. Dual-class (offer type) indicator equals one for dual-class IPOs. Two-year sales growth in year t is the compound annual growth rate in sales from year t-2 to year t. For years 0 and 1, the two-year sales growth is the compound annual growth rate in sales from year 0 to year 2. LN mkt. cap. in millions is the natural logarithm of the S&P 500 index-adjusted (to the beginning of 1990) fiscal year-end market capitalization. Industry median profitability measures are the respective median profitability measure for a group of at least five industry-comparable firms. Tests of significance refer to t-tests of parameter estimates equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Panel A. Regression of ROE on Offer Type						
Intercept	-0.144	-0.259	-0.344***	-0.525***	-1.312	-0.324
Dual-class deal	0.204	0.055	-0.243*	0.568***	0.118	-0.158
Two-year sales growth	-0.093	-0.069	-0.088*	-0.029	0.149	-0.318**
LN mkt. cap. in millions	0.033	0.049	0.062**	0.099**	0.263	0.089*
Industry median ROE	0.015	1.51***	1.562***	0.487	-1.503	1.285**
Adj. R^2	-0.19%	0.62%	1.92%	0.80%	-0.13%	0.84%
Number of observations	1,883	1,976	1,985	1,745	1,487	1,261
Panel B. Regression of ROA on Offer Type						
Intercept	-0.078***	-0.181***	-0.211***	-0.187***	-0.191***	-0.194***
Dual-class deal	-0.023	-0.007	-0.009	0.007	-0.042	-0.028
Two-year sales growth	-0.051***	-0.029***	-0.027***	-0.025***	-0.041***	-0.017
LN mkt. cap. in millions	0.025***	0.042***	0.046***	0.039***	0.043***	0.041***
Industry median ROA	1.145***	0.951***	1.042***	0.955***	0.998***	1.037***
Adj. R^2	23.18%	25.73%	21.92%	20.30%	16.27%	14.84%
Number of observations	1,89i6	1,976	1,985	1,745	1,487	1,261

Table VII
Logistic Regression of CEO Turnover within Five Years of the IPO

This table presents logistic regression analysis of CEO turnover within five years of the IPO. The dependent variable is an indicator variable that is equal to one if there is a CEO turnover within five years of the IPO. Indicator variables are set equal to one, respectively, for dual-class, venture-backed, and NASDAQ-listed deals. LN mkt. cap. in millions is the natural logarithm of the S&P 500 index-adjusted (to the beginning of 1990) fiscal year-end market capitalization. Book-to-market is book value per share divided by price per share. Fraction of institutional ownership is the percentage end-of-quarter institutional holdings for the quarter in which the IPO took place. Regression includes SIC and year dummies. P-values refer to t-tests of parameter estimates equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

	Parameter Estimate	Standard Error	P-value
Intercept	0.309	0.550	0.5743
Dual-class deal	-0.300	0.152	0.0488**
Venture-backed deal	0.139	0.098	0.1558
NASDAQ-listed deal	-0.048	0.137	0.7250
LN mkt. cap. in millions	0.019	0.052	0.7129
Book-to-market	0.000	0.000	0.2617
Fraction of institutional ownership	-0.136	0.250	0.5855
Correct predictions	62.60%		
Number of observations	2,602		
Number of duals	251		
Number of singles	2,351		
Probability of CEO turnover for duals	58.05%		
Probability of CEO turnover for singles	65.13%		

Table VIII
Cumulative Abnormal Returns for CEO Turnover Events

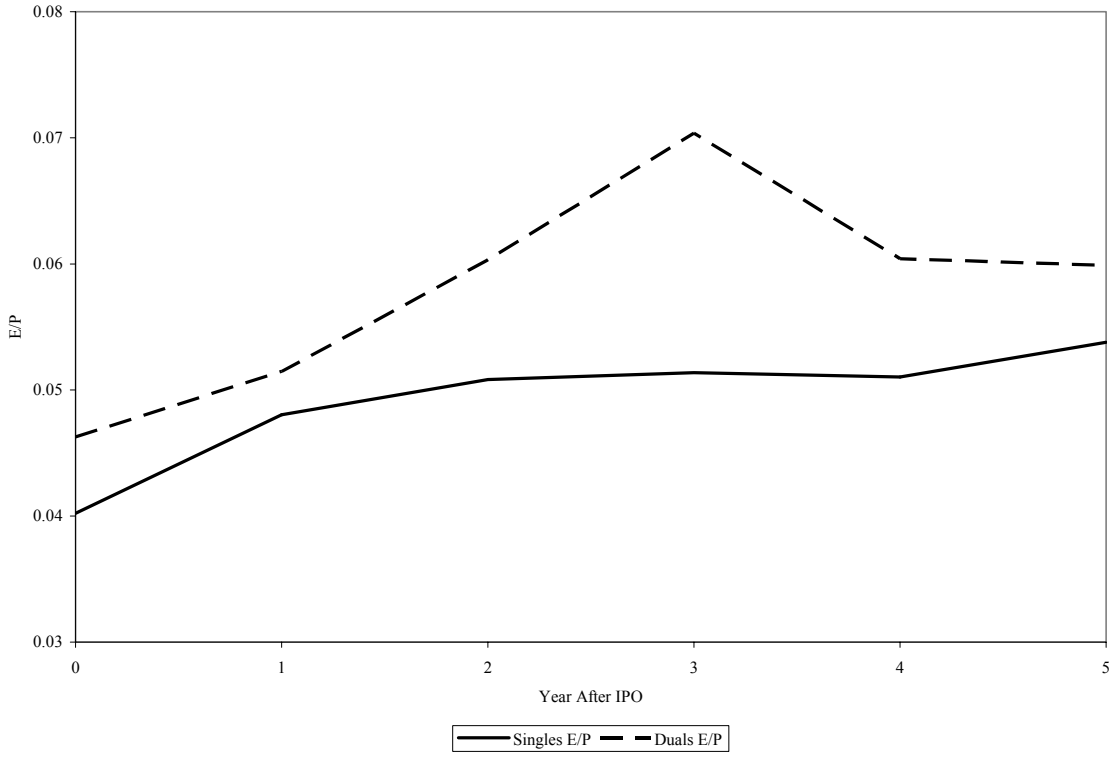
This table presents mean event-time cumulative abnormal returns (CARs) by offer type. Abnormal returns are calculated by subtracting the CRSP value-weighted daily return from the corresponding IPO return. CARs are calculated by cumulating the daily abnormal returns over the specified event window. Tests of significance refer to t-tests of return equal to zero. Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

Event Window	Dual-Class	Single-Class	Difference
All Turnovers Mean CARs			
(IPO, -1)	-0.153*	-0.081***	-0.071
Number of observations	145	1,452	
(-1, +1)	0.059***	0.056***	0.003
Number of observations	145	1,448	
(+1, +126)	-0.001	0.040***	-0.041
Number of observations	126	1,325	
Internal Turnovers Mean CARs			
(IPO, -1)	-0.046	-0.168***	0.122
Number of observations	84	886	
(-1, +1)	-0.004	-0.005	0.002
Number of observations	84	882	
(+1, +126)	-0.078	0.026	-0.104**
Number of observations	84	881	
External Turnovers Mean CARs			
(IPO, -1)	-0.299*	0.056	-0.355**
Number of observations	61	565	
(-1, +1)	0.146***	0.152***	-0.006
Number of observations	61	565	
(+1, +126)	0.153***	0.069***	0.083**
Number of observations	42	444	

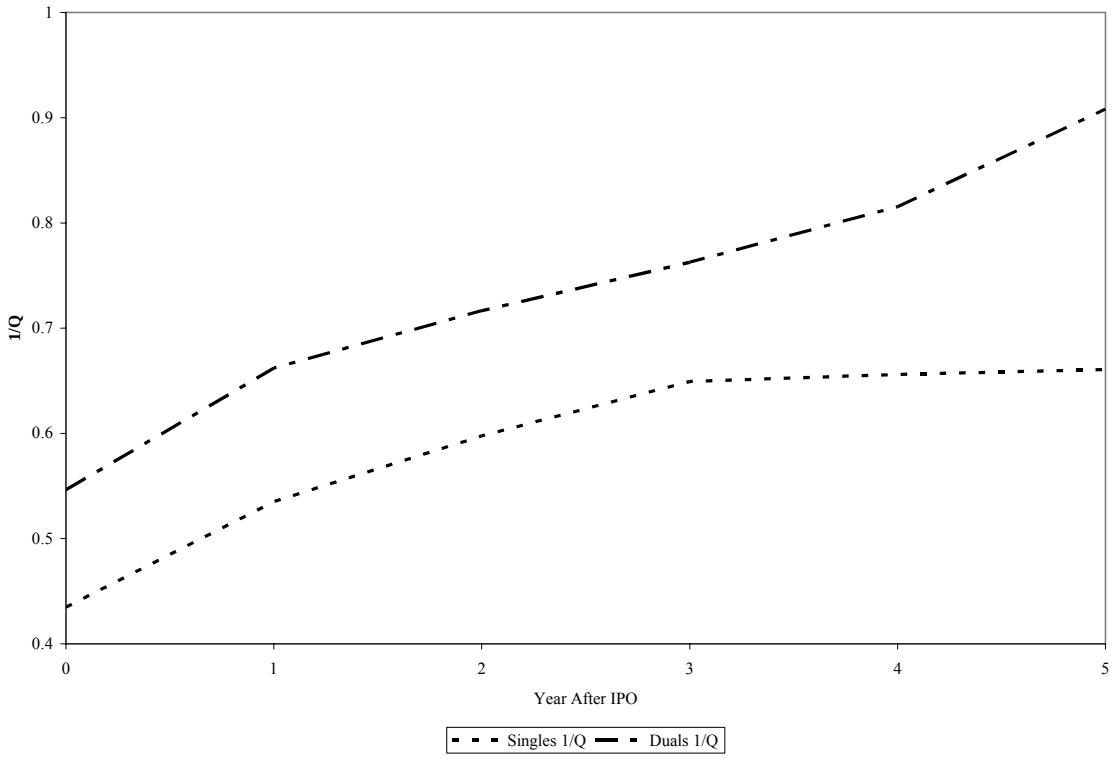
Table IX
Unification CARs

This table presents mean cumulative abnormal returns (CARs) around unifications of dual-class firms to single-class firms. Day 0 is the effective date of the unification. Market model uses the CRSP value-weighted index as the risk factor. Fama-French model uses excess market returns, SMB, and HML as the risk factors. Both models are estimated over (-261, -6). Respectively, ***, **, and * denote significance at 1, 5, and 10 percent.

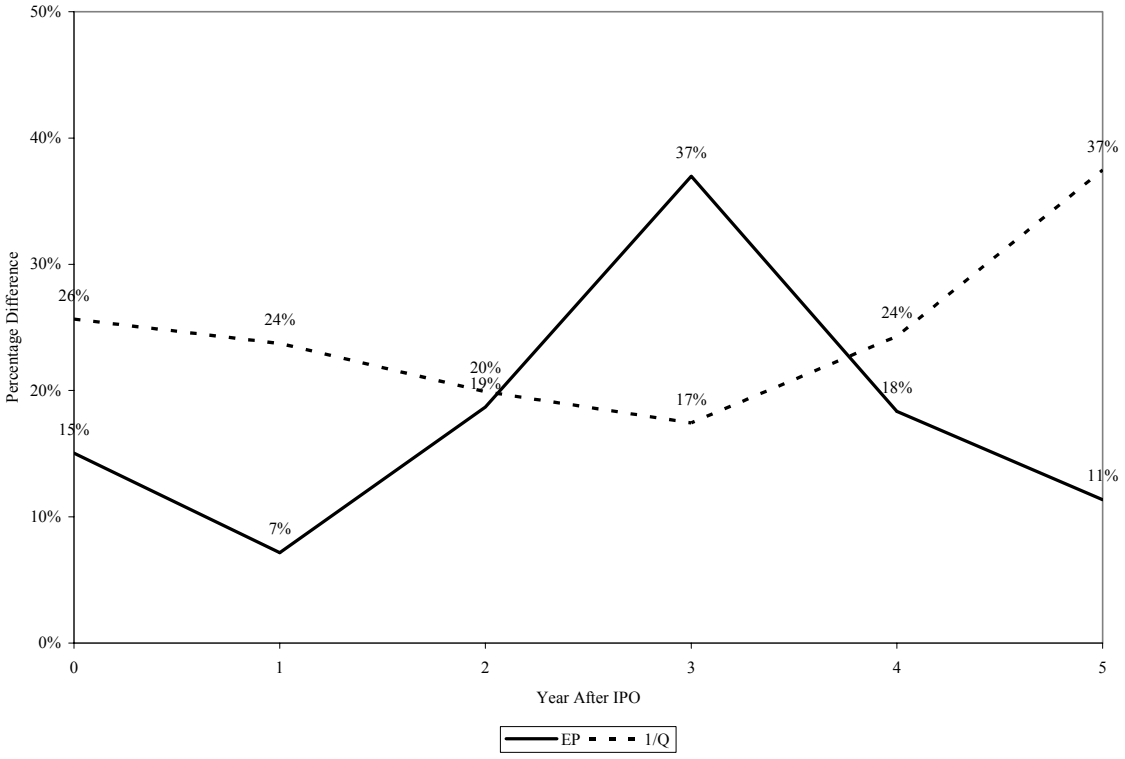
	Mean CAR	
Event Window	Market Model	Fama-French Model
(-2, +2)	0.027**	0.027**
(-5, +5)	0.052**	0.055*
Number of observations	37	37



Panel A



Panel B



Panel C

Figure 1. Median pricing multipliers starting at time zero and going forward for five post-IPO years. Panel A plots the median E/P ratio for singles and duals. Panel B plots the median 1/Q ratio for singles and duals. Panel C plots the percentage differences in the median values of E/P and 1/Q between duals and singles. Percentage difference is calculated as dual divided by singles minus 1.