New determinants of the voting premium of dual-class shares: Leverage effect and unstable news flow components

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Keywords: Dual-class shares, Multiple voting rights, Ownership concentration, Voting premium, News flow, Leverage

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This article focuses on the voting premium between two simultaneously traded classes of shares. We use a sample of dual class firms listed in the U.S. and Canada for the 2012–2022 period to identify the determinants of the size of the voting premium. We do not confirm the results documented in the literature that the relative illiquidity between the two classes may explain the voting premium. The empirical tests also support the leverage effect hypothesis, a feature that is new in the literature. The empirical analysis also shows volatile voting premiums. This article contributes to the literature by showing that this instability is related to the magnitude of the news flow brought to the market about the controlling ownership's change and the strategic shareholders' behavior.

1. Introduction

Dual-class shares (DCSs) are legal structures for organizing the shareholding power in a firm and introducing a transfer of power to superior rights blockholders. DCSs are usually set up in the corporate charter. Through this setting, the firm's ownership and power structure are more long-term oriented and protected. However, DCSs also allow private benefits of control to be seized when a controller—a family, the founder, or a controlling group—can be identified. This method for achieving control seems to de increasingly developing, particularly for IPOs (Ritter, 2022).

The background of DCSs is that agency issues in dual-class firms are not per se at a cost to minor shareholders. Dual-class firms may create value because of a protected long-term approach; the protection of the founders' or managers' human capital may bring value to the firm (Goshen and Hamdani, 2016). The entrenchment hypothesis of controllers, which is viewed as detrimental to standard shareholders, is not supported if we consider that dual-class firms do not show a probability of facing an acquisition offer that differs from that of single-class firms (Bauguess et al., 2012). Acquisition premiums for dual-class targets are higher than those for single-class targets, which suggests that this structuration of power "strengthens the ability of the target to extract gain from a takeover" (p1249). Moreover, such a gain does not come at the expense of minor shareholders, as the takeover premiums in DCSs firms are paid equally to both categories of shareholders (Bauguess et al., 2012).[2]

[2] Even if Delaware law allows for differentiated payments to different classes' shares.

A first strand of the empirical literature has examined dual stock classes that were simultaneously listed on stock markets. This research avenue was initiated by Megginson (1990), Zingales (1995), Rydqvist (1996), and Nenova (2003). The difference in quotation prices between superior and inferior rights shares defines a dual-class premium, also termed voting premium. This premium features the control power mechanism and may be directly related to appropriating private benefits.[3] The empirical appraisal of market voting premiums seeks to assess its magnitude, analyze its determinants, and provide an answer to the issue of private benefits and agency costs.

The market stock prices of superior rights stocks generally reflect a premium. Thus, power has a price in the market, as it expresses the economic value of actual and future private benefits. The power concentration by some shareholders allows "tunneling" and private benefit appropriation (Johnson et al., 2000). The controller can optimize both the firm's value and the allocation of private benefits. Public outside investors only consider stock market value, which is the value of the firm less the present value of appropriated private benefits (Masulis et al., 2009).

Our contribution is in that strand of the literature as we aim to analyze the voting (sometimes also termed power) premium embedded in DCS when both classes are listed on a stock market. The empirical literature on the subject remains scarce. The first issue following this approach is that the difference in prices between two shares classes is not a "pure" measure of the voting premium. Generally, the superior voting right class shares are illiquid. Sometimes they are not listed, and sometimes they are poorly traded. The difference in prices between standard share prices and superior right shares may be attributed to a liquidity premium or discount. The analysis of the determinants of the voting premium by evaluating quoted DCSs was initiated a long time ago (Zingales, 1995) and aims to disentangle the pure voting premium effect and the liquidity effect.

Two research questions can be raised regarding the voting premium as evidenced by listed DCSs. The first one addresses the determinants of this premium. Traditionally, the specificity of a firm is evoked by identifying its profitability or size as drivers. We introduce financial leverage as a new driver to explain the magnitude of the voting premiums. A second issue is the stability or instability of the voting premium. Are they stable across time? We follow the

[3] On the theoretical ground we should distinguish the power premium and the private benefits component in the market DCS price premium. The term voting premium encompasses these different components. They have been analyzed by Levit et al. (2023).

intuition of Zingales (1995) to identify an unstable component of the voting premium. This unstable component is not purely random but reflects pressure from the environment and investors who question possible changes or concerns in the structuration of the power in the firm. To proxy for this effect, we observe the information news flow involving the firm. We build a measure based on the amount of news related to changes in capital ownership, strategic financial operations, or corporate governance institutions. We use the Factiva database and show that the unstable component of the voting premium is related to the importance of this news flow. This finding is new in the literature.

The empirical study is based on a sample of 33 U.S. and Canadian DCSs simultaneously listed during the 2012–2022 period. This sample is small but this number covers the total number of observed firms. Traditionally the empirical literature on voting premiums refers to the subsample of firms willing to list both their superior right shares and their inferior right shares. This decision has been made and is not the research question. Most dual-class firms make the opposite decision to list only the standard class shares and maintain high power shares that are either not tradable or poorly active if listed. In such a case, the voting premium may appear randomly when control blocks are traded. Our empirical analysis is on voting premiums which are disclosed and observable in the stock market when both classes are traded. Traditionally the literature related to the voting premium as a variable of interest has included a small sample of firms.

In this article, we bring new results to the analysis of the determinants of the voting premium. Only a few papers have supported the role of financial leverage in explaining voting premiums. High leverage enhances the control of the founder or the controlling shareholder over the firm's economic assets. As the controller invests a lower capital amount, debt also minimizes the need for the controller to invest equity capital and develop its ability to seize private benefits. This results in a higher voting premium. This leverage hypothesis is supported by the data. The other result demonstrated by the empirics is that the voting premium has a stable component, as evidenced by a strong first-order autocorrelation. This component expresses the idiosyncratic elements related to the structuration of power. An unstable component is also identified that relates to the institutional environment and investors' raising questions about and growing concerns over changes in the structuration of power. This finding supports the analysis of Zingales (1995). We show that the volatility of the control premium is sensitive to information flows. As a proxy of the price of the firm's power, the voting premium market seems efficient in how it integrates news about ownership and the structuration of power.

We first present the literature in Section 2. Our hypotheses and the sample of DCSs are described in Section 3, followed by empirical tests in Section 4.

2. Literature

The value of control is a permanent issue in corporate finance. The first historical approach to empirically assessing the value of corporate control was to focus on the spread between the price paid by an acquirer when buying a block of shares and the market price of the shares before the transaction (Barclay and Holderness, 1989). This approach is linked to breakdown events, which are transfers of control.

Another approach is to comparatively analyze the market prices of superior and inferior right shares in dual-class firms.[4] This is the voting market premium approach. The first historical question addressed in the literature on voting premiums has been how to identify the voting premium and appraise its magnitude.[5] Differences in share prices due to different voting rights provide empirical ground for evaluating the price of the controlling power.

Voting premiums have been estimated since the early 1990s. These premiums were originally appraised as the simple difference between the share prices of the superior and inferior rights. Traditionally they show positive average values. In Canada, the premium was estimated at between 8% and 19% (Smith and Amoaku-Adu, 1995); in Israel to 74% (Bigger, 1991); in Italy to 80% (Zingales, 1994); in Sweden to 15% (Rydqvist, 1992); in the UK to 13% (Megginson, 1990); and in Switzerland to 10% (Horner, 1988).[6] In the US, Lease et al. (1983) provided an average value of 5%, and Zingales (1995) provided an average of 10.5%. More recently, Kim and Michaely (2019) identified a 4.2% voting premium in their U.S. sample. These figures are averages that cover large deviations. Levit et al. (2003), in a survey of the empirical literature, calculate an overall DCS premium average of 22.7% (median 13.6%). However, in many cases, negative premiums are evidenced.[7]

[4] This raises the question of whether or not to list the two class shares simultaneously. Generally, the superior right shares are not listed. The voting premium approach does not address the selection issue of having the two classes listed. It considers the sample of simultaneously traded stocks as given.
[5] See La Bruslerie (2023) for a survey of the literature on dual-class shares.
[6] Source: Rydqvist (1992), Table 6. A worldwide cross-country analysis is proposed by Nenova (2003).
[7] Negative premiums represent 10% of the entire voting premium sample in Smith and Amokao-du (1995). They are identified in 18 out of the 24 studies of the empirical literature surveyed by Levit et al. (2003).

Superior rights shares are valued by the holder, as they are expected to offer the possibility of extracting private benefits. This possibility may interact with a situation of control by some blockholders or managers (Rydqvist, 1992). However, the corporate control benefits embedded in superior right shares may not be sufficient to compensate for the lack of liquidity (Zingales, 1995). This possibility could explain the negative values, and we should be cautious in interpreting the empirical results.

Once identified, voting premiums need to be analyzed, particularly to identify their determinants. This is a major issue in occasional events in which control is negotiated. A first avenue to explain the difference in share valuation is possibly different offer prices to shareholder categories in the event of an acquisition. This avenue gives birth to the "extra merger hypothesis" (Megginson, 1990, Smith and Amoako-Adu, 1995). Superior voting shares ordinarily trade at higher prices that reflect the joint probability that a takeover offer will be made and that the bid price for superior voting shares will be higher than that for other standard shares. Megginson (1990), however, acknowledged that the average ex-ante superior rights price premium is higher than the ex-post premium paid to stockholders of superior voting rights during takeover offers (Smith and Amokao-Adu, 1995)., Megginson (1990) estimated the voting premium in the United Kingdom in this ex-ante way and compared it with the effective ex-post offer prices. The former was approximately 13 % on average, and the latter was only 7 %. The difference between the two illustrates the importance of the dynamics of the acquisition process and the strength of the bargaining.

The empirical literature on the determinants of the voting premium begins with Lease et al. (1983).[8] The first component of the DCS premium is a positive control premium which corresponds to the opportunity to appropriate private benefits, at least when the different share classes yield a control situation by a controlling group with controllers cooperating or not cooperating with managers (Rydqvist, 1992). These private benefits are discounted over the time horizon of the controller. Zingales (1995) referred to the excess compensation given to managers beyond the normalized dividends that managers should have received according to firm size. He used this variable as a measure of the control benefits and showed that it is effectively and positively linked to the voting premium in the market. Smith and Amoako-Adu (1995) demonstrated that premiums are positively related to the voting power of superior rights

[8] We focus on idiosyncratic determinants. For instance, external conditioning determinants are analyzed by Gao and Zhang (2019), who observe the effect of the introduction of the Sarbanes–Oxley Act on voting premiums.

shares. The voting power identified by Smith and Amoako-Adu is commonly referred to as the wedge, i.e., the difference between voting and cash flow rights. The power leverage measured by the number of votes associated with superior rights shares compared to other shares, is also influential (Zingales, 1995; Broussard and Vaihekoski, 2022). However, in other studies, the power control mechanisms are not influential in explaining the voting premiums (Neumann, 2003).

Zingales (1995) proposed an improved measurement of the voting premium that allows a comparison between multiple schemes of dual-class structuration. The number of votes of a high-power share may differ according to the corporate charter; for instance, the superior rights shares may have 10 or even 20 votes.[9] Zingales (1995) observed voting premiums through a sample of DCSs listed in the U.S. He related the size of the voting premiums to the search for control, which is motivated by the possibility of seizing private benefits. Zingales identified private benefits as associated with managers' excess remuneration. This variable positively explains the higher voting premium. When crossed with abnormal salaries (as another measure of private benefits), this variable is also significantly positive.

The voting premium is also determined by the probability of a control contest by an acquirer. This will refer to the market ownership concentration and the possibility for a small shareholder to become pivotal in a new majority coalition. It has been measured for instance by the Shapley value which is significant in Zingales (1995), but not in Neumann (2003).

The relative liquidity between the two classes is another determinant tested in the empirical literature. A negative relationship is observed with superior rights shares associated with illiquid markets. This will explain a liquidity discount and contribute to justifying why negative DCS premiums are evidenced. The results are mitigated. The liquidity variable is not negatively significant in Zingales (1995): when the volume of the superior voting shares increases, the voting premium does not significantly decrease. However, liquidity is shown relevant in Gardiol et al. (1997), Neumann (2003), Odegaard (2007), and Broussard and Vaihekoski (2022) who demonstrate that relatively illiquid shares trade at a lower premium.

Several authors have identified a size effect (Smith and Amoako-Adu, 1995 ; Zingales, 1995 ; Kim and Michaely, 2019): Large firms show lower voting premiums. However, the reasons for a negative size effect are not very obvious. Zingales (1995) developed the idea that a large size

[9] When introducing new shares, AMEX sets the maximum ratio of number of votes to 1:10. No regulation exists by NASDAQ or the NYSE

lowers the probability of receiving an acquisition offer and being newly controlled. This should favor private benefits and voting premiums. In the same vein, Gompers et al. (2010) showed that dual-class firms are larger than the single-class firms.

Debt – more precisely debt leverage – is also considered in the analysis of voting premiums. Gompers et al. (2010) noted that dual-class firms have a systematically higher debt ratio than unique-class firms. In a similar test of family-controlled firms in Europe, debt leverage is higher, and these firms show a higher propensity to issue debts (Croci et al., 2011). Oppositely, Xu (2021) showed that in dual-class firms, debt is used with caution, in an attempt to limit the firm's exposure to operational risk. The leverage of dual-class firms and creditors' behavior was analyzed by Lin et al. (2011). An international sample showed that the firms' creditors are more demanding and that dual-class firms should pay a higher credit spread to borrow. The "wedge" between voting and cash flow rights is positively linked to the cost of debt financing. Dey et al. (2016) confirm that disproportionate control rights firms use relatively more debt. In contrast, Xu (2021) showed that excess control rights allowed by dual-class shares, benefit creditors by mitigating risk-taking. Contrary to Lin et al. (2011), Xu (2021) showed that dual-class firms profit from a lower cost of debt which is explained by a shared goal from creditors and controlling shareholders who value a long-term view and seek to keep the firm alive.

From a more theoretical approach, the agency cost hypothesis supports the idea that superior power and control by superior rights shareholders facilitate private benefit appropriation and explain voting premiums. Gompers et al. (2010) showed that strong control is associated with value-destroying mergers and acquisitions and abnormally high rewards to managers. The agency approach refers to the possible costs supported by inferior rights stockholders. A broader view leads to the consideration of the possibility of an optimal contractual design among categories of the shareholders of the firm. Agency costs may be balanced by value creation possibilities allowed by a dual-class shareholding design (Bauguess et al., 2012; Chemmanur and Tian, 2018; Cao et al., 2020; Baran et al., 2023). The net situation depends on an equilibrium between costs and advantages at the firm level. This equilibrium is idiosyncratic and may change over time—particularly as the time elapses from the IPO date. Kim and Michaely (2019) and Lel et al. (2021) showed that as time passes, entrenchment and control costs become increasingly important and may override the advantages of flexibility resulting from DCSs. Gompers et al. (2010) investigated Tobin's Q and the cash flow and voting structures (i.e., the wedge) at IPOs. Their contribution did not aim to be an explanation of the voting premium in the stock market. Kim and Michaely (2019) compared Tobin's Q ratio of

dual-class firms to that of a single-class sample at the inception of and after an IPO. They focused on the dynamics of DCSs. These studies have shown that the contractual view is coherent with the life cycle hypothesis.

The setup of DCSs is an endogenous decision influenced by the environment of the decision, such as the industry or the state law in the U.S. (Gompers et al., 2010). The legal environment does not always exert the empirical expected influence. Sometimes events studies have shown paradoxical influences in the move of the voting premiums (Gao and Zhang, 2019; Broussard and Vaihekoski, 2022).

The agency costs featured in a dual-class structure result from insiders (i.e., management and/or controlling shareholders) extracting private control benefits at the expense of minority shareholders (Burkart and Lee, 2008 ; Chaudhuri and Seo, 2012). These agency costs may be balanced by value creation possibilities allowed by a dual-class shareholding design (Chemmanur and Jiao, 2012; Cao et al., 2020). A dual-class structure can be sought for instance when too much monitoring by outside investors leads to value-destroying acquisitions, underinvestment decisions, or lower incentives to develop specific investments in human capital (Burkart et al., 1997; Burkart and Lee, 1998). The firm's observed situation depends on an idiosyncratic equilibrium between costs and advantages. In the private benefits-incentive approach, voting premiums, are endogenous to the global equilibrium of the costs and advantages of dual-class shares design for both categories of investors.

Besides any private benefits, Levit et al. (2023) have proposed a theoretical model justifying a voting power premium which is a "political" premium paid in the stock market to accumulate voting power to adopt a proposal in a short-term view. They showed that, without any reference to the context of controlled firms, a "political" voting power purchase demand by a minor blockholder might generally explain a positive voting premium. They also give a theoretical foundation to the stock illiquidity feature: Lack of liquidity may explain why negative voting premiums may appear in the share markets.[10]

[10] According to the way the dual-class shares are filtered in a sample, difference in dividends is also a determinant to consider in situations where the two classes differ not only regarding voting rights but also to dividend payments. The Zingales (1995) sample has dual-class shares with different dividends. To take them into account, he introduced the difference in the dividends as a variable, which was significant.

3. Hypotheses, sample and variables

3.1. Research questions

The voting premium is linked to the capacity to extract private benefits. Zingales (1995) showed that voting premiums are positively related to extra rewards - more precisely to the amount of the cash salary paid to the largest shareholder (in excess of what the company's size predicts) as a proxy for control benefits. The possibility to extract benefits follows from the voting power of superior rights shares, which results directly from the corporate charter. In an agency framework, they are also linked to profits resulting from value-creation prospects. Therefore, voting premiums have stable components and are linked to each firm's profitability and idiosyncratic features such as the relative number of shares between superior and inferior rights classes. Profitability offers the possibility of extracting private benefits. The cost-advantage equilibrium is rather stable and depends on the ownership structure and the underlying perspectives of value creation.

Relative liquidity between the two share classes is a documented determinant of the voting premium (Smith and Amoako-Adu (1995); Zingales (1995); Gardiol et al., 1997). Superior voting shares tend to have a smaller float and lower trading liquidity because they are held for control purposes. The fact that superior voting shares tend to be less liquid than restricted shares implies that the premium at which superior voting shares trade is lessened by their lower trading liquidity. Our measure of trading liquidity is relative turnover volume, which is defined as the ratio of the number of traded shares.

The existence of a size effect is debated. This effect seems to have been empirically demonstrated (Simth and Amoako-Adu, 1995; Zingales, 1995; Kim and Michaely, 2019). However, the reasons that size is a negative determinant of the magnitude of the control premium are unclear. Similar to Gompers et al. (2010), we use total assets or total equity book amount as a measure of the size variable. As we lack theoretical foundations to explain the size's influence, we consider it as control.

Debt may also be a determinant of the voting premium in dual-class firms. This hypothesis is relatively new. The first reason to expect dual-class firms to use relatively more debt is based on the "incentive effects associated to debt" (Jensen and Meckling, p.334). Outside financing may help to optimize the firm scale. More outside financing allows to seize additional private benefits and increases the marginal benefits of monitoring. Marginal agency costs will also decrease with the rise of outside financing compared to the firm's value.

In a controlled firm, outside financing has a lower propensity to be equity financing. The controller is reluctant to issue more equity to avoid dilution (Jarrell and Poulsen, 1988). This assumes that a control situation pre-exists, that the scale of the firm may be economically increased (i.e., no overinvestment or empire building), and that the cost of debt is not systematically higher. This will develop bonding and monitoring costs to assess the profitability of future investment in the firm and to monitor the net marginal cost of external financings.

The cost of equity capital is higher in controlled firms. Outside shareholders integrate this latter situation in setting the controlled firms' Tobin's Q (Dey et al., 2016; Kim and Michaely, 2019). In a controlled firm, with private benefits appropriation possibilities known and recognized in the corporate charter, issuing more shares to outside investors will be costly as outside investors will impose strong monitoring costs and the controller will need to develop additional bonding costs. This will generate a specific disciplining effect of additional debt in controlled firms (Dey et al., 2016; La Bruslerie and Gueguen, 2021). This results from Jensen's (1986) bounding role of debt which is enhanced in DCS firms (Moyer et al., 1992). Xu (2021) illustrated that the use of debt triggers a virtuous self-limitation mechanism by managers or controllers of dual-class firms seeking to develop long-term relationships with creditors. The hypothesis of complementarity between debt and superior rights shares is relatively new in the literature, as the "standard outside equity investors" appear to be strained on both sides (Dey et al, 2016; La Bruslerie and Gueguen, 2021). The use of debt is not seen as univocally negative and may trigger specific governance mechanisms (Dey et al., 2016) This explains why, in the end, leverage may be endogenously higher in DCS firms compared to not controlled firms and why it may be beneficial to outside shareholders.

The observed empirical results are contradictory as Lin et al. (2011) identified costs of debt financing rising with the difference between voting rights and cash flow rights. The debt financing question has other dimensions: Lin et al. (2013) considered both public debt and bank debt and showed that banks would develop more scrutiny to limit transfers of value. The firms will prefer public debt to avoid bank monitoring. They will also prefer long-term debt (Lin et al., 2013, Gao et al. 2023). The reason is that the threat of control disruption is postponed in the long term compared to the short term. Private short-term debts favor the monitoring by creditors at rollover periods and yield frequent control threats.

Costs of monitoring are imposed by debtholders, for instance, to avoid the possibility of asset substitution. The controller can choose to lower these costs by using lower bonding costs (Jensen and Meckling, 1976), for instance by raising leverage. Dey et al. (2016) consider that

debt is a complementary efficient tool to implement governance mechanisms in controlled firms. This framework encompasses a double agency conflict between controllers and standard equity investors on one side and between controllers and creditors on the other side. La Bruslerie and Gueguen (2021) showed how an implicit agreement between controllers and creditors allows for a long-term view of the firm's bankruptcy risk. As Xu (2021) noted, this agreement introduces self-regulation with a risk-avoidance mechanism. The increase in leverage does not systematically increase the financial risk to lenders but simply moves the equilibrium limits between controllers and creditors upward. Voting premiums, as an assessment of future private benefits, will marginally increase in line with a positive propensity to use debt. The controlling shareholders will benefit from marginally decreasing monitoring and bounding costs. Consequently, if this hypothesis of implicit contracts between creditors and controllers is valid, the voting premium should increase with leverage.

Oppositely, we may hypothesize that debt costs may inflate in DCS-controlled firms (Lin et al., 2011). The rationale behind it is that disciplining and bounding costs to limit private benefits appropriation, will be higher. As a result, in entrenched and excessively indebted DCS firms, the voting premium alternatively may be negatively related to leverage. However, we will test the existence of a positive relationship as it seems to be more largely supported by previous empirical studies (Dey et al., 2016; Gao et al, 2023).

The above-identified determinants are simultaneously stable and permanent, as they are the consequence of agency relationships and a given power structure within the firm. This led Zingales to the idea that the voting premium is stable and shows limited changes in "normal conditions". The premium changes when ownership or control is contested.[11] Zingales (1995) suggested that the voting premium fluctuates when the ownership structure is under pressure or may change. This leads to the analysis of noticeable events or information disclosures related to acquisition contests, conflicts among shareholders, or simply a threat of change to the ownership structure.

The dynamics of voting premiums have been empirically documented by Broussard and Vaihekoski (2022) who have shown that they are time-variant and highly correlated. They become unstable if the ownership structure is contested or simply questioned. Therefore, we

[11] "Although under "normal conditions" the fluctuations of this vote component are small enough to be neglected, this is not always the case. Voting premiums can fluctuate widely, and voting rights can sometimes become as valuable as cash flow rights. In particular when an event alters the distribution of ownership or the expectation of a contested acquisition, a fraction of the private benefits of control may be reflected in the stock price and may affect it variability in a substantial way" (Zingales, 1995, p1049).

should not only focus on effective attempts to change the power structure or takeover announcements. Aggressive acquisitions or activist shareholder attacks are extreme situations. Before such events, concerns, questions, and pieces of information will spread in the market through analysts, journalists, minor shareholders, or speculators. The disclosure of news, the raising of doubts over the current ownership structure, or new membership in corporate bodies, such as boards or committees, should also be considered (Kalay et al., 2014). These low noise signals are also relevant, and we need to consider the entire flow of news related to the organization of the power structure and strategic decisions in a firm instead of paroxysmal and extreme events that seldom occur during its life. We test the hypothesis that an unstable component of the voting premium exists and is related to the flow of news disclosed about the firm's ownership structure. In such a situation, Zingales (1995) did not give any indication of the signs of the voting premium changes and mentioned only the instability in the premium after an event. We cannot expect either a positive or a negative move after an event or the disclosure of information. The news content is unknown. Giving a positive or a negative content is very difficult. Controllers and standard equity investors may have opposing interests; good news for one category may be bad news for the other. The premium maps the difference between them and may be positively or negatively impacted. We cannot assert that a rise in the news flow increases or decreases the premium. However, the disclosure of new items of information increases the information set of shareholders and determines the stability of the power structure and the firm's future. We expect the variability in the premium, and not the premium itself, to decrease. The voting premium decreases when the present value of future private benefits decreases, which is linked to the content of each piece of information. We consider the size of the flow of news to reduce the variability in the voting premium.

We use control variables to refer to the idiosyncratic determinants referred to in the literature, i.e., the firm's profitability, its size, and the relative liquidity of the markets for superior and inferior rights shares. We test the following two hypotheses:

H1: The voting premium is positively linked to debt leverage.

H2: The voting premium has an unstable component; when the flow of news related to the ownership and power structure increases, the shareholder information set increases, and the variability of the voting premium is expected to decrease.

3.2. Sample

We first set up the mother sample of dual-class firms. Masulis et al. (2009) and Gompers et al. (2010) used the CRSP SDC database for individual securities. They screened individual stock issuers and considered similar securities using the same 6-digit CUSIP codes with different extensions. They identified between 362 and 504 dual-class firms in the U.S. during 1995–2003.[12] Among this number, only 52 (in 2002) firms simultaneously traded DCSs. Kim and Michaely (2019) established a sample of dual-class firms from 1971 to 2015 and compared the number of outstanding shares globally at the firm (from the Compustat database), and at the security level (from the CRSP database). A discrepancy between these two numbers indicates possible DCSs. The authors identified 920 dual-class firms (both public and private) during the period. They did not ask the firms in their sample to simultaneously list their two securities; only 104 firms in their sample had two traded classes of shares.[13] Cao et al. (2020) followed the same sampling process. Aggarwal et al. (2022) referred to the dual-class listing sample identified at the time of their IPO using data from Gompers et al. (2010) and Ritter (2023). They found 607 dual-class IPOs among 5907 IPOs.

We follow a different method to set up our sample. The identification strategy is based on the Refinitiv Eikon Database to determine a dual-class firm sample. We observe securities and focus on the item "Class" attached to stock securities. When this "Class" descriptor is populated, we screened the explicitly denominated Class A, Class B, and Class C stocks. We refer to the term Class A (respectively Class B and Class C) in the "Instrument Share Class" mnemonic of the Refinitiv database with the following filters:

- Active or inactive public stocks
- Countries: USA or Canada
- Excluded industry codes for the financial industry, utilities, and governments[14]
- Sought instruments are ordinary stocks with a Class A (respectively Class B and Class C) explicit denomination.

The same process and criteria are used to screen for Class B and Class C stocks. We consider a period of only 11 years, in contrast to 45 years in Kim and Michaely (2019). This first screening

[12] The first 6 digits of the CUSIP code identify the firm/issuer.
[13] Kim and Michaely (2019) mentioned that many firms with different share classes or categories exist that these classes do not have different voting rights. Gompers et al. (2010) mentioned that 85% of DCSs with different voting rights have only one class of shares that is listed and traded.
[14] Excluded industry codes are "55102050"", "55102030"", "55102020"", "5510201", "55101050", "55101030", "55101010".

yields a mother sample of multi-class firms: 666 firms with denominated Class A stocks, 104 with Class B stocks, and 12 with Class C stocks.

Then, we determine the firms with both Class A and Class B (or Class C) stocks in Refinitiv by using the ISIN codes for each stock; the results are as follows:

- Both Class A and Class B denominated stocks for the same firm: 62 firms,
- Both Class A and Class C stocks: 5 firms, including Alphabet with Classes A, B, and C,
- Both Class B and C firms: 1 firm.

The process provides a first sample of 68 firms with two explicitly denominated listed classes of shares. The EDGAR database is used to check the information, check that the two classes of shares have different rights, obtain the respective number of available shares for the dual-class stocks, identify the legal rights attached to each class, and verify that a controlling situation exists. We used firms' 10K forms and analyzed their 2021 annual reports to check these points.

The structure of the legal rights for dual-class stocks may be complex, as follows:

- Shares may or may not have voting rights,
- Shares with voting rights may have one or multiple votes (or conversely, less than one vote per share),
- Shares may have unequal dividend rights,

If there are 3 classes of shares, very different schemes could exist. Alphabet (Google) has 3 classes of shares: Class A has 1 vote per share, Class B has 10 votes, and Class C has no voting power. Case-by-case analysis has led to the identification of other schemes, such as the following:

- The above requirement assumes equal cash flow rights; however, some share classes may have superior cash flow rights; for instance, a given class could receive a dividend 115% higher than the standard dividend given to another share class,
- Broadly, a given class is granted a specified majority of the voting rights, for instance, 78% of the votes for Class A stocks and 22% for all Class B stocks,
- Cash flow and voting rights are equal; however, Class X stocks elect 2/3 of the Board, and Class Y stocks name the other 1/3.

- Two classes have the same voting rights; however, one class has standard dividends, and the other has different dividends.

In some cases, information on legal rights is unavailable. This is the case when one class of shares is no longer listed. In Canada, the rights attached to each category of shares are less frequently disclosed, and the EDGAR procedure applies only to US-listed stocks. For Canadian stocks, we use information in annual reports.

Several instruments for some firms are not available or were not considered, including the following:

- Firms are listed; however, instruments of a given class have disappeared (they have been delisted or merged within other class shares). This situation can occur because of "sunset clauses" that state that, after an IPO, high voting power shares are merged with standard "one share-one vote" shares. This is also the case when shares have been delisted and the corresponding firm goes private. Firms do not always report in EDGAR their unlisted share classes.[15]

- Our screening includes "inactive" stocks. These inactive stocks allowed only a small amount of price data or no price data to be collected over the 2012-2022 period. When stocks have been qualified "inactive" since 2014, they were disregarded.

- If the same instrument is listed in two currencies, such as in Toronto and New York, it appears twice in Refinitiv. Therefore, we skip the double-counted stocks.

This sample is small but compares with the 38 firms with equal dividends and different voting rights identified by Zingales (1995) over the 1984-1990 period. Gompers et al. (2010) identified between 52 and 77 simultaneously listed dual-class shares; however, their sample included one-fourth of DCS firms with unequal dividend rights. Broussard et Vaihekosli (2022) ended with a sample of 52 DCS firms over 36 years. In his survey, Rydqvist (1992) mentioned older studies of voting premiums using samples comprising 26 to 101 firms.[16]

Using the CRSP database, we collect the market prices for 11 years, i.e., 2012 to 2022. We extract monthly data related to three items: closing price, transaction volume, and number of outstanding shares. Many stocks had data that were not available or were poorly populated. We

[15] We have two firms for which the relevant information on the exact rights attached to each class, could not be collected. Calculating their voting premiums was not possible.
[16] See Table 6, p.53.

ignore price data when the transaction volume is null, which is typically the case for many high-power classes of shares with multiple voting rights. These shares are either inactive or traded at a low volume when listed. Therefore, prices are missing or remain constant for several days. We use end-of-month prices for Class A and Class B shares and compute the voting premium.[17] We do the same considering the ratios of the transaction volumes and of the number of outstanding shares between the two classes, which results in a maximum of 133 monthly prices with populated observations for both Class A and Class B stocks.[18] We ignore firms with less than 30 monthly available data observations and obtain a final sample of 33 firms.[19] Most of the firms dropped out because of no tradable price availability (21 out of a drop of 68 to 33 firms; the other 14 were eliminated for lack of information). We will later use panel regressions. Since our 33 DCS firms are not traded over the entire 2012-2022 period, we get between 2,000 and 2,500 firm-month observations for the voting premiums. This compares well with 3258 firm-year observations in Dey et al. (2016), or 1865 firm-year observations in Gao et al. (2023).

3.3. Variable of interest: The voting premium

The ratio of relative stock prices is not equal to 1 for many firms. The reason is the voting power premium: one class of shares has relatively more voting power than the other. The structure of the empowerment of one class is categorized in the following way:

- Type I: Existence of a class of nonvoting shares. In the Type I column of Annex 1, the voting rights class is identified by its mnemonic. The "Class A" and "Class B" shares are alternatively the superior rights shares.

- Type II: Multiple voting rights shares typically define a shares class with more voting power than the standard single-vote class. The "Type II" column in Annex 1 shows the denomination of the high-power class of shares, usually Class B. The other class of shares has a standard one-vote right. The figure in column "Type II" of Annex 1 provides the number of voting rights given to each of the firm's high-powered stocks. Often, the number of votes attributed to the high-power class is 10, a number that has a historical background linked to the AMEX policy implemented in the 1980s when this

[17] When the two prices are populated, have nonzero value, and have a nonzero transaction volume.
[18] Or Class A and Class C stocks. Same for A over B transaction volume and A over B outstanding number of shares. The period is from December 2011 to December 2022.
[19] Data availability of the voting premiums was limited to a 6-month period in Zingales (1995)' sample.

stock exchange agreed to list firms with different classes of stocks if the voting ratio between the two classes was not larger than 10:1.[20]

- Type III: This category flags a complex structure of power with different voting rights and/or different cash flow rights between classes of stocks.

The ratio of Class A to Class B stock prices is not the relevant measure of the voting premium. If the two classes have the same cash flow and voting rights, this ratio is one. The Class A/Class B price ratio was the first measure used by Zingales (1995) and was the voting premium definition used by Lease et al. (1983). If the high-powered class is A, and if B is the standard class, the ratio should be expected to be higher than one. This is the case for Alphabet (Google), which has powerful Class A shares with one voting rights, whereas its Class C shares have no voting rights. The average relative price ratio is 1.007 during the 11 years. However, it occurred frequently over the period that Alphabet's Class C shares had a higher price than its Class A shares, resulting in a price ratio of less than 1. The standard deviation of 0.013 illustrates that the price ratio as a measure of the power premium is very unstable. This was also identified by Lease et al. (1983, 1984) and Zingales (1995). The large volatility of the voting premium is a feature that should be highlighted.

- Corrected voting premiums

We introduce the corrected voting premium, as suggested by Zingales (1995). The above-mentioned raw ratios of stock prices are well suited for comparing a one-voting right share with no-voting shares but are not suited for Type II DCSs, for which the superior rights class may have 10, 20, or more voting rights. We define P_{HV} and P_{LV} as the prices of high- and low-voting shares, respectively. For the Type I voting power structure, the voting premium is simply:

$$VP = \frac{P_{HV}}{P_{LV}} - 1 \qquad (1)$$

The situation is more complex when superior voting shares have multiple voting rights. The parameter r is the relative number of votes of an inferior voting share versus a superior voting share. For instance, if the high voting share has 10 votes compared to the single vote given to a

[20] For instance, Berkshire Hathaway has a Type II power structure but a complex one: Class A shares with 1 vote per share and Class B shares with 1/1500 of a cash flow right and 1/10000 of a voting right.

standard share, r is 0.1. The price of a voting right is $\frac{P_{HV}-P_{LV}}{(1-r)}$. The price of a cash flow right is $\frac{P_{LV}-rP_{HV}}{(1-r)}$ (Zingales, 1995). The voting premium for Type II firms is as follows:

$$VP = \frac{P_{HV}-P_{LV}}{P_{LV}-rP_{HV}} \quad (2)$$

The voting premium is calculated using Eq. (2), which accounts for the number of voting rights per share and standardizes the voting premium between different firms.

Annex 1 presents the list of DCSs with some descriptive statistics for the voting premium measure. We acknowledge that other reasons may explain the discrepancy between class prices, such as the differences in liquidity and tradability of the inferior rights class of shares. These elements may be included in the voting premium. Individual descriptive statistics, such as standard deviations and first-order autocorrelations, are also shown in Annex 1. We eliminate Type III voting schemes. These are very complex as they involve differences in cash flow rights and voting rights, which cannot be accounted for using the Zingales (1995) formula. We therefore focus on "standard" superior voting schemes as described by Types I and II, leaving us with a set of 29 firms. Table 1 shows an average voting premium of 9.17% for Types I and II voting schemes, which is in line with the average premium evidenced by Kim and Michaely (2019) of 4.16%, Zingales (1995) of 10.4%, and Lease et al. (1983) of 5%. This finding is also in line with the average voting premiums shown in Sweden (6.5%, Rydqvist, 1992) and the UK (13.3%, Megginson, 1990).

INSERT TABLE 1

Regarding the Type I superior voting class structure, the average voting premium is significantly positive, with an average value of 13.8%. This average is driven by several outliers. Globally, the dispersion of voting premiums between firms seems large, and the average overall value is not significant. A structural difference exists between Type I and Type II voting schemes, as the latter shows voting premiums that are not different from zero. The t test statistic between Type I and Type II voting premiums reveals significantly different values (p=0.03). However, it is too early to assess a difference in voting premiums, as other elements can explain the difference in market prices. For instance, illiquid or poorly traded superior rights shares may explain reduced voting premiums.

Unstable power voting premiums are documented in Table 1. The standard deviations of the premiums are significantly different from those of the null. The magnitude of the variations in the voting premium is not different between Type I and Type II voting structures. The strong variation in voting premiums does not confirm the Zingales (1995) assessment that premiums are stable and that their variations can be "neglected". Table 1 also shows a strong first-order autocorrelation between the monthly values (Broussard and Vaihekoski, 2022). This first-order autocorrelation is strongly positive, at approximately +0.6 to +0.7. This autocorrelation characteristic is evidenced in both Type I and Type II power structures; it is statistically significant, and the correlation coefficients are not different between the two categories. This finding fits well with a permanent structuration of power through the firm's ownership (Zingales, 1995).

Table 2 presents the descriptive statistics of the ratios of monthly transaction volumes between superior and inferior rights shares and the ratios of the number of outstanding shares in superior and inferior rights classes.

INSERT TABLE 2

The transaction volume ratio is very different among firms. Its average value of x0.5 is explained by outliers. Clearly, some high-powered stocks are less liquid and do not trade even if listed. For instance, Berkshire Hathaway's superior rights Class A shares have a transaction volume ratio very close to zero. Examining the median ratio allows us to avoid outliers. The median transaction volume ratio between higher and lower rights is 0.03.

The high-power class has a significantly lower transaction volume than that of the inferior rights shares. The standard deviation of the ratio of high-to-low rights transaction volume has an average value of 0.54, which is high compared to the average. The standard deviations of the ratios have an overall 0.04 median value. This means that the relative transaction volume ratio between the superior and inferior rights classes varies strongly over time The first order monthly correlation of the transaction volume ratios is effectively positive, but imperfect (+0.43). A similar feature was also evidenced in Broussard and Vaihekoski (2022).

The story is not the same if we compare the number of outstanding shares between the high- and low-powered classes. The superior voting class has significantly fewer outstanding shares

than does the inferior voting class. Globally the high-powered shares represent 42% of the low-powered shares (median value is 24%). The average ratios of superior to lower rights outstanding shares are significantly different from one. The standard deviation of the ratio between the number of shares in the two classes is very low (0.02). This means that the relative number of shares between the two classes is stable. Observing the median value to avoid outliers yields a very small 0.01 standard deviation. The first-order correlation between the ratio of the higher and lower rights classes' number of outstanding shares is high, with an average value of +0.95. The relative number of outstanding shares between classes is stable. The issues of new shares (or conversely repurchases), if any, are relatively small compared to the number of outstanding shares. We conclude that the ownership structure between the two voting classes has been fairly stable over time and that the higher rights class is more illiquid. Looking at median values the latter represents 24% of the other class's number of shares, but only 3% of its transaction volume.

3.4. News releases regarding capital structure changes

Zingales (1995) suggested that the voting premium is modified when the ownership structure is under pressure or changes. This may lead to an analysis and identification of noticeable events, such as acquisition contests or conflicts between large shareholders.

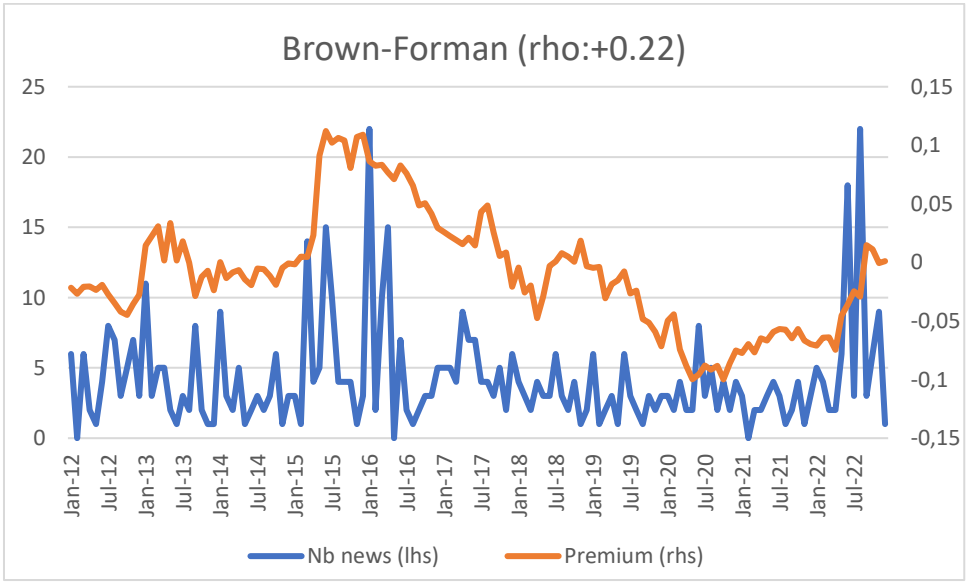
We use the Factiva database to identify the number of items of information releases for each firm. The screening criteria are as follows:

- 11-year period from January 2012 to December 2022
- Language: English
- Any publication device in North America
- Subjects: change in capital ownership or financial risks of bankruptcy or strategic financial operations (such as M&As) or changes in corporate governance institutions or members
- Explicitly related to a given firm.

This process returns a list of information items disclosed in any type of media. Similar information items are eliminated to avoid double counting. We identified a total of 29,699 news items related to the firm's power structure. These news are unevenly spread among firms, with

some firms concentrating a large share of the news flow (Berkshire, Alphabet, etc.). We calculate the number of items of disclosed information per month. Our monthly measure of news flows is always positive or null. We obtain data for 29 firms in our dual-class sample with standard Type I and II share structuration schemes. Annex 2 shows the average number of news items disclosed per month for each populated firm in the Factiva database. The average number of information items delivered each month is 7.7. This variable has high volatility, as the standard deviation is on average 6.7. The magnitude of the news flow demonstrates some time dependency: the first-order autocorrelation is positive and has an average value of +0.22 (see Annex 2). This value is just above the threshold to demonstrate a significant correlation at the 5% level. The news flow seems very volatile; however, for some firms (such as Alphabet), it shows a strong temporal consistency with sometimes highly significant positive correlations.

The news flow variable is crossed with the voting premium to test the hypothesis that the unstable component of the voting premium is linked to possible changes in capital ownership and power structuring. The number of positive instantaneous correlations between the monthly flow of news and the premium volatility was 9, and the number of negative correlations was 19, with most of them insignificant. Because we ignore the news content, we cannot expect the premium to react positively or negatively to the disclosed news. In some cases, the increase in the news flow occurs with an increase in the voting premium. For instance, Brown-Forman shows a positive correlation (+0.22) between the news flow and the voting premium. In contrast, News Corp. demonstrates a negative correlation (-0.44) with peaks in news flows in 2014 and 2021, corresponding to a decrease in the premium.



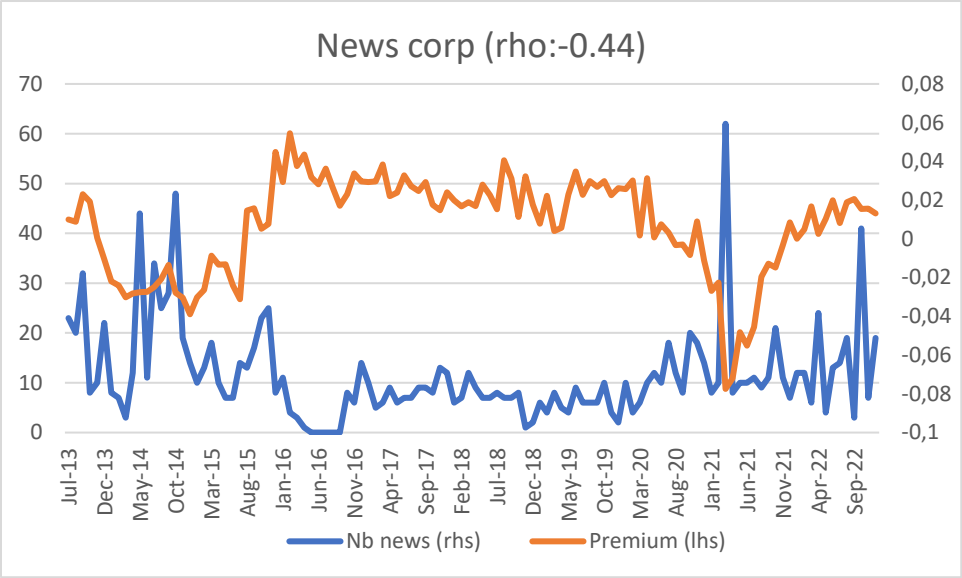


Figure 1 News flow and voting premiums
(Brown-Forman and News Corp, 2012-2022, lhs : number of news items per month, News refers to the monthly number of news items from the Factiva database related to changes in capital ownership or incorporate governance institutions, rhs : premiums are Zingales (1995) voting premiums between superior and inferior rights shares of both listed dual-class shares)

The informational content of each new is not assessed in our study. We focus on the magnitude of the news flow and observe the absolute movements in the voting premium in reaction to the delivery of unexpected information in the market. We expect that a higher number of news items is associated with a stronger informational shock and a higher absolute change in the voting premiums. We observe the number of news items disclosed during a given month m and the previous month m-1. The dependent variable is the absolute variation in the premium calculated between the beginning and end of month m.

3.5. Variables

The firm's profitability gives the controlling shareholders or superior voting shareholders room to seize private benefits. The voting premium is expected to be positively linked to profitability and the possibility of extracting private benefits. We feature profitability by the following variables:

- Market to book,

- Margin to sales,

- ROE,

- ROA.

Leverage may also condition the voting premium, as debt allows block holders to develop greater control over the firm's assets. Following our Hypothesis H1, we include debt to equity in the set of variables. This financial ratio refers to either book value (debt over equity, *DtoEq*) or market value (*DtoMkt* variable).[21] We also include total assets and total equity to capture a size effect.

Another mechanical determinant of the voting premium is the relative number of outstanding shares in each class. We expect that the lower number of high- compared to lower-power shares explains, ceteris paribus, a higher voting premium. The relative transaction volume can be a determinant, as illiquid markets (typically the high-power share class) show a lower number of traded shares relative to the inferior voting class of traded shares. This may explain a liquidity premium that combines with the voting premium. The *HovLvol* variable is used as a control.

The control variables from the WRDS database are appraised monthly. Financial reports for listed firms are disclosed quarterly. This means that these ratios and variables are updated quarterly with a lag of generally one month (possibly two). For instance, the first quarter values are disclosed in April (or May). We refer to the last financial reported date available at the end of the month. As a consequence, these data generally remain unchanged for 3 months.

The dependent variables are the monthly calculated premiums. The premium variation, *FD_Premium*, is measured as the difference between the premium's monthly observation and its previous month's value. The variability of the changes in premiums is also a variable of interest; the sign of the variation is not relevant. As such we consider the absolute variation in the monthly premium, *Var_abs_Premium*.

The definitions of the variables are presented in Annex 3, and the descriptive statistics are presented in Annex 4.

4. Empirical results

4.1. Voting premium panel regressions

[21] We also checked the Debt over total assets variable.

We exploit the panel structure of the data. The analysis of the variance of the $Premium_{it}$ variable demonstrates a strong, individual effect among the set of 28 firms (p-value: 0.00).[22] The first-order autoregressive voting premium feature leads to the setting of a dynamic panel structure. We first consider fixed effects to choose the control variables.[23]

$$Premium_{it} = \beta_0 + \beta_1 Premium_{it-1} + \beta_j Controls_{ijt} \quad (3a)$$

The estimates are provided in Table 3 Panel A. Eq (3) defines a dynamic panel model that is known to be susceptible to biases in testing (Arellano and Bond, 1991; Flannery and Hankins, 2013). These biases arise mainly in small periods and large individual samples (small "T" and large "N"), which are often met in corporate finance. However, in the current sample, we have few firms (N=28) and a large period (T=132), and our sample is less exposed to a bias in standard error estimates introduced by short-period dynamic panels. Table 3-Panel A presents the fixed effect estimates of the level variables using the above Equation (3a). The lagged premium has a strong coefficient close to 1 which features the autoregressive component of the voting premium.

Table 3-Panel A demonstrates that the profitability variables, *MtoB*, *Margin*, *ROA*, and *ROE*, are ambiguous drivers of the magnitude of the voting premium and generally are not significant. The relative illiquidity between superior and inferior rights shares does not contribute to explaining the voting premiums. This latter result does not support the pricing of relative illiquidity in the voting premium.[24] Our result is not in line with those of Zingales (1995), Gardiol et al. (1997), and Kim and Michaely (2019). A size effect is evidenced by positive significant coefficients of the total asset or the total equity variables.

The capital structure variables are significant either in the book (*DtoEq*) or the market value definitions (*DtoMkt*). This variable identifies the traditional capital structure decision. The coefficient shows the expected positive sign. However, in regression (6) of Panel A, the debt over total assets variable, *DtoAss*, is not significant.

INSERT TABLE 3

[22] Amincor Inc. has been deleted as the data seemed to be very strange.
[23] The Hausman test led to the use of fixed instead of random effects.
[24] In not reported regressions, we used the *HovLOut* variable to check whether the relative number of outstanding shares between superior and inferior rights shares may explain the voting premiums. The results are nonsignificant.

The dynamic panel test of Table 3 Panel A needs to be challenged by a robustness analysis. In such a situation Arrellano and Bond (1991) or Flannery and Hankins (2013) suggest removing the time-invariant fixed effect variable by first differentiating the dependent and the independent variables. The first-difference model estimates (Bond, 2002) are proposed in Panel B regressions (1) to (4). The first-difference method allows to account for the autoregressive structure of the premium (FD: first difference).[25]

$$FD\_Premium_{it} = \beta_j FD\_Controls_{ijt} \quad (3b)$$

The first-difference control variables show that the margin-to-sales coefficient is significantly positive. The *ROE, MtoB,* and *HtoLvol* controls are not significant (see Eq. 4). A size effect (total equity variable, *TotEq*) is shown with a negative sign. It should be analyzed in terms of variation: an increase in the global amount of equity will result in lower market voting premiums. The debt variables show the expected positive sign. Debt-to-equity market value and debt-to-asset ratios have positive coefficients. An increase in the leverage ratio entails an increase in the voting premium. This supports Hypothesis 1. However, the debt-to-book equity variable in Panel B-Equation (1) is not significant and the debt-to-asset ratio is weakly significant in a full regression model (Eq. 4).

Another methodological approach is to use the first difference in the dependent variable (*FD_Premium*) and, as suggested by Flannery and Hankins (2013), still use non-transformed level dependent variables. First differencing the dependent variable accounts for the dynamic structure of the panel data.

$$FD\_Premium_{it} = \beta_0 + \beta_j Controls_{ijt} \quad (3c)$$

Regressions (5) to (9) in Panel B use Model (3c). They show that the debt-to-equity ratio is significantly positive and explains the magnitude of the voting premiums. The control variable ROE is significant in Equation (7). The size variable is also significant and shows a positive sign similar to the Table 3-Panel A results. The direction of the size effect seems to be more in line with the hypothesis of control of economic resources. A larger volume of resources will result in a larger voting premium. Regressions (5) to (7) demonstrate a significant positive sign for the debt-to-equity ratio, which explains the voting premium.

[25] In the first difference method, the fixed effect coefficient cancels. The first difference is justified because dynamic panel Equation (3) leads to an inconsistent standard deviation of estimates (Bond, 2002).

Regressions (8) and (9) use instrumental variables and GMM estimates. The instrument sets are the first difference in the premium (i.e., the dependent variable) lagged by 2 months, and the debt-to-equity variable lagged by one month (Regression 8), and the difference in premium lagged by 2 months, the debt-to-equity variable lagged by one month, and the relative liquidity volume variable lagged by one month (Regression 9). In Equation (8) the Hansen-J value shows a marginal probability of 2% indicating that the instruments represent valid overidentification; in Equation (9) the J value of the overidentification variables is 4.12 with a p-value of 0.04. The independent variable debt-to-equity ratio appears strongly significant in regression (8); it is also significant in regression (9) but at a lower significance level.

Debt leverage is significant in any equation estimated in the first difference (except one) in Panel B, with a positive sign. Debt, by giving more control over the firm's economic assets, magnifies the superior voting rights and control ability of superior rights shareholders. This confirms our hypothesis (Moyer et al., 1992) and does not support Dey et al. (2016). The total asset variable or the total equity variable are significant when they are considered in level form, as reflected in Panel A or B, which is in line with the conditioning effect of the firm's size as documented by Simth and Amoako-Adu (1995), Zingales (1995), and Kim and Michaely (2019). However, a positive size effect is not supported in some of the first difference panel regressions.

The drivers of voting premiums mechanically introduce one-off changes through the disclosing of financial information related to debt. Reported financial information is known and public. Financial reports are disclosed quarterly and forecasted by analysts and are public and stable over several months. For instance, 1st quarter financial data are disclosed in mid-February. These data are known at the end of February, March and April. Therefore, the next change occurs only three months later.

The stability of the ownership structure explains the stability of the voting premium. This stability appears through a strongly positive first-order correlation in the premium values. According to the fixed effect panel regressions, the estimated coefficient of the lagged premium variable is approximately 0.93. Changes in financial data are uneven, and their effect on voting premiums is not straightforward.

4.2. The unstable component of the voting premium

We identify the unstable component of the voting premium by its absolute monthly variation, *Var_abs_Premium*. Individual firm regressions are estimated to check whether the news flow variable explains a move in the premium value. We expect a relationship as follows:

- contemporaneous between month m variations in the voting premium and month m news flow or,
- lagged between the news flow of month m-1 and the variation in the voting premium recorded in month m.

The contemporaneous correlation is in line with the hypothesis that the unstable component of the voting premium immediately reflects the arrival of news and the expectation of changes in ownership/capital structuration. The lagged news hypothesis is developed in a framework of efficient financial markets, where the news flow is not immediately but is smoothly integrated into the market price of the voting power. The lagged premium tests the hypothesis that the impetus privately originates from the internal block of controllers or large blockholders.

Panel regressions are estimated on a sample of 28 firms, and the results are presented in Table 4. The existence of an integration mechanism between the size of the news flow and voting premiums is strongly supported. The relation between the absolute variation in the voting premium and the news flow either contemporaneous or lagged, is significantly negative at the 1% level. The absolute change in premium is contemporaneous with the information flow of the current month; it is also shown that it is linked with the magnitude of the information flow lagged with 1 month. The information flow reduces the volatility of the voting premium as shareholders obtain new information. The results shown for panel regressions (1) and (2) need to be challenged by accounting for the autoregressive structure of the *Var_abs_Premium* dependent variable. Regressions (3) to (6) consider the lagged *Var_abs_Premium* exogenous variable in the model. The news flow variables are still negative and significant. However, in the full regression (6) with controls, the one-month lagged news flow variable is no longer significant.

The information flow variable is significant; it highlights that power and power contests are priced in the market, giving voting premiums an unstable component. Moreover, they are negatively related to the news flow regarding ownership changes and new perspectives on a firm's strategic control. The voting premium shows an unstable component, and this instability is related to the magnitude of the news flow related to the structuration of power in the corporation. The control variable in the last column of Table 4 shows that the relative illiquidity

of the high-powered shares is not significant (just above the 10% level) and does not limit the magnitude of the absolute move of the voting premium. Moreover, the firm's size does not seem to moderate the premium volatility in regression (6).

INSERT TABLE 4

A reverse information channel can also be considered if we follow the hypothesis of a strongly efficient market for the control premium. News related to the firm's structure of power are perfectly integrated into the current voting premium in the market. The voting premium, viewed as the market price of the power within a firm, already integrates future forecasted evolutions. This explains because better informed controlling shareholders immediately sell or buy shares in the superior right shares market, increasing the voting premium. Additionally, informed traders may develop transactions because they know more about acquisition prospects, which triggers the dissemination of private information. We test whether the flow of public news increases after a change in the voting premium with a lag of one month. This corresponds to the hypothesis of the dissemination of private information to the public. A forward increase in the magnitude of the news flow may be explained by transactions initiated by shareholders or investors with private information. Price mechanisms trigger the disclosure of information to the general public. Therefore, this process entails an increase in the news flow. Table 5 tests the forward-looking ability of the voting premium market. The coefficient of the change in the price variable of month m-1, *Var_abs_Premium(-1),* does not positively explain the delivery of public news one month later.

INSERT TABLE 5

The voting premium expresses the price of the voting power in concentrated ownership firms, and it reacts to public disclosure of news related to the power structure. This reaction may be contemporaneous or adopt a one-month time lag. The voting premium data show positive correlations supporting the idea that the variable component of voting premiums is related to the disclosure of news related to ownership and power structuration. The informed trader channel is not supported; this finding confirms our results in Table 4, where the disclosure of

news increases shareholders' information sets and later reduces the volatility of the observed voting premium.

5. Conclusion

The voting premium evidenced in the market shows that the price of an asset does not limit itself to its future stream of cash flows. The economic rights attached to the asset are valued, and the difference in voting rights is of utmost importance since they design the power concentration mechanisms and the control in the corporation.

In this article, we focus on the voting premium between two listed classes of shares. This premium reflects an assessment of the implicit price of the firm's power structuration set up by managers and/or a controlling group of shareholders. We analyze a sample of dual-class firms listed in the U.S. and Canada for the 2012–2022 period to identify the determinants of the size of the voting premium. We confirm the results documented in the literature that the relative illiquidity between the two classes may explain part of the voting premium. We introduce leverage as an influential variable that explains higher voting premiums when the debt ratio increases. The empirical test supports the leverage hypothesis, a feature that is new in the literature and that opens the way to improving the understanding of dual-class shareholdings.

The empirical analysis reveals volatile risk premiums. This instability is related to the influence of news flow related to the dynamics of the controlling structure and strategic shareholder behavior. When examining the flow of news about the power structure and its prospects, we show that this key element is accurately integrated into the voting premium. The volatility of voting premiums is led by the public disclosure of information items. In that sense, we show that the market price of economic power is informationally efficient for dual-class listed firms.

The voting premium does not limit itself to the cost-advantage equilibrium related to the traditional agency conflict among managers, controllers, holders of superior rights shares, standard equity investors, and holders of inferior rights shares. The framework should involve creditors and introduce in the setting a new, implicit contract between creditors and controllers, as they may share the goal of having a long-term view and avoiding risk. Xu (2021) insisted on the importance of the risk avoidance regulation mechanism in dual-class firms, which is opposite to, for instance, the asset substitution identified by Jensen (1986). The role of creditors

as third players may lead to a coalition with the controlling group, helping them appropriate private benefits (Bigus, 2002). This opens to further research.

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	Average voting premium	Z-test	Standard deviation	Z test	1st order correlation	Z test	Number of firms
All types	0.092	0.13	0.219	0.00***	0.648	0.00***	29
Type I	0.138	0.03**	0.322	0.03**	0.719	0.00***	15
Type II	-0.011	0.79	0.107	0.00***	0.571	0.00***	14
t-test (I vs. II)		0.03**		0.12		0.09*	

Table 1 Dual class voting premiums
(Dual-class firms with ordinary stocks with "Class A, B or C" explicit denomination, USA or Canada, active and inactive firms with available market prices, number of traded shares and number of outstanding shares using WRDS/CRSP database; Voting premiums calculated using Zingales (1995); monthly data; 2012-2022 period; Type I: inferior class is nonvoting; Type II: superior rights class has multiple votes)

	HovL transaction volume ratio average	Z test (vs 1) p-value	HovL transaction volume standard deviation	Z test (vs 0) p-value	HovL outstanding shares ratio average	Z test (vs 1) p-value	AovB outstanding shares ratio Standard deviation	Z test (vs 0) p-value
Average	0.485	0.78	0.538	0.10	0.421	1.00	0.020	0.00
Median	0.030		0.039		0.240		0.013	

Table 2 Relative transaction volumes and outstanding number of shares
(dual-class firms; 2012-2022; ratio HovL is High powered class data over Low powered class data; ratio HovL of transaction monthly volumes, N:29; ratio HovL of outstanding numbers of share, N:23)

Panel A – Level regressions	Fixed effect (1)	Fixed effect (2)	Fixed ef-fect (3)	Fixed effect (4)	Fixed effect (5)	Fixed effect (6)	Fixed effect (7)
constant	na	na	na	na	na	na	na
Premium(-1)	0.9397	0.9290	0.9308	0.9200	0.9290	0.9434	0.9272
p-value	*0.00****	*0.00****	*0.00****	*0.00****	*0.00****	*0.00****	*0.00****
DtoEq	0.0311	0.0450	0.0385	0.0470			
p-value	*0.06**	*0.03***	*0.04***	*0.04***			
DtoMkt					0.0385		0.352
p-value					*0.08**		*0.06**
DtoAss						0.2010	
p-value						*0.18*	
HovLVol			0.0373	0.0444	0.0360	0.0456	0.0401
p-value			*0.21*	*0.13*	*0.22*	*0.19*	*0.20*
MtoB				-0.0146		-0.0149	-0.05052
p-value				*0.11*		*0.15*	*0.26*
Margin		-0.0011		-0.0032	-0.0604	-0.0069	-0.0513
p-value		*0.98*		*0.94*	*0.18*	*0.89*	*0.13*
ROE	0.0236	0.0368		-0.0368	-0.0162		
p-value	*0.18*	*0.06**		*0.27*	*0.56*		
ROA			-0.0964			-0.1756	-0.1692
p-value			*0.27*			*0.21*	*0.20*
Tot_Asset			3.83x10-8	5.41x10-8			5.39x10-8
p-value			*0.00****	*0.00****			*0.03***
Tot_Eq		5.33x10-8			6.69x10-8	7.31x10-8	
p-value		*0.04***			*0.02***	*0.06**	
R2	0.92	0.92	0.93	0.93	0.93	0.93	0.93
Obs	2455	2352	2221	2219	2219	2186	2219

Panel B – First difference regressions	FD	FD	FD	FD	Dependant: *D_Premium*	Dependant: *D_Premium*	Dependant: *D_Premium*	Dependant: *D_Premium* IV- Fixed effect	Dependant: *D_Premium* IV- Fixed effect
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
constant	na	na	na	na	na	na	na	na	na
DtoEq	-0.0030				0.0056	0.0056	0.0147	0.0081	0.0137
p-value	*0.59*				*0.00****	*0.00****	*0.04***	*0.00****	*0.08**
DtoAss		0.2442		0.1211					
p-value		*0.02***		*0.10**					
DtoMkt			0.0092						
p-value			*0.00****						
HovLVol				0.0678					0.0074
p-value				*0.17*					*0.32*
MtoB				-0.0443					
p-value				*0.33*					
Margin	0.6513	0.6858	0.6552	0.6275		-0.0001			
p-value	*0.04***	*0.03***	*0.04***	*0.02***		0.99			
ROE				0.0225			0.0148		
p-value				*0.62*			0.02**		
ROA					-0.0048	-0.0047			
p-value					0.91	0.92			
Tot_Asset					9.51x10-9	9.52x10-9			
p-value					0.07*	0.05*			
Tot_Eq	-1.99x10-7	-1.99x10-7	-1.77x10-7	-1.97x10-7			2.15x10-8		
p-value	*0.00****	*0.00****	*0.00****	*0.00****			*0.03***		
R2	0.01	0.01	0.01	0.02	0.01	0.01	0.01	J:5.51 (p:0.02)	J:4.12 (p:0.04)
Obs	2375	2341	2375	2123	2385	2385	2352	2441	2229

Table 3 - Determinants of the voting premium – Panel regressions
(Panel A are level variable regression with fixed effect, see Eq(3a); Panel B use first difference (FD) of premiums as dependent variable; in Panel B, FD regressions (1) to (5) use Eq.(3b) model and regression (6) to (9) uses Eq. (3c) model; Regression (8) in Panel B uses Instrumental variables (IV) *FD_Premium* lagged by 2 months and *DtoEq* ratio lagged by one period; IV Regression (9) in Panel B uses Instrumental variables *FD_Premium* lagged by 2 months, *DtoEq* lagged by one period and *HovLvolume* lagged by one period; J is Hansen overidentification statistic; 24 firms; dependent is voting premium according to Zingales (1995); monthly observations; January 2012 – December 2022; standard errors are clustered by firms; quarterly financial data are posted over 3 months at their disclosure date; *HovLvolume*: ratio of the transaction volumes of high powered shares over low powered shares; *DtoEq*: Debt to Equity ratio; *DtoMkt*: Debt to equity market value; *DtoAss*: Debt to total asset; *Margin*: Gross margin over sales; *MtoB*: Market to Book; *Margin*: Margin to sales; *Premium(-1)*: voting premium lagged by one month; *ROA*: Return on Assets; *ROE*; Return on Equity; *Tot_Ass*: Total assets; *TotEq*: total book equity; *: significant at the 10% level; **:significant at the 5% level; ***significant at the 1% level)

Dependent variable	*Var_abs_Premium (1)*	*Var_abs_Premium (2)*	*Var_abs_Premium (3)*	*Var_abs_Premium (4)*	*Var_abs_Premium (5)*	*Var_abs_Premium (6)*
Constant	0.0562	0.0496	0.0327	0.0324	0.0330	0.0272
p-value	*0.00****	*0.00****	*0.00****	*0.00****	*0.00**	*0.00****
News	-0.0005	-0.0002	-0.0004		-0.0003	-0.0001
p-value	*0.03***	*0.03***	*0.01***		*0.08**	*0.07**
News(-1)	-0.0003	-0.0002		-0.0004	-0.0001	-0.0001
p-value	*0.00****	*0.04***		*0.00****	*0.04***	*0.13*
HovLVol		-0.0141				-0.0077
p-value		*0.06**				*0.10*
Tot_Asset		-1.27x10-8				-6.64x10-9
p-value		*0.62*				*0.62*
Var_abs_Premium(-1)			0.4136	0.4140	0.4131	0.4799
p-value			*0.00****	*0.00****	*0.00****	*0.00****
R2	0.01	0.01	0.18	0.18	0.17	0.22
Obs	3062	2381	3051	3051	3051	2371

Table 4 Volatility of voting premiums

(Panel pooled regressions; 28 firms; 2012-2022; *Var_abs_Premium* absolute one-month variation of voting premiums*; News:* number of monthly disclosures of information related to the ownership structure; *News(-1): News* lagged by one month; *Tot_ass*: Total assets; *: significant at the 10% level; **: significant at the 5% level; ***significant at the 1% level)

Dependent	*News*	*News*
Constant	na	na
Var_abs_Premium(-1)	1.0851	0.9061
p-value	*0.19*	*0.18*
News(-1)		0.2191
p-value		*0.00****
Tot_Ass	-5.7x10-5	-4.5x10-5
p-value	*0.00****	*0.03***
R2	0.67	0.69
obs	2800	2800

Table 5 News flow panel regressions

(Panel fixed effect regressions; 28 firms, dependent is *News*: number of disclosures of information related to ownership structure; *News(-1): News* lagged by one month; *Tot_ass*: Total assets, **: significant at the 5% level; ***significant at the 1% level)

Firm	Premium average	Premium std dev	N	Premium 1st corr	Non-voting class (Type I)	Multi votes class (Type II)	Other (Type III)
Amincor Inc	0.938	2.175	104	0.176	A		
Artesian Resources Corp	-0.019	0.054	133	0.505	B		
BBX Capital Inc	0.022	0.073	30	0.066		B x10	
Bel Fuse Inc	-0.051	0.117	133	0.841			x
Berkshire Hathaway Inc	0.009	0.026	133	0.254		A x6.67	
Biglari Holdings Inc	0.016	0.047	56	0.461			x
Bio Rad Laboratories Inc	0.001	0.007	58	0.144		B x10	
Brown-Forman Corp	-0.009	0.050	133	0.953	A		
Burnham Holdings Inc	0.124	0.244	133	0.818		B x8	
Constellation Brands Inc	0.015	0.060	131	0.914		B x10	
Fox Corp	-0.038	0.030	46	0.926	B		
Greif Inc	0.119	0.105	133	0.853	B		
Hanover Foods Corp	0.084	0.079	133	0.609	B		
Hovnanian Enterprises Inc	-0.083	0.492	133	0.682		B x10	
John Wiley & Sons Inc	0.001	0.009	133	0.095		B x10	
Kelly Services Inc	0.060	0.306	130	0.010	B		
L S Starrett Co	-0.020	0.292	133	0.779		B x10	
Lennar Corp	-0.208	0.024	133	0.785		B x10	
Lions Gate Entertainment Corp	0.077	0.026	73	0.747	A		
McRae Industries Inc	0.007	0.089	133	0.562		B x10	
Molson Coors Beverage Co	0.094	0.134	133	0.775	A		
Moog Inc	0.011	0.025	133	0.629		B x10	
News Corp	0.007	0.025	114	0.858	B		
Overseas Shipholding Group Inc	0.441	0.425	85	0.874			x
Presidential Realty Corp	27.443	121.595	133	0.501			x
Reading International Inc	1.317	1.695	131	0.960	B		
Rush Enterprises Inc	-0.069	0.072	133	0.913		B x20	
Seneca Foods Corp	0.059	0.087	133	0.584		B x20	
ViacomCBS Inc	0.082	0.077	96	0.895	A		
Alphabet Inc (A/C)	0.007	0.013	87	0.917	A		
Clearway Energy Inc(A/C)	-0.064	0.024	52	0.792		A x10	
Under Armour Inc(A/C)	0.123	0.036	81	0.784	A		
Zillow Group Inc(A/C)	0.007	0.027	89	0.760	A		

Annex1 Voting premium – Descriptive statistics.
(33 firms; voting premiums calculated using Eq(2); Type I dual-class with one nonvoting class, column mentions the voting class; Type II the superior right class has multiples votes, the inferior class has one vote; Types I and II have equal dividend rights; Type III comprises other voting/dividends schemes; Type III firms are Bel Fuse: One vote for each Class A, nonvoting Class B shares, and 0.07% Class B dividend and 0,06% Class A dividend; Bigliari Holdings: Class B is nonvoting and its economic right are limited to $1/5^{th}$ of Class A one vote shares; Overseas Shipholding; Presidential realty: Class A elects 2/3rd of the board, Class B one with equal rights)

Firm	Average monthly news items	Standard deviation	First order correlation
Amincor Inc	0.045	0.243	-0.036
Artesian Resources Corp	1.091	1.618	0.125
BBX Capital Inc	0.265	0.956	0.539
Berkshire Hathaway Inc	50.917	36.097	0.211
Bio Rad Laboratories Inc	1.636	2.497	0.254
Brown-Forman Corp	4.220	3.752	-0.001
Burnham Holdings Inc	0.023	0.150	-0.023
Constellation Brands Inc	11.303	12.273	0.193
Fox Corp	3.386	6.656	0.506
Greif Inc	1.697	2.754	0.297
Hanover Foods Corp	0.061	0.240	-0.065
Hovnanian Enterprises Inc	2.265	3.226	0.068
John Wiley & Sons Inc	2.939	4.807	0.372
Kelly Services Inc	2.015	3.153	0.172
L S Starrett Co	0.606	1.203	0.069
Lennar Corp	7.864	5.334	0.182
Lions Gate Entertainment Corp	9.129	9.401	0.391
McRae Industries Inc	0.030	0.172	-0.031
Molson Coors Beverage Co	7.371	8.148	0.349
Moog Inc	2.083	3.215	0.028
News Corp	11.348	10.529	0.368
Reading International Inc	2.485	6.352	0.745
Rush Enterprises Inc	1.742	2.128	0.150
Seneca Foods Corp	1.159	1.707	-0.002
ViacomCBS Inc	14.864	14.495	0.390
Alphabet Inc	67.523	34.021	0.477
Clearway Energy Inc	4.023	4.434	0.280
Under Armour Inc	5.439	4.161	0.115
Zillow Group Inc	7.462	10.236	0.195
average	7.758	6.688	0.218

Annex 2 News flow data per firm
(29 firms; source: Factiva; Monthly number of news items; period 2112-2022; Publication devices in North America; Subjects: Changes in capital ownership or in corporate governance institutions)

Variable	Name	Definition	Source
DtoAss	Debt to Equity	Total Liabilities to Total assets. Quarterly available	WRDS
DtoEq	Debt to Equity	Total Liabilities to Shareholders' Equity (common and preferred). Liabilities are current and long-term liabilities. Quarterly available	WRDS
DtoMkt	Debt to equity market value	Total Liabilities to Shareholders' Equity market value (common and preferred). Quarterly available	Calculated using WRDS
HovLOut	High powered class ov. Low powered class outstanding number of shares	Monthly ratios of outstanding number of shares of superior rights shares over inferior rights shares	WRDS-CRSP
HovLVol	High powered class ov. Low powered class transaction volume	Monthly ratios of transaction volume (in number of shares) of superior rights shares over inferior shares	WRDS-CRSP
Margin	Margin to sales	Pretax income as a fraction of sales. Quarterly available	WRDS
MtoB	Market Price to Book	Multiple of Market Value of Equity to Book Value of Equity.	WRDS
News	Monthly news flow	Number of individual information disclosure in the Factiva database related to strategic change in ownership, monthly values	Factiva
Premium	Voting premium	Voting premium calculated according to Zingales (1995). End of month calculations.	Manual calculation, CRSP stock price data
ROA	Return on Assets	Operating Income Before Depreciation as a fraction of average total assets	WRDS
ROE	Return on Equity	Net Income as a fraction of average Book Equity. Quarterly data.	WRDS
TotAss	Total Assets	Quarterly book value of total assets of the firm.	WRDS-Compustat
TotEq	Total Equity	Quarterly book equity	*WRDS-Compustat*
TotMkt	Total market value of equity	End of quarter market value of equity.	*WRDS-Compustat*
Var_abs_Premium	Absolute variation of premiums	Absolute value of the difference between the voting premium at month t and the lagged voting premium at month t-1.	Manual calculation

Annex 3 - WRDS definition of control variable

Variables	Obs	Mean	Std error	Minimum	Maximum
DtoAss	2613	0.3003	0.1854	0.0010	1.0674
DtoEq	2646	1.48385	1.50610	-13.57229	15.46695
DtoMkt	3178	1.3273	2.7069	0.0100	57.6123
HovLout	3120	0.39923	0.55142	0.00046	2.71528
HovLvol	2641	0.20393	0.49300	0.00001	5.49920
Margin	2646	0.39894	0.20500	-0.58443	0.93577
MktVal	3178	53242.0148	189544.4100	21.3169	1917098.3413
MtoB	2616	1.85585	1.99728	0.23499	20.41192
News	3696	8.03382	18.52092	0.00000	241.00000
Premium	3113	0.06827	0.46099	-0.95114	6.23828
ROA	2646	0.1019	0.0602	-0.0852	0.2800
ROE	2613	0.10994	0.27222	-4.00737	5.45050
TotAss	3208	40994.74070	139244.18389	55.04800	969506.00000
TotEq	3208	22145.1146	72805.9574	-513.7870	516865.0000
Var_abs_Premium	3082	0.05025	0.13189	0.00000	2.32340

Annex 4 - Descriptive statistics
(28 firms; *Premium* variable has been winsorized in the 1-99% range)