Dual-Class Vs. Single-Class Firms: Information Environment

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Dedicated to my father, mother, sisters, husband and daughter

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Abstract

Dual-Class Vs. Single-Class Firms: Information Environment

I compare the information environment, in particular information asymmetry and predisclosure information, of dual-class firms with those of single-class firms. In general results indicate that dual-class firms have higher information asymmetry compared to single-class firms. Dual-class firms that need additional external capital have lower information asymmetry compared to those that do not need additional external capital. This is consistent with the notion that companies increase disclosures when they raise external capital to lower the cost of capital. Despite the disclosure increase, dual-class firms that need additional external capital still have higher information asymmetry compared to single-class firms that also need additional external capital. However, using predisclosure information to examine the information environment, I do not find that dual-class firms are any different from single-class firms.

Table of Content

List of Figure

List of Tables

1 INTRODUCTION

This paper examines the information environment, in particular, the extent of information asymmetry and predisclosure information, of dual-class firms in comparison with those of single-class firms. Information asymmetry, measured using bid-ask spreads, exists because some information about a company is known only to certain parties (informed traders) and not to other parties (uninformed traders). A company with a high (low) bid-ask spread is interpreted as having high (low) information asymmetry and hence lower (higher) disclosure informativeness. *Predisclosure information* measures how much information about earnings or information related to earnings has been disclosed prior to earnings announcements. Higher predisclosure information indicates a richer information environment.

Unlike single-class firms, which have one type of common stock, each of which has one vote, dual-class firms have more than one class of common stock (usually two): one with superior voting power and other(s) with inferior or no voting power. This separation of cash flow and voting rights enables owners (managers) in dual-class firms to concentrate control (DeAngelo and DeAngelo, 1985) without proportional cash flow ownership of the firm. The primary objective of this paper is to investigate whether a dual-class structure affects the extent of information asymmetry and predisclosure information and to examine information asymmetry (predisclosure information) when dual-class firms need additional external capital.

The existence of dual-class companies has stirred controversy. Some argue that this setup serves the controlling stockholder's interest at the expense of other stockholders. For example, a portfolio manager of Morgan Stanley Investment

Management urged the *New York Times* to abolish its dual-class structure following a decline in its stock price in 2007. The portfolio manager argued that dual-class structure is a form of bad governance that is detrimental to shareholders. However, it was not easy to get the proposal approved. Although subordinate (Class A) shareholders supported the proposition by withholding 42% of their votes in an election of four out of thirteen directors at the company's annual meeting in April 24, 2007 (Tse, 2007), the majority (the remaining nine directors) were elected by the controlling (Class B) shareholders, including the Sulzberger family, which holds 89% of the votes. They also received support from both inside and outside directors. Hence it is not easy for subordinate shareholders to impose their will.[1]

Others argue that a dual-class structure is fair because investors know that inferior stocks have subordinate voting rights. So investors price-protect themselves to offset the effect of a lack of control that is implied by their subordinate voting power. Lease, McConnell, and Mikkelson (1983), who compare stocks of superior and inferior voting power, find that superior stocks trade at a premium relative to inferior stocks. On the basis of the notion that different types of stocks should have identical values when they have the same future expected returns, Lease et al. (1983) conclude that the difference in price reflects the difference in control (voting power) that superior stocks have over inferior stocks. Although owners (managers) have ultimate control, it is premature to say that every manager of a dual-class firm is entrenched, because there are cases of successful dual-class firms such as Google and Berkshire Hathaway.

[1] In response to this situation, the *New York Times* increased its dividend with the hope of easing shareholders' tension (Thomas, 2007). In any case, it is not easy for inferior shareholders to propose changes in a dual-class structure. The decision to keep or abolish the dual-class structure itself lies in the hands of the Sulzberger's trustee.

A dual-class firm is characterized by a high level of managerial ownership and a separation of cash flow and voting rights (DeAngelo and DeAngelo, 1985). A high level of managerial ownership leads to *incentive alignment effects* and *information effects*. However, a high level of managerial ownership coupled with a separation of cash flow and voting rights can give rise to *entrenchment effects*.

Prior research argues that managers with high levels of managerial ownership may increase or decrease disclosures, depending on whether incentive alignment effects or information effects dominate. A high level of managerial ownership aligns managers' interests with outside shareholders' interests. Thus protecting managers' interests is, in essence, protecting other shareholders' interests. To protect those interests, managers may disclose more or less information depending on the company's circumstances. If incentive alignment effects dominate, then managers have incentives to provide quality disclosures such as by choosing accounting procedures that better reflect the company's condition when managers need to raise external capital. Poor disclosure practices decrease market liquidity (Diamond et al., 1991) and/or increase investors' information asymmetry (Easley and O'Hara, 2004), which in turn increase risk and result in a higher cost of equity capital. Therefore, managers have incentives to increase disclosures to lower the cost of capital.

Fan and Wong (2002) argue that with high managerial ownership, managers can also limit disclosures to protect proprietary information (the information effects). Some information is better kept in the company so that competitors cannot use the information and put the company at a competitive disadvantage. This proprietary information encompasses a broad variety of information, including financial information such as

segment sales, order volumes, production cost, and profit margins of a particular product. This detailed information can help competitors infer how a company works.

Last, Fan and Wong (2002) argue that high managerial ownership coupled with a separation of cash flow and voting rights may promote the entrenchment effects. A divergence in cash flow ownership and voting rights allows managers to take self-interested actions without having to bear the pro rata consequences. Controlling managers who have the ultimate control of ownership may entrench because low cash flow ownership is not enough to promote an alignment between managers' and outside stockholders' interests. Controlling managers may provide disclosures with low informativeness to conceal their expropriation activities such as transferring profit to their own companies.

Prior research on disclosure studies finds that earnings informativeness, measured by earnings response coefficients (ERCs) in both short and long windows, of dual-class firms are lower compared to those of single-class firms (Francis et al., 2005). Another disclosure study (Tinaikar, 2006) finds lower compensation disclosures in dual-class firms compared to those in single-class firms. Instead of focusing on specific disclosures, this paper attempts to assess more broadly the disclosure policies – as reflected in the information environment – by examining the information asymmetry of dual-class firms in comparison to single-class firms. Focusing on one type of disclosure ignores the existence of other forms of information that can be used to assess a company.

In addition to information asymmetry, I use predisclosure information to assess dual-class firms' information environments. With this measure, I extend the investigation of earnings informativeness by examining other, more timely and informative disclosures

(earnings or non-earnings information) that have been used by investors in anticipation of earnings announcements. Greater disclosures during the predisclosure period indicate a richer information environment.

This paper's objectives are limited. I compare information asymmetry and predisclosure information between single-class and dual-class firms. However, I do not try to identify which of these effects (incentive alignment, information, or entrenchment) causes the difference (if any) in the information asymmetry and predisclosure information between single-class and dual-class firms.

Results using a sample from 1996 through 2002 indicate that dual-class firms have higher information asymmetry – measured by bid-ask spreads – compared to single-class firms. This result potentially reflects either the entrenchment or the information effects. More specifically, this evidence suggests that dual-class firms provide less information because of either entrenched behavior or an intent to protect proprietary information. A test on a subsample of firms that do not require additional external capital shows that dual-class firms still have higher information asymmetry compared to single-class firms; however, the magnitude of the association is comparable to that for the whole sample.

Consistent with prior research findings that firms with a higher level of disclosure have a lower cost of capital (Diamond and Verrecchia, 1991; Botosan, 1997), I find that dual-class firms that need additional external capital have lower information asymmetry (consistent with increased disclosures) compared to dual-class firms that do not need additional external capital. However, dual-class firms still have higher information asymmetry compared to single-class firms that also need additional external capital.

Although the incentive alignment effects seem to become more important when dual-class firms need additional external capital, the effects appear to be greater in single-class firms that also need additional external capital. One possible explanation for this finding is that investors of dual-class firms believe that the increase in disclosures is enough, considering the previous low level of disclosures.

I also examine information asymmetry one year before there are additional external capital needs to see whether there are advance disclosures, and find that bid-ask spreads of dual-class firms that need and do not need additional external capital do not differ from one another, indicating that there is no adjustment in disclosure before there are additional external financing needs.

Tests using predisclosure information reveal no difference between dual-class and single-class firms. One possible explanation for this finding is the deficiencies of the measures. Comparing the ratio of disclosure to predisclosure information would work well if the overall earnings quality of single-class and dual-class firms were similar.[2] In this case, if earnings of single-class firms were anticipated to a greater extent than earnings for dual-class firms, then a difference in the ratios would be observed. However, if earnings quality for dual-class firms is poorer, then both predisclosure and disclosure period information may be poorer than for single-class firms. If so, the differences in the ratio of disclosure to predisclosure information are difficult to predict.

The remainder of this paper is organized as follows: section 2 describes the background and hypotheses, section 3 lays out the methodologies, section 4 reports the results and the sensitivity analysis, and section 5 concludes.

[2] Francis et al. (2005) find lower ERCs for dual-class firms in both long- and short- window studies, indicating lower earnings quality for dual class firms compared to single-class firms.

2 LITERATURE REVIEW AND HYPOTHESES

2.1. Dual-Class Firms: Agency Problem and Background

Most public companies are characterized by a separation of control and ownership, whereby managers own relatively little of the companies' shares. This results in a conflict of interest between managers and outside shareholders. Approximately 6% of public companies have a dual-class structure (Gompers, Ishii, and Metrick, 2009). This structure is characterized by high managerial ownership (DeAngelo and DeAngelo, 1985) and a separation of voting and cash flow rights. DeAngelo and DeAngelo (1985) also show that managers of dual-class firms tend to hold a large proportion of stocks with high voting rights. Partch (1987) finds that, after a dual-class recapitalization, managerial ownership of votes rises and cash flow ownership falls. Hence, using a dual-class structure, one can have ultimate control of the firm without having as large a share of the cash flow rights. The agency problem is then modified from a conflict between managers and outside shareholders to a conflict between controlling owners (managers) and inferior shareholders.

By issuing stock with inferior or no voting power, owners of dual-class firms can maintain control and at the same time raise external capital. A dual-class structure also gives owners less pressure to disclose information that could destroy the value of the firm. Sometimes information about performance or valuable investment opportunities is costly to communicate to outside shareholders. DeAngelo and DeAngelo (1985) suggest that having concentrated control enables controlling owners to avoid costly disclosures and discourages them from investing in projects that are less profitable but that have results that can be observed easily by outsiders.

Furthermore, bureaucracy in decision making can be avoided by having a dual-class structure. For example, Rupert Murdoch, the controlling owner of News Corporation, can pursue acquisitions without relying on his planning staff. He made risky investments in the Triangle purchase by significantly increasing debt and paid steep prices for some acquisitions. But, "… almost everything he's bought has generated the anticipated cash flow" (Roberts et al., 1988). He can make these decisions because, unlike most CEOs, he does not have to answer to shareholders and the Wall Street community (Roberts et al., 1988).

DeAngelo and DeAngelo (1985) argue that a dual-class structure shields controlling owners from takeovers. Thus, controlling owners are more willing to invest in the firm's specific human capital because they have more assurance that they will benefit from the return on that investment. Also, if a takeover occurs, the controlling owner can negotiate a better deal for the company.[3]

Many firms in the media industry adopt a dual-class structure. Firms argue that this structure ensures independence and journalistic integrity, which are desirable characteristics in the media industry.

Apart from the preceding characteristics, a dual-class structure is of benefit to entrenched managers mainly because the dual-class structure allows managers to extract the private benefits of control and disables firms' external control mechanisms, specifically, the labor market and the takeover mechanism. Controlling managers have the ultimate power to decide who should run the company and whether to sell the company. For example, Conrad Black, CEO and a controlling shareholder of Hollinger

[3] Dual-class firms receive higher acquisition premiums compared to single-class firms (Smart and Zutter, 2003).

International, was found to have received millions of dollars of unauthorized payments from the company (Maidment, 2003).

A dual-class structure potentially increases agency costs, which are the sum of (a) monitoring costs, (b) bonding costs, and (c) residual loss (Jensen and Meckling, 1976). A principal incurs monitoring costs to control the agent's acts. In a dual-class firm, inferior shareholders may want to monitor controlling owners (managers) but lack the power to act on information obtained through such monitoring.

With regard to bonding, the agent herself has incentives to show her good intentions by incurring a bonding cost to demonstrate that the agent acts in the best interests of all shareholders. For dual-class firms, in most cases, the agent is the controlling shareholder. She may incur a bonding cost when it is beneficial for her, but she has the opportunity to refuse to do so when it is not.

Last, in situations in which agent decisions deviate from those that maximize a firm's value, a residual loss is incurred. This situation is not exclusive to single-class firms, but rather can also occur in dual-class firms. The controlling owners of dual-class firms may choose to maximize their utility, and that may not align with inferior shareholders' utility. With the control they have, controlling owners can hide information to camouflage their acts.

Some groups criticize a dual-class structure as poor governance. As examples, Institutional Shareholder Services gives lower corporate governance index scores to firms with dual-class structures, and institutional shareholders, such as California Public Employees Pension Fund (Calpers), oppose a dual-class structure. However, companies still choose this ownership structure, and more significantly, investors finance these

firms. The government does not prohibit this structure and argues that companies should be allowed to choose the optimal ownership structure that meets their particular needs.

Hence a dual-class structure can be a vehicle for either value maximizing or entrenching managers. The control power that this structure provides, while requiring a lower proportion of investment in the company's stocks, makes it interesting to see how this unique agency problem differs from other agency problems in its effect on disclosure policies.

2.2. Ownership Structure and Information Environment

Separation of ownership and control causes a conflict of interest between owners and managers. Managers act to maximize their utility (return on their investment in the company, compensation, on-the-job consumption of perquisites, and private benefits of control), which can conflict with an objective to maximize the firm's value.[4]

In dual-class companies, controlling owners' private benefits of control include private dealings (e.g., arranging business deals with other companies owned by controlling owners), setting higher compensation for themselves compared to managers of similar firms in the same industry, and recruiting families and relatives to fill positions in the companies. Thus the utility from private benefits of control in dual-class firms can be larger than in single-class firms.

Control/monitoring mechanisms try to ensure that managers make decisions and act in ways that maximize firm value rather than their own utility. As outlined in the introduction of this chapter, in dual-class companies, outside control/monitoring mechanisms (such as managers' labor market and takeover mechanism) are less

[4] Examples for "on-the-job consumption" include a nice office and a corporate jet.

effective.[5] Debt as an outside monitoring mechanism may be effective because the proportion of debt in dual-class firms is typically larger than in single-class firms (Francis et al., 2005).[6] However, internal control as an inside monitoring mechanism may not work as well.[7] Controlling owners (managers) design internal controls and often sit on the board of directors, possibly as the chairman.

Disclosures facilitate monitoring when the information is timely and credible. Although lenders can require companies to supply information, it is possible that information is released to lenders privately and not to the public. With ultimate power over the companies and weak outside monitoring mechanisms, owners essentially decide disclosure policies. This study examines how ultimate power without proportional cash flow consequences affects the controlling owners' (managers') disclosure practices, thus affecting the extent of information asymmetry and predisclosure information.

Theories developed by Warfield et al. (1995) and Fan and Wong (2002) guide how the dual-class ownership structure affects disclosure practices. Specifically, these authors provide theories for the impact of high managerial ownership and a separation of cash flow and voting rights on disclosures.

Warfield et al. (1995) explore the relationship between managerial ownership level and both earnings informativeness and discretionary accruals. The credibility of accounting information, used in monitoring, is influenced by the manager's judgments and choices. Low managerial ownership increases the demand for monitoring that relies

[5] The labor market introduces competition from other managers, which can encourage the existing manager to perform well to maintain her reputation and to minimize the chance of being replaced. A takeover transfers a company's control by stock purchase or exchange.

[6] Debt financing leads to monitoring by lenders. Other potentially effective control mechanisms are the stock market, the product market, and the legal system. In this study, the legal system is the same across companies because all companies under study are U.S. companies.

[7] Internal control is headed by the board of directors and is put in place to achieve efficient operation, safeguard assets, and prevent errors or potential misconduct.

on accounting information. A manager acts to further his or her own private benefits, and with low ownership, the manager may choose accounting procedures/estimates so that the accounting numbers do not reflect the true economic value. Warfield et al. (1995) argue that higher managerial ownership better aligns the manager's and other shareholders' interests (the incentive alignment effect) and reduces the demand for accounting-based constraints. Using annual data, they find higher ERCs for firms with higher managerial ownership and an inverse relationship between absolute accrual and the level of managerial ownership.

Another point of view is offered by Fan and Wong (2002), who argue that high managerial ownership prompts managers to reduce disclosure informativeness (the information effect). Nondisclosure protects proprietary information and human capital; public disclosure can place the firm at a competitive disadvantage. By having concentrated control, valuable knowledge about the firms can more easily be concealed from competitors and outsiders.

Fan and Wong (2002) further posit that concentrated ownership and a large separation of voting and cash flow ownership in East Asian companies reduces earnings informativeness (the entrenchment effect). Having more control increases managers' incentives to exploit other shareholders, whereas divergence between voting and cash flow rights enables managers to escape the pro-rata consequences of their actions. Poor disclosure accommodates entrenched managers who attempt to extract private benefits of control. Thus entrenchment and information effects result in lower disclosure informativeness, whereas the incentive alignment effects increase disclosure informativeness.

Two prior empirical studies examine dual-class firms and their disclosure practices: Francis et al. (2005) and Tinaikar (2006). Using a matched sample of dual-class and single-class firms, Francis et al. (2005) examine earnings informativeness through long- and short-window ERCs. They find low ERCs when the separation of voting and cash flow rights is high. In addition, they analyze dividend informativeness and conclude that dividends are at least as (if not more) informative than earnings in dual-class firms. The latter finding suggests that information other than earnings is valued by non-controlling stockholders. If investors perceive earnings in dual-class firms as a poor predictor of future payout, then the value relevance of dividends dominates earnings (DeAngelo et al., 1992). Distributing dividends limits expropriation (Faccio et al., 2001) and is therefore positively associated with a firm's value.

Tinaikar (2006) also uses a matched sample and finds lower levels of compensation disclosures as voting rights are higher. He also provides further evidence that managers in dual-class firms have excess compensation that is convexly related to managers' voting rights and concavely related to managers' cash flow rights.

Assessing the informativeness of specific information elements, such as earnings, and compensation information contributes to our understanding of the effect of ownership structure on disclosures, but they represent only a part of the disclosures. Therefore I assess the effect of a dual-class structure on the overall information environment by assessing information asymmetry, which is measured using bid-ask spreads.

In addition to using information asymmetry, I also use predisclosure information which includes earnings and nonearnings information. Predisclosure information analysis

extends previous research that investigate ERCs (a long- and a short-window) by analyzing disclosures both before and during earnings announcements. Prior studies (e.g., Brown et al., 1987) show that analysts give a more accurate forecast than a time series forecast because they can incorporate greater and more timely information (earnings and nonearnings information) such as information from company insiders. Predisclosure information indicates how much earnings and nonearnings information helps investors anticipate earnings before the announcement. The more predisclosure information, the richer its information environment and the less the market reaction at the earnings announcement. Predisclosure information is considered using (a) the ratio of the mean absolute value of abnormal returns during the disclosure period to the mean absolute value of abnormal returns during the predisclosure period; (b) the ratio of the mean of the square of abnormal returns during the disclosure period to the mean of the square of abnormal returns during the predisclosure period; and (3) the ratio of the mean adjusted volume during the disclosure period to the mean adjusted volume during the predisclosure period. In each case, the extent of predisclosure information varies inversely with these ratios.

[Insert Figure 1 here]

Figure 1 summarizes the analyses of the impact of a dual-class structure on the information environment. First, I compare the information environment of dual-class and single-class firms in general to see whether dual-class firms have higher (lower) information asymmetry (predisclosure information) compared to single-class firms. Then, I do the same analysis on a subsample of firms that do not need additional external capital to see whether stronger results than seen in the previous analysis are obtained. In other

words, I see whether dual-class firms that do not need additional external capital have even higher (lower) information asymmetry (predisclosure information) compared to single-class firms that do not need additional external capital. Firms that do not need additional external capital may find that more disclosures are unnecessary, and dual-class firms, in particular, may choose to disclose much less under these circumstances. Thus we may find stronger results for this particular subsample.

Next, to see whether dual-class firms that need additional external capital in the current or following year increase disclosures in the current period, I compare dual-class firms that need additional external capital with dual-class firms that do not need additional external capital. In this comparison, I examine whether dual-class firms that need additional external financing have lower (higher) information asymmetry (predisclosure information) than dual-class firms that do not need additional external financing in the current and following year. Last, I compare the information asymmetry (predisclosure information) of dual-class firms with the information asymmetry (pre-disclosure information) of single-class firms when both need additional external capital to see whether, in this situation, dual-class firms provide more disclosures than single-class firms to compensate for the higher (lower) information asymmetry (predisclosure information) that they generally have compared to single-class firms.

In dual-class firms, entrenchment and information effects are more likely to dominate because the reasons behind a dual-class creation suggest that this structure can be used as a means to extract private benefits of control (the entrenchment effect) or to protect proprietary information (the information effect). Although the public may emphasize certain information more in valuing dual-class firms (as suggested by Francis

et al., 2005), the preceding analysis suggests that overall disclosures of dual-class firms are of lower quality than disclosures of single-class firms. Hence dual-class firms are posited to have higher (lower) information asymmetry (predisclosure information).

H1a: The information asymmetry is higher for dual-class firms than for single-class firms.

H1b: Predisclosure information is lower for dual-class firms than for single-class firms.

It is assumed that the stock market is characterized by informed (e.g., insiders, institutional investors) and uninformed traders (dealers).[8] A dealer increases bid-ask spreads to compensate for the possibility of losses from trading with informed traders. The greater the perceived information asymmetry, the wider the bid-ask spreads. Higher bid-ask spreads are consistent with less informative disclosures in dual-class firms compared to those in single-class firms.

Informed traders include insiders and blockholders. Insiders (officers and directors) of dual-class firms mostly own stocks with superior voting rights. On average, they control approximately 70% (mean) and 90% (median) of the superior stocks compared to 26% (mean) and 16% (median) of the inferior stocks. Also, prior research found some level of institutional holdings in dual-class firms.[9] The presence of outside blockholders, which includes institutional investors, has been shown to be related to firms with higher information asymmetry (Heflin and Shaw, 2000). Hence bid-ask spreads

[8] A *bid* is the price of a stock at which a dealer is willing to buy, and an *ask* is the price at which he or she is willing to sell. A dealer enables immediate exchange between sellers and buyers of stocks by matching buy and sell orders and holding stock inventory for any unmatched orders. The dealer sets bid-ask spreads in such a way as to reduce the risk of loss and provide a reasonable compensation for this time and risk exposure. In other words, the bid-ask spread is a cost of the transaction.

[9] Using a matched sample (year and industry matched to single-class firms), Francis et al. (2005) show that the mean of institutional holdings in dual-class firms is 41.20% and that 33.33% of institutions invest in dual-class firms. Li et al. (2007) show that institutions own, on average, 34.97% of dual-class firms' market value of equity.

should portray information asymmetry between informed traders and uninformed traders in dual-class firms.

Managers' decisions about how and what to disclose are also reflected in the amount of predisclosure information. A company with a richer information environment has higher predisclosure information because more informative information is publicly available to guide investors in earnings estimation, thus leading to lower stock price (volume) reactions during earnings announcements. In dual-class companies, managers control the companies' disclosures. If they have incentives to limit disclosures (the information and/or entrenchment effects dominate the incentive alignment effect), then predisclosure information (predisclosure measures) should be lower (higher) compared to single-class firms.

The preceding analyses are undertaken using all observations. I also examine information asymmetry and predisclosure information in a subsample of firms that do not need external financing to see whether stronger results than the analyses on the whole sample are obtained.

2.3. Information Environment in Dual-Class Firms With Additional External Capital Needs

Companies that raise external capital tend to increase disclosures to reduce their cost of capital (Diamond and Verrecchia, 1991; Botosan, 1997). As is true with single-class firms, if dual-class firms are characterized by substantial information asymmetry, then such firms have incentives to increase disclosures in anticipation of raising capital.[10]

[10] It is possible that when information asymmetry (predisclosure information) is low, a manager raises external capital. The manager may also time the issuance of stock to when the stock price is high.

In this section, I examine whether dual-class firms disclose more information when they need additional external capital. If so, then we expect lower information asymmetry for dual-class firms when they need additional external capital compared to those that do not need additional external capital. In this study, a company is considered in need of additional external capital if the sum of the sales of common and preferred stock and long-term debt issued minus the sum of the purchases of common and preferred stock and long-term debt paid is greater than zero.

Greater disclosures by dual-class firms that need additional external capital are also reflected in high predisclosure information; that is, more information about earnings is anticipated prior to earnings announcements, so return and volume reactions during the earnings announcements are low.

H2a: Information asymmetry is lower for dual-class firms that need additional external capital than for dual-class firms that do not need additional capital.

H2b: Predisclosure information is higher for dual-class firms that need additional external capital than for dual-class firms that do not need additional capital.

I also examine whether dual-class firms that need additional external capital the following year make advance disclosures. The analysis examines current levels of information asymmetry (predisclosure information) of dual-class firms.

In Hypotheses 1a and 1b, dual-class firms are posited, in general, to have higher (lower) information asymmetry (predisclosure information). However, as with single-class firms, dual-class firms that need additional external capital are expected to increase disclosures because they also want lower cost of capital (Hypotheses 2a and 2b). Hypotheses 3a and 3b examine whether, with the increase in disclosures, dual-class firms then have a similar level of disclosure compared to single-class firms that also need

additional external capital or whether they still have a lower level of disclosure than single-class firms. If they have a similar level of disclosure, then we expect a similar level of both information asymmetry and predisclosure information. However, if their level of disclosure is lower than single-class firms, then we anticipate higher (lower) information asymmetry (predisclosure information).

H3a: Information asymmetry for dual-class firms that need additional external capital is greater than or equal to information asymmetry for single-class firms that need additional external capital.

H3b: Predisclosure information for dual-class firms that need additional external capital is lower than or equal to predisclosure information for single-class firms that need additional external capital.

3 METHODOLOGY

The decision whether to have a single-class or dual-class ownership structure is not exogenous. Thus endogeneity is problematic when comparing dual-class with single-class firms. An ordinary least squares approach results in a biased coefficient because the ownership variable is correlated with the residuals. Thus an instrumental variable approach is used to address the endogeneity problem.[11] Although finding acceptable instruments for ownership structure is difficult, several attempts have been made. The approach I use here is from Tinaikar (2006). When applying instrumental variables, following the common practice, I also include explanatory variables from the second-stage regression in the first-stage regression.

When testing on a subsample of dual-class firms, and excluding the single-class firms, the possibility of sample selection bias exists. Estimating on a non-random sample leads to biased parameter estimates. The unique subsample potentially differs from the sample of all firms. Thus, results cannot be generalized to the population. The Heckman procedure is used when tests are run on a subsample of dual-class firms. A significant coefficient on the inverse Mills ratio suggests that sample selection is a problem. I use the same selection model as in the first step to address both sample selection and endogeneity problems.

3.1. Selection Model

Tinaikar (2006) identifies several independent variables that are considered to be influential in the decision to choose a dual-class structure: family firms, firm size, the

[11] If endogeneity is not a problem, then results using ordinary least squares regression, and not those from the instrumental variable procedure, should be used.

amount of intangible assets, external financing needs, sales growth, firm age, and industry dummies.[12] The variables are selected for the reasons discussed subsequently.

Dual-class firms are more likely to originate from family firms. Using a sample of 45 dual-class firms in 1980, DeAngelo and DeAngelo (1985) show some degree of family involvement in dual-class firms. Families tend to have stock ownership and to hold top management positions. By retaining voting rights, managers protect managerial perquisites which can include granting employment to relatives or transferring control within the family. Levy (1983) describes a similar family involvement in firms traded on the Israeli stock exchange. Smith and Amoako-Adu (1999), who examine 124 Canadian family-controlled firms, find that 62% choose dual-class structures. Gompers, Ishii, and Metrick (2009), who use family name as a proxy for family involvement, find a positive relationship between firms that use a family name and a dual-class status. In this paper, a firm is classified as a *family firm* if the largest controlling shareholder is an individual or a family.

A dual-class structure as a takeover defense can be important for small firms. Taylor and Whittred (1998) find that, at initial public offering, dual-class companies tend to be smaller than single-class companies. One of the reasons behind a dual-class creation is to enable owners to maintain control, and at the same time, raise external capital, which facilitates owners in diversifying their investments and/or capturing the firms' potential growth. As those dual-class firms grow, they can become larger than single-class firms.

[12] However, leverage is not included in the model because it is more of a consequence of being a dual-class company rather than a factor that drives a dual-class selection. A dual-class company may have difficulty raising capital in the stock market because investors perceive this setup as a bad structure, therefore this type of company would likely raise debt. Moreover, this variable is found to be not significant in Tinaikar (2006).

Because the selection model is for firms at any stage (IPO or non-IPO), I cannot predict a relationship between firm size and dual-class status.

Taylor and Whittred (1998) also find that companies with intangible assets are more likely to adopt a dual-class structure because (a) intangible assets are difficult to measure and to verify, hence it accommodates managers in extracting the private benefits of control and (b) this structure enables managers to protect investments in innovation, which is (partly) reflected in the amount of intangible assets. The second argument is analogous to the argument of DeAngelo and DeAngelo (1985) that managers use a dual-class structure to protect their claim on future benefits associated with their investment in the firm's specific human capital. This investment is a type of intangible asset that controlling owners try to protect and from which they hope to enjoy the return. This paper uses intangible assets as defined by Compustat deflated by total assets.

A dual-class structure is presumed to cause weaker shareholder protection, which prompts investors to discount firm value and to increase the cost of capital. So, ceteris paribus, a company is less likely to maintain a dual-class structure when it has substantial external financing needs. The perception of weaker shareholder protection hurts dual-class firms, especially when they want to raise capital from public investors by offering common stocks with subordinate voting rights. Therefore we are not surprised to find that dual-class firms favor debt over equity financing. Lenders may be more willing to lend money to the firm because, in the case of liquidation, debt is a senior claim to equity and lenders can set debt covenants to ensure that firms' actions are in line with lenders' interests. Using cash-flow statements, I define firms as needing additional external capital in a fiscal year when the sum of the sales of common stock, preferred stock, and long-

term debt, minus the sum of stock repurchases and long-term debt repayments in that fiscal year, is positive.

A firm with high sales growth can be a strong takeover candidate. An owner-manager may wish to reduce takeover risk if she perceives that the firm is currently undervalued by adopting a dual-class structure. In addition, a growth firm usually needs external capital. Controlling owners who lack internal capital may opt for a dual-class structure to raise external capital and, at the same time, maintain control.

The age of a firm proxies for the length of period in which founders (controlling owners) have invested in human capital. The older the firms, the longer the founders have invested in the firms and the greater the incentive to protect their investment in human capital. To preserve the return, a dual-class structure is adopted. On the contrary, Gompers et al. (2009) argue that a firm founder usually is still active when a firm is young, during which time, private benefits of control are likely to be higher. By having a dual-class structure, a founder can enjoy the private benefits of control easier. Thus the role of firm age is ambiguous.

I measure firm age as the current year minus the incorporation year. This measure is not a clean measure of firm age because incorporation year and founding year frequently differ. However, the limited availability of founding year data prompted most studies to use incorporation year to measure firm age. Also, the founding year is not necessarily the year that the founder of a dual-class company started the company.[13]

The selection model includes industry dummies because private benefits of control likely differ across industries, as suggested by DeAngelo and DeAngelo (1985)

[13] For example, the *Washington Post* was founded in 1877, but it was not until 1933 that Eugene Meyer (the father of Katharine Graham) bought the company. Although the Graham family did not establish the *Washington Post*, this family is considered to be the family founder.

and Demsetz and Lehn (1985). For example, in the media industry, controlling managers may be able to influence public opinion. Hence, they have high non-pecuniary benefits from control (Demsetz et al., 1985). Tinaikar (2006) and Gompers et al. (2009) find that companies in the media industry tend to adopt a dual-class structure. I use industry categories, proposed by Fama and French (1997), and then reclassify SIC codes 2710-11, 2720-21, 2730-31, 4830, 4832-33, 4840-41, 7810, 7812, and 7820 into a "media" category.[14] Firms in utilities and financial industry are excluded.

For the subsequent selection model, stock class and family variables are measured as of the proxy statement date. Other variables are measured as of the fiscal year end date before the proxy statement date. The model is estimated using a probit regression, in which the dependent variable is a dummy variable that distinguishes dual-class from single-class firms:

$$\begin{aligned} DUAL = {} & \alpha_0 + \alpha_1 FAMILY + \alpha_2 SIZE + \alpha_3 INTGBL + \alpha_4 EXT\_FIN + \alpha_5 G + \alpha_6 AGE + \\ & + \alpha_7 MEDIA + \sum_{i=8}^{54} \alpha_i \boldsymbol{IND} + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon, \end{aligned} \quad (1)$$

where variables are defined in Appendix 1.

3.2. Information Environment: Dual-Class Versus Single-Class Firms

3.2.1. Information Asymmetry

I use bid-ask spreads as measures of information asymmetry. Three factors determine bid-ask spreads: order processing cost, inventory holding cost, and adverse selection cost. Following Coller and Yohn (1997), I control for order processing cost and inventory holding cost to examine the adverse selection (information asymmetry) dimension. The *order processing cost*, which is the cost of executing a transaction, is

[14] This categorization of the media industry is the same as in Gompers et al. (2009).

estimated using the mean shares traded (LNVOL). The order processing cost is relatively fixed in the short run and can be allocated among shares traded, so the greater (lesser) the number of shares traded, the smaller (higher) the bid-ask spreads.

Inventory holding cost is the cost to maintain sufficient inventory of stock to fulfill demand at any time. It is proxied by the mean closing price (LNPRICE) and standard deviation of return (STDRET). Demsetz (1968), Tinic (1972), Tinic and West (1972, 1974), and Benston and Hagerman (1974) find that stock price is positively correlated with bid-ask spreads: the higher the stock price, the higher the opportunity cost of holding the inventory, so the bid-ask spreads are higher. Higher return volatility increases the risk of holding the inventory and therefore pushes the cost of inventory higher and, in turn, the bid-ask spreads higher.

The variables in this model are measured over a fiscal year containing the proxy statement from which the PDUAL variable is measured. PDUAL is the probability of dual-class obtained from equation (1). The model is run on the whole sample to compare the general information asymmetry of dual-class firms and single-class firms, and it is run on the subsample of firms that do not need additional external capital to examine whether stronger results compared to the whole sample's analysis are obtained:

$$\text{SPRD} = \beta_0 + \beta_1\text{LNPRICE} + \beta_2\text{LNVOL} + \beta_3\text{STDRET} + \beta_4\text{PDUAL} + \sum_{i=5}^{51}\beta_i \boldsymbol{IND} + \sum_{t=1997}^{2002}\beta_t YEAR + \varepsilon, \quad (2)$$

where variables are defined in Appendix 1.

The variables are measured as daily averages over the firms' fiscal year periods, except for the dual dummy, which is measured as of the proxy statement date within the

fiscal year. The information asymmetry component of the spread for single-class firms is captured by the intercept. If information asymmetry is higher in dual-class firms, then, after controlling for the order processing cost and the inventory holding cost, the coefficient estimate on PDUAL is positive and significant.

3.2.2. Predisclosure Information

I also assess the information environment using predisclosure information, which measures the richness of earnings and earnings-related information available before the earnings announcement. The greater the amount of predisclosure information, the less surprised the market is when earnings are announced. The following predisclosure measures are constructed following Dempsey (1989). The absolute value or square of abnormal return is used because these measures reflect more about the magnitude of the abnormal return than the direction. Dempsey (1989) argues that a predisclosure measure using square values is sensitive to kurtosis in the distribution of the predisclosure period residuals, and the measure using absolute values mitigates this potential bias:

$$P_1 = \ln \frac{\left(\sum_{t^*} |u_{it^*}|\right)/t^*}{\left(\sum_{t} |u_{it}|\right)/t}, P_2 = \ln \frac{\left(\sum_{t^*} u_{it^*}^2\right)/t^*}{\left(\sum_{t} u_{it}^2\right)/t}, P_{vol} = \ln \frac{\left(\sum_{t^*} vol\right)/t^*}{\left(\sum_{t} vol\right)/t},$$

where

t^* is days during 5 days of the disclosure period (–2, –1, 0, +1, +2),

t is days during the predisclosure period (250 days before the disclosure period),[15]

u is abnormal returns, and

vol = adjusted volume.

[15] Results using quarterly data do not change the conclusions.

Daily abnormal return (u) is calculated using market model:

$$u = R - (a + bR_m),$$

where

R is the firm's return on day t, R_m is the Center for Research in Security Prices (CRSP)'s equally weighted stock return on day t, and a and b are the market model parameter estimates for each firm estimated over one fiscal year before current fiscal year (the estimation period).

The volume measure is adapted from Landsman and Maydew (2002) and is calculated as follows:

$$\boldsymbol{vol} = \boldsymbol{V} / \sigma ,$$

where V is the number of shares traded divided by the number of outstanding shares and σ is the standard deviation of daily V during the estimation period, which is one fiscal year before the current fiscal year.

The following predisclosure information model is estimated using an instrumental variable approach. Just like tests on bid-ask spreads, PDUAL, instrumented from equation (1), is measured as of the proxy statement date issued during the fiscal year. The following model is also estimated using the entire sample and a subsample of firms that do not need additional external capital:

$$PI = \gamma_0 + \gamma_1 LNMVE + \gamma_2 LNANALYST + \gamma_3 PDUAL + \sum_{i=4}^{50} \gamma_i IND + \sum_{t=1997}^{2002} \gamma_t YEAR + \varepsilon, \quad (3)$$

where variables are defined in Appendix 1 and PI is predisclosure information measured using P_1, P_2, or P_{vol}.

Following prior research (e.g., Dempsey, 1989), I include firm size and the number of analysts following as control variables. Predisclosure information measures are negatively related to firm size (LNMVE) and the number of analysts following (LNANALYST). Big firms and firms with more analysts following are presumed to have greater disclosure (e.g., Dempsey, 1989), which increases the amount of predisclosure information and lowers the market reaction at earnings announcements. High predisclosure information translates into low predisclosure measures. If dual-class firms disclose less compared to single-class firms, then we expect lower predisclosure information (higher predisclosure measures) in dual-class firms than in single-class firms. Because predisclosure information varies inversely with its measures, the coefficient on PDUAL is expected to be positive and significant.

3.3. Dual-Class Firms When Needing Additional External Capital

Whether controlling shareholders are entrenched or are trying to protect proprietary information, when dual-class firms need additional external capital, they increase disclosures to reduce financing costs. I perform a cross-sectional test among dual-class firms to see whether those that have additional external capital needs increase disclosures and thus have lower (higher) information asymmetry (predisclosure information) compared to those that do not have additional external capital needs. To examine the existence of advance disclosures, I also test whether dual-class firms that need additional external capital in the following year increase disclosures (have lower information asymmetry or higher predisclosure information) in the current year. Last, I examine the extent to which disclosure increases (if there are any) in dual-class firms

reduce (increase) their information asymmetry (predisclosure information) in comparison to those of single-class firms that also need additional external capital.

3.3.1. Dual-Class Firms Subsample: Need Versus Do Not Need Additional External Capital

The Heckman procedure[16] is applied to compare the information asymmetry (predisclosure information) of dual-class firms that need additional external capital to those that do not need additional external capital. The first step is equation (1), and the second step is as follows:

$$SPRD = \theta_0 + \theta_1 LNPRICE + \theta_2 LNVOL + \theta_3 STDRET + \theta_4 FIN + \theta_5 MILLS + \sum_{i=6}^{52} \theta_i IND + \sum_{t=1997}^{2002} \theta_t YEAR + \varepsilon. \quad (4)$$

The variables are defined in Appendix 1 and FIN is 1 for the year when a company needs additional external capital, and 0, otherwise. The inverse Mills ratio (MILLS) is obtained from the selection model of equation (1). A negative coefficient on FIN indicates that information asymmetry for dual-class firms that do not need external capital is higher than information asymmetry for dual-class firms that need external capital.

I also apply the Heckman procedure for the predisclosure information test. The first step is equation (1), and the second step is as follows:

$$PI = \phi_0 + \phi_1 LNMVE + \phi_2 LNANALYST + \phi_3 FIN + \phi_4 MILLS + \sum_{i=5}^{51} \phi_i IND + \sum_{t=1997}^{2002} \phi_t YEAR + \varepsilon. \quad (5)$$

[16] Note the inclusions of the inverse Mills ratio (MILLS) in the equations.

The coefficient on FIN is also predicted to be negative, which indicates that dual-class firms that need additional external capital have more predisclosure information (lower predisclosure measure) than dual-class firms that do not need additional external capital.

In anticipation of the possibility of raising external capital in the following year, dual-class firms may increase disclosures in the current year, especially if they have a poor information environment. If they do, then we should find lower information asymmetry and higher predisclosure information (lower predisclosure measures) in the current year prior to the year when dual-class firms need additional external capital. The models also use the Heckman procedure, with equation (1) as the first step. The second step for the information asymmetry test is equation (4), with an additional variable FIN_{+1}, which is defined as 1 when there is a need of additional external capital in the following year, and 0 otherwise. In contrast, the second step for predisclosure information is equation (5), with an additional variable FIN_{+1}.

A negative and significant coefficient on FIN_{+1} suggests that dual-class firms have lower information asymmetry (predisclosure measures) one year before they need additional external capital.

3.3.2. Dual-Class Versus Single-Class Firms That Both Need Additional External Capital

The next tests examine whether dual-class firms increase disclosures so that their information asymmetry (predisclosure information) is comparable to single-class firms that also need additional external capital. Here equations (2) and (3) are used to test a subsample of firms that need additional external capital. Here an instrumental variable approach is used for both information asymmetry and predisclosure information tests. PDUAL is instrumented using equation (1). Positive coefficients on PDUAL suggest that

information asymmetry (predisclosure information) remains higher (lower) for dual-class firms than for single-class firms.

4 RESULTS

4.1. Data and Sample Description

This paper uses a sample of firms with dual-class equity issues outstanding for the period 1996 through 2002, provided by Gompers et al. (2009). I exclude 1995 observations because relatively few proxy statements exist on the Securities Exchange Commission website, where data for an additional variable (i.e., whether or not the highest voting power is owned by an individual/family) are collected. A firm's age is measured from the year of incorporation until the observation year. Data are from Jovanovic and Rousseau (2001), Mergent online, the companies' websites, and 10-Ks.

The components of bid-ask spreads, return, and volume data are from CRSP. For the bid-ask spreads analysis, I omit negative price, trade, and spread data. The number of analysts following is calculated using IBES data.[17]

[Insert Table 1 here]

For the selection, bid-ask spreads, and predisclosure information models, outliers are winsorized at the 1st and 99th percentiles of distributions for the continuous variables. As mentioned in chapter 2, other than analyzing the subsample of dual-class firms, I also look at the whole sample, the subsample of firms that do not need additional external financing, and the subsample of firms that need additional external financing. The sum of observations of the latter two subsamples does not add up to the whole sample observations because the FIN variable used to distinguish between firms that need and do not need additional external capital is missing for some of the observations.

[17] To be included in the analysis, the estimation period (one year before the current fiscal year) should have at least 100 observations. When the stock price is less than one, the observations are deleted.

Descriptive statistics for the sample used in the selection model are provided in Table 1 panel 1A. Firms used in the selection model have mean intangible assets equaling 10.59% of total assets. Those firms, on average, need additional external capital equaling 6.98% of total assets. Mean and median growth are quite low, at – 0.37 and 0.12, respectively. Mean and median LNAGE are 2.85 and 2.83, respectively, indicating that the typical firm in the sample is approximately 17 years old. About 8% of the firms are dual-class firms, and 46% are family firms. About 2.23% of the firms are in the media industry. Correlations between DUAL and FAMILY, SIZE, INTGBL, LNAGE and MEDIA are positive and significant. Negative and significant correlations are found between DUAL and EXT_FIN and G.

Summary statistics for the sample used in bid-ask spreads and the predisclosure information model are provided in Table 1 panels 1B and 1C, respectively. Notice that there is a smaller sample size when FIN is in the model due to more missing values. SPRD has significantly positive associations with DUAL and LNPRICE and significantly negative associations with LNVOL, STDRET, and FIN. These are in line with the predicted relationships, as outlined in section 3, except for the relation between SPRD and STDRET, which is predicted to be positive.

Summary statistics for predisclosure measures (P_1, P_2, *and* P_{vol}) are presented in separate tables. The samples for analyzing P_1 and P_2 have the same number of observations, the same summary statistics for LNMVE and LNANALYST, and similar correlation tables. This suggests that they use the same data set. Both P_1 and P_2 have positive and significant correlations with LNMVE and LNANALYST and insignificant correlations with DUAL and FIN. Like P_1 and P_2, P_{vol} also has significant and positive

correlations with LNMVE and LNANALYST and insignificant correlations with DUAL and FIN.

Table 1, panel 1D, shows the correlations between the dependent variables. All the dependent variables are positively correlated with each other. Although the correlations' magnitudes are small, with the exception of the correlation among P_1, P_2, and P_{vol}, they are all highly significant.

4.2. Selection Model

[Insert Table 2 here]

The results for the selection model are provided in Table 2. As expected, FAMILY has a positive and significant coefficient. A firm that is controlled by an individual or family has a larger tendency to adopt a dual-class structure than does a nonfamily firm.

SIZE has a positive and significant coefficient, indicating that larger firms are more likely to adopt a dual-class structure. It seems that the sample consists of dual-class firms that have been around for a while, and thus most are large firms. The coefficient on EXT_FIN is positive but not significant.

The coefficient on INTGBL is positive and significant, which is in line with the argument that controlling owners choose dual-class structures to protect the firms' intangible assets such as proprietary information and investments in human capital. Because a large part of intangible assets data consists of goodwill, which is created through acquisitions, the interpretation given before may not be accurate. An alternative interpretation is a dual-class structure is adopted when a company is going to do an acquisition. To acquire another company without losing control, a dual-class company

issues stocks with inferior voting rights to the acquired company, instead of stocks with the same voting rights.

G (sales growth) is used as an indicator of a firm's growth opportunity. However, the coefficient is not significant, which does not support the argument that a growth firm needs more capital and is therefore more likely to choose a dual-class structure. The insignificance of G's coefficient can be due to other growth variables (natural logarithm of market value of equity and intangible assets) included in the model. Including industry dummies can also affect the insignificance of G's coefficient.

LNAGE's coefficient is not significant. It is possible that the age measure is not sufficiently accurate. Another possibility is that the significant correlations between LNAGE and other control variables obscure the effect of a firm's age on a dual-class selection. The ambiguous role of age, as described in the methodology section, may also be a factor; that is, dual-class firms may be adopted when the firms are young or old because when dual-class firms are young, the owners are still active and private benefits of control are higher, on the other hand, older firms may indicate at period of time at which owners have invested in human capital. Adopting a dual-class structure protects their interests in the return of investment in human capital.

The coefficient on MEDIA is positive and significant, indicating that firms in the media industry are more likely to adopt a dual-class structure. The result is similar to the results of Gompers et al. (2009) and Tinaikar (2006).

For all the models (selection, bid-ask spreads, and predisclosure information), I control for potential cross-correlation by including year dummies and industry dummies. Since panel data are used and variables across time for the same company tend to have

small variation, within-firm correlation is likely. For this reason, and to consider potential heteroskedasticity, tests for the coefficients are adjusted using a Huber–White standard error estimate clustered at the firm level, when possible.[18]

4.3. Information Environment: Dual-Class Versus Single-Class Firms

[Insert Table 3 and Table 4 here]

From Table 3, the Hausman test is significant, and thus the instrumental variable test is applied. The positive and significant coefficient on PDUAL indicates a higher information asymmetry (bid-ask spreads) in dual-class firms compared to single-class firms. This supports Hypothesis 1a that bid-ask spreads in dual-class firms are higher than bid-ask spreads in single-class firms. By applying an instrumental variable approach, the impact of PDUAL on bid-ask spreads is approximately 20 times greater and becomes significant compared to using an ordinary least squares (OLS). Higher information asymmetry in dual-class firms than in single-class firms signifies less informative disclosures in dual-class firms, which is consistent with managers' intent to camouflage their entrenched behaviors and/or to protect proprietary information.

A positive and significant coefficient on LNPRICE (STDRET) signifies that higher price (standard deviation of return) leads to higher bid-ask spreads. As stock price (risk) gets higher, inventory holding costs become more expensive, which prompts dealers to increase the spreads. LNVOL's coefficient is negative and significant. As more shares are traded, dealers reduce bid-ask spreads because their order processing cost, which is fixed, can be allocated to more shares. When the specification is estimated for a

[18] When the Heckman procedure is applied, adjustment for Huber–White clustered by firm is only possible when the maximum likelihood method is used, and it is not possible when the two-step method is used. In this paper, the Heckman procedure is run mostly using a two-step method because the results do not converge when the maximum likelihood method is used (except in Table 8, where the maximum likelihood method is used).

subsample of firms (Table 4) that do not need additional external capital, I continue to find that information asymmetry is greater in dual-class firms than in single-class firms. However, the result (0.10, p-value = 0.05) is not as strong as the whole sample's result (0.14, p-value = 0.01). A possible explanation for this finding is that the measure of external financing needs used in this paper does not properly reflect the actual action of raising external financing. Prior research (e.g., Lang and Lundholm, 2000) finds that firms increase disclosure prior to raising external capital and not when firms merely need additional external capital.[19]

[Insert Table 5 and Table 6 here]

In Tables 5 and 6, the Hausman tests for predisclosure information using all three measures are not significant. Hence, OLS should be used. Results using OLS regression do not support that there is any difference in predisclosure information between dual-class and single-class firms (both in tests using the whole sample and tests using the subsample of firms that do not need additional external capital). However, coefficients on control variables are mostly positive. This is contrary to expectation and to previous research, which shows that bigger firms (El-Gazzar, 1998) or firms with more analysts following (Dempsey, 1989) have higher predisclosure information. Non-results found using predisclosure information measures do not support Hypothesis 1b that predisclosure information in dual-class firms is lower compared to single-class firms.

A possible explanation is the deficiencies of the measures. Predisclosure information is measured as a ratio of volume (abnormal return) during the disclosure

[19] The external financing measure used in this paper may not correspond one-to-one with the act of raising external capital. For example, the increase in capital may be the result of managers exercising stock options, and not due to the raising of external capital. To address this concern, I consider higher capital raising thresholds to increase the likelihood that sample firms actually raise external capital.

period (numerator) and volume (abnormal return) during the predisclosure period (denominator). If the earnings quality is similar, then when predisclosure information is higher, we should observe a lower market reaction during earnings announcements. However, when we compare these ratios between firms with different earnings qualities, the differences in the ratios may be difficult to predict. In this case, dual-class firms have lower earnings quality than single-class firms (Francis et al., 2005), and it seems that both the numerator and the denominator of the predisclosure measures are lower compared to single-class firms, which may contribute to the lack of difference between the predisclosure measures.

4.4. Information Environment of Dual-Class Firms When Needing Additional External Capital

[Insert Table 7 and Table 8 here]

The Heckman procedure is applied to examine bid-ask spreads (Table 7) for the subsample of dual-class firms. The coefficient on the inverse Mills ratio is significant, suggesting potential self-selection bias. In support of Hypothesis 2a, FIN has a negative and significant coefficient, meaning that dual-class firms that need additional external capital increase disclosures so that their information asymmetry (bid-ask spread) is lower compared to dual-class firms that do not need additional external capital.[20] Results without the Heckman procedure are comparable. It seems that when dual-class firms need additional external capital, managers' interests are in line with the inferior shareholders' interests (incentive alignment effect), that is, to obtain as low a cost of capital as possible. Therefore they want to provide more informative disclosures. However, predisclosure

[20] It is possible that the manager raises external capital when information asymmetry is low (exogenously determined); in other words, the low information asymmetry is not because of increased disclosures.

information tests in Table 8 do not support Hypothesis 2b that dual-class firms that need additional external capital have higher predisclosure information compared to those that do not need additional external capital.

[Insert Table 9 and Table 10 here]

The results given in Table 9 do not indicate that dual-class firms have lower information asymmetry when they need additional external capital in the following year (insignificant coefficient on FIN_{+1}). Results without the Heckman procedure lead to the same conclusions. Results using the predisclosure information measures (Table 10) also do not indicate that dual-class firms increase disclosures when they need additional external capital the following year.

[Insert Table 11 and Table 12 here]

Although dual-class firms that require additional external capital seem to increase disclosures in comparison to those that do not need additional external capital, Table 11 shows, in support of Hypothesis 3a, that dual-class firms continue to have higher information asymmetry (positive and significant coefficient on PDUAL) compared to single-class firms that also need additional external capital. The magnitude of the PDUAL coefficient (0.1355) in this subsample is quite similar to the whole sample's result (0.1376). Although the incentive alignment effects gain some presence when dual-class firms need additional external capital, it seems that entrenchment and/or information effects are still dominant in dual-class firms compared to single-class firms. In other words, dual-class firms that need additional external capital seem to provide more informative disclosures, but those disclosures are still less informative compared to single-class firms' disclosures. However, Table 12 does not support Hypothesis 3b that

predisclosure information in dual-class firms that need additional external capital is greater or equal to predisclosure information in single-class firms that also need additional external capital.

4.5. Sensitivity Analysis

4.5.1. Instrument Tests

To have less bias than OLS, an instrumental variable approach should have valid and strong instruments. Validity requires that the instruments not be correlated with the residuals, whereas strong instruments require instruments to be correlated with the problematic endogenous variable (in this case, the dual dummy variable). If the instruments are weak, then the test statistics become misspecified, and the estimates can be biased. If the instruments are correlated with the residuals, then the estimate will be inconsistent.

The strength of the correlation between the instruments and the problematic variable is examined by calculating a partial R^2 and partial χ^2. These measures show the unique contributions of the instruments in explaining the problematic variable. The partial R^2 is 15.69%, and the partial χ^2 is 242.73 (p-value=0.00). These values indicate that weak instruments are not a problem in this paper.

Although it is not possible to observe the real residual terms, a researcher can use the estimated residuals from the second stage to estimate the correlation of the instruments and residuals. When the number of instruments used is more than the number of problematic variables, we can apply an overidentifying test to test whether the instruments are correlated with the residual. Here I use nR^2, which is distributed as χ^2

with $K–L$ degrees of freedom. K is the number of explanatory variables unique to the first stage, and L is the number of endogenous explanatory variables.

The overidentifying tests for all instrumental variables applied in this paper reject the null hypothesis that the instruments are not correlated with the residuals. This is one example of the Larcker and Rusticus (2008) argument that it is unlikely that instruments using firm characteristics will pass the requirement that instruments are uncorrelated with residuals from the second stage. Coupled with a large number of observations, it is even more likely that the overidentifying test (nR^2) will reject the null hypothesis.

Therefore, following the suggestion of Larcker and Rusticus (2008) in dealing with such a case, I run additional tests using each of the instruments individually. I also run more tests, following the suggestion of Gul et al. (2009), by excluding each of the instruments one at a time from the model, except for the obvious instrument, family, which is highly correlated with dual structure.

I execute the suggested analysis described previously for the comparison of the bid-ask spreads between dual-class and single-class firms (the whole sample), for the subset of firms that do not need financing and for the subset of firms that need financing. In all these analyses, I find similar conclusions. Using each instrument individually, I find that the coefficient of PDUAL in the second-stage regression is positive and significant, except when the instrument is family; the PDUAL coefficient is negative and not significant. When I exclude each of the instruments one at a time from the model, except for family, the coefficient of PDUAL is still positive and significant.

For the predisclosure information analysis, I present the overidentifying test. However, I do not do the suggested analysis when the instrumental variable does not pass

the overidentifying test because I do not find that predisclosure information is different between dual-class and single-class firms.

4.5.2. Selection Model

For the first sensitivity analysis, I vary the industry dummies used in the selection model. Compared to the selection model that used the full industry dummies, I find that the conclusions are no different than when the selection model is run with the MEDIA dummy only.

I also try various measures of investments in intangible assets: market-to-book value ratio; intangible assets, excluding goodwill; research and development; and advertising expense. Using any one of these alternative measures does not change the inferences. However, unlike using the Compustat definition of intangible assets, these alternative measures do not enter significantly into the selection model. Also, because using any one of these alternative measures reduces the number of observations substantially, I present the results using intangible assets, as defined by Compustat, instead.

4.5.3. Bid-Ask Spread Model

Prior research does not always include firm size in the bid-ask spread model. In general, it is included in the model to control for adverse selection cost. Big firms usually have higher quality disclosures than small firms, which then lead to lower adverse selection cost, and eventually, smaller bid-ask spreads in big firms than in small firms. Thus the coefficient of firm size should be negative and significant.

Two measures of firm size that have been used are the natural logarithm of total assets and the natural logarithm of the market value of equity. The coefficient of firm size

in the bid-ask spread model is not always as expected. Prior research has found that the coefficient of firm size can be negative and significant (e.g., Leuz and Verrecchia, 2000; Healy et al., 1999), positive and significant (e.g., Harris, 1994), and not significant (e.g., Ali et al., 2007). This is the first reason for not including firm size in the bid-ask spread model.

The second reason is that firm size is one of the significant instruments in predicting PDUAL. Thus a high correlation between PDUAL and firm size (0.29 and significant) is observed. Including both PDUAL and firm size in the second step will introduce a multicollinearity problem, which then inflates the standard error of PDUAL, potentially causing the t-statistic to be not significant. The third reason is based on Coller and Yohn (1997), who state that when the objective is to examine the adverse selection cost in the bid-ask spread model, the model should control for other determinants of the bid-ask spread, namely, the inventory cost and the order processing cost (i.e., the model does not include a control for adverse selection cost).

When I add firm size as a control variable in the current bid-ask spread model, the coefficient of firm size is positive and significant, which is contrary to the expectation that bigger firms should have lower bid-ask spreads, and the coefficient of PDUAL becomes insignificant in all models.

For the second stage, a firm is defined as needing additional external capital when the EXT_FIN (the ratio of net financing activities to total assets) is greater than zero. To examine the sensitivity of the results using different cut offs (other than zero), I also try two other cutoffs: 0.05 and 0.10; that is, when EXT_FIN is greater than or equal to 0.05 or 0.10, a firm is classified as in need of additional external capital. These different

cutoffs are applied because using a zero cutoff will result in a firm with a $1 financing need still being classified as needing additional external capital. Also, firms may simply issue stock options, instead of selling stock. With higher cutoffs, firms that need additional external financing may be able to be more accurately identified.

When I examine the subset of firms that need additional external financing using a cutoff of 0.10, I find that the coefficient of PDUAL (0.05) is positive and not significant. However, using 0.05 as the cutoff, the coefficient of PDUAL (0.12) is positive and significant. This suggests that the higher the additional external financing needs, the more likely dual-class firms will increase dislosures to reduce information asymmetry to a level similar to single-class firms. However, at a lower level of financing need, dual-class firms do not see the need to increase disclosures, and hence the bid-ask spreads are higher in dual-class firms than in single-class firms when the cutoff is 0.05. When I examine the subset of firms that do not need additional external financing using both the 0.10 and 0.05 cutoffs, I find that PDUAL is positive and significant, which is in line with the results using a zero cutoff presented in this paper.

I also assess the sensitivity of the results when comparing dual-class firms that need and do not need additional external capital using a 0.05 and a 0.10 cutoff. Using either cutoff, the conclusion that dual-class firms that need additional external capital have lower bid-ask spreads than dual-class firms that do not need additional external capital is supported. Using a 0.10 cutoff, dual-class firms that need additional external capital have lower bid-ask spreads of approximately 0.03 compared to dual-class firms that do not need additional external capital. Using a 0.05 cutoff, the difference is 0.02, lower for dual-class firms that need additional external capital. This supports the previous

finding that suggests that the higher the additional external capital needs, the more dual-class firms will increase disclosures. In this case, the comparison is with dual-class firms that do not need additional external capital, and in the previous case, the comparison was with single-class firms that do not need additional external capital. I also use the winsorized value of EXT_FIN, instead of a dummy financing value, and the conclusions are still supported. Again, I use the 0.05 and 0.10 cutoffs to infer whether dual-class firms that need additional external capital in the following year increase disclosures in the current year. Again, the results are not sensitive to the alternative cutoffs used. They all support the conclusion that compared to dual-class firms that do not need additional external capital, dual-class firms that need additional external capital do not increase disclosures one year before, as indicated by no difference in bid-ask spreads. To complete the analysis, I also use the winsorized value of EXT_FIN, instead of the dummy variable and find that the conclusion is still supported.

When comparing dual-class firms that need additional external financing to those that do not need additional external financing, I also test when the additional external financing needs are equity or debt. I find that when the additional external financing needs are in the form of equity, dual-class firms have even lower bid-ask spreads; however, those firms that use debt do not have lower bid-ask spreads compared to dual-class firms that need additional external financing.

4.5.4. Predisclosure Information

Several alternative designs have been attempted for the predisclosure information analysis and the results are qualitatively similar. Variations on the design are eliminating observations that have confounding news during the disclosure period; using

a 3-day, instead of a 5-day, disclosure period; using quarterly earnings announcements instead of the annual earnings announcement, using a 60-day instead of a 250-day predisclosure period, and ranking the dependent and independent variables. Using alternative dependent variables also leads to the same conclusions. In particular, I use market-adjusted return and size-adjusted return as dependent variables. The market-adjusted return is calculated by subtracting the market return from the firm's return. I use either the equally-weighted market return or the value-weighted market return. The size-adjusted return is calculated by subtracting the portfolio return, matched by size from the firm's return.

Instead of focusing on the annual earnings announcement, I also measure the numerator in the dependant variables over the four earnings announcements (three quarterly earnings announcements and one annual earnings announcement). Thus, I have a total of 20 days in the disclosure period, whereas the denominator (the predisclosure period) is measured over the 60 days before each earnings announcement, resulting in a total of 240 days in the predisclosure period. Again, conclusions are unchanged.

5 CONCLUSIONS

The unique ownership structure ofdual-class firms with high managerial ownership and a separation of voting and cash flow rights is examined to understand how dual-class ownership is related to the information environment (bid-ask spreads and predisclosure information) relative to single-class firms. Because the decision to adopt a dual-class structure is not random, an instrumental variable approach is used for tests on the whole sample, and the Heckman procedure is used when the subsample of dual-class firms is examined.

Results using bid-ask spreads in general show that dual-class firms have greater information asymmetry compared to single-class firms. This indicates that, in dual-class firms, the entrenchment and/or the information effects dominate the incentive alignment effects. Dual-class managers adopt this structure either to facilitate their entrenched behavior or to protect proprietary information.

Using the subsample of firms that do not need additional external capital, I find that dual-class firms still have higher information asymmetry compared to single-class firms, but contrary to expectations, the difference is not larger compared to the result using the whole sample.

Dual-class firms that need additional external capital have lower information asymmetry (in line with increased disclosures) compared to those that do not need additional external capital. Under these circumstances, managers' interests seem to be aligned with inferior shareholders' interests, which prompt them to increase disclosures to get a lower cost of capital. However, dual-class firms do not seem to increase disclosures starting from one year before they need additional external capital as their

information asymmetry does not differ from dual-class firms that need no additional external capital. Despite the fact that disclosures increase, dual-class firms that need additional external capital still have higher information asymmetry compared to single-class firms that also need additional external capital. It seems that although the incentive alignment effects begin to increase in importance, the entrenchment and/or the information effects are still dominant in dual-class firms that need additional external capital. Possibly, dual-class firms find it unnecessary to increase disclosure to the level of single-class firms.

Despite these findings, there is not enough evidence to support the same conclusions using the predisclosure information measures. However, using the current design, the predisclosure measures may not capture the difference in the predisclosure information. The comparison between the ratio of disclosure to predisclosure information would work well if the overall earnings qualities of both dual-class and single-class firms were similar. In this case, if earnings in single-class firms were anticipated to a greater extent than in dual-class firms, then a difference in the ratio would be observed; however, if earnings quality in dual-class firms were poorer, then both predisclosure and disclosure period information may be poorer, and differences in the ratios between the two classes may be difficult to predict.

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APPENDIX 1: VARIABLE DEFINITION

Dual-Class Selection Model

DUAL = 1 if dual-class firm, and 0, otherwise;

FAMILY = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock;

SIZE = natural logarithm of total assets;

INTGBL = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33);

EXT_FIN = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets;

G = two-year average sales growth;

AGE = natural logarithm of the number of years from incorporation until observation year;

IND = modified Fama French industry dummies excluding the media industry (i.e. media dummy is presented separately in the model since it is one of the important variable). That is, 48 industries as in Fama and French (1997) and reclassify SIC codes 2710-11, 2720-21, 2730-31, 4830, 4832-33, 4840-41, 7810, 7812, and 7820 into a "media" category;

MEDIA = 1 if in media industry, and 0, otherwise;

YEAR = year dummies.

Bid Ask Spread Analysis

SPRD = average daily closing bid-ask price over a fiscal year;

LNPRICE = natural logarithm of average daily closing price over a fiscal year;

LNVOL = natural logarithm of average daily shares traded over a fiscal year;

STDRET = standard deviation of daily stock return over a fiscal year;

PDUAL = the probability of becoming a dual-class company obtained from the first stage (equation 1);

FIN = 1 if [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets is greater than 0 and 0 otherwise;

MILLS = Inverse Mills ratio from equation (1);

IND = modified Fama French industry dummies (including the media industry dummy);

YEAR = year dummies.

Predisclosure Information Analysis

PI = P_1 or P_2 or P_{vol};

P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period;

P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period;

P_{vol} = natural logarithm of the ratio of average adjusted volume in disclosure and predisclosure period.

LNMVE = natural logarithm of market value of common equity at fiscal year end;

LNANALYST = natural logarithm of the number of analyst issuing forecast for the fourth quarter;

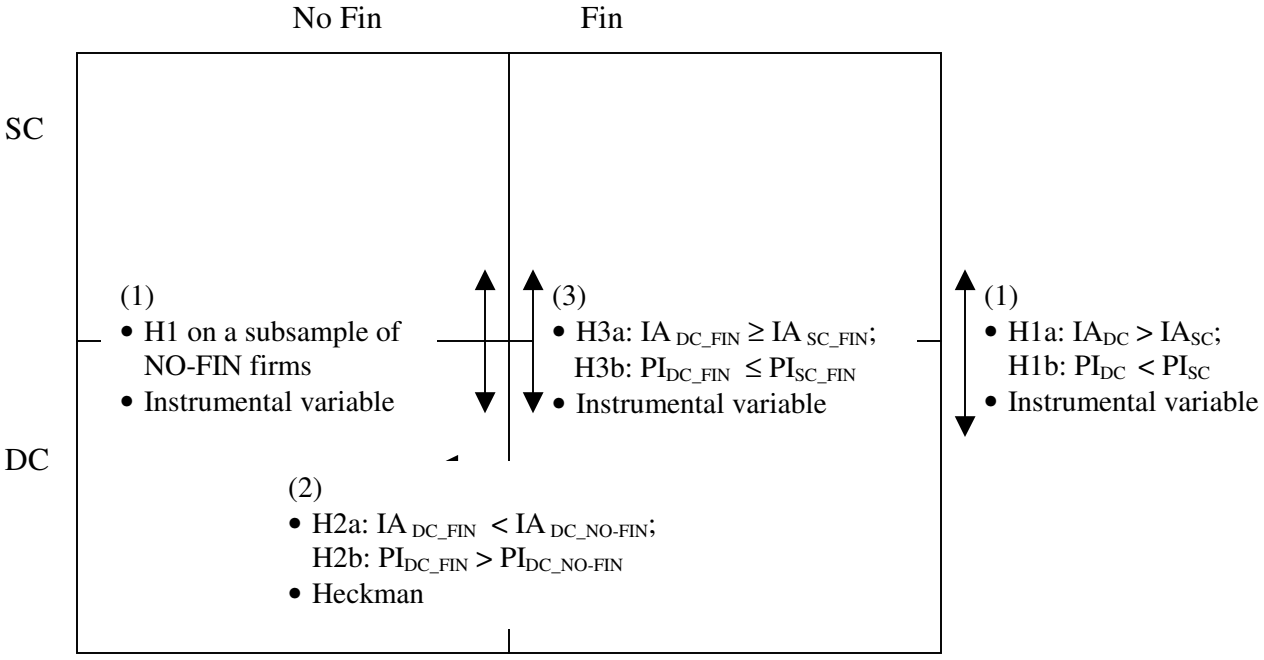
PDUAL = the probability of becoming a dual-class firm estimated from the first equation;

MILLS = Inverse Mills ratio from equation (1);

IND = modified Fama French industry dummies (including the media industry dummy);

YEAR = year dummies.

FIGURE 1: HYPOTHESES FRAMEWORK



Notes:

- DC = Dual-Class; SC = Single-Class
- IA = Information Asymmetry; PI = Predisclosure Information
- FIN = firms that need additional external financing; NO-FIN = firms that do not need additional external financing

(1) H1a and H1b are tested using an instrumental variable on the whole sample and the subsample of firms that do not need additional external financing. These hypotheses are testing whether: (1) information asymmetry in dual-class firms is greater than in single-class firms; and (2) predisclosure information in dual-class firms is lower than in single-class firms. By removing firms that need additional external financing, dual-class firms that do not need additional external financing should be more likely to provide even less disclosures than single-class firms. Hence, results on the subsample are expected show a larger difference in information asymmetry and predisclosure information between dual-class and single-class firms.

(2) H2a and H2b are tested using the Heckman procedure. This procedure is applied to address self-selection bias as the tests compare dual-class firms that need and do not need additional external capital. These hypotheses are testing whether: (1) the information asymmetry in dual-class firms that need additional external capital is lower than those that do not need additional external capital; and (2) the predisclosure information in dual-class firms that need additional external capital is higher than those that do not need additional external capital.

(3) H3a and H3b are tested using an instrumental variable on the subsample of firms that need additional external capital. These hypotheses are testing whether: (1) information asymmetry in dual-class firms is greater or equal to single-class firms when both need additional external financing; and (2) predisclosure information in dual-class firms is smaller or equal to single-class firms when both need additional external financing.

TABLE 1: Descriptive Statistics

A: Selection Model

Table I panel IA presents the descriptive statistics of the variables used in the selection model. A correlation table between the variables is also presented. *DUAL* = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *LNAGE* = natural logarithm of the number of years from incorporation until observation year. *MEDIA* = media industry dummy. *, ** represent significance level at the 5% and 10% levels, respectively.

N = 20,144

Variable	Mean	Median	Std Deviation
SIZE	4.8618	4.7419	2.0302
INTGBL	0.1059	0.0365	0.1509
EXT_FIN	0.0698	0.0056	0.2107
G	0.3723	0.1219	1.0758
LNAGE	2.8535	2.8332	0.9770
	(1) Freq/%		**(0) Freq/%**
DUAL	1,639 (8.14%)		18,505(91.86%)
FAMILY	9,259 (45.96%)		10,885 (54.04%)
MEDIA	450 (2.23%)		19,694 (97.77%)

Correlation

	DUAL	FAMILY	SIZE	INTGBL	EXT_FIN	G	LNAGE	MEDIA
		0.2411*	0.1613*	0.1013*	-0.0195*	-0.0171*	0.0597*	0.2425*
DUAL	1	(0.0000)	(0.0000)	(0.0000)	(0.0059)	(0.0156)	(0.0000)	(0.0000)
	0.2411*		-0.2523*	-0.0798*	-0.0287*	-0.0077	-0.0286*	0.0796*
FAMILY	(0.0000)	1	(0.0000)	(0.0000)	(0.0010)	(0.2744)	(0.0000)	(0.0000)
	0.1481*	-0.2547*		0.2926*	-0.0764*	0.0386*	0.2406*	0.0913*
SIZE	(0.0000)	(0.0000)	1	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
	0.1207*	-0.0593*	0.2258*		0.0129	0.1164*	-0.0029	0.1468*
INTGBL	(0.0000)	(0.0000)	(0.0000)	1	(0.0665)	(0.0000)	(0.6841)	(0.0000)
	-0.0263*	-0.0366*	-0.1623*	0.0102		0.3086*	-0.2291*	0.0047
EXT_FIN	(0.0002)	(0.0000)	(0.0000)	(0.1478)	1	(0.0000)	(0.0000)	(0.5999)
	-0.0249*	-0.0163*	-0.0621*	0.0739*	0.2807*		-0.2902*	0.0011
G	(0.0004)	(0.0208)	(0.0000)	(0.0000)	(0.0000)	1	(0.0000)	(0.8727)
	0.0526*	-0.0395*	0.2563*	-0.0858*	-0.2368*	-0.2415*		0.0041
LNAGE	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	1	(0.5644)
	0.2425*	0.0796*	0.0913*	0.2361*	0.0061	-0.0059	0.0039	
MEDIA	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.3904)	(0.4020)	(0.5846)	1

Spearman above and Pearson below the diagonal.

1B: Bid-ask spread

Table 1 Panel IB presents the descriptive statistics of the variables used in the bid-ask spread analysis. The correlations between the variables are also presented. *SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *DUAL* = 1 for a dual-class firm and 0 otherwise. *FIN* = 1 if [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets is greater than 0 and 0 otherwise. *, ** represent significance level at the 5% and 10% levels, respectively. Note: smaller number of observations when FIN variable presents.

N=18,157

Variable	Mean	Median	Std. Dev.	Min	Max
SPRD	0.2965	0.2346	0.2368	0.0271	1.3544
LNPRICE	2.2019	2.3227	1.1792	-0.7766	4.4121
LNVOL	10.9245	10.9108	1.8382	6.7127	15.4212
STDRET	0.0487	0.0413	0.0290	0.0126	0.1617
	(1) Freq./%			**(0) Freq./ %**	
DUAL	1,525/8.40%			16,632/91.60%	
FIN	7,983/52.10%			7,340/47.90%	

Correlations

	DUAL	SPRD	LNPRICE	LNVOL	STDRET	FIN
		0.0947*	0.1088*	-0.0182*	-0.1266*	-0.0371*
DUAL	1.0000	(0.0000)	(0.0000)	(0.0144)	(0.0000)	(0.0002)
SPRD	0.0952*	1.0000	0.5220*	-0.2332*	-0.5194*	-0.0346*
	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)
LNPRICE	0.1073*	0.4551*	1.0000	0.4509*	-0.6970*	0.0447*
	(0.0000)	(0.0000)		(0.0000)	(0.0089)	(0.0000)
LNVOL	-0.0253*	-0.2728*	0.4134*	1.0000	-0.0865*	0.1287*
	(0.0006)	(0.0000)	(0.0000)		(0.0000)	(0.0000)
STDRET	-0.1031*	-0.3653*	-0.7016*	-0.0918*	1.0000	0.1152*
	(0.0000)	(0.0000)	(0.0001)	(0.0000)		(0.0000)
FIN	-0.0371*	-0.0366*	0.0468*	0.1265*	0.0820*	1.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	

Spearman above and Pearson below the diagonal.
N=18,157, except correlations with FIN N=15,323.

1C: Predisclosure Information

Table 1 panel IC presents the descriptive statistics of the variables used in the predisclosures information analysis. There are three groups in this panel, each group is for the 3 different dependent variables used (P_1, P_2, P_{vol}). Correlation tables are also presented following the descriptive statistics. *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *DUAL* = 1 for a dual-class firm and 0 otherwise. *FIN* = 1 if [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets is greater than 0 and 0 otherwise. *, ** represent significance level at the 5% and 10% levels, respectively. Note: smaller number of observations when FIN variable presents.

P_1

N=9,565

Variable	Mean	Median	Std. Dev.	Min	Max
P_1	0.1005	0.1297	0.5403	-1.3411	1.3527
LNMVE	19.7060	19.6296	1.8487	15.8272	24.7205
LNANALYST	1.6574	1.7918	0.9849	0	3.5835
	(1) Freq/%			**(0) Freq/%**	
FIN	4,704/53.56%			4,079/46.44%	
DUAL	903/9.44%			8,664/90.56%	

N=8,783

	DUAL	LNMVE	LNANALYST	P_1	FIN
DUAL	1	0.0917*	-0.0098	-0.0128	-0.0461*
		(0.0000)	(0.3608)	(0.2291)	(0.0000)
LNMVE	0.0773*	1	0.7556*	0.0488*	-0.0249*
	(0.0000)		(0.0000)	(0.0000)	(0.0198)
LNANALYST	-0.0115	0.7527*	1	0.0569*	0.0483*
	(0.2808)	(0.0000)		(0.0000)	(0.0000)
P_1	-0.0113	0.0497*	0.0622*	1	0.0089
	(0.2911)	(0.0000)	(0.0000)		(0.4031)
FIN	-0.0461*	-0.0304*	0.0502*	0.0065	1
	(0.0000)	(0.0044)	(0.0000)	(0.5445)	

Spearman above and Pearson below the diagonal.

P_2

N=9,565

Variable	Mean	Median	Std. Dev.	Min	Max
P_2	-0.0498	-0.0121	1.1316	-3.0903	2.6782
LNMVE	19.7060	19.6296	1.8487	15.8272	24.7205
LNANALYST	1.6574	1.7918	0.9849	0	3.5835
	(1) Freq/%			**(0) Freq/%**	
FIN	4,704/53.56%			4,079/46.44%	
DUAL	903/9.44%			8,662/90.56%	

N=8,783

	DUAL	LNMVE	LNANALYST	P_2	FIN
DUAL	1	0.0916*	-0.0098	-0.0098	-0.0461*
		(0.0000)	(0.3608)	(0.3567)	(0.0000)
LNMVE	0.0773*	1	0.7565*	0.0766*	-0.0249*
	(0.0000)		(0.0000)	(0.0000)	(0.0198)
LNANALYST	-0.0115	0.7527*	1	0.0792*	0.0483*
	(0.2808)	(0.0000)		(0.0000)	(0.0000)
P_2	-0.0096	0.0765*	0.0837*	1	0.0033
	(0.3681)	(0.0000)	(0.0000)		(0.7552)
FIN	-0.0461*	-0.0304*	0.0502*	0.0011	1
	(0.0000)	(0.0044)	(0.0000)	(0.9214)	

Spearman above and Pearson below the diagonal.

P_{vol}

N=9,566

Variable	Mean	Median	Std. Dev.	Min	Max
P_{vol}	0.0980	0.1089	0.7035	-1.7846	1.9861
LNMVE	19.7077	19.6322	1.8488	15.8272	24.7205
LNANALYST	1.6582	1.7918	0.9849	0	3.5835
	(1) Freq/%			**(0) Freq/%**	
FIN	4,707/53.59%			4,077/46.41%	
DUAL	903/9.44%			8,663/90.56%	

N=8,784

	DUAL	LNMVE	LNANALYST	P_{vol}	FIN
DUAL	1	0.0785*	-0.0105	-0.0022	-0.0455*
		(0.0000)	(0.3261)	(0.8374)	(0.0000)
LNMVE	0.0926*	1	0.7527*	0.1829*	-0.0302*
	(0.0000)		(0.0000)	(0.0000)	(0.0047)
LNANALYST	-0.0088	0.7555*	1	0.1428*	0.0504*
	(0.4098)	(0.0000)		(0.0000)	(0.0000)
P_{vol}	-0.0005	0.2041*	0.1551*	1	0.0046
	(0.9635)	(0.0000)	(0.0000)		(0.6692)
FIN	-0.0455*	-0.0247*	0.0484*	0.0025	1
	(0.0000)	(0.0206)	(0.0000)	(0.8155)	

Spearman above and Pearson below the diagonal.

1D: Correlations between the dependant variables

Table 1 panel ID presents the correlations between the dependant variables. *, ** represent significance level at the 5% and 10% levels, respectively. *SPRD* = average daily closing bid-ask price over a fiscal year. *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period.

N=10,257

	SPRD	P_1	P_2	P_{vol}
SPRD	1	0.0285*	0.0338*	0.0395*
		(0.0039)	(0.0006)	(0.0001)
P_1	0.0416*	1	0.9695*	0.3924*
	(0.0000)		(0.0000)	(0.0000)
P_2	0.0465*	0.9666*	1	0.4194*
	(0.0000)	(0.0000)		(0.0000)
P_{vol}	0.0521*	0.3856*	0.4094*	1
	(0.0000)	(0.0000)	(0.0000)	

Spearman above and Pearson below the diagonal.

TABLE 2: Selection Model

The selection model is the first stage for both the instrumental variable and the Heckman procedure used in the later analysis. *DUAL* = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *AGE* = natural logarithm of the number of years from incorporation until observation year. *IND* = modified Fama French industry dummies excluding the media industry. *MEDIA* = 1 if in media industry, and 0, otherwise. *YEAR* = year dummies. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$DUAL = \alpha_0 + \alpha_1 FAMILY + \alpha_2 SIZE + \alpha_3 INTGBL + \alpha_4 EXT\_FIN + \alpha_5 G + \alpha_6 AGE + \alpha_7 MEDIA + \sum_{i=8}^{54} \alpha_i IND + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon.$$

	Pred. sign	Coefficients	Z-test	p-value
INTERCEPT	?	-4.1596*	-13.49	0.000
FAMILY	+	1.2884*	15.47	0.000
SIZE	±	0.1965*	11.00	0.000
INTGBL	+	0.6261*	3.29	0.001
EXT_FIN	±	0.1412	1.20	0.229
G	-	-0.0355	-1.37	0.170
LNAGE	±	0.0172	0.50	0.615
MEDIA	+	1.8899*	6.72	0.000

Note: Results for IND and YEAR are suppressed.

Pseudo R^2 = 26.28%
N = 20,144
Instruments and Dual Relationship measures:
Partial R^2 = 0.1569
Partial Chi= 242.73 p-value = 0.0000

TABLE 3: Dual-Class Versus Single-Class Firms: Bid-Ask Spreads

This table presents the results for the bid-ask spreads comparison between dual-class and single-class firms. Both the results using instrumental variable and using a regular OLS regression are presented. *SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *PDUAL* = the probability of becoming a dual-class company obtained from the first stage (equation 1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$SPRD = \beta_0 + \beta_1 LNPRICE + \beta_2 LNVOL + \beta_3 STDRET + \beta_4 PDUAL + \sum_{i=5}^{51} \beta_i IND + \sum_{t=1997}^{2002} \beta_t YEAR + \varepsilon.$$

	Pred. Sign	Instrumental Variable			No Instrumental Variable		
		Coefficient	**t-test**	**p-value**	**Coefficient**	**t-test**	**p-value**
INTERCEPT	?	0.7625*	21.74	0.000	0.7731*	40.36	0.000
LNPRICE	+	0.1475*	22.19	0.000	0.1505*	40.53	0.000
LNVOL	-	-0.0682*	-18.74	0.000	-0.0697*	-34.38	0.000
STDRET	+	1.2861*	7.47	0.000	1.2613*	13.40	0.000
PDUAL	+	0.1376*	2.80	0.010	0.0067	0.75	0.453
Adj-R^2		**54.60%**			**54.33%**		

Note: Results for IND and YEAR are suppressed.

P-value of Hausman test = 0.000
N = 18,126

Overidentifying test = nR^2 = 18,126*0.0559 = 1,013.24

TABLE 4: Dual-Class Versus Single-Class Firms that Do Not Need Additional External Capital: Bid-Ask Spread

This table presents the results of the analysis that compare the bid-ask spreads of dual-class and single-class firms when both do not need additional external capital *SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *PDUAL* = the probability of becoming a dual-class company obtained from the first stage (equation 1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$SPRD = \delta_0 + \delta_1 LNPRICE + \delta_2 LNVOL + \delta_3 STDRET + \delta_4 PDUAL + \sum_{i=5}^{51} \delta_i IND + \sum_{t=1997}^{2002} \delta_t YEAR + \varepsilon.$$

	Pred. Sign	Instrumental Variable			No Instrumental Variable		
		Coefficient	t-test	p-value	Coefficient	t-test	p-value
INTERCEPT	?	0.7140*	16.85	0.000	0.7205*	27.23	0.000
LNPRICE	+	0.1649*	18.21	0.000	0.1673*	29.36	0.000
LNVOL	-	-0.0689*	-15.98	0.000	-0.0698*	-25.85	0.000
STDRET	+	1.8562*	7.60	0.000	1.8516*	11.99	0.000
PDUAL	+	0.1034**	1.94	0.052	0.0148	1.25	0.212
Adj-R^2		**57.11%**			**56.99%**		

Note: Results for IND and YEAR are suppressed.

P-value of Hausman test = 0.0324
N=7,339

Overidentifying restriction test = 0.0518*7339 = 380.16

TABLE 5: Dual-Class Versus Single-Class Firms: Predisclosure Information

This table presents the results for the comparison of predisclosure information between dual-class and single-class firms using 3 different measures of predisclosure information (PI). *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *PDUAL* = the probability of becoming a dual-class firm estimated from the first equation. *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. For each variable the results show the coefficient, the t-test and the respective p-value for each one. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$PI = \gamma_0 + \gamma_1 LNMVE + \gamma_2 LNANALYST + \gamma_3 PDUAL + \sum_{i=4}^{50} \gamma_i IND + \sum_{t=1997}^{2002} \gamma_t YEAR + \varepsilon.$$

	Pred Sign	Instrumental Variable			No Instrumental Variable		
		P_1	P_2	P_{vol}	P_1	P_2	P_{vol}
INTERCEPT	?	-0.0449	-0.6830**	-1.4626*	-0.0688	-0.7150*	-1.4330*
		-0.26	-1.90	-6.69	-0.78	-3.90	-12.61
		0.796	0.057	0.000	0.438	0.000	0.000
LNMVE	-	0.0033	0.0243*	0.0753*	0.0048	0.0262*	0.0735*
		0.36	1.26	6.44	1.02	2.69	12.17
		0.720	0.206	0.000	0.310	0.007	0.000
LNANALYST	-	0.0353*	0.0737*	-0.0023	0.0327*	0.0702*	0.0009
		2.02	2.03	-0.10	3.64	3.78	0.07
		0.044	0.043	0.917	0.000	0.000	0.941
PDUAL	+	0.780	0.0952	-0.1307	-0.0058	-0178	-0.0291
		0.75	0.43	-0.96	-0.27	-0.39	-1.00
		0.456	0.665	0.337	0.788	0.695	0.317
Adj-R^2		2.94%	2.96%	4.82%	2.92%	2.95%	4.80%
N		9,565	9,565	9,566	9,565	9,565	9,566
p-value Hausman		0.1241	0.231	0.1642			
		0.0025*	0.0021*	0.0061*			
		9,565=	9,565=	9,566=			
Overid test		23.91	20.09	58.36			

Note: Results for IND and YEAR are suppressed.

TABLE 6: Dual-Class Versus Single-Class Firms that Do Not Need Additional External Capital: Predisclosure Information

This table presents the comparison of predisclosure information between dual-class and single-class firms when both do not need additional external capital. *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *PDUAL* = the probability of becoming a dual-class firm estimated from the first equation. *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. For each variable the results show the coefficient, the t-test and the respective p-value. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$PI = \eta_0 + \eta_1 LNMVE + \eta_2 LNANALYST + \eta_3 PDUAL + \sum_{i=4}^{50} \eta_i IND + \sum_{t=1997}^{2002} \eta_t YEAR + \varepsilon.$$

	Pred Sign	Instrumental Variable			No Instrumental Variable		
		P_1	P_2	P_{vol}	P_1	P_2	P_{vol}
INTERCEPT	?	-0.1781	-1.0049*	-1.3526*	-0.1837	-0.9989*	-1.2695*
		-0.88	-2.40	-5.16	-1.37	-3.64	-7.36
		0.381	0.016	0.000	0.170	0.000	0.000
LNMVE	-	0.0100	0.0418*	0.0729*	0.0104	0.0427*	0.0677*
		0.92	2.81	5.21	1.45	2.92	7.40
		0.358	0.005	0.000	0.146	0.004	0.000
LNANALYST	-	0.0240	0.0398	-0.0136	0.0234**	0.0366	-0.0037
		1.15	1.43	-0.51	1.72	1.32	-0.21
		0.249	0.152	0.613	0.086	0.187	0.834
PDUAL	+	0.0190	0.0271	-0.2751**	0.0009	-0.0118	-0.0032
		0.16	0.16	-1.81	0.03	-0.18	-0.08
		0.876	0.875	0.070	0.977	0.858	0.940
Adj-R^2		2.72%	2.87%	4.33%	2.72%	2.87%	4,16%
N		4,079	4,079	4,077	4,079	4,079	4,077
p-value Hausman		0.8212	0.9695	0.9834			
		0.0023	0.0018*	0.0051*			
Overidentifying test		* 4,079= 9.38	4,079= 7.34	4,077= 20,79			

Note: Results for IND and YEAR are suppressed.

TABLE 7: Dual-Class that Need Versus Do Not Need Additional External Capital: Bid-Ask Spread

This table presents the comparison of bid-ask spreads between dual-class firms that need additional external capital and dual-class firms that do not need additional external capital. Panel A presents the result when the Heckman procedure is used, whereas panel B provides the results using OLS regression run on a subsample of dual-class firms.

Second step*: SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *PDUAL* = the probability of becoming a dual-class company obtained from the first stage (equation 1). *FIN* = 1 if EXT_FIN> 0 and 0 otherwise. *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies.

First step: *DUAL* = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *AGE* = natural logarithm of the number of years from incorporation until observation year. *IND* = modified Fama French industry dummies (the original classification plus the media industry). *MEDIA* = 1 if in media industry, and 0, otherwise. *YEAR* = year dummies.

P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$SPRD = \theta_0 + \theta_1 LNPRICE + \theta_2 LNVOL + \theta_3 STDRET + \theta_4 FIN + \theta_5 MILLS + \sum_{i=6}^{52} \theta_i IND + \sum_{t=1997}^{2002} \theta_t YEAR + \varepsilon.$$

A. Heckman

N=1,316	Pred. Sign	Coefficients	z-test	p-value
INTERCEPT	?	1.0557*	14.65	0.000
LNPRICE	+	0.1823*	25.60	0.000
LNVOL	-	-0.0955*	-29.03	0.000
STDRET	+	2.4424*	7.78	0.000
FIN	-	-0.0208*	-2.05	0.040
Mills		-0.0675*	-5.22	0.000

FIRST STEP (N=19,821)				
INTERCEPT	?	-4.3759*	-25.01	0.000
FAMILY	+	1.2845*	30.39	0.000
SIZE	±	0.2020*	20.05	0.000
INTGBL	+	0.7194*	6.30	0.000
EXT_FIN	±	0.0528	0.51	0.609
G	+	-0.0463*	-2.08	0.038
LNAGE	±	0.0363*	1.99	0.047
MEDIA	+	1.9183*	11.62	0.000

Note: Results for IND and YEAR are suppressed.

B. Without Heckman (N=1,436)

	Pred. Sign	Coefficients	t-value	P>|t|
INTERCEPT	?	1.0962*	6.05	0.000
LNPRICE	+	0.4405*	5.34	0.000
LNVOL	-	-0.1943*	-5.94	0.000
STDRET	+	8.6833*	4.03	0.000
FIN	-	-0.0668*	-2.60	0.010

Note: Results for IND and YEAR are suppressed.

Adjusted-R^2 = 53.42%

TABLE 8: Dual-Class Firms that Need Versus Do Not Need Additional External Capital: Predisclosure Information

This table presents the comparison of predisclosure information between dual-class firms that need additional external capital and dual-class firms that do not need additional external capital. Panel A presents the results using the Heckman procedure and panel B presents the results using OLS regressions.
Second step: *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *PDUAL* = the probability of becoming a dual-class firm estimated from the first equation. *FIN* = 1 if EXT_FIN > 0 and 0 otherwise. *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies.
First step*: DUAL* = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *AGE* = natural logarithm of the number of years from incorporation until observation year. *IND* = modified Fama French industry dummies excluding the media dummy. *MEDIA* = 1 if in media industry, and 0, otherwise. *YEAR* = year dummies. P-value is presented as two-sided p-value.
For each variable the results show the coefficient, the t-test and the respective p-value. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

Second step:

$$PI = \phi_0 + \phi_1 LNMVE + \phi_2 LNANALYST + \phi_3 FIN + \phi_4 MILLS + \sum_{i=5}^{51} \phi_i IND + \sum_{t=1997}^{2002} \phi_t YEAR + \varepsilon. \quad (6a)$$

A. Heckman

	Pred. Sign	P_1	P_2	P_{vol}
INTERCEPT	?	0.3476	-0.1621	-1.7373*
		0.84	-0.19	-3.19
		0.402	0.853	0.001
LNMVE	-	-0.0126	0.0015	0.0872*
		-0.75	0.04	3.99
		0.451	0.966	0.000
LNANALYST	-	0.0659*	0.1233*	0.0120
		2.48	2.21	0.35
		0.013	0.027	0.730
FIN	-	-0.0243	-0.0488	-0.0309
		-0.63	-0.61	-0.62
		0.526	0.544	0.538
MILLS	?	-0.0532	-0.0948	0.0392
		1.13	-0.96	0.64
		0.259	0.339	0.525
N		837	837	837

FIRST STEP				
	Pred. Sign	**P_1**	**P_2**	**P_{vol}**
INTERCEPT	?	-5.2869*	-5.2869*	-5.2899*
		-24.41	-24.41	-24.42
		0.000	0.000	0.000
FAMILY	+	1.3332*	1.3332*	1.3342*
		25.35	25.35	25.37
		0.000	0.000	0.000
SIZE	±	0.2800*	0.2800*	0.2808*
		21.72	21.72	21.78
		0.000	0.000	0.000
INTGBL	+	0.6806*	0.6806*	0.6788*
		4.89	4.89	4.88
		0.007	0.007	0.000
EXT_FIN	±	-0.0596	-0.0596	-0.05575
		-0.42	-0.42	-0.39
		0.677	0.677	0.697
G	+	-0.04428	-0.04428	-0.0439
		-1.44	-1.44	-1.43
		0.150	0.150	0.153
AGE	±	0.0281	0.0281	0.0275
		1.27	1.27	1.24
		0.204	0.204	0.215
MEDIA	+	2.1819*	2.1819*	2.1817*
		11.23	11.23	11.23
		0.000	0.000	0.000
N		19,342	19,342	19,342

Note: Results for IND and YEAR are suppressed.

B. Without Heckman

	Pred. Sign	P_1	P_2	P_{vol}
INTERCEPT	?	0.1836	-0.3743	-1.5117*
		0.60	-0.59	-3.71
		0.552	0.556	0.000
LNMVE	-	-0.0122	-0.0012	0.0794*
		-0.78	-0.04	3.97
		0.434	0.969	0.000
LNANALYST	-	0.0704*	0.1379*	0.0091
		2.81	2.76	0.29
		0.005	0.006	0.773
FIN	-	-0.0301	-0.0641	-0.0320
		-0.80	-0.79	-0.64
		0.427	0.428	0.523
Adj-R^2		6.00%	5.46%	7.09%
N		919	919	919

Note: Results for IND and YEAR are suppressed.

TABLE 9: Dual-Class Firms that Need Additional External Capital in Year t+1: Bid-Ask Spreads

This table provides the results for the analysis of bid-ask spreads for dual-class firms that need additional external capital in the following year. Panel A presents the results using the Heckman procedure, whereas panel B presents the results using OLS regression on the subsample of dual-class firms.
Second step: *SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *PDUAL* = the probability of becoming a dual-class company obtained from the first stage (equation 1). *FIN* = 1 if EXT_FIN > 0 and 0 otherwise. FIN_{+1} = 1 if EXT_FIN the following year > 0 and 0 otherwise. *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies.
First step: *DUAL* = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *AGE* = natural logarithm of the number of years from incorporation until observation year. *IND* = modified Fama French industry dummies excluding the media dummy *MEDIA* = 1 if in media industry, and 0, otherwise. *YEAR* = year dummies.
P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$SPRD = \rho_0 + \rho_1 LNPRICE + \rho_2 LNVOL + \rho_3 STDRET + \rho_4 FIN + \rho_5 FIN_{+1} + \rho_6 MILLS + \sum_{i=7}^{53} \rho_i IND + \sum_{t=1997}^{2002} \rho_t YEAR + \varepsilon.$$

A. Heckman

(N=911)	Pred. Sign	Coefficients	z-test	p-value
INTERCEPT	?	1.1122*	12.48	0.000
LNPRICE	+	0.2043*	23.01	0.000
LNVOL	-	-0.1054*	-26.08	0.000
STDRET	+	2.5004*	5.81	0.000
FIN	-	-0.0145	-1.16	0.247
FIN_{+1}	?	-0.0069	-0.55	0.580
Mills	?	-0.0589*	-3.76	0.000

FIRST STEP (N=19,416)				
INTERCEPT	?	-4.8164*	-22.36	0.000
FAMILY	+	1.3315*	25.82	0.000
SIZE	±	0.1989*	16.72	0.000
INTGBL	+	0.8470*	6.18	0.000
EXT_FIN	±	-0.0226*	-0.18	0.856
G	+	-0.0764*	-2.47	0.013
LNAGE	±	0.0828*	3.79	0.000
MEDIA	+	1.9788*	9.62	0.000

Note: Results for IND and YEAR are suppressed.

B. Without Heckman

	Pred. Sign	**Coefficients**	**z-test**	**p-value**
INTERCEPT	?	1.1795*	6.08	0.000
LNPRICE	+	0.5127*	5.72	0.000
LNVOL	-	-0.2255*	-6.46	0.000
STDRET	+	10.4431*	4.07	0.000
FIN	-	-0.0530*	-2.03	0.044
FIN_{+1}	?	-0.0315	-1.11	0.266
Adj-R^2		57.01%		
N		987		

Note: Results for IND and YEAR are suppressed.

TABLE 10: Dual-Class Firms that Need Additional External Capital in Year t+1: Predisclosure Information

This table provides the results of the analysis of predisclosure information for dual-class firms that need additional external capital in the following year. Panel A presents the results using the Heckman procedure, whereas panel B presents the results using OLS regression on a subsample of dual-class firms. $PI = P_1$ or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *PDUAL* = the probability of becoming a dual-class firm estimated from the first equation. *FIN* = 1 if EXT_FIN > 0 and 0 otherwise. FIN_{+1} = 1 if EXT_FIN the following year > 0 and 0 otherwise. *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. For each variable the results show the coefficient, the t-test and the respective p-value. P-value is presented as two-sided p-value. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$PI = \tau_0 + \tau_1 LNMVE + \tau_2 LNANALYST + \tau_3 FIN + \tau_4 FIN_{+1} + \tau_5 MILLS + \sum_{i=6}^{52} \tau_i IND + \sum_{t=1997}^{2002} \tau_t YEAR + \varepsilon.$$

A. Heckman

	Pred. Sign	P_1	P_2	P_{vol}
INTERCEPT	?	0.8597	0.7350	-0.8331
		1.48	0.60	-1.12
		0.139	0.546	0.261
LNMVE	-	-0.0285	-0.0240	0.0667*
		-1.23	-0.50	2.27
		0.218	0.620	0.024
LNANALYST	-	0.0252	0.0410	0.0307
		0.75	0.58	0.72
		0.452	0.559	0.473
FIN	-	-0.0011	0.0035	0.0393
		-0.02	0.04	0.65
		0.981	0.972	0.517
FIN_{+1}	?	-0.08147**	-0.1552	-0.0384
		-1.75	-1.59	-0.65
		0.081	0.112	0.518
MILLS	?	-0.0581	-0.0909	-0.0380
		-0.96	-0.72	-0.50
		0.335	0.471	0.619
N		542	542	543

DUAL = 1 if dual-class firm, and 0, otherwise. *FAMILY* = 1 if the largest controlling shareholder is an individual or a family and 0 otherwise. The largest controlling shareholder is defined as the shareholder with the largest voting power from the ownership of a company's stock. *SIZE* = natural logarithm of total assets. *INTGBL* = intangible asset/total assets. Compustat definition of intangible asset is used (DATA 33). *EXT_FIN* = [Sale of CS and PS (DATA 108) – purchase of CS and PS (DATA 115) + LTD issuance (DATA 111) – LTD reduction (DATA 114)] / Total Assets. *G* = two-year average sales growth. *AGE* = natural logarithm of the number of years from incorporation until observation year. *IND* = modified Fama French industry dummies excluding the media dummy *MEDIA* = 1 if in media industry, and 0, otherwise. *YEAR* = year dummies. For each variable the results show the coefficient, the t-test and the respective p-value. For each variable the results show the coefficient, the t-test and the respective p-value. P-value is presented as two-sided p-value. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

FIRST STEP				
	Pred. Sign	**P_1**	**P_2**	**P_{vol}**
INTERCEPT	?	-6.1622*	-6.1622*	-6.1702*
		-20.43	-20.43	-20.45
		0.000	0.000	0.000
FAMILY	+	1.3352*	1.3352*	1.3376*
		20.87	20.87	20.91
		0.000	0.000	0.000
SIZE	±	0.2665*	0.2665*	0.2672*
		17.53	17.53	17.59
		0.000	0.000	0.000
INTGBL	+	0.6198*	0.6198*	0.6164*
		3.71	3.71	3.68
		0.000	0.000	0.000
EXT_FIN	±	-0.0828	-0.0828	-0.0798
		-0.47	-0.47	-0.46
		0.636	0.636	0.648
G	+	-0.0441	-0.0441	-0.0442
		-1.14	-1.14	-0.46
		0.254	0.254	0.648
AGE	±	0.0881*	0.0881*	0.0884*
		3.30	3.30	3.31
		0.001	0.001	0.001
MEDIA	+	2.4115*	2.4115*	2.4121*
		8.83	8.83	8.83
		0.000	0.000	0.000
N		19,047	19,047	19,048

Note: Results for IND and YEAR are suppressed.

B. Without Heckman

	Pred. Sign	P_1	P_2	P_{vol}
INTERCEPT	?	0.6371	0.5379	-1.2074*
		1.56	0.63	-2.33
		0.120	0.530	0.021
LNMVE	-	-0.0283	-0.02	0.0675*
		-1.31	-0.68	2.61
		0.190	0.499	0.010
LNANALYST	-	0.2157	0.0377	0.0210
		0.63	0.54	0.57
		0.527	0.587	0.570
FIN	-	-0.0121	-0.0103	0.0320
		-0.25	-0.10	0.50
		0.801	0.920	0.618
FIN_{+1}	-	-0.0773	-0.1506	-0.0313
		-1.47	-1.40	-0.52
		0.143	0.163	0.607
Adj-R^2		5.12%	4.09%	5.70%
N		592	592	593

Note: Results for IND and YEAR are suppressed.

TABLE 11: Dual-Class Versus Single-Class Firms that Need Additional External Capital: Bid-Ask Spread

This table presents the results for the bid-ask spreads comparison between dual-class and single-class firms when both need additional external capital. Results using an instrumental variable approach and those using an OLS regression are presented. *SPRD* = average daily closing bid-ask price over a fiscal year. *LNPRICE* = natural logarithm of average daily closing price over a fiscal year. *LNVOL* = natural logarithm of average daily shares traded over a fiscal year. *STDRET* = standard deviation of daily stock return over a fiscal year. *PDUAL* = the probability of becoming a dual-class company obtained from the first stage (equation 1). *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$SPRD = \omega_0 + \omega_1 LNPRICE + \omega_2 LNVOL + \omega_3 STDRET + \omega_4 PDUAL + \sum_{i=5}^{51} \omega_i IND + \sum_{t=1997}^{2002} \omega_t YEAR + \varepsilon.$$

	Pred. Sign	Instrumental Variable			No Instrumental Variable		
		Coefficient	**t-test**	**p-value**	**Coefficient**	**t-test**	**p-value**
INTERCEPT	?	0.7846*	21.64	0.000	0.7963*	33.85	0.000
LNPRICE	+	0.1428*	21.35	0.000	0.1458*	33.04	0.000
LNVOL	-	-0.0696*	-18.28	0.000	-0.0711*	-28.40	0.000
STDRET	+	1.0286*	5.18	0.000	0.9835*	7.73	0.000
PDUAL	±	0.1355*	2.48	0.013	-0.0029	-0.26	0.794
Adj-R^2		**53.68%**			**53.42%**		

Note: Results for IND and YEAR are suppressed.

P-value of Hausman test=0.000
N=7,981

Overidentifying restriction test = 0.0556*7,981 = 443.74

TABLE 12: Dual-Class Versus Single-Class Firms that Need Additional External Capital: Predisclosure Information

This table presents the results for the bid-ask spreads comparison between dual-class and single-class firms when both need additional external capital. Results using an instrumental variable approach and those using an OLS regression are presented. *PI* = P_1 or P_2 or P_{vol}. P_1 = natural logarithm of the ratio of average absolute value of abnormal return in disclosure and predisclosure period. P_2 = natural logarithm of the ratio of average square value of abnormal return in disclosure and predisclosure period. P_{vol} = natural logarithm of the ratio of average abnormal volume in disclosure and predisclosure period. *LNMVE* = natural logarithm of market value of common equity at fiscal year end. *LNANALYST* = natural logarithm of the number of analyst issuing forecast for the fourth quarter. *PDUAL* = the probability of becoming a dual-class firm estimated from the first equation. *MILLS* = Inverse Mills ratio from equation (1). *IND* = modified Fama French industry dummies (the original classification plus the media industry). *YEAR* = year dummies. For each variable the results show the coefficient, the t-test and the respective p-value. P-value is presented as two-sided p-value. P-value is presented as two-sided p-value. *, ** represent significance level at the 5% and 10% levels, respectively.

$$PI = \varphi_0 + \varphi_1 LNMVE + \varphi_2 LNANALYST + \varphi_4 PDUAL + \sum_{i=5}^{51} \varphi_i IND + \sum_{t=1997}^{2002} \varphi_t YEAR + \varepsilon.$$

	Pred. Sign	Instrumental Variable			No Instrumental Variable		
		P_1	P_2	P_{vol}	P_1	P_2	P_{vol}
INTERCEPT	?	0.0516	-0.4320*	-1.6627*	0.0135	-0.4882**	-1.6724*
		0.26	-1.03	-6.83	0.10	-1.78	-10.38
		0.797	0.304	0.000	0.918	0.076	0.000
LNMVE	-	-0.0020	0.0083	0.0818*	0.0002	0.0116	0.0824*
		-0.99	0.37	6.32	0.03	0.80	9.66
		0.847	0.710	0.000	0.973	0.422	0.000
LNANALYST	-	0.0477*	0.1117*	0.0009	0.0440*	0.1062*	-0.0001
		2.42	2.69	0.04	3.39	3.91	-0.01
		0.016	0.007	0.970	0.001	0.000	0.995
PDUAL	±	0.1019	0.1391	-0.0415	-0.0297	-0.0543	-0.0701**
		0.81	0.52	-0.26	-0.99	-0.85	-1.63
		0.419	0.604	0.794	0.322	0.396	0.102
Adj-R^2		3.09%	3.09%	5.84%	3.08%	3.09%	5.90%
N		4,704	4,704	4,707	4,704	4,704	4,707
p-value Hausman		0.1284	0.2764	0.1482			
		0.0054*	0.0047*	0.0071*			
Overidentifying test		4,704= 25.40	4,704= 22.11	4,707 33.42			

Note: Results for IND and YEAR are suppressed.