6-2019

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We thank participants at the American Accounting Association (AAA) 2016 Annual as well as the AAA 2016 Ohio region meeting for their helpful comments.

Disproportionate Insider Control and Firm Performance

1. Introduction

Equity structures that deviate from the "one share, one vote" principle, and hence allow insiders to exercise voting power disproportionate to their economic interest, are widely seen as problematic in the popular press[1] and academic literature (e.g., Claessens *et al.*, 2002; Lins, 2003; Gompers *et al.*, 2010). While insider ownership mitigates the classic Type I principal-agent conflict by aligning the interests of managers and shareholders, high levels of insider ownership, and particularly disproportionate insider control, can give rise to Type II agency conflicts between controlling and minority shareholders, where controlling shareholders may use their dominant position to extract perquisites at the cost of minority shareholders (Villalonga and Amit, 2006).

The present study examines the association of disproportionate insider control and firms' financial and operating performance in a sample of U.S. dual-class firms.[2] The expected association of disproportionate insider control and firm performance is not unambiguous. On the one hand, disproportionate insider control allows insiders to avoid the *pro rata* economic consequences of their actions, which enhances their ability to extract excess rents from the firm at the expense of minority shareholders.[3] Insiders' ability to expropriate wealth from the firm at a

[1] See, for example, "Out of Control," *The Economist*, September 20, 2014.

[2] In a typical firm with a dual-class equity structure, one class of shares possesses enhanced voting rights relative to a second, inferior class of shares, while both classes generally have equal or similar cash flow rights. An alternate equity structure that can cause a divergence of voting and cash flow rights, more common among European and Asian firms, are pyramid structures. In firms with pyramid structures, the ultimate ownership of a firm runs through a chain of ownership of intermediate corporations. For instance, one entity (A) may hold 60% ownership in another entity (B), which in turn hold 60% ownership in a third (C). In this case, entity A exercises 60% control over C due to its majority control over entity B, but only owns 36% of the cash flow rights of entity C.

[3] For instance, if insiders in a firm governed by the one share/one vote principle own 62.4% of the equity—hence commanding 62.4% of the vote—and they award $1,000,000 in excess compensation to a family member, then 62.4% of the cost of this misappropriation is shouldered by the insiders themselves. In the median dual-class firm in our sample, however, insiders command 62.4% of the firm's voting rights, but only own 24.3% of its cash-flow rights. Therefore, at the expense of outside shareholders, the cost of the consumption of private benefits is greatly reduced.

lower cost in turn may negatively impact firm performance. A body of research demonstrates controlling shareholders in dual-class firms are likely to take actions that benefit themselves at the expense of outside shareholders (Masulis *et al.*, 2009).

On the other hand, insiders who establish disproportionate control rights may also do so out of a desire to maintain involvement with the firm for the long run. The presence of committed insiders is associated with more effective monitoring of management (Anderson and Reeb, 2003), a long-term perspective on generating value (Stein, 1988; 1989), and lower contracting costs (Andres, 2008). Moreover, committed insiders may be significantly motivated by non-pecuniary benefits of control, which are stronger motivators than financial rewards alone (Kandel and Lazear, 1992; Davis *et al.*, 1997; Bennedson *et al.*, 2007). Given this complicated picture, the net effect of disproportionate insider control on firm performance is an open question.

We are motivated to examine the issue for several important reasons. First and foremost, as discussed above, the direction of the association between disproportionate insider control and firm performance is not obvious. At the same time, the existent evidence is surprisingly limited. Studies examining the effects of disproportionate insider control have almost exclusively focused on firm value, typically operationalized by Tobin's Q (Claessens *et al.*, 2002; Lins, 2003; Harvey *et al.*, 2004; Gompers *et al.*, 2010). The dearth of studies examining the nexus between disproportionate insider control and accounting-based firm *performance*, rather than market-based firm *value*, constitutes a significant gap in the literature, because accounting performance reflects realized performance, whereas market-based measures capture expectations of future performance. Accounting profitability and market performance hence represent distinct dimensions that have limited empirical overlap (Gentry and Shen, 2010).

How disproportionate insider control affects firm performance appears to be a particularly timely question as well because the number of firms going public with equity structures that provide for a divergence of voting and cash flow rights is growing both in the United States (e.g., Google, LinkedIn, Facebook, Snap)[4] and internationally (e.g., Manchester United, Alibaba, Baidu). In addition, the establishment of disproportionate control has been recently facilitated in a number of European countries through legislation providing for shares with enhanced voting rights for long-term shareholders, so called "loyalty shares."[5] Equity structures that enable disproportionate insider control hence appear to be a phenomenon on the rise.

We examine the association of disproportionate insider control and firm performance in a comprehensive hand-collected sample of U. S. dual-class firms in the 2000 to 2014 period. In our first test, we re-examine the association between disproportionate insider control and Tobin's Q. We then examine four common accounting-based performance measures, return on investment (ROI), return on assets (ROA), return on equity (ROE) and return on sales (ROS). In extended analyses, we additionally use firm efficiency (Demerjian *et al.*, 2012) as an alternative proxy for firm operating performance.

In our analyses, we incorporate controls for the endogeneity of ownership structure (Demsetz and Lehn, 1985; Himmelberg *et al.*, 1999). We follow recent literature (e.g., Masulis *et al.*, 2009; Jordan *et al.*, 2014; McGuire *et al.*, 2014) and employ propensity score matching (PSM) to create a sample of dual-class and matched single-class firms. We further employ a two-stage

[4] Dual-class firms comprised about 6% of all U.S. public firms in the 1995-2002 period (Gompers *et al.*, 2010), but now account for 8.7% of companies included in the Russell 3000 index (Equilar, 2015). In 2013, 13.6% of all U.S. firms conducting an initial public offering (IPO) adopted a dual-class structure of stock (Equilar, 2015).

[5] In France, dual-class equity structures are likely to become more common with passage of the *Florange Act* in 2014 which provides for the automatic granting of double-voting rights to registered shares held for at least two years. ISS (2015) estimates that more than fifty percent of French companies now issue shares entitled to double voting rights. In 2014, Italy also passed a similar law enabling the creation of loyalty shares.

least squares instrumental variables approach with the goal of controlling for unobservable firm characteristics which may be associated with disproportionate insider control and performance. In addition, we repeat all analyses using a sample of exclusively dual-class firms in which we control for sample selection bias following the Heckman (1979) methodology. Lastly, in an attempt to further mitigate remaining concerns of endogeneity, we utilize first-difference and firm fixed effects regressions in extended analyses.

Corroborating the results of prior studies (e.g., Gompers *et al.*, 2010; Baran and Forst, 2015), we observe a significant negative association between disproportionate insider control and firm value, as measured by Tobin's Q. However, across our battery of econometric approaches, we find a consistent, robust positive association between disproportionate control and our accounting-based measures of firm performance, as well as the Demerjian et al. (2012) measure of firm-efficiency.

At first glance these findings may seem unexpected. We note however that traditional accounting-based measures of performance and Tobin's Q are conceptually quite different. Annual earnings capture firms' (historical) accounting based performance whereas Tobin's Q reflects market expectations and includes discounted future results. Our bifurcated findings are consistent with the differing incentives of entrenched insiders regarding the two concepts. The entrenchment effect from holding disproportionate control rights causes insiders to be less beholden to financial markets and reduces their incentives for activities, for instance, voluntary disclosures, or earnings behavior, that are associated with increased valuation.[6] In addition, because disproportionate

[6] For instance, Nguyen and Xu (2010) report a negative association of disproportionate insider control and earnings management owing to a reduced importance for entrenched insiders to meet market expectations. While not unanimous (Rountree *et al.*, 2008), evidence exists that earnings management, including earnings smoothing, is valued by the market and in fact increases valuation in both U.S. and international contexts (Bitner and Dolan, 1996; Gaio and Raposo, 2011). By managing earnings to a lesser extent, firms with disproportionate control may thus adversely affect their market valuation.

control enables insiders to exercise control of the firm with a significantly reduced equity stake, they personally benefit less from actions that improve share price. By contrast, of course, entrenched insiders have incentives to increase profitability, because disproportionate control enables insiders to run the firm for their own benefit. Exacerbating the situation, financial markets may, however, disregard these performance gains as they may only increase the pool available for corporate waste and personal perquisites.

The following Section 2 presents a review of relevant literature and develops our hypotheses. Section 3 provides details on our sample formation procedures and empirical models. Main results are presented in Section 4 and additional analyses in Section 5. Section 6 concludes.

2. Literature review and hypothesis development

It is well-established that ownership structures which enable disproportionate insider control by allowing a divergence of voting from cash flow rights adversely affect firm value. For instance, Morck *et al.* (1988) find that firm value (measured by Tobin's Q) is positively associated with insider holdings for low levels of ownership, but that the association turns negative as ownership increases. These findings suggest that incentive-alignment effects from cash flow rights owned by insiders exercise positive effects at low levels of insider ownership, but that negative entrenchment effects from insiders' voting rights dominate at higher levels.

Because control rights and economic rights are typically confounded, i.e., one share gives both one vote and one dividend right, several more recent studies focus on firms with ownership structures that enable a divergence between the voting and cash flow rights held by insiders. Claessens *et al.* (2002), for instance, find that firm value, measured by the market-to-book ratio, decreases as the voting rights of the largest ultimate shareholder exceed their cash flow rights in a

sample of East Asian firms. Relatedly, Chu *et al.* (2015) show that in emerging markets control-ownership divergence also is associated with lower market liquidity.

Using Tobin's Q as a proxy, Lins (2003) and Barontini and Caprio (2006) provide similar evidence of a negative association of firm value and disproportionate control in samples of firms from emerging markets and continental Europe, respectively. Using samples of U.S. dual-class firms, Gompers *et al.* (2010) and Baran and Forst (2015) also find that Tobin's Q decreases as disproportionate insider control increases. By and large, the observed negative association between disproportionate insider control and firm value has been attributed to increased agency problems between controlling and minority shareholders due to insiders' enhanced ability to consume perquisites at the expense of outside shareholders (Masulis *et al.*, 2009).

While the association between disproportionate control and firm value has received much attention, its association with accounting-based measures of financial performance has largely remained unexplored. We surmise this is perhaps because Tobin's Q is often being interpreted as a proxy for firm value and performance alike. However, accounting-based indicators, such as ROA, and Tobin's Q capture different aspects of a firm's financial performance. Accounting-based metrics capture current, or realized, operating performance. Tobin's Q, as a market-based metric, reflects the stock market's perception of the firm's future earnings prospects and growth opportunities. In addition, at a conceptual level, Tobin's Q should include the value of intangibles assets not accounted for in the denominator of ROA.[7]

Despite these important differences in information provided by accounting- and market-based measures, we are aware of only two papers which examine the association between disproportionate control and traditional accounting-based measures of firm performance, such as

[7] Notably, however, intangibles are not always correctly valued by the stock market (Edmans, 2011).

ROA. Barontini and Caprio (2006) and Bozec and Laurin (2008) investigate the association of disproportionate control exercised by the *largest ultimate shareholder* and firm performance, in samples of continental European and Canadian firms respectively,[8] and provide some evidence for a negative association between disproportionate control and firm performance. Yet results in both studies are not consistently significant across alternative model specifications, econometric approaches and/or only hold in specific sub-cases. For instance, Bozec and Laurin (2008) do not find a negative association on average, but only for a sub-sample of firms characterized by high free cash-flows, i.e., for firms with enhanced opportunities to expropriate minority shareholders.[9]

While disproportionate insider control may result in increased agency problems between inside and outside shareholders and lead to reduced operating performance, the net effect of disproportionate control on firm performance is not without ambiguity. Insiders' motivation to entrench through the establishment of disproportionate control rights may stem from their desire to maintain long-term control over the organization. Non-financial benefits of control, such as the enjoyment and prestige of running one's "own" company, however have been shown to be stronger motivators to improve firm performance than financial rewards alone (e.g., Bennedson *et al.*, 2007). At the same time, entrenched insiders' more-intimate involvement with the firm enhances the effective monitoring of management (Anderson and Reeb, 2003). Apart from reducing Type I agency costs, more effective monitoring may provide enhanced incentives for employed managers to improve firm performance by raising revenues and/or lowering expenses.

[8] Bartontini and Caprio (2006) and Bozec and Laurin (2008) each examine disproportionate control of the dominant shareholder, regardless of whether the shareholder is an insider or outsider of the corporation, an individual, a widely held corporation, or a financial institution. The scope of these studies is therefore similar, but not identical, to ours, which is focused on disproportionate *insider* ownership. The identity of the owner is important because the extent of the agency conflict between controlling and minority shareholders, as well as the controlling shareholders' incentives and opportunities to expropriate likely differ across different types of owners.

[9] We explore the possible moderating effect of free cash flows on the association between disproportionate insider control and firm performance as part of our extended analyses. See Section 5.3.

The presence of insiders who exercise long-term control over the firm is also associated with the general benefits of stable, long-term management. For instance, due to the stabilizing element of committed insiders, outside parties are more likely to deal with the same management and same corporate strategies for an extended period (Anderson and Reeb, 2003). This constancy of engagement facilitates a deeper business relationship, allowing enhanced trust to build over time. A relationship with improved implicit contracting is less costly than complete explicit contracting (Andres, 2008). Long-term relationships may allow suppliers to offer better terms. They also provide incentives for suppliers to invest in ways that support their customers and that allow those customers to operate more efficiently and profitably over time (Carr and Pearson, 1999). Sustained relationships with lenders may also allow firms to borrow at better interest rates, again boosting earnings and long-term prospects (Schenone, 2010).

Finally, disproportionate insider control drastically reduces the threat of hostile takeovers (Gilson, 1987; Jarrell and Poulsen, 1988). Firms with disproportionate insider control are therefore largely insulated from short-term market demands. Consistent with a reduced short-term orientation, Nguyen and Xu (2010) observe that the likelihood that a firm will just meet or beat analysts' forecasts declines with disproportionate insider control. A reduced short-term orientation is also beneficial because firms with longer investment horizons tend to perform better than those with a short-term focus (Stein, 1988; 1989). Supporting this notion, Graham *et al.* (2005) report that most executives would decline a positive net present value project to avoid missing an earnings target, hence demonstrating a willingness to sacrifice economic value to avoid short-term adverse stock price reactions (and possibly harm to their longer-term personal career goals). Relatedly, Manso (2011) demonstrates analytically that optimal contracts to encourage innovation may be implemented by providing insiders insulation from the market for corporate control. Firms'

capacity for innovation, in turn, is associated with increased profitability (e.g., Geroski *et al.*, 1993; Roberts, 1999; Leiponen, 2000; Cefis and Ciccarelli, 2005; Love *et al.*, 2009).

In sum, while disproportionate insider control may exacerbate Type II agency problems between corporate insiders and external shareholders, an aspect emphasized by the literature establishing a negative association between disproportionate control and Tobin's Q, numerous reasons exist that the stability of management and greater long-term focus that are arguably associated with enhanced insider control may also have positive consequences for firm performance. If managers are less preoccupied with window dressing for Wall Street, they may be freed to dedicate more time, attention, and resources to improving firm operations. Due to these competing lines of argument, the direction of the association between disproportionate insider control and firm performance is uncertain. We accordingly hypothesize in null form:

H1: Disproportionate insider control is not associated with firm performance.

3. Models, sample selection, and descriptive statistics

3.1. Models

Empirically testing the effect of ownership characteristics is challenging due to the endogeneity of ownership structure (Demsetz and Lehn, 1985; Himmelberg *et al.*, 1999). The first problem is endogeneity in the form of correlated omitted variables. The extent of disproportionate insider control in a firm, i.e., the relative number of voting and cash flow rights held by insiders, are determined to a degree by the insiders themselves. The underlying factors influencing these choices however may drive firm performance, and not the extent of disproportionate insider control present in the firm. One example of such potentially correlated variable is industry affiliation (Gompers et al., 2010). Insiders of firms operating in certain industries may have a particular interest to exercise disproportionate control, for instance, in the media sector due to a

desire to be in control of the firm's publishing policy. To the extent that firms operating in certain industries perform differently than the average of other companies, a link between disproportionate insider control and firm performance could be spurious.

A second endogeneity-related concern is reverse causality. Insiders have private information regarding the firm's expected future performance. These insights may lead insiders to increase (or decrease) the number of voting or cash flow right they hold accordingly. Because high performing firms hold greater potential for the consumption of perquisites and empire building, insiders have incentives to institute a dual-class structure and increase their disproportionate control rights, while the opposite is true for low performing firms. Accordingly, the direction of causality may go from performance to disproportionate control, and not the other way around.[10]

A final econometric issue is sample selection bias. To test our hypothesis regarding the effects of the separation of voting and cash flow rights on firm performance, we utilize a sample of dual-class firms. Our sample is therefore not randomly selected from the population of all companies. To the extent that dual-class firms are substantively different from single-class firms, our inferences therefore may not generalize to all firms. We take up each of these concerns in turn.

We conduct all of our primary analyses using a matched sample of dual-class and single-class firms which we create following the propensity score matching (PSM) procedure outlined in Gompers *et al.* (2010), Masulis *et al.* (2009), and McGuire *et al.* (2014).[11] To this end, we estimate a probit model, based on Gompers *et al.* (2010), which models the decision to establish a dual-

[10] We thank an anonymous reviewer for this interpretation.

[11] PSM is useful in reducing endogeneity resulting from functional form misspecification (Shipman *et al.*, 2017), decreasing the likelihood of obtaining biased coefficient estimates which may arise from traditional partial-matching procedures because the true relationship between control and outcome variables may differ across treatment levels or is other than assumed by the model utilized (Armstrong *et al*., 2010).

class structure at the time of the firm's initial public offering as a function of various proxies for the salience of private benefits of control post-IPO:[12]

$$\Pr(DC) = \beta_0 + \beta_1 NAME_i + \beta_2 MEDIA_i + \beta_3 SALESRANK_i + \beta_4 PROFITRANK_i + \beta_5 \%FIRMS_i + \beta_6 \%SALES_i + \beta_7 SALES/REGIONSALES_i + \beta_k LISTINGYEAR_i + \beta_j INDUSTRY_i + \varepsilon \quad (1)$$

The dependent variable *DC* is equal to one for firms with a dual-class structure and zero otherwise. The independent variables are *NAME*, an indicator if at IPO the firm name contains a person's name; *MEDIA*, an indicator if the firm operated in the media industry at the time of its IPO; *SALESRANK* and *PROFITRANK*, the percentile rank of the firm's sales and profits in the year of its IPO relative to other firms in the same IPO year; *%FIRMS* and *%SALES*, the percentage of all firms and all sales in the same Core Based Statistical Area (CBSA) in the year immediately preceding the firm's IPO; *SALES/REGIONSALES*, the percentage of the firm's sales relative to the sales of all firms in the same CBSA in the year of its IPO; and indicator variables for the CRSP listing year and forty-eight Fama and French (1997) industries.

We calculate probabilities that a firm will adopt a dual-class structure by estimating model (1) on an annual basis. Dual- and single-class observations are then matched without replacement on the closest probability of choosing a dual-class structure. This procedure creates a matched sample of firms with similar characteristics with the exception that one has elected a dual-class structure while the other has not. As a result, the concern that our results are affected by differences in the observable firm characteristics matched upon is mitigated (McGuire *et al.*, 2014).

[12] For brevity, we refer to Gompers *et al.* (2010) for an explanation of the rationale of all variables included in the selection model. For instance, *NAME* represents an indicator variable reflecting if the name of the company includes the name of person. *NAME* provides a control for family firm status because family ownership is predictive of dual-class status (DeAngelo and DeAngelo, 1985). We include all variables identified in Gompers *et al.* (2010), except for the state anti-takeover law index variable (Gompers *et al.*, 2003), because necessary data to construct the index are not available after 2006.

PSM, however, is not a strong control for endogeneity induced by unobservable firm-specific characteristics. Therefore, to address the concern that omitted unobservable firm characteristics or reverse causality affect our analyses, we repeat our tests employing a two-stage least squares approach (2SLS) (Gompers *et al.*, 2010), described in more detail in Section 4.2.[13]

Finally, we control for the possible effects of sample selection bias by employing the Heckman (1979) two-stage estimation methodology. Following Gompers *et al.* (2010) and McGuire *et al.* (2014), we use the coefficient estimates from an estimation of model (1), which models the decision to adopt a dual-class structure, to construct an inverse Mills ratio which we include as a control for sample selection bias in all regressions using our dual-class only sample.

To test our hypothesis, we estimate for firm *i* and year *t*:

$$PERF_{it} = \beta_0 + \beta_1 WEDGE_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 SALEGROWTH_{it} + \beta_5 CAPEX_{it} + \beta_6 AGE_{it} + \beta_7 MEDIA_{it} + \beta_8 M\_TO\_B_{it} + \beta_9 GDP_t + \beta_{10} SP500_t + \beta_k YEAR_{it} + \varepsilon_{it} \quad (2)$$

PERF is alternatively defined as industry-adjusted *ROI, ROA, ROE,* and *ROS*: the ratio of income before extraordinary items to investment (long term debt and total equity), total assets, total equity, and sales, respectively.[14] We adjust each of these measures by the industry median performance, where industries are defined per Fama and French (1997).[15]

WEDGE measures the extent of disproportionate insider control, i.e., the separation of voting rights (*VR*) and cash-flow rights (*CFR*), operationalized as the ratio of *VR* to *CFR* (Khalil *et al.*, 2008; Masulis *et al.*, 2009; Jordan *et al.*, 2014). A larger ratio represents increased voting

[13] As additional robustness tests, to further mitigate the concern of endogeneity, we also conduct first-difference and firm fixed effects regressions. See Section 5.

[14] We use *ROI* as our primary performance measure because it is theoretically the best measure of a firm's operations. *ROA* includes operating liabilities which reduce the capital needed from investors, while *ROE* conflates operating performance with capital structure (Koller *et al.*, 2015, p. 202). We include *ROS* as it is the major profitability component of our accounting measures.

[15] In untabulated supplemental analyses, we alternatively use unadjusted performance measures and control for industry effects with industry indicator variables in all models. Results (untabulated) are not affected by these alternatives.

rights relative to cash flow rights, and hence a greater degree of disproportionate control. A positive (negative) and significant coefficient on *WEDGE* therefore indicates increased (decreased) firm performance as disproportionate insider control increases.[16]

We control for a variety of firm characteristics related to firm performance. *SIZE* is defined as the natural log of total assets. Financial leverage, *LEV,* is total liabilities divided by total assets; *SALEGROWTH* is the year-over-year growth in sales $(SALE_t - SALE_{t-1})/SALE_{t-1}$. *CAPEX* is capital expenditures; *AGE* is firm age, defined as the number of years a company has appeared in the CRSP database; *MEDIA* is an indicator variable taking a value of one, and zero otherwise, if a firm-year observation is in the media industry.[17] *M_TO_B* is the market to book ratio, the market value of equity divided by the book value of equity. All variables are sourced from Compustat. *GDP* is growth in real GDP from the Federal Reserve Economic Data website;[18] *SP500* is the annual return of the S&P 500 index, obtained from CRSP.

3.2. Sample Selection and Descriptive Statistics

Our sample construction follows Gompers *et al.* (2010) and consists of U.S. dual-class firms from 2000 to 2014. We primarily identify potential dual-class firms based on differences in the reported number of shares outstanding in the CRSP and Compustat databases.[19] Additional potential dual-class firms are identified from CRSP, Thomson SDC, RiskMetrics, and Jay Ritter's website.[20] We also include as candidates all firms reported as dual-class firms in the Gompers *et*

[16] Following Gompers *et al.* (2010) and McGuire *et al.* (2014), we also use the difference between insider voting and cash flow rights as an alternate measure for the excess control rights owned by insiders. Results (untabulated) are not materially affected by this choice.

[17] *MEDIA* takes a value of one if the firm-year observation has an SIC code of the following: 2710-11, 2720-21, 2730-31, 4830, 4832-33, 4840-41, 7810, 7812, and 7820 (Gompers *et al.*, 2010).

[18] https://research.stlouisfed.org/fred2/

[19] CRSP reports the issue specific number of shares outstanding, while Compustat reports the number of all common shares outstanding. If the difference in reported shares between the two sources exceeds 1%, we include the firm as a potential dual-class firm in our candidate list because such difference may be attributable to the existence of a not publicly traded class of shares.

[20] http://bear.warrington.ufl.edu/ritter/dual-class-ipo.htm.

al. (2010) sample, which spans 1995 to 2002.[21] After removing firms with foreign incorporation and financial firms, we use the Security and Exchange Commission's (SEC) EDGAR database to access proxy statements and/or 10-Ks to verify the corporate structure of all candidate firms so identified. These procedures produce a sample which we are confident approaches the population of all public non-financial dual-class firms in the U.S. in this time period. In all, our dual-class sample comprises 591 firms which provide 4,267 firm-years of data.

We compute the proportion of voting and cash flow rights held by insiders across all outstanding classes of shares for each firm-year. Data are primarily obtained from firms' annual proxy statements and 10-K filings. Insiders are identified per the SEC's reporting requirement and include officers and directors of the firm. We subtract options and other rights to shares if such are included in the reported number of shares held by insiders. Upon merging our hand-collected data with Compustat to obtain necessary controls, our final sample has 3,390 firm-years (484 dual-class firms) with non-missing values for all variables needed in our analyses.

Descriptive statistics for our sample of dual-class companies are presented in Table 1. The mean industry-adjusted *ROI*, *ROA*, *ROE,* and *ROS* are -3.6 percent, -0.4 percent, -5.9 percent, and -9.9 percent.[22] The median values are at or slightly above zero. On average, insiders control 56.9 percent of the firm's voting rights and 29.1 percent of its cash flow rights. The mean (median) value of *WEDGE* is 2.308 (1.998), indicating that insiders hold about twice as many voting rights as cash flow rights. The mean natural log of assets is 6.607, which represents an untransformed mean of $3.14 billion. The average firm in our sample is 17 years old, and approximately one-sixth of firm-year observations are from the media industry.

[21] We thank Paul Gompers, Joy Ishii, and Andrew Metrick for graciously sharing their data on dual-class companies.
[22] The average negative values are consistent with the fact that our sample period, 2000–2014, covers two recessions.

[Insert Table 1 about here]

4. Results

4.1. Univariate Analysis

Figure 1 shows plots of four industry-adjusted measures of performance, *ROI*, *ROA*, *ROE*, and *ROS* by *WEDGE* tercile in our sample of dual-class firms. All four accounting-based performance measures monotonically increase as disproportionate insider control increases. These differences are statistically significant. For instance, the average *ROA* of the lowest tercile is statistically different from the highest at the one percent level ($t = 7.85$, $p < .01$). We thus observe initial evidence that disproportionate insider control is positively associated with firm performance.

[Insert Figure 1 about here]

4.2. Multivariate Analysis

Table 2 presents results of model (1), the selection equation to create our propensity score matched sample of dual-class and single-class firms. We have complete data, i.e., non-missing values for all variables included in models (1) and (2) for 45,194 firm-year observations in the 2000-2014 time period.[23] This number includes 41,804 single-, and 3,390 (7.5%) dual-class firms. We observe that all variables included in the matching equation are significantly associated with dual-class status, except for *PROFITRANK*. The matched sample derived from our estimation of model (1) comprises 6,008 observations.[24]

[23] We make sure that all observations have complete non-missing data for the necessary variables for our primary test before executing the matching procedure to avoid inadvertently pairing up two firms one of which would later drop out of the sample due to missing values, hence creating an unbalanced matched sample.

[24] We employ the Parsons (2001) greedy 5→1 digit matching algorithm and first match firms on five digits of the propensity score. Dual-class firms that do not match are next matched to single-class firms on four digits of the propensity score, and so on. We successfully match 88.6% of our dual-class firm observations. The remaining incomplete matching is due to disjointed ranges of propensity scores between dual- and single-class firms in a given year (Parsons, 2001).

In Column B of Table 2, we report the means of all matching variables as well as *t*-values of a paired t-test indicating that the matching process eliminated all significant differences between single- and dual-class firms with respect to the matching variables, except for a marginal remaining statistical difference at $p < .10$ (two-sided) with respect to *SALES/REGIONSALES* and *MEDIA*. We note however that our matched sample includes a slightly larger proportion of *MEDIA* single-class firms (7.5% of single-class firms) compared to dual-class firms (6.2% of dual-class firms), which is opposite to the concern that an overrepresentation of dual-class firms operating in in the media industry may affect the results.

[Insert Table 2 about here]

We report results for model (2) using our matched sample in Table 3. The dependent variable in column A of Table 3 is industry-adjusted Tobin's Q; the dependent variables reported in columns B through E are industry-adjusted *ROI, ROA, ROE,* and *ROS,* respectively. We winsorize all continuous variables at the first and ninety-ninth percentiles to mitigate the possible effect of outliers on the regressions. We report two-sided tests of statistical significance, calculated based on standard errors (Rogers) clustered at the firm level.

Consistent with the results of prior studies (e.g., Gompers *et al.*, 2010; Baran and Forst, 2015), we find a significant ($p < .01$) negative association of disproportionate insider control and Tobin's Q (Table 3, column A). However, as shown in column B, we find a positive and significant association of disproportionate insider control with *ROI* (coefficient estimate = 0.013, $p < .01$). Likewise, we find positive and significant associations of disproportionate control with *ROA* (column C, $p < .05$) and *ROS* (column E, $p < .05$). Our results for *ROE,* reported in column D, are weaker but consistent with prior results; the coefficient on *WEDGE* is positive though misses statistical significance at conventional levels.

[Insert Table 3 about here]

In an attempt to control for confounding unobserved variables, we next conduct 2SLS regressions (Brown *et al*., 2011). In the first stage, we regress *WEDGE* on a set of instrumental variables proposed by Gompers *et al.* (2010).[25] We then employ the predicted *WEDGE* from this first stage regression as the independent variable in the second stage regressions. Results of the second stage regressions are presented in Table 4. Consistent with our results reported in Table 3, we find that *WEDGE* is positively and significantly associated with all four measures of accounting performance (Table 4, columns B – E). We note that *WEDGE* continues to be negatively associated with Tobin's Q, although this association is not significant (p = .22)

[Insert Table 4 about here]

Finally, to conclude our primary set of tests, we conduct in-sample tests to investigate the association of disproportionate insider control and firm performance within the sample of dual-class firms. Our dual-class firm sample encompasses all 3,390 dual-class observations for which control variables are available. Replicating the results obtained thus far within a sample of only dual-class firms mitigates the concern that our finding of a positive association of disproportionate insider control and firm performance in the matched sample could be driven by other systematic differences between dual- and single-class firms.

In addition, in the dual-class firm only sample, we are able to supplement model (2) with control variables related to firms' corporate governance characteristics that we hand-collected

[25] These variables are *NAME*, *MEDIA*, *SALESRANK*, *PROFITRANK*, *%FIRMS*, *%SALES*, and *SALES/REGIONSALES*, along with year of appearance indicator variables, from model (1) and all control variables in model (2). When using a 2SLS approach, instruments should *not* be significantly associated with the second stage dependent variable(s) of interest, i.e., our case the performance measures. When we test for overidentification, we find that all variables except *SALESRANK* pass this test; i.e., are not associated with our performance measures. All of the remaining variables, with the exception of *SALES/REGIONSALES* are significantly associated with *WEDGE* and are thus retained as instruments in our first stage (results available upon request).

from the dual-class firms' SEC filings.[26] The first variable we add to model (2) is *FAMILY*, an indicator variable that takes a value of one if the firm's founder, or a direct descendent of the firm's founder, has the position of chief executive officer (CEO) or chairman of the corporation. We also add *BOARDSIZE*, the number of members of the board of directors; *PCT_IND*, the percent of the board that is composed of independent directors; and *CEO_IS_CHAIR*, an indicator variable taking a value of one if the chief executive officer of the corporation is also the board chair. We also include the inverse Mills ratio from a first stage selection model (model 1) as a specific control for sample selection bias.

Results of the in-sample tests, reported in Table 5, are consistent with our prior findings. Disproportionate insider control rights, *WEDGE*, is positively and statistically significantly associated with three of our four measures of firm performance (*ROI*, *ROA*, and *ROS*). As in Table 3, Column D, the association with *ROE* is as well positive, but not statistically significant at conventional levels (p = .17).

[Insert Table 5 about here]

Based on these collective findings we reject H1 and conclude that disproportionate insider control is positively associated with firm performance. These results are robust to using a matched sample and in-sample tests, controlling for endogeneity and sample selection bias, respectively. As insiders' voting rights exceed their cash flow rights, firm operating performance improves.

In general, we attribute this increased performance to the positive effects that are associated with longer-term stable management and the enhanced ability to disregard short-term market pressure in favor of long-term value creating strategies. Such average positive effects of

[26] We hand-collected these variables from the SEC filings when gathering ownership data for our dual-class firms. Therefore, these variables are not available to us for the single class firms included in our matched sample of dual- and single-class firms. Including, or not including, the additional governance control variables does not affect the results reported in Table 5.

disproportionate insider control appear to exceed any increased agency costs engendered by such arrangements. Further, these effects are economically significant. A one-standard deviation increase in *WEDGE* results in an industry-adjusted ROI, ROA, and ROS that are higher by 2.2, 1.3, and 3.3 raw percentage points respectively.

Our finding that disproportionate insider control has a positive association with firm performance appears surprising in light of the negative association of disproportionate insider control and Tobin's Q that has been previously established by several prior studies (Claessens *et al.*, 2002; Lins, 2003; Gompers *et al.*, 2010) and that we also observe. We note, however, that traditional accounting-based performance measures and market-based measures such as Tobin's Q capture conceptually different aspects. Earnings, which define firms' accounting based performance, represent realized results for a given year, whereas Tobin's Q reflects markets expectations, is forward-looking and includes discounted future results.

Two complementary explanations for our robust findings appear pertinent in our specific context of firms with disproportionate insider control. Because disproportionate insider control serves as a takeover defense, which insulates insiders from the market for corporate control, insiders holding disproportionate control rights are less beholden to capital markets. Entrenched insiders have limited incentive to cater to shareholder value in terms of increased stock prices. As a consequence, disproportionate insider control has been found to be negatively associated with the amount of firm-specific information available to market participants (Jiang *et al.*, 2014) with the consequence of less-accurate and more-widely dispersed financial analysts' forecasts (Forst *et al*., 2016). Moreover, consistent with entrenched managers' isolation from short-term market pressures, Nguyen and Xu (2010) also report a negative association of disproportionate insider control and earnings management. Accordingly, the negative association of disproportionate

insider control with Tobin's Q appears consistent with fewer activities to bolster the firm's share price in the presence of disproportionate insider control.

Exacerbating the effects of insiders' detachment from the wants and needs of the financial markets, Masulis, Wang, and Xie (2009) find that disproportionate control is associated with decreasing marginal value of cash, increasing CEO compensation, and poorer investment choices. Accordingly, while we find that accounting performance of the firm may benefit from the involvement of entrenched insiders, the negative association with Tobin's Q we find may simply reflect that capital markets do not value these performance gains accordingly as these may only increase the pool available for corporate waste and personal perquisites.[27]

5. Additional Tests

5.1. First-Difference and Fixed Effects Regressions

Despite the controls for endogeneity employed in our main tests, because no perfect solution to the endogeneity problem exists in an archival setting we also perform first-difference and fixed effects analyses to further address remaining concerns of endogeneity (Brown *et al.*, 2011). Both approaches eliminate the effect of correlated omitted variables that are constant over time. Each approach also allows for the examination of the effect of changes in disproportionate insider control on firm performance, and hence helps to establish a degree of causality.

Column A of Table 6 presents the results of regressing the first-difference change in *ROI* on the change in *WEDGE*. The estimated coefficient on change in *WEDGE* is positive (0.037) and significant ($p < .05$). This result supports the findings from our levels analyses, reported in Tables 3 through 5: as the extent of disproportionate insider control increases, firm performance increases. Column B of Table 6 presents the results of a fixed effects analysis. Controlling for firm fixed

[27] We thank an anonymous reviewer for this suggestion.

effects, *WEDGE* continues to be positively associated with performance ($p < .10$). Taken together, the two additional analyses reported in Table 6 demonstrate that among dual-class firms, an increase in disproportionate insider control is associated with improved performance. The inferred economic magnitude of this improvement is similar to that observed in Table 5.

[Insert Table 6 about here]

5.2. Moderating Effect of Controlling Party Identity

Our findings of a positive association of disproportionate insider control and firm accounting-based performance *on average* begs the question whether certain conditions exist in which the positive association of disproportionate insider control and performance may be particularly pronounced. We hence examine the relative strength of the performance-*WEDGE* relationship in founder firms, "second generation firms," in which control has passed from the original founder(s) to family members and heirs, and firms where neither the original founder(s) nor their family members are involved as executives or directors of the firm. *Ex ante*, we expect a relatively stronger link between disproportionate insider control and performance in founder firms due to a founder's superior knowledge and understanding of the company's products, operations, and strategy. By contrast, in second generation firms we expect a weaker association between disproportionate control and firm profitability because family members that inherited their controlling position may possess a less-intimate knowledge of the business, and may be more prone to exploit their inherited control for personal gain.

We examine this possible moderating factor by supplementing model (2) with an interaction term of *WEDGE* with indicator variables representing a founder or second generation

firm.[28] Results (untabulated) indicate that the positive association of disproportionate insider control and performance is significantly decreased for second-generation firms, relative to founder firms and "base-line" firms that are neither founder nor second-generation firms. This suggests disproportionate control in the hands of founders and unrelated insiders is more beneficial for firm performance, possibly because inheriting family members, on average, are less adept managers and/or use their disproportionate control to consume perquisites at a higher rate than either founders or unrelated insiders.

5.3. Impact of Free Cash Flows

Prior research (Bozec and Laurin, 2008) suggests that the association between *WEDGE* and performance may be moderated by the presence of high free cash flows. In firms characterized by high free cash flow insiders have an enhanced opportunity to expropriate value from non-controlling shareholders. The possible negative consequences of disproportionate insider control should therefore be particularly pronounced among firms with high free cash flows and the on-average positive performance effects of disproportionate insider control we observe may be confined to low free cash flow firms only where insiders' ability to expropriate is limited and hence the positive effects from managerial stability dominate.

To test the robustness of our results to the level of free cash flow, we partition our dual-class only sample into two subsamples along the median value of free cash flow. We then repeat the regression analyses reported in Table 4 separately for the high and low free cash flow subsamples. Splitting the sample in this way does not change our inferences: in both the high and

[28] We define a founder firm as a firm where one of the founders is an executive officer or director of the firm, and a second-generation firm as a firm where none of the original founders continues to be involved as an executive officer or director, but one or more family members or descendants now serve as executive officers or directors. The base line case, hence, are non-founder, non-family firms where neither founders nor their family members or descendants hold positions as executives or directors.

low free cash flow subsamples the separation of control and cash flow rights is positively and significantly associated with firm performance (untabulated).

5.4. Firm Efficiency

Demerjian *et al.* (2012) note that traditional performance measures, such as ROI and ROA, suffer from the disadvantage of assuming that the denominators accurately capture the basis for which income should be scaled. For example, two firms generating equal profit but utilizing different amounts of capitalized assets may be viewed as having differing levels of performance, even if the total revenue-generating expenditures of the comparatively asset-light firm equal those of the comparatively asset-heavy firm.[29] Instead, Demerjian *et al.* (2012) propose a measure of firm efficiency that allows firms to vary inputs, and the weights assigned to each, in the revenue generation process. Specifically, their measure of firm efficiency is based on data envelopment analysis (DEA) to model how efficiently firms generate revenues as a function of seven inputs: net property, plant, and equipment; net operating leases; net research and development; purchased goodwill; other intangibles; cost of inventory; and selling, general, and administrative expenses. The higher the ratio of the output (revenue) to these optimally-weighted inputs, the more efficient a firm is considered.[30] To control for differences in technology and business models employed to convert inputs into outputs across industries, firm efficiency is calculated separately for each of the Fama and French (1997) industries (pooled across years). By construction, firm efficiency is bounded by zero (perfectly inefficient) and one (perfectly efficient).

[29] This is an acknowledged issue among finance and investment professionals, leading them to occasionally capitalize such items as operating leases and organic intangible investments when determining return on investment.

[30] See Demerjian *et al.* (2012, pp. 1232-1238) for details regarding further specifics of DEA and the firm efficiency score calculation.

We obtain firm efficiency measures from Sarah McVay's website.[31] We regress these dependent variables on *WEDGE* while controlling for the variables shown to impact efficiency identified by Demerjian *et al.* (2012). We estimate the following model (3):

$$FE_{i,t} = \beta_0 + \beta_1 WEDGE_{it} + \beta_2 SIZE_{it} + \beta_3 MKTSHR_{it} + \beta_4 FCFI_{it} + \beta_5 AGE_{it} + \beta_6 SEG_{it} + \beta_7 FCI_{it} + \varepsilon \quad (3)$$

Firm efficiency (*FE*) represents the raw (*RAW_FE*) or industry decile-ranked (*RANKED_FE*) form of the measure. *MTKSHR* is firm market share, calculated as the percentage of sales earned by the firm within its industry; *FCFI* is a free cash flow indicator variable taking a value of one, and zero otherwise, if a firm has non-negative free cash flow, defined as operating cash flows less capital expenditures; *SEG* is the natural log of the number of business segments; *FCI* is an indicator variable equal to one, and zero otherwise, if a firm reports a non-zero foreign currency adjustment. All other variables are as previously defined. When the dependent variable is *RAW_FE*, we also include year and industry (Fama and French, 1997) controls in model (3).[32]

[Insert Table 7 about here]

We present regression results for model (3) in Table 7. All continuous variables are winsorized at the first and ninety-ninth percentiles. Because both firm efficiency (*RAW_FE*) and ranked firm efficiency (*RANKED_FE*) are censored with defined lower and upper bounds, we utilize a Tobit estimation procedure (Demerjian *et al.*, 2012). Results reported in column A indicate a positive and significant association between disproportionate insider control measured by *WEDGE* and *RAW_FE* ($p < .01$). Regression results using the alternate decile-ranked form of raw firm efficiency (*RANKED_FE),* reported in column B also demonstrate a positive association ($p <$

[31] http://faculty.washington.edu/smcvay/research.html.

[32] *RANKED_FE* is calculated by ranking scores within industry and as such is an industry-adjusted measure of *FE*.

.01).[33] We conclude that, consistent with our findings for ROI, ROA, ROE, and ROS, firm performance, as measured by the Demerjian *et al.* (2012) firm efficiency metric, is positively associated with disproportionate insider control. These results further support the notion that disproportionate insider control on average is positively associated with firm operating performance.

6. Conclusion

We examine the association between disproportionate insider control and firm financial performance. We are motivated to do so because equity structures that enable insiders to exercise control in excess of their economic interest in the company appear to be a growing phenomenon worldwide. At the same time, evidence on the relationship between disproportionate insider control and firm performance is very limited. The preponderance of prior work has focused on the association of disproportionate control and firm value (Tobin's Q).

Using a comprehensive hand-collected sample of U.S. dual-class firms from 2000 to 2014, we examine a set of four commonly used accounting-based measures of performance. Contrary to the limited prior work, we find robust evidence that disproportionate insider control is *positively* associated with firm performance. Our results hold in the presence of controls for endogeneity and sample selection bias. We further find that changes in disproportionate insider control are positively associated with changes in performance. Additionally, our results are consistent when we use firm efficiency, as calculated by Demerjian *et al.* (2012), as a measure of firm operating performance. While disproportionate insider control provides enhanced opportunity for the expropriation of outside shareholders, our primary findings imply that the net effect of disproportionate control on firm performance is positive. This association is consistent with

[33] We also regress *RANKED_FE* on disproportionate insider control using an ordered logit regression as well as firm-clustered OLS; inferences are unchanged (untabulated).

performance-enhancing consequences of stable management, long-term term commitment, and focus that entrenched insiders may provide.

Our findings of a positive association of disproportionate control and accounting-based performance measures contrasts with a negative relationship with the primary marked-based performance metric, Tobin's Q, established in prior work and also found in our sample.[34] Disproportionate control changes the pro-rata costs and benefits of insiders' actions. Because disproportionate insider control enables insiders to exercise control with a substantially reduced equity stake, insiders' incentives to engage in activities to increase shareholder value in terms of stock price are greatly diminished. Accordingly, the decreased market valuation may be the consequence of a diminished importance of pleasing markets, for instance, through real or accrual-based earnings management. Supporting the latter conjecture, Graham et al. (2005) report that managers are likely to underinvest for the sake of meeting earnings targets. Similarly, Nguyen and Xu (2010) report a negative association of disproportionate control and earnings management, consistent with entrenched managers' increased isolation from market pressures. Earnings volatility (Hunt *et al.*, 2000; Tucker and Zarowin, 2006) and cash flow volatility (Rountree *et al.*, 2008) however have been shown to be negatively associated with firms' market valuation. Future research may wish to further investigate these mechanisms in light of our results.

[34] We note that a similar pattern of a positive association of insider entrenchment, as measured by the G-Index, Gompers *et al.* (2003), and firm accounting performance, but a negative association of insider entrenchment with Tobin's Q, is also reported by Dybvig and Warachka (2015). Our results fall exactly along the lines of Dybvig and Warachka's empirical findings: insider entrenchment, either through legal mechanisms captured by the G-Index, or through disproportionate insider control rights, as in our case, is positively associated with firm performance, while the association of insider entrenchment with Tobin's Q is negative.

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Table 1

Descriptive Statistics of Selected Variables

	Mean	Std. Dev.	Min	Q1	Median	Q3	Max
Dependent Variables							
ROI	-0.036	0.288	-2.418	-0.056	0.001	0.065	0.783
ROA	-0.004	0.160	-1.084	-0.030	0.010	0.055	0.507
ROE	-0.059	0.594	-3.941	-0.089	0.000	0.083	2.622
ROS	-0.099	0.593	-4.695	-0.044	0.000	0.040	0.818
Variables of Interest							
VR	0.569	0.264	0.002	0.376	0.624	0.761	1.000
CFR	0.291	0.211	0.003	0.120	0.243	0.430	0.867
WEDGE	2.308	1.068	1.000	1.386	1.998	3.134	4.055
Ownership & Corporate Governance Controls							
FAMILY	0.687	0.463	0.000	0.000	1.000	1.000	1.000
BOARDSIZE	8.599	2.385	3.000	7.000	8.000	10.000	18.000
PCT_IND	0.634	0.159	0.000	0.545	0.624	0.750	1.000
CEO_IS_CHAIR	0.556	0.497	0.000	0.000	1.000	1.000	1.000
Firm Characteristic Controls							
SIZE	6.607	1.684	1.512	5.477	6.635	7.661	11.274
LEVERAGE	0.267	0.246	0.000	0.058	0.224	0.396	1.058
SALEGROWTH	0.098	0.330	-0.727	-0.028	0.051	0.148	3.070
CAPEX	0.048	0.050	0.000	0.017	0.033	0.060	0.362
AGE	17.052	13.198	0.000	6.000	14.000	26.000	79.000
MEDIA	0.166	0.372	0.000	0.000	0.000	0.000	1.000
M_TO_B	1.679	1.162	0.530	1.047	1.312	1.890	9.310
General Economic Controls							
GDP	0.018	0.015	-0.028	0.015	0.022	0.027	0.038
SP500	0.020	0.187	-0.455	-0.093	0.039	0.132	0.265

The dual-class sample represents 3,390 firm-years (484 unique firms). Variable definitions: *ROI*, *ROA*, *ROE* and *ROS* are industry-adjusted returns on investment, assets, equity, and sales respectively. *VR* is insider voting rights; *CFR* is insider cash flow rights. *WEDGE* is the ratio of *VR* to *CFR*. *FAMILY* is an indicator variable that takes a value of one if the firm's founder or a direct descendent is CEO or chairman. *BOARDSIZE* is the number of members of the board of directions. *PCT_IND* is the percent of the board that is composed of independent directors. *CEO_IS_CHAIR* is an indicator variable taking a value of one if the CEO is also the board chair. *SIZE* is the natural log of total assets; *LEV* is total liabilities divided by total assets; *SALEGROWTH* is year-over-year growth in sales ($SALE_t - SALE_{t-1}$)/$SALE_{t-1}$. *CAPEX* is capital expenditures; *MEDIA* is an indicator variable taking a value of one (zero otherwise) if a firm-year observation is in the media industry; *M_TO_B* is market value of equity to book value of equity; *GDP* is growth in real GDP from the Federal Reserve Economic Data website; *SP500* is the annual return in the S&P 500 index.

Table 2

Propensity Score Matching Selection Equation: Probability of Adopting a Dual Class Ownership Structure

	Column A			Column B			
	Coeff. est.	*Wald* χ^2		Mean SC firms	Mean DC firms	*t* value	
NAME	0.245	82.85	a	0.248	0.240	0.75	
MEDIA	1.376	488.98	a	0.075	0.062	1.94	c
SALESRANK	0.009	367.64	a	69.822	70.529	-1.09	
PROFITRANK	-0.000	0.46		60.662	61.186	-0.64	
%FIRMS	-2.584	8.89	a	0.034	0.034	0.33	
%SALES	2.908	21.37	a	0.041	0.040	0.55	
SALES/REGIONSALES	-0.101	4.05	b	0.070	0.080	-1.80	c
LISTINGYEAR		Included					
INDUSTRY		Included					
R^2		0.112					
N (single-class)		41,804		3,004			
N (dual-class)		3,390			3,004		
N (all)		45,194				6,008	

Column A reports results of model (1), a probit model to obtain the probability of choosing a dual-class structure of equity at the firm's IPO. The dependent variable *DC* is equal to one for firms with a dual-class structure and zero otherwise. The independent variables are *NAME*, an indicator if at IPO the firm name contains a person's name; *MEDIA*, an indicator if the firm operated in the media industry at the time of its IPO; *SALESRANK* and *PROFITRANK*, the percentile rank of the firm's sales and profits in the year of its IPO relative to other firms in the same IPO year; *%FIRMS* and *%SALES*, the percentage of all firms and all sales in the same Core Based Statistical Area (CBSA) in the year preceding the firm's IPO; *SALES/REGIONSALES*, the percentage of the firm's sales relative to the sales of all firms in the same CBSA in the year of its IPO; and indicator variables for the CRSP listing year and forty-eight Fama and French (1997) industries. Column B reports means of the matching variables for the matched single- (SC) and dual-class (DC) firms included in our PSM sample created based on the probabilities obtained from model (1). Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Table 3

Effect of Disproportionate Insider Control on Firm Performance (Matched Sample)

Dependent Variable	Column A *Tobin's Q*			Column B *ROI*			Column C *ROA*			Column D *ROE*			Column E *ROS*		
	Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. Est.	*t* value	
WEDGE	-0.083	-3.28	a	0.013	2.85	a	0.008	2.40	b	0.007	1.03		0.021	2.32	b
Firm characteristics controls															
SIZE	-0.016	-0.43		0.044	9.90	a	0.026	7.25	a	0.057	8.19	a	0.069	6.97	a
LEVERAGE	-0.520	-2.22	b	-0.227	-7.70	a	-0.124	-8.11	a	-0.228	-3.22	a	-0.247	-3.79	a
SALEGROWTH	0.807	4.22	a	-0.201	-0.66		-0.023	-1.37		-0.045	-0.90		-0.165	-2.03	b
CAPEX	1.778	3.00	a	0.147	1.40		0.062	1.00		-0.106	-0.55		0.596	2.51	b
AGE	-0.006	-3.15	a	0.001	3.96	a	0.001	4.00	a	0.002	3.05	a	0.003	4.56	a
MEDIA	0.269	1.55		-0.049	-2.06	b	-0.048	-3.60	a	-0.090	-2.06	b	-0.115	-2.39	b
M_TO_B				0.009	0.82		0.010	1.15		0.019	1.19		-0.066	-2.48	b
Environment Controls															
GDP	0.102	0.51		0.027	0.91		-0.010	-0.52		0.085	1.17		0.159	3.16	a
SP500	0.456	0.62		-0.216	-1.80	c	-0.057	-0.79		-0.376	-1.21		-0.537	2.42	b
Model *F* statistic		6.54	a		12.62	a		13.03	a		8.01	a		5.19	a
Adjusted R^2		0.056			0.094			0.112			0.039			0.085	
N		6,008			6,008			6,008			6,008			6,008	

The dependent variables are *Tobin's Q*, *ROI*, *ROA*, *ROE*, and *ROS*, industry-adjusted returns on investment, assets, equity, and sales respectively. *WEDGE* is the divergence of insider voting rights from cash flow rights computed as the ratio of *VR* to *CFR*; VR is the proportion of voting rights owned by insiders; *CFR* is the proportion of dividend rights owned by insiders. Other variables are defined in Table 1. Test statistics and significance levels are calculated based on standard errors (Rogers) clustered at the firm level. Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Table 4

Effect of Disproportionate Insider Control on Firm Performance (Matched Sample): 2SLS Analysis

Dependent Variable	Column A *Tobin's Q*			Column B *ROI*			Column C *ROA*			Column D *ROE*			Column E *ROS*		
	Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. Est.	*t* value	
WEDGE	-0.557	-1.23		0.238	3.36	a	0.179	3.42	a	0.479	4.23	a	0.481	2.10	b
Firm characteristics controls															
SIZE	-0.012	-0.32		0.042	9.34	a	0.024	6.78	a	0.051	7.13	a	0.063	6.10	a
LEVERAGE	-0.503	-2.12	b	-0.229	-7.71	a	-0.125	-8.05	a	-0.225	-3.19	a	-0.248	-3.87	a
SALEGROWTH	0.802	4.20	a	-0.019	-0.61		-0.022	-1.30		-0.042	-0.84		-0.162	-2.00	b
CAPEX	1.764	2.97	a	0.186	1.71	c	0.094	1.46		-0.106	-0.01		0.681	2.73	a
AGE	-0.006	-2.75	a	0.001	2.97	a	0.001	2.79	a	0.001	1.70	c	0.003	3.67	a
MEDIA	0.346	2.22	b	-0.083	-3.44	a	-0.074	-5.40	a	-0.159	-3.62	a	-0.183	-3.60	a
M_TO_B				0.011	0.95		0.011	1.29		0.023	1.42		-0.063	-2.43	b
Environment Controls															
GDP	0.085	0.43		0.029	1.00		-0.008	-0.44		0.087	1.20		0.163	3.26	a
SP500	0.506	0.69		-0.229	-1.92	c	-0.066	-0.92		-0.395	-1.28		-0.562	-2.53	b
Model *F* statistic		5.54	a		13.45	a		14.29	a		9.05	a		5.37	a
Adjusted R^2		0.054			0.096			0.116			0.042			0.087	
N		6,008			6,008			6,008			6,008			6,008	

The dependent variables are *Tobin's Q*, *ROI*, *ROA*, *ROE*, and *ROS*, industry-adjusted returns on investment, assets, equity, and sales respectively. *WEDGE* is the divergence of insider voting rights from cash flow rights computed as the ratio of *VR* to *CFR*; VR is the proportion of voting rights owned by insiders; *CFR* is the proportion of dividend rights owned by insiders. Other variables are defined in Table 1. Test statistics and significance levels are calculated based on standard errors (Rogers) clustered at the firm level. Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Table 5

Effect of Disproportionate Insider Control on Firm Performance (Dual-class Sample)

Dependent Variable	Column A *Tobin's Q*			Column B *ROI*			Column C *ROA*			Column D *ROE*			Column E *ROS*		
	Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value		Coeff. est.	*t* value	
WEDGE	-0.071	-1.58		0.021	3.04	a	0.012	2.42	b	0.015	1.39		0.031	1.78	c
Ownership & Corporate Governance Controls															
FAMILY	0.072	0.74		0.036	2.10	b	0.014	1.35		0.017	0.62		0.076	2.02	b
BOARDSIZE	0.028	1.64		-0.004	-1.24		-0.003	-1.34		-0.004	-0.91		-0.017	-2.60	a
PCT_IND	0.500	1.50		-0.165	-3.41	a	-0.095	-2.80	a	-0.102	-1.23		-0.290	-2.53	b
CEO_IS_CHAIR	-0.089	-0.90		0.033	2.30	b	0.014	1.26		0.019	0.81		0.056	1.89	c
Firm Characteristics															
SIZE	-0.020	-0.36		0.039	5.27	a	0.024	3.91	a	0.048	4.31	a	0.074	4.85	a
LEVERAGE	-0.777	-3.67	a	-0.251	-6.99	a	-0.130	-6.59	a	-0.189	-2.18	b	-0.386	-4.30	a
SALEGROWTH	-0.843	3.05	a	-0.057	-1.40		-0.044	-1.90	c	-0.115	-1.57		-0.211	-2.08	b
CAPEX	2.201	2.28	b	0.145	0.80		0.026	0.24		-0.142	-0.48		0.305	0.76	
AGE	-0.009	-2.45	b	0.001	1.30		0.001	1.79	c	0.002	2.04	b	0.002	1.98	b
MEDIA	0.209	1.14		-0.060	-2.00	b	-0.034	-1.86	c	-0.100	-2.00	b	-0.194	-2.66	a
M_TO_B				-0.001	-0.03		0.007	0.46		0.023	0.90		-0.081	-2.07	b
Environment Controls															
GDP	0.309	1.58		0.014	0.40		-0.016	0.70		-0.001	-0.00		0.155	2.27	b
SP500	-0.037	-0.06		-0.063	-0.53		0.020	0.25		-0.059	-0.12		-0.405	-1.43	
Selection control															
INVMILLS	0.077	0.57		-0.057	-3.02	a	-0.023	-1.54		-0.091	-3.42	a	-0.184	-2.66	
Model *F* statistic		2.89	a		5.61			5.62	a		3.26	a		3.05	a
Adjusted R^2		0.111			0.111			0.116			0.034			0.143	
N		3,390			3,390			3,390			3,390			3,390	

The dependent variables are *Tobin's Q* and *ROI*, *ROA*, *ROE*, and *ROS*, industry-adjusted returns on investment, assets, equity, and sales respectively. *WEDGE* is the divergence of insider voting rights from cash flow rights computed as the ratio of *VR* to *CFR*; *VR* is the proportion of voting rights owned by insiders; *CFR* is the proportion of dividend rights owned by insiders. *FAMILY* is an indicator variable that takes a value of one if the firm's founder or a direct descendent of the firm's founder has the position of chief executive officer (CEO) or chairman of the corporation. *BOARDSIZE* is the number of members of the board of directions; *PCT_IND* is the percent of the board that is composed of independent directors; and *CEO_IS_CHAIR* is an indicator variable taking a value of one if the chief executive officer of the corporation is also the board chair. Other variables are defined in Table 2. Test statistics and significance levels are calculated based on standard errors (Rogers) clustered at the firm level. Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Table 6

Effect of Disproportionate Insider Control on Firm Performance: First-Difference and Fixed Effects Models

Dependent Variable	First-Difference Column A *ROI*			Fixed Effects Column B *ROI*		
	Coeff. est.	*t* value		Coeff. est.	*t* value	
WEDGE	0.037	2.35	[b]	0.020	1.94	[c]
Ownership & Corporate Governance Controls						
FAMILY	0.001	0.04		0.059	2.13	[b]
BOARDSIZE	-0.005	-0.88		0.001	0.00	
PCT_IND	-0.075	-0.99		-0.121	-2.14	[b]
CEO_IS_CHAIR	0.020	1.01		0.005	0.34	
Firm Characteristics						
SIZE	0.134	5.91	[a]	0.066	5.55	[a]
LEVERAGE	-0.771	-13.38	[a]	-0.381	-9.65	[a]
SALEGROWTH	0.061	3.99	[a]	0.018	1.11	
CAPEX	-0.645	-4.18	[a]	-0.271	-1.93	[c]
AGE	0.023	4.31	[a]	-0.003	-1.83	[c]
MEDIA	-0.267	-2.73	[a]	-0.108	-2.05	[b]
M_TO_B	0.009	1.01		0.027	4.11	[a]
R^2		0.100			0.433	
N		2,906			3,299	

Results in Column A are obtained using the year-over-year change in the indicated dependent and independent variables, computed as the variable value in year t less the value in year t-1. Results in Column B reflect the inclusion of firm fixed effects. These firm variables are included in regressions but omitted from this table. The dependent variable is *ROI*, industry-adjusted return on investment. *WEDGE* is the divergence of insider voting rights from cash flow rights computed as the ratio of *VR* to *CFR*; *VR* is the proportion of voting rights owned by insiders; *CFR* is the proportion of dividend rights owned by insiders. Other variables are defined in Table 1. Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Table 7

Effect of Disproportionate Insider Control on Firm Performance: Firm Efficiency Models

	Tobit Estimation			Tobit Estimation		
	Column A			Column B		
Dependent Variable	*RAW_FE*			*RANKED_FE*		
	Coeff. est.	*t* value		Coeff. est.	*t* value	
WEDGE	0.003	3.60	[a]	0.005	2.87	[a]
Firm Characteristics						
SIZE	0.038	23.09	[a]	0.068	22.69	[a]
MKTSHR	1.747	15.72	[b]	2.056	9.00	[a]
FCFI	0.030	5.90	[a]	0.114	11.32	[a]
AGE	-0.001	-4.43	[a]	-0.001	-2.65	[a]
SEG	-0.010	-2.78	[a]	0.003	0.83	
FCI	0.024	4.28	[a]	0.059	5.63	[a]
Selection control						
INVMILLS	-0.008	-1.38		0.049	6.65	[a]
Year Controls?		Yes			Yes	
Additional Industry Controls?		Yes			No	
Adj. R^2		0.346			0.278	
N		3,443			3,443	

The dependent variable in Column A is *RAW_FE*, the raw firm efficiency score; the dependent variable in Column B is *RANKED_FE*, the decile-ranked form of *RAW_FE*, ranked by industry. *WEDGE* is the divergence of insider voting rights from cash flow rights computed as the ratio of *VR* to *CFR*; *VR* is the proportion of voting rights owned by insiders; *CFR* is the proportion of dividend rights owned by insiders. *MTKSHR* is firm market share, calculated as the percentage of sales earned by the firm within its industry; *FCFI* is a free cash flow indicator variable taking a value of one (zero otherwise) if a firm has non-negative free cash flow (cash flow from operations less capital expenditures); *SEG* is the natural log of business segments; *FCI* is an indicator variable equal to one (zero otherwise) if a firm reports a non-zero foreign currency adjustment value. Other variables are defined in Table 2. The adjusted R^2 in Columns A and B is generated from the OLS form of the model. Letters a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively (two-sided tests).

Figure 1

Industry-Adjusted Firm Performance by Disproportionate Insider Control Tercile