



# Information environment and earnings management of dual class firms around the world



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## ABSTRACT

This study examines the information environment and earnings management of dual class firms. Motivated by the pronounced entrenchment phenomenon at dual class firms due to divergence between voting and cash flow rights, we are interested in whether dual class firms adopt corporate disclosure choices that imply greater opacity as well as employ judgment in financing reporting to misguide the outside shareholders about the firm's true performance. Based on a sample of 12,672 firms from 19 countries during 1994–2010, we find that dual class status is associated with poorer information environment and increased accrual-based earnings management, consistent with the notion that managers of dual class firms exhibit incentives to conceal private control benefits from the outside shareholders. Results further suggest that dual class ownership structure weakens the mitigating impact of investor protection on earnings management. Following unification, firms experience an improvement in information environment and a decrease in earnings manipulation.

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## 1. Introduction

The past several decades have witnessed prevalence of firms with dual class ownership structure as well as their increase across both developed and developing countries.<sup>1</sup> The divergence of voting and cash flow rights at dual class firms suggests that controlling shareholders are able to escape the pro rata wealth consequences of their decisions while enjoying the benefits associated with their decision rights. The agency problem of entrenchment and value extraction at dual class firms is thus especially pronounced, compared with that at their single class counterparts. Hence, dual class firm insiders are more inclined to pursue private control benefits at the expense of the outside investors (e.g., Masulis et al., 2009). As entrenchment incentive is especially exacerbated at dual class firms, it is plausible that dual class insiders take actions to avoid external shareholder outrage by adopting corporate disclosure choices that allow concealing private control benefits consumption as well as employing judgment in financial reporting to mislead minority investors about the firm's

true performance. The goal of this study is thus to assess (i) information environment and (ii) earnings management of dual class firms compared with those of single class firms.

To the best of our knowledge, this is the first study that examines the above relationships while also employing a comprehensive sample of firms from 19 countries. Extant literature details a major prevalence of dual class firms outside of the U.S. (e.g., Adams and Ferreira, 2008). Rydqvist (1992) reports that dual class ownership structure is employed by 75 percent of firms in Denmark, 67 percent of firms in Finland, and 50 percent of firms in Netherlands, among others, while Faccio and Lang (2002) show that dual class status is adopted by over 60, 51, and 41 percent of firms in Sweden, Switzerland, and Italy, respectively. As dual class ownership structure is especially prevalent outside of the U.S., it is particularly valuable to examine the potential consequences of the entrenchment problem, which could be manifested in the degree of information asymmetries and in earnings manipulation, employing the sample of non-U.S. firms. Specifically, our sample encompasses 12,672 firms from 13 developed (Australia, Austria, Canada, Denmark, Finland, France, Germany, Italy, Norway, Portugal, Sweden, Switzerland, and then U.K.) and 6 developing countries (Brazil, Chile, Colombia, Mexico, South Africa, and South Korea) resulting in 80,853 firm-year observations for the period of 1994–2010.

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<sup>1</sup> See, for example, La Porta et al. (1999), Claessens et al. (2000), Faccio and Lang (2002), Fan and Wong (2002), Doidge (2004), Francis et al. (2005), and Gompers et al. (2009).

It is noteworthy that prior dual class-related literature focuses on the optimality of dual class arrangement (e.g., Arugaslan et al., 2010; Banerjee and Masulis, 2013; Chemmanur and Jiao, 2012; Cronqvist and Nilsson, 2003; DeAngelo and DeAngelo, 1985; Grossman and Hart, 1988); valuation effects (e.g., Dimitrov and Jain, 2006; Gompers et al., 2009; Jarrell and Poulsen, 1988; Masulis et al., 2011); and agency problems (e.g., Amoako-Adu et al., 2011; Masulis et al., 2009), while primarily examining the samples of the U.S. firms. Some exceptions are Nenova (2003) and Doidge (2004) which focus on dual class firms from 18 and 20 countries to examine the value of corporate voting rights and of U.S. cross-listings, respectively. Fan and Wong (2002) and Francis et al. (2005) examine informativeness of reported earnings, as measured by returns-earnings relationship in firms with concentrated ownership in seven East Asian economies, and in those with dual class status in the U.S., respectively, and report a weaker returns-earnings relationship in these firms. Our research differs from the above two studies as we directly test the relationship between dual class ownership structure and a firm's information asymmetries as well as between dual class status and a firm's managed earnings thereby providing insights whether dual class insiders take actions to conceal private control benefits consumption and to misguide the outside investors about the true firm performance.

First, we assess information environment at dual class firms and compare it to that at single class firms. Information asymmetries arise when managers have a more comprehensive set of information about the firm than do the outside investors. Due to divergence between voting and cash flow rights and the resulting opportunities for extraction of private control benefits, we expect that dual class ownership structure implies stronger information asymmetries as compared to those at single class firms. We employ trading environment measures - Easley et al. (2002) probability of informed trading, Amihud's 2002 illiquidity measure, probability of zero return, percentage bid-ask spread; and analyst variables - analyst forecast errors and analyst forecast dispersion, to proxy for a firm's information environment. We determine that dual class firms exhibit a high degree of information asymmetries and interpret that managers of dual firms have more incentives to exercise tighter control over information dissemination.

Second, we examine whether dual class status is associated with stronger earnings manipulation. As earnings management implies managers' intention to alter firms' financial reports to mislead the outside shareholders or influence contractual outcomes (Healy and Wahlen, 1999), we expect that dual class firms may engage in aggressive earnings management to conceal consumption of private control benefits. We employ a multitude of metrics to represent a firm's earnings management: accrual-based measures - earnings smoothing, earnings correlation, and McNichols' 2002 discretionary accruals; and real activities-based measures - abnormal levels of cash flows from operations, of production costs, and of discretionary expenses. The results establish that dual class firms engage in accrual-based earnings management to a greater extent than do single class firms.

We further explore the relationship between earnings management and dual class status in context of investor protection. Prior research establishes that private control benefits decrease in investor protection (e.g., Dyck and Zingales, 2004; Pinkowitz et al., 2006), and that stronger investor protection helps attenuate earnings manipulation (e.g., Lang et al., 2006; Leuz et al., 2003). We thus aim to assess whether the role of dual class ownership structure in earnings management is distinct and thus unaffected when the strength of legal protection is conditioned upon. Extant literature demonstrates that common law countries provide the strongest legal protection to the outside investors compared to civil law countries (e.g., La Porta et al., 1998). In addition, revised anti-self-dealing index addresses the protection of minority sharehold-

ers against self-dealing transactions benefiting controlling shareholders (Djankov et al., 2008). We thus employ (i) a country's legal origin and (ii) the revised measure of anti-self-dealing index to capture the degree of investor protection. The results indicate that dual class status diminishes the role of strong investor protection to mitigate earnings manipulation.

To assure robustness of our key findings, we address endogeneity concerns by employing Heckman's 1979 selection model, bootstrapping methodology, and propensity score matching. We also focus on the sub-samples which exclude selected countries that constitute the majority of dual class sample, examine various sub-periods, as well as mitigate the survivorship bias. Our results remain robust to this multitude of the sensitivity checks.

We further focus on unification events, i.e., intra-firm transactions that implement a change from dual to single class ownership structure. Both univariate and multivariate results demonstrate improvements in a firm's information environment and a decrease in earnings management following unification.

Our paper contributes to the extant finance and accounting literature in several ways. First, we examine information environment and earnings management of dual class firms focusing on a sample from 19 developed and developing countries. Prior dual class literature mostly focuses on the U.S. market and thus research on dual class firms from other countries is rather limited. To the best of our knowledge, this is the first study that performs a comprehensive analysis pertinent to information environment and earnings management of dual class firms versus those of single class firms. We trust this pursuit is important as prior work has established a pronounced entrenchment effect at dual class firms due to divergence between voting and cash flow rights. Our study demonstrates some of the consequences of this entrenchment incentive. Specifically, we show that in most of the world, dual class firms exhibit poorer information environment and stronger accrual-based earnings management than do single class firms.

Second, our study contributes to a growing literature on the relationship between earnings management and ownership structure. Dechow et al. (2010) review over 300 papers pertinent to earnings quality and summarize that financial reporting practices, governance, auditors, equity market incentives, and the various external factors are important determinants of earnings management. The authors, however, report that the impact of ownership on earnings quality is mixed. Our study thus sheds light in this regard by demonstrating how the separation of voting and cash flow rights at dual class firms affects earnings manipulation.

Third, to the best of our knowledge, this is the first study that presents evidence on the role of investor protection in the relationship between earnings management and dual class ownership structure. Leuz et al. (2003) argue that the pervasiveness of earnings management is increasing in private control benefits and decreasing in investor protection. However, no study has shown whether earnings manipulation responds to investor protection differently for single versus dual class firms. We employ this unique setting to test whether the role of dual class status in earnings management persists when investor protection is conditioned upon. We document that dual class ownership structure weakens the mitigating impact of investor protection on earnings manipulation.

The remainder of the paper is organized as follows. Section 2 develops testable hypotheses. Section 3 describes the data and the measures of information environment, of earnings management, and of investor protection, and summarizes their statistics. Section 4 provides multivariate tests pertinent to information environment and to earnings management at dual versus single class firms. It also offers evidence on the role of investor protection in the relation between earnings management and dual class ownership structure. Section 5 conducts the robust-

ness tests. Section 6 focuses on the effect of unification events on a firm's information environment and earnings management. Section 7 concludes.

## 2. Motivation and hypotheses development

In this section, we review agency implications of dual class status, documented by prior work. We then form predictions of the relationships between dual class ownership structure and information environment, as well as between dual class status and earnings management. We do so by drawing on the link between dual class status, expropriation, and private control benefits consumption.

### 2.1. Agency considerations due to separation of voting and cash flow rights at dual class firms

DeAngelo and DeAngelo (1985) report that dual class ownership structure is associated with high levels of managerial ownership. Concentrated ownership creates both the entrenchment<sup>2</sup> and alignment<sup>3</sup> incentives. The entrenchment incentive may be exacerbated, while the alignment incentive may be weakened in firms with dual class ownership structure. This is because dual class firms are not only characterized by concentrated ownership, but also by a separation of ownership and control; i.e., the divergence between voting and cash flow rights. Specifically, dual class ownership structure entails several share classes with different voting rights awarded to shareholders. Smart and Zutter (2003) indicate that in a typical arrangement, superior share class exhibits ten votes per share, while the inferior class receives one vote per share. Thus, shares with superior voting rights allow the controlling owners to capture control, benefits and wealth, while not bear the pro rata wealth consequences of their decisions due to low cash flow rights. Further, the divergence between voting and cash flow rights decreases the chance of managerial displacement in a takeover due to low or no voting rights of minority owners holding inferior shares, thus causing managerial disinterest in taking shareholder value-maximizing actions.

Theoretical studies by Grossman and Hart (1988) and Harris and Raviv (1988) underscore deviation from one-share-one-vote mechanism as deterrent to alignment with shareholder interests and claim negative wealth effects of dual class arrangements. Numerous empirical work finds support for detrimental consequences of voting and cash flow rights divergence. For example, Bebchuk et al. (2000) show that when voting and cash flow rights diverge, agency costs are an 'order of magnitude' higher than costs of controlling ownership with majority cash flow rights. La Porta et al. (2002) report evidence of higher valuation in firms with higher cash flow ownership by the controlling shareholder. Claessens et al. (2000), Cronqvist and Nilsson (2003), and Gompers et al. (2009) report negative and positive wealth consequences of insider voting and cash flow rights, respectively, as well as detrimental value consequences that exacerbate in divergence between insider

voting and cash flow rights. Extant literature also reports that firms with dual class ownership structure tend to extract private benefits of control at minority shareholders' expense (e.g., Masulis et al., 2009; Schmid, 2009).

### 2.2. Information environment and earnings management at dual class firms

Previous discussions have established that dual class ownership structure is characterized by concentrated ownership and control, while also that concentrated control may be achieved without concentrated ownership due to wedge, or divergence between voting and cash flow rights. The respective agency implications have linked dual class arrangements to expropriation and consumption of private control benefits. We now employ this established connection to form expectations pertinent to information environment and to earnings management at dual class firms.

#### 2.2.1. Information environment and dual class firms

To extract private rents, dual class firm managers may adopt corporate disclosure choices that allow concealing private control benefits from the outside shareholders as well as mask the true firm performance. Prior literature pertinent to insider control, concentrated controlling ownership, or to voting-cash flow rights separation, suggests managerial actions inconsistent with commitment to greater transparency. For instance, Tinaikar (2014) shows that the separation of control rights from cash flow rights at dual class firms in the U.S. and Canada is related to lower levels of voluntary compensation disclosure. Leuz et al. (2003) claim that insiders enjoy private control benefits consumption by exhibiting opaque disclosures. Insider control in private equity funds is accompanied by the lack of transparency and significant biases in performance reporting especially in instances of less stringent accounting rules or lower reporting frequencies (e.g., Cumming and Johan, 2007; Cumming and Walz, 2010; Johan and Zhang, 2014). Lang et al. (2004) assert that firms with controlling ownership exhibit incentives to conceal or manipulate information. Chung (2006) claims that stronger expropriation is associated with information asymmetries. Kim et al. (2007) report a significant reduction in stock liquidity in firms that change from single to dual class ownership structure. Exploring earnings informativeness, as measured by returns-earnings relationship, Fan and Wong (2002) and Francis et al. (2005) claim that firms with concentrated controlling ownership, those with higher divergence between voting and cash flow rights, and firms with dual class status maintain stronger control over information, report for self-serving reasons, and operate with more secrecy thus publicly disclosing as little proprietary information as possible. The goals are to avoid competition and the chance that shareholders will take disciplinary action (e.g., Shleifer and Vishny, 1997; Tinaikar, 2014). We therefore aim to directly test the association between dual class ownership structure and information asymmetries. Based on the documented evidence, we postulate that dual class status is positively related to information asymmetries. The arguments above lead to our first hypothesis:

**H1:** Dual class firms exhibit poorer information environment than single class firms.

#### 2.2.2. Earnings management and dual class firms

Earnings management demonstrates managers' intention to use judgment in financial reporting to either mislead stakeholders about the firm's economic performance or influence contractual outcomes that depend on reported accounting numbers (Healy and Wahlen, 1999). Prior literature establishes that firms may engage in earnings manipulation to conceal their private control benefits consumption. For example, Leuz et al. (2003) find evidence that

<sup>2</sup> High ownership may imply the effective control of the firm associated with possible expropriation of minority shareholders by the controlling owners. The agency problem thus shifts from manager-shareholder conflicts to that between the controlling and minority owners. As controlling owners determine how profits are distributed, they may deprive minority owners of their rights, and engage in various expropriation activities, inclusive of an outright theft. Such a scenario describes an entrenchment incentive (e.g., Athanasakou, 2010; Fan and Wong, 2002; Francis et al., 2005; Niu, 2008).

<sup>3</sup> Once the effective control of the firm is achieved, a further increase in voting rights may not further entrench the controlling owners. This is because higher cash flow rights will be associated with a higher cost to divert corporate resources (e.g., Fan and Wong, 2002; Francis et al., 2005). Such alignment incentive implies that concentrated ownership at dual class firms may create benefits and be consistent with minority shareholder interests (e.g., Warfield et al., 1995).



insiders exhibit earnings management to conceal firm performance as they strive to protect their private control benefits. [Gopalan and Jayaraman \(2012\)](#) examine earnings management practices of insider controlled versus noninsider controlled firms and report a more pronounced earnings manipulation in the former group as private control benefits consumption is higher in this group of firms.

Another strand of research documents the relationship between earnings management and insider control, concentrated, or controlling ownership. Specifically, [Lang et al. \(2006\)](#) and [Leuz \(2006\)](#) find that ownership concentration is associated with higher earnings management. Underscoring agency concerns pertinent to separation of ownership and management, [Dhaliwal et al. \(1982\)](#) show that management controlled firms are more likely to select financial reporting methods that increase reported earnings than are owner controlled firms. [Chou et al. \(2006\)](#); [Darrough and Rangan \(2005\)](#), and [Kothari et al. \(2016\)](#) document that the share selling in an IPO or SEO by insiders – managers, venture capitalists, or private equity funds, is linked to earnings management. [Kim and Yi \(2006\)](#) argue that controlling shareholders in Korea engage in opportunistic earnings management to hide their behaviors and avoid adverse consequences such as disciplinary actions. [Larcker et al. \(2007\)](#) show that insider power is positively related to earnings management and earnings restatements.

Based on the evidence, documented above, we predict dual class ownership structure to be positively related to earnings management.<sup>4</sup> As dual class status exhibits separation of voting and cash flow rights, it exacerbates the entrenchment incentive while dampens the alignment incentive of concentrated ownership. Control, gained from voting rights, allows dual class firm managers to consume more private control benefits and respectively conceal these benefits via earnings manipulation. We therefore conjecture that stronger opportunities for private control benefits extraction at dual class firms provide more incentives to manage earnings at these firms. The implications above give rise to our second hypothesis:

**H2:** Dual class firms are more likely to engage in earnings manipulation than single class firms.

### 2.3. The role of investor protection in earnings management at dual class firms

[Bushman and Piotroski \(2006\)](#) assert and find evidence that a country's legal system, securities laws, and political economy shape incentives that impact the behavior of corporate managers and other market participants, as well as ultimately affect financial reporting. In this context, it is interesting to verify whether the relationship between dual class ownership structure and earnings management is distinct and persists, or dissipates as the role of dual class status in earnings manipulation may be subsumed by the effect of country-level legal mechanisms that reflect the degree of investor protection.

As managers act in self-interest, investor protection is particularly critical to shareholders' rights. Specifically, it enforces contracts designed to limit insiders' private control benefits. With better legal protection, more of the firm's profits are distributed to

shareholders as interest or dividends as opposed to being expropriated by the insider managers who control the firm (e.g., [La Porta et al., 1998; 2002](#)).

Extant literature establishes the relationship between investor protection and private control benefits consumption. Specifically, [Dyck and Zingales \(2004\)](#) show that higher control benefits are related to less developed capital markets, more concentrated ownership, and more privately negotiated privatizations. [Pinkowitz et al. \(2006\)](#) report lower values of corporate cash holdings in environments with weak investor protection due to stronger opportunities of controlling shareholders to extract private control benefits. [Doidge \(2004\)](#) reports that cross-listing in the U.S., which is associated with more stringent regulations, decreases consumption of private control benefits and increases protection for investors with minority stakes.

Another strand of research documents that investor protection may reduce managerial incentives to manage earnings. For example, [Leuz et al. \(2003\)](#) show that firms from countries with developed equity markets, dispersed ownership structures, strong investor rights, and legal enforcement engage in less earnings management. Focusing on ownership structures, [Haw et al. \(2004\)](#) report attenuating effect of legal institutions on accruals management. [Lang et al. \(2006\)](#) report that cross-listed non-U.S. firms exhibit stronger earnings management and less timely loss recognition, consistent with the notion that legal and regulatory environment is less arduous for cross-listed firms than it is for the U.S. firms. [Dyreng et al. \(2012\)](#) find that the multinational corporations with operations in countries with the weak rule of law exhibit stronger earnings management in these foreign environments than do their counterparts with subsidiaries in countries with strong institutions.

Based on the above discussions, we aim to assess whether the link between dual class status and earnings manipulation persists when investor protection is conditioned upon. We postulate that investor protection alleviates earnings management, while that dual class status is associated with stronger minority shareholders' expropriation, and greater private control benefits consumption thus resulting in higher earnings manipulation. Combined, these arguments lead to the following hypothesis:

**H3:** Dual class status diminishes the mitigating effect of investor protection on earnings manipulation.

### 3. Data and variable construction

Our sample includes several data sources: a) stock returns and financial information from Datastream and Worldscope, respectively; b) analyst variables from international I/B/E/S; c) global intraday transactions data from TRTH,<sup>5</sup> managed by the Securities Industry Research Center of Asia-Pacific (SIRCA); d) revised anti-director rights index and a country's legal origin from [Djankov et al. \(2008\)](#) and [La Porta et al. \(1998\)](#), respectively; and e) dual class firm variables from [Doidge \(2004\)](#)<sup>6</sup> for the period 1994–2001, while we also extend the sample to 2010.

Since dual class status is not directly available in Datastream, we search for dual class suspect firms in the following two manners. First, we include Datastream companies with the same names while with more than one listing date. Second, we manually identify companies with the same names while followed by 'class A,' 'class B,' or similar country-specific identifiers, contained within the company name. For each country, we then hand-collect and manually read dual class suspect firms' annual reports, filed with

<sup>4</sup> [Nguyen and Xu \(2010\)](#) and [Arugaslan et al. \(2010\)](#) hypothesize that higher voting rights at dual class firms should be viewed as long-term employment contracts that increase job security and thus provide fewer incentives to manage earnings. Focusing on the U.S., these studies find evidence that dual class firms tend to have smaller absolute abnormal accruals than single class firms. In a discussion of [Nguyen and Xu \(2010\)](#), [Athanasakou \(2010\)](#) challenges the theoretical framework as well as certain empirical aspects, underscoring that the key cause for a relationship between dual class status and earnings management is the separation of voting and cash flow rights, and the resulting consequences pertinent to the entrenchment incentive and private control benefits consumption.

<sup>5</sup> This database was previously known as the global TaqTic.

<sup>6</sup> We kindly thank Craig Doidge for providing the dual class data set as well as the sources of these manually collected data across countries in the sample.

the stock exchanges or government agencies responsible for securities laws enforcement. We thus identify whether the dual class suspect firms meet the four criteria of dual class ownership structure, reported by Doidge (2004). Specifically, a firm enters the sample if (1) it has at least two classes of shares with different voting rights, (2) both share classes are publicly traded and listed on the domestic exchange, (3) the low-voting class is not convertible into the high-voting class, and (4) neither share class receives a fixed dividend independent of the other class.

It is noteworthy that Hong Kong, Indonesia, New Zealand, Thailand, and Venezuela do not enter our final sample as either the dual class suspect firms in these countries yield zero confirmed dual class firms after reviewing the annual reports in accordance with the four dual class identification criteria from Doidge (2004); or none of the confirmed dual class firms has non-missing information asymmetry and earnings management measures; or the sample contains five or fewer firms thus hindering a reliable comparison between dual and single class ownership structures in a country. We are also unable to examine firms from China, Malaysia, Taiwan, and Singapore either due to the exchange prohibition of dual class listings during our sample period or the definition of dual class status that violates either of the four dual class identification criteria from Doidge (2004) (e.g., multiple share classes with the same rather than different voting rights). Such outcomes of data unavailability for the above countries are consistent with those of earlier literature focusing on ownership structures or dual class firms.<sup>7</sup>

Our final sample comprises the period of 1994–2010 employing 80,853 firm-year observations for 12,672 non-financial firms from 19 countries – 13 developed (Australia, Austria, Canada, Denmark, Finland, France, Germany, Italy, Norway, Portugal, Sweden, Switzerland, and then U.K.) and 6 developing (Brazil, Chile, Colombia, Mexico, South Africa, and South Korea).

### 3.1. Information environment measures

Information asymmetries among investors introduce adverse selection and cause trading frictions, leading to lower liquidity (e.g., Bagehot, 1971; Glosten and Milgrom, 1985; Kyle, 1985; Leuz and Verrecchia, 2000). As the literature lacks consensus on the optimal measures of information asymmetries (e.g., Chae, 2005; Maskara and Mullineaux, 2011), we employ a wide spectrum of measures to assess the degree of a firm's information environment, and group these metrics into two categories – trading environment measures and analyst variables.

#### 3.1.1. Trading environment measures

A firm's trading environment is described by its stock liquidity, which is measured by the price impact of trades as well as the spread between the bid and ask quotes. Stock liquidity is informative about the magnitude of asymmetric information between the firm's management and the outside stakeholders (e.g., Easley and O'Hara, 1987; Kyle, 1985). We draw on prior literature<sup>8</sup> to iden-

tify the following four measures that reflect a firm's trading environment and have been shown to serve as effective proxies of information asymmetries – (i) Easley et al. (2002) probability of informed trading (*PIN*); (ii) Amihud's 2002 illiquidity measure (*Illiq*); (iii) probability of zero return (*ZRP*); and (iv) percentage bid-ask spread (*PerSpread*).

Probability of information-based trading, *PIN*, introduced by Easley et al. (1996), is an unconditional probability that the randomly selected trade originates from an informed trader. The model underscores that the order imbalances arise due to active trading of informed investors who could possess an advance knowledge of the forecasts, analyst reports, insider information, or exhibit a stronger ability to interpret publicly available information. Alternatively, a stable order flow is observed if trading is not driven by private information. To compute *PIN*, we estimate the model parameters via maximum likelihood procedure following the microstructure model, developed by Easley et al. (2002) as described in detail in Lai et al. (2014). Specifically, *PIN* is the fraction of orders from informed investors relative to the overall order flow, as follows

$$PIN = \frac{\alpha \times \mu}{\alpha \times \mu + \varepsilon_S + \varepsilon_B} \quad (1)$$

where  $\alpha$  is the probability that a private information event will take place at the beginning of the trading day;  $\mu$  is the daily arrival rate of orders from informed investors;  $\varepsilon_S$  and  $\varepsilon_B$  are the daily arrival rates of the sell and buy orders from uninformed investors, respectively. Larger magnitudes of *PIN* estimates are indicative of information-based trading and thus underscore stronger information asymmetries.

Similarly to *PIN*, Amihud's 2002 illiquidity, *Illiq*, is a low-frequency stock liquidity measure, and intends to capture the adverse selection cost (e.g., Collin-Dufresne and Fos, 2015). *Illiq* measures the effect of order flow on price, and is defined as the natural logarithm of the average of absolute daily ratios computed as stock return divided by the product of price and volume, as follows

$$Illiq = \ln \left[ \frac{1}{D_{iy}} \times \sum \left( \frac{|R_{iyd}|}{VOLD_{iyd}} \right) \right] \quad (2)$$

where  $D_{iy}$  is the number of days for which data are available for stock  $i$  in year  $y$ ;  $R_{iyd}$  is the return for stock  $i$  on day  $d$  in year  $y$ ;  $VOLD_{iyd}$  is the respective daily volume in dollars. For a liquid stock, a large trading volume is accompanied by a small price change. Thus, a lower ratio implies higher stock liquidity, while a higher ratio reflects stronger information asymmetries.

Zero stock return probability, *ZRP*, is a liquidity measure that focuses on the incidence of observed zero daily returns. It captures informed traders' trade-off between the value of information and transaction costs. Specifically, if the value of information does not outweigh the transaction costs, the market participants will choose not to trade, thus causing zero stock return. *ZRP* is computed as the ratio of the number of days with zero stock returns to the total number of days with non-missing stock returns in a given year. Prior literature underscores that this measure is particularly applicable to studies incorporating the emerging markets (e.g., Bekaert et al., 2007; Lesmond, 2005) and that it is highly correlated with more standard measures of transaction costs, such as those obtained from high-frequency data (e.g., Bekaert et al., 2007; Goyenko, 2005), thus rendering it a reliable liquidity proxy. Higher values of *ZRP* imply lower liquidity and stronger information asymmetries.

The daily bid-ask spread is a low-frequency liquidity measure that has been shown by prior studies to relate positively to information asymmetries (e.g., Karpoff et al., 2013; Venkatesh and Chiang, 1986). Larger bid-ask spreads typically prevail in information environments where insiders exhibit informational advantages

<sup>7</sup> For example, Claessens et al. (2002) focus on incentive versus entrenchment effects of large shareholdings in East Asian economies and report that dual class status is uncommon, while that separation between ownership and control is achieved via alternative means such as pyramiding and cross-holdings. Nenova (2003) and Doidge (2004) focus on dual class firms from 18 and 20 countries to examine the value of corporate voting rights and voting premiums in cross-listed companies, respectively, and report that most regions of the world are well covered in the sample, with the exception of Asia, as voting rights differentiation (i.e., dual class identification criterion 1) is forbidden by law in China, Japan, and Singapore, and that superior shares in Indonesia, Malaysia, Philippines, Taiwan, and Thailand violate dual class identification criterion 4.

<sup>8</sup> See, for example, Armstrong et al. (2012), Balakrishnan et al. (2014), Bekaert et al. (2007), Bhattacharya et al. (2013), Boone and White (2015), Chae (2005), Collin-Dufresne and Fos (2015), Karpoff et al. (2013).

over the outside stakeholders. These spreads compensate uninformed investors for greater risk of trading with the informed investors (e.g., Corwin, 2003). While several variants of the bid-ask spread measure exist, we employ the percentage bid-ask spread, *PerSpread*, as Lee et al. (1993) and Huang and Stoll (1996) suggest that it is more appropriate to measure the transaction costs by the percentage bid-ask spread or the effective spread as many transactions take place inside the quoted bid-ask spread thereby causing it to represent the execution cost in a misleading manner (e.g., Huang and Stoll, 1996; Lee and Ready, 1991). Percentage bid-ask spread is computed as the average daily bid-ask spread over the daily mean of bid and ask prices in year  $t$ . Larger spreads are indicative of lower liquidity and higher information asymmetries.

### 3.1.2. Analyst measures

Analysts serve as information intermediaries by processing and producing firm-related information as well as monitoring management (e.g., Boone and White, 2015; Healy and Palepu, 2001; Hutton et al., 2012; Lang et al., 2004). Firms that are more transparent about their operations exhibit less information asymmetry between the insiders and the analysts, resulting in more accurate earnings forecasts (e.g., Hope, 2003). Following extant literature,<sup>9</sup> we employ (i) analyst forecast errors, *FErr*, and (ii) analyst forecast dispersion, *FDisp*, to reflect the degree of information asymmetries. Analyst forecast errors are computed as the absolute value of the difference between announced earnings and the mean of estimated earnings. Analyst forecast dispersion is measured as the standard deviation of analyst forecasts. Both measures are scaled by the mean of analyst forecasts in year  $t - 1$ , and scaled by the stock price. Higher analyst forecast dispersion and forecast errors reflect greater information asymmetries.

### 3.2. Earnings management measures

Fields et al. (2001) underscore that evaluating one earnings management technique at a time does not allow capturing the complete effects of earnings manipulation. We thus focus on the following two dimensions of earnings management - accrual-based measures and real activities-based metrics.<sup>10</sup>

#### 3.2.1. Accrual-based measures

Accruals management is a popular approach to manipulate earnings by adjusting revenue or expense accruals. It allows altering financial reports, often within GAAP, while does not exhibit direct cash flow ramifications. Furthermore, accruals management is a convenient tool to be employed at year-end once the earnings amount is known and can be compared to the earnings target. We employ the following three accrual-based metrics - (i) earnings smoothing; (ii) earnings correlation; and (iii) McNichols (2002) discretionary accruals.

Following Leuz et al. (2003), Dechow et al. (2010), Gopalan and Jayaraman (2012), Jung et al. (2013), and Gao and Zhang (2015), among others, we employ earnings smoothing and earnings correlation as income smoothing measures to represent accrual-based earnings management. Dechow et al. (2010) underscore that these two income smoothing metrics have been particularly successful proxying for earnings management in cross-country analyses. Our first measure reflects the extent to which managers 'smooth'; i.e., reduce the variability of reported earnings relative to the variability of cash flows, by altering the accruals. Managers who often engage in earnings smoothing attempt to dampen fluctuations in

firms' publicly reported net income, since investors may pay more for a firm with a smoother income stream (e.g., Myers et al., 2007; Trueman and Titman, 1988). Earnings smoothing (*Smooth*) is computed as the ratio of the standard deviation of operating income to the standard deviation of operating cash flow over the previous 5 years. Cash flow from operations is computed as operating income minus accruals, with accruals defined as follows:

$$\text{Accruals} = (\Delta CA - \Delta \text{Cash}) - (\Delta CL - \Delta \text{CMLD} - \Delta TP) - \text{DEPN} \quad (3)$$

where *CA* represents current assets; *Cash* is cash and equivalents; *CL* reflects current liabilities; *CMLD* includes current maturities of long-term debt; *TP* is income taxes payable; *DEPN* comprises depreciation and amortization expense; change ( $\Delta$ ) is computed as the difference in values from year  $t$  to year  $t - 1$ ; all the variables are scaled by the total assets. Low values of *Smooth* imply that managers exercise discretion to smooth reported earnings, and the measure is thus decreasing in earnings manipulation.

The second accrual-based metric of income smoothing reflects the degree to which the insiders use their accounting discretion to conceal economic shocks to their firm's cash flows from operations. Specifically, earnings correlation (*Corr*) is the correlation coefficient between the change in accruals and the change in operating cash flows over the previous 5 years. Dechow (1994) shows that a negative correlation is an outcome of accrual accounting. Myers et al. (2007) report that the large magnitudes of this measure underscore earnings smoothing that does not represent the true economic performance. The measure is thus decreasing in earnings management; a more negative correlation is suggestive of income smoothing (e.g., Land and Lang, 2002).

Finally, we employ the cross-sectional accruals model developed by McNichols (2002), which combines the elements of Jones (1991) and Dechow and Dichev (2002) accruals models, to estimate discretionary accruals (*Acc(MN)*).<sup>11</sup>

$$\text{Accruals}_{it} = \alpha + \beta_1 \text{CFO}_{i,t-1} + \beta_2 \text{CFO}_{it} + \beta_3 \text{CFO}_{i,t+1} + \beta_4 \Delta \text{Sales}_{it} + \beta_5 \text{PPE}_{it} + \varepsilon_{it} \quad (4)$$

where *Accruals<sub>it</sub>* for firm  $i$  in year  $t$  are defined in Eq. (3); *CFO<sub>i,t-1</sub>*, *CFO<sub>it</sub>*, and *CFO<sub>i,t+1</sub>* is cash flow from operations for firm  $i$  in years  $t - 1$ ,  $t$ , and  $t + 1$ , respectively;  $\Delta \text{Sales}_{it}$  is the difference in sales for firm  $i$  between years  $t$  and  $t - 1$ ; *PPE<sub>it</sub>* is gross property, plant, and equipment for firm  $i$  in year  $t$ . All the variables are scaled by the lagged total assets. Discretionary accruals, *Acc(MN)*, are the residuals from the above estimated model, and measure the degree to which insiders exercise discretion in the accounting component of reported earnings. Higher discretionary accruals reflect a greater degree of earnings management.

#### 3.2.2. Real activities measures

Managers may affect financial reporting not only by the choice of the accounting methods but also through certain operational or investment decisions; that is, by altering real activities.<sup>12</sup> For instance, firms may offer price discounts or lenient credit terms to temporarily increase sales; overproduce to report lower cost of goods sold; or decrease discretionary expenses to enhance reported earnings. Such actions deviate from the usual business practices and aim to mislead the outsiders so that they infer that the earnings targets have been successfully met. Importantly, managers may be inclined to engage in real activities manipulation as relying on accrual-based earnings management is more likely to attract

<sup>9</sup> See, for example, Armstrong et al. (2012), Boone and White (2015), Byard et al. (2011), Lang et al. (2006), Shroff et al. (2013), among others.

<sup>10</sup> See, for example, Leuz et al. (2003), Lang et al. (2004), Dechow et al. (2010), Chan et al. (2015), Evans et al. (2015), Kothari et al. (2016), among others.

<sup>11</sup> See, for example, Ali and Zhang (2015), Dou et al. (2016), among others.

<sup>12</sup> Extant recent literature focuses on real activities manipulation as an earnings management tool. Among others, please see Roychowdhury (2006), Mizik and Jacobson (2007), Gunny (2010), Cohen and Zarowin (2010), Zang (2012), Badertscher (2011), Chan et al. (2015), Evans et al. (2015), Kothari et al. (2016).



auditor and regulator scrutiny, and is also risky. This is because the shortfall between the unmanaged earnings and the desired threshold could be greater than the amount by which accruals could be managed at fiscal year-end (e.g., Cohen and Zarowin, 2010; Zang, 2012).

We follow Roychowdhury (2006), Cohen and Zarowin (2010), and Badertscher (2011), among others, to consider three measures of real activities management - (i) abnormal levels of cash flows from operations ( $Ab(CFO)$ ), (ii) of production costs ( $Ab(Prod)$ ), and (iii) of discretionary expenses ( $Ab(DisExp)$ ). As in the above studies, we first employ Dechow et al. (1998) model to generate the normal levels of cash flows, of production costs, and of discretionary expenses. We then compute the abnormal metrics as the differences between the actual and the normal levels for each of these three measures. Specifically, we estimate the following cross-sectional regression for each industry and year, to represent the normal level of cash flows from operations:

$$CFO_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(S_{it}/A_{i,t-1}) + \beta_3(\Delta S_{it}/A_{i,t-1}) + \epsilon_{it}. \quad (5)$$

Following Roychowdhury (2006) and Cohen and Zarowin (2010), we express expenses as a linear function of the lagged sales<sup>13</sup>

$$DisExp_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(S_{it}/A_{i,t-1}) + \epsilon_{it}. \quad (6)$$

Production costs comprise cost of goods sold, COGS, and the change in inventory,  $\Delta INV$ , during the year. We model COGS as follows

$$COGS_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(S_{it}/A_{i,t-1}) + \epsilon_{it}, \quad (7)$$

while the change in inventory is estimated as

$$\Delta INV_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(\Delta S_{it}/A_{i,t-1}) + \beta_3(\Delta S_{i,t-1}/A_{i,t-1}) + \epsilon_{it}. \quad (8)$$

Employing Eqs. (7) and (8), we estimate the following model for the normal level of production costs

$$PROD_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(S_{it}/A_{i,t-1}) + \beta_3(\Delta S_{it}/A_{i,t-1}) + \beta_4(\Delta S_{i,t-1}/A_{i,t-1}) + \epsilon_{it}. \quad (9)$$

In the models above,  $CFO_{it}$  is cash flow from operations for firm  $i$  in year  $t$ ;  $DisExp_{it}$  is discretionary expense, which comprises advertising, R&D, and SG&A expenses;  $COGS_{it}$  is cost of goods sold;  $\Delta INV_{it}$  is the change in inventory between years  $t$  and  $t-1$ ;  $PROD_{it}$  is production cost, computed as the sum of  $COGS_{it}$  and  $\Delta INV_{it}$ ;  $A_{i,t-1}$  is total assets in year  $t-1$ ;  $S_{it}$ ,  $S_{i,t-1}$ ,  $\Delta S_{it}$ , and  $\Delta S_{i,t-1}$  are sales in years  $t$ ,  $t-1$ , and the changes in sales between years  $t$  and  $t-1$ , and years  $t-1$  and  $t-2$ , respectively.

Abnormal cash flows from operations ( $Ab(CFO)$ ), of production costs ( $Ab(Prod)$ ), and of discretionary expenses ( $Ab(DisExp)$ ) are the differences between the actual cash flows for each firm-year and the normal cash flows, computed employing the estimated coefficients from the respective industry-year models above (Eqs. (5), (9), and (6), respectively). Firms that manipulate earnings upward via real activities likely exhibit one or all of the following - unusually low (negative deviations/abnormal values) cash flows, and/or discretionary expenses, and/or unusually high (positive deviations/abnormal values) production costs.

### 3.3. Investor protection measures

Drawn from extant studies, we employ the revised anti-director rights index from Djankov et al. (2008) and the country's legal origin from La Porta et al. (1998) to proxy for investor protection in

each country.<sup>14</sup> The revised anti-director rights index (*Antidir*) represents a country's disclosure quality, approval, and litigation governing self-dealing transactions.<sup>15</sup> La Porta et al. (1998) show that investor protection against expropriation by insiders and the quality of legal rules enforcement vary systematically by legal origin. Comparing legal rules across 49 countries, the authors argue that common law countries protect both shareholders and creditors the most compared to civil law countries. We include a dummy variable, *Common*, that takes the value of 1 if a firm is located in common law country, and 0 if otherwise. Among 19 countries in the sample, 4 are of common law origin (i.e., Australia, Canada, South Africa, and the UK), and the remainder are of civil law origin. We therefore aim to assess whether dual class status is associated with earnings management when investor protection is accounted for.

### 3.4. Control variables

Consistent with other studies, we control for factors which have previously shown to influence a firm's information environment and earnings management.<sup>16</sup> Specifically, we include book-to-market ratio (*BM*), leverage ratio (*DA*), return on assets (*ROA*), *ROA* volatility ( $\sigma_{ROA}$ ), firm size (*Size*), firm age (*Age*), dividend yield (*DY*), a dummy indicator that equals 1 if the firm has issued American Depositary Receipts (*ADR*), and a dummy variable that equals 1 if the firm is an MSCI index member (*MSCI*) in regressions pertaining to information environment. Further, we control for *BM*, return on equity (*ROE*), *Size*, *ADR*, *MSCI* in analyses focusing on real activities management, while also incorporate leverage ratio (*DA*), sales growth rate ( $g_{Sales}$ ), and return volatility ( $\sigma_{Ret}$ ) in regressions pertinent to accrual-based earnings manipulation.<sup>17</sup>

### 3.5. Sample statistics

Table 1 reports the means and medians of information environment and of earnings management measures by country in Panels A and B, respectively. The last two columns in Panel A present the number of dual class and single class firm-year observations. It is noteworthy that South Korea, Brazil, Germany, Italy, and Sweden have the greatest number of dual class firms with 946, 724, 462, 445, and 349 observations, respectively. The cross-country medians of information environment metrics are 0.239, -0.210, 0.187, 0.018, 0.017, and 0.009 for *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*, respectively. Colombia, Chile, Brazil, and Mexico exhibit the highest, while Australia, Austria, Germany, Switzerland, and the

<sup>14</sup> Among others, please see Morck et al. (2000), Nenova (2003), Dyck and Zingales (2004), and Pinkowitz et al. (2006).

<sup>15</sup> The index is computed by summing the following six measures of shareholder rights: (1) vote by mail - equals 1 if the country allows shareholders to appoint a proxy to take their place at the shareholders' meeting and to vote on their behalf, and 0 if otherwise; (2) shares not deposited - equals 1 if the law does not require or permit companies to require shareholders to deposit with the company or another firm any of their shares prior to a general shareholders meeting; (3) cumulative voting - equals 1 if cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) oppressed minority - equals 1 if minority shareholders can challenge a resolution of both the shareholders and the board if it is unfair, prejudicial oppressive, or abusive, it equals one half if shareholders are able to challenge either a resolution of the shareholders or of the board if it is unfair, prejudicial, or oppressive, and zero if otherwise; (5) pre-emptive rights - equals 1 when the law or listing rules explicitly mandate or set as a default rule that shareholders hold the first opportunity to buy new issues of stocks; and (6) capital to call a meeting - equals 1 if the minimum percentage of share capital that entitles a single shareholder to call a shareholders' meeting is less than or equal to ten percent.

<sup>16</sup> The definitions of control variables are presented in the Appendix.

<sup>17</sup> Among others, please see Fan and Wong (2002), Diether et al. (2002), and Lau et al. (2012), for controls in information environment analyses, and Dechow et al. (2010), DeAngelo et al. (1994), Roychowdhury (2006), Cohen and Zarowin (2010), for controls in earnings management regressions.

<sup>13</sup> Modeling discretionary expenses as a function of the current, rather than the lagged sales, creates a challenge of significantly low residuals in a given year for firms which manage sales upward to increase earnings in the same year.

**Table 1**

Summary Statistics of Information Environment and Earnings Management Measures by Country. This table presents means and medians of information environment and of earnings management measures by country. Panel A depicts information environment measures and the number of firm-year observations for single and dual class firms. *PIN* is Easley, Hvidkjaer, and O'Hara's 1996 probability of informed trading; *Illiq* is Amihud's 2002 illiquidity measure; *ZRP* is the proportion of zero stock returns; *PerSpread* is the average daily bid-ask spread over the daily mean of bid and ask prices; *FError* is analyst forecast error; *FDisp* is analyst forecast dispersion. Panel B presents the statistics of earnings management measures. *Smooth* is earnings smoothness; *Corr* is correlation coefficient between the change in accruals and change in operating cash flow; *Acc(MN)* is McNichols (2002) discretionary accruals; *Ab(CFO)* is abnormal levels of cash flows from operations; *Ab(Prod)* is abnormal levels of production costs; *Ab(DisExp)* is abnormal levels of discretionary expenses. All variables are defined in the Appendix. The sample period is from 1994 to 2010.

Panel A Information environment measures																
Countries	Market Type	PIN		Illiq		ZRP		PerSpread		FError		FDisp		Firm-year Obs.		
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Single	Dual	
Australia	DEV	0.300	0.282	0.941	1.496	0.318	0.303	0.085	0.046	0.076	0.014	0.018	0.006	9053	23	
Austria	DEV	0.161	0.190	−0.860	−0.386	0.262	0.171	0.037	0.013	0.056	0.019	0.021	0.010	883	24	
Canada	DEV	0.257	0.244	−0.233	−0.005	0.224	0.178	0.043	0.020	0.078	0.017	0.026	0.009	9455	293	
Denmark	DEV	0.369	0.320	−0.610	−0.233	0.339	0.289	0.042	0.022	0.056	0.016	0.021	0.009	1609	173	
Finland	DEV	0.290	0.266	−0.660	0.080	0.260	0.199	0.026	0.015	0.054	0.020	0.022	0.011	1365	113	
France	DEV	0.302	0.250	−0.447	0.110	0.239	0.165	0.045	0.017	0.059	0.014	0.020	0.008	8370	37	
Germany	DEV	0.172	0.167	0.579	0.797	0.250	0.169	0.036	0.025	0.116	0.020	0.036	0.010	6292	334	
Italy	DEV	0.223	0.214	−2.244	−1.936	0.116	0.063	0.016	0.009	0.072	0.021	0.023	0.011	2118	445	
Norway	DEV	0.322	0.288	−0.480	0.170	0.278	0.208	0.044	0.020	0.122	0.032	0.040	0.017	1894	90	
Portugal	DEV	0.317	0.269	0.192	0.700	0.282	0.216	0.062	0.012	0.056	0.015	0.020	0.011	733	19	
Sweden	DEV	0.250	0.235	−0.588	−0.333	0.232	0.174	0.036	0.017	0.072	0.017	0.020	0.009	3063	369	
Switzerland	DEV	0.307	0.281	−2.221	−1.729	0.244	0.171	0.024	0.014	0.053	0.012	0.018	0.007	2359	60	
UK	DEV	0.241	0.227	−0.909	−0.369	0.425	0.480	0.063	0.034	0.068	0.013	0.016	0.005	15,623	25	
Brazil	EMG	0.309	0.283	0.116	1.019	0.273	0.184	0.153	0.027	0.157	0.045	0.047	0.023	751	720	
Chile	EMG	0.364	0.365	0.904	1.323	0.367	0.349	0.110	0.055	0.048	0.017	0.017	0.009	1438	61	
Colombia	EMG	–	–	0.287	0.543	0.386	0.359	–	–	0.075	0.031	0.030	0.019	207	31	
Mexico	EMG	0.339	0.313	0.163	0.446	0.168	0.054	–	–	0.115	0.029	0.046	0.018	1097	78	
South Africa	EMG	0.321	0.300	1.519	1.787	0.361	0.347	0.084	0.026	0.075	0.015	0.024	0.008	2810	56	
South Korea	EMG	0.213	0.206	−2.365	−2.375	0.093	0.072	0.008	0.007	0.238	0.054	0.061	0.025	7757	1,025	
<b>Aggregate</b>		0.264	0.239	−0.474	−0.210	0.270	0.187	0.046	0.018	0.084	0.017	0.025	0.009	76,877	3976	
<b>Developed</b>		0.260	0.238	−0.364	0.022	0.292	0.224	0.051	0.024	0.075	0.016	0.022	0.008	62,817	2005	
<b>Emerging</b>		0.283	0.248	−0.915	−1.329	0.182	0.090	0.032	0.008	0.148	0.030	0.044	0.017	14,060	1971	
Panel B Earnings management measures																
Countries	Market Type	Smooth		Corr		Acc(MN)		Ab(CFO)		Ab(Prod)		Ab(DisExp)				
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median			
Australia	DEV	0.790	0.699	−0.672	−0.886	0.002	−0.018	0.030	0.015	−0.017	−0.005	−0.032	0.000			
Austria	DEV	0.465	0.358	−0.896	−0.976	0.094	0.002	−0.002	0.000	0.000	0.000	0.001	0.000			
Canada	DEV	0.772	0.687	−0.694	−0.887	−2.043	−0.773	−0.033	−0.033	−0.007	−0.007	–	–			
Denmark	DEV	0.629	0.500	−0.826	−0.951	−0.029	−0.023	0.002	0.000	0.016	0.000	0.008	0.000			
Finland	DEV	0.720	0.609	−0.783	−0.918	−0.013	−0.013	−0.015	0.000	0.023	0.000	−0.002	0.000			
France	DEV	0.631	0.510	−0.842	−0.947	−0.081	−0.023	0.004	0.000	−0.007	0.000	0.003	0.000			
Germany	DEV	0.656	0.524	−0.812	−0.946	−0.074	−0.022	0.006	0.000	−0.001	0.000	−0.010	0.000			
Italy	DEV	0.587	0.465	−0.862	−0.955	−0.022	−0.009	0.002	0.000	−0.050	0.000	0.000	0.000			
Norway	DEV	0.736	0.641	−0.712	−0.902	−0.032	−0.012	0.003	0.000	−0.053	0.000	−0.005	0.000			
Portugal	DEV	0.492	0.365	−0.891	−0.973	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
Sweden	DEV	0.815	0.714	−0.711	−0.881	−0.028	−0.012	0.019	0.000	−0.009	0.000	−0.002	0.000			
Switzerland	DEV	0.660	0.506	−0.838	−0.951	0.001	−0.004	0.002	0.000	0.008	0.000	0.000	0.000			
UK	DEV	0.685	0.577	−0.795	−0.935	−0.067	−0.025	0.004	0.010	0.002	0.025	−0.031	−0.004			
Brazil	EMG	0.626	0.539	−0.855	−0.948	0.037	0.042	0.009	0.000	0.010	0.000	0.001	0.000			
Chile	EMG	0.595	0.481	−0.849	−0.958	−0.026	−0.009	0.004	0.000	0.004	0.000	0.000	0.000			
Colombia	EMG	0.783	0.650	−0.774	−0.927	0.000	0.000	−0.001	0.000	−0.017	0.000	–	–			
Mexico	EMG	0.665	0.588	−0.838	−0.943	0.024	0.000	0.002	0.000	−0.023	0.000	0.000	0.000			
South Africa	EMG	0.724	0.622	−0.764	−0.907	−0.028	−0.014	0.003	0.000	0.002	0.000	−0.001	0.000			
South Korea	EMG	0.608	0.481	−0.834	−0.953	0.003	0.007	0.002	0.000	−0.015	0.000	−0.003	0.000			
<b>Aggregate</b>		0.681	0.566	−0.789	−0.935	−0.031	−0.012	0.007	0.000	−0.006	0.000	−0.014	0.000			
<b>Developed</b>		0.692	0.578	−0.781	−0.931	−0.042	−0.018	0.007	0.000	−0.005	0.000	−0.015	0.000			
<b>Emerging</b>		0.636	0.519	−0.825	−0.946	−0.004	0.001	0.003	0.000	−0.008	0.000	−0.001	0.000			



**Table 2**

Comparison between Dual Class and Single Class Firms. This table presents univariate tests of the difference of each firm-level variable between dual and single class firms across 19 countries. The variables are information environment measures - *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*; earnings management metrics - *Smooth*, *Corr*, *Acc(MN)*, *Ab(CFO)*, *Ab(Prod)*, and *Ab(DisExp)*; and the various control characteristics - *BM* (book-to-market ratio), *DA* (debt-to-assets ratio), *ROE* (return on equity), *gSales* (sales growth rate),  $\sigma_{Ret}$  (stock return volatility), *Size* (firm size), *ROA* (return on assets),  $\sigma_{ROA}$  (ROA volatility), and *DY* (dividend yield). P-values of t-tests for the differences in mean values and of Wilcoxon rank-sum test for the differences in median values between dual and single class firms are shown in parentheses below the difference values. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

		Dual class			Single class			Difference: (Dual-Single)	
		Mean	Median	No. of obs	Mean	Median	No. of obs	Mean (P-value)	Median (Wilcox)
Information Environment	<i>PIN</i>	0.265	0.240	1684	0.233	0.203	45,723	0.032*** (0.000)	0.038*** (0.000)
	<i>Illiq</i>	−0.402	−0.138	4150	−1.915	−1.866	82,777	1.513*** (0.000)	1.727*** (0.000)
	<i>ZRP</i>	0.275	0.194	4306	0.192	0.103	79,640	0.082*** (0.000)	0.091*** (0.000)
	<i>PerSpread</i>	0.047	0.018	2034	0.027	0.009	39,785	0.021*** (0.000)	0.010*** (0.000)
	<i>FError</i>	0.111	0.021	2916	0.083	0.017	49,959	0.029*** (0.000)	0.004*** (0.000)
	<i>FDisp</i>	0.033	0.013	2934	0.025	0.008	42,541	0.008*** (0.000)	0.005*** (0.000)
Earnings Management	<i>Smooth</i>	0.580	0.481	3885	0.687	0.572	65,006	−0.107*** (0.000)	−0.091*** (0.000)
	<i>Corr</i>	−0.861	−0.959	3674	−0.785	−0.933	58,954	−0.076*** (0.000)	−0.026*** (0.000)
	<i>Acc(MN)</i>	0.003	0.004	925	−0.033	−0.013	19,991	0.035*** (0.000)	0.017*** (0.000)
	<i>Ab(CFO)</i>	0.007	0.000	1790	0.007	0.000	43,830	0.001 (0.881)	0.000 (0.119)
	<i>Ab(Prod)</i>	−0.009	0.000	2069	−0.006	0.000	43,148	−0.003 (0.560)	0.000** (0.023)
	<i>Ab(DisExp)</i>	0.008	0.000	365	−0.015	0.000	11,266	0.022 (0.365)	0.000 (0.687)
Control Variables	<i>BM</i>	1.337	0.867	4209	0.913	0.628	71,726	0.424*** (0.000)	0.239*** (0.000)
	<i>DA</i>	0.287	0.278	4648	0.207	0.176	81,507	0.080*** (0.000)	0.102*** (0.000)
	<i>ROE</i>	0.060	0.086	4475	−0.003	0.075	77,820	0.063*** (0.000)	0.010*** (0.000)
	<i>gSales</i>	0.620	0.064	4638	1.795	0.095	76,919	−1.175 (0.399)	−0.031*** (0.000)
	$\sigma_{Ret}$	0.470	0.382	4688	0.518	0.413	89,941	−0.048*** (0.000)	−0.031*** (0.000)
	<i>Size</i>	12.605	12.517	4652	11.415	11.277	81,816	1.190*** (0.000)	1.241*** (0.000)
	<i>ROA</i>	0.054	0.052	4211	0.016	0.049	71,338	0.037*** (0.000)	0.003*** (0.000)
	$\sigma_{ROA}$	0.041	0.025	4221	0.082	0.038	72,209	−0.040*** (0.000)	−0.013*** (0.000)
	<i>DY</i>	0.027	0.019	4163	0.023	0.014	70,961	0.004*** (0.000)	0.005*** (0.000)

U.K. experience the lowest degree of information asymmetries as measured across one or more of the various metrics, mentioned above. The cross-country medians of accrual-based earnings management measures are 0.566, −0.935, and −0.012 for *Smooth*, *Corr*, and *Acc(MN)*, while the means<sup>18</sup> of real activities-based earnings manipulation metrics are 0.007, −0.006, and −0.014 for *Ab(CFO)*, *Ab(Prod)*, and *Ab(DisExp)*, respectively. Austria, Portugal, and Brazil exhibit the highest, while Canada, Sweden, and Australia - the lowest earnings manipulation as measured across one or more of the earnings management metrics. Broadly, information environment appears to be more transparent, and earnings management - to be weaker, for developed than emerging markets.

Table 2 presents the means and medians of information environment variables, earnings management measures, as well as firms' characteristics for dual class and single class firms, along with the differences between these two groups. P-values for differences in means and in medians are reported in parentheses be-

low these parameters. Dual class firms exhibit higher *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*, as well as higher [McNichols \(2002\)](#) accruals, and lower *Smooth* and *Corr* than do single class firms. Such results imply higher information asymmetries and more accrual-based earnings management at dual class than at single class firms. All the differences are significant at 1%. We also observe that dual class firms are larger, less volatile, more leveraged, have higher book-to-market ratios, and dividend yields. These results are broadly consistent with those of [Gompers et al. \(2009\)](#) for the U.S. sample.

Table 3 reports Pearson cross-correlation coefficients of the variables employed in subsequent analyses. All information environment measures - *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*, are significantly correlated with *Dual*, a dummy variable that takes the value of 1 if a firm employs dual class ownership structure in year *t*, and 0 if otherwise. The correlation coefficients of information environment measures with *Dual* are consistent with our expectation that dual class firms exhibit higher level of information asymmetries compared with single class firms. The correlation coefficients of all accrual-based earnings management measures with

<sup>18</sup> Medians are reported as zero for all three of these abnormal values; albeit, they are non-zero values in the fourth or fifth decimal place.

**Table 3**

Cross-Correlation Coefficients. This table presents Pearson pairwise correlation coefficients for the key measures and control variables. *Dual* is an indicator variable that takes the value of 1 if a firm employs a dual class ownership structure, and 0 if otherwise; *PIN* is Easley, Hvidkjaer, and O'Hara's 1996 probability of informed trading; *Illiq* is Amihud's 2002 illiquidity measure; *ZRP* is the proportion of zero stock returns; *PerSpread* is the average daily bid-ask spread over the daily mean of bid and ask prices; *FError* is analyst forecast error; *FDisp* is analyst forecast dispersion. *Smooth* is earnings smoothness; *Corr* is correlation coefficient between the change in accruals and change in operating cash flow; *Acc(MN)* is McNichols (2002) discretionary accruals; *Ab(CFO)* is abnormal levels of cash flows from operations; *Ab(Prod)* is abnormal levels of production costs; *Ab(DisExp)* is abnormal levels of discretionary expenses; *BM* is book-to-market ratio; *DA* is debt to total assets; *ROE* is return on equity; *g<sub>Sales</sub>* is sales growth rate;  $\sigma_{Ret}$  is return volatility; *Size* is firm size; *ROA* is return on assets;  $\sigma_{ROA}$  is ROA volatility; *DY* is dividend yield. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\*, \* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

	Dual	PIN	Illiq	ZRP	PerSpread	FError	FDisp	Smooth	Corr	Acc(MN)	Ab(CFO)	Ab(Prod)	Ab(DisExp)
PIN	0.040***												
Illiq	0.093***	0.362***											
ZRP	0.069***	0.295***	0.613***										
PerSpread	0.043***	0.300***	0.515***	0.613***									
FError	0.026***	0.040***	0.224***	0.046***	0.190***								
FDisp	0.033***	0.045***	0.236***	0.030***	0.184***	0.561***							
Smooth	−0.047***	0.008	0.077***	0.020***	0.059***	0.092***	0.092***						
Corr	−0.050***	0.011**	0.078***	0.018***	0.066***	0.061***	0.088***	0.554***					
Acc(MN)	0.019***	0.007	−0.022***	−0.045***	−0.015*	−0.012	−0.003	−0.011	0.000				
Ab(CFO)	0.000	−0.002	−0.012**	−0.012**	−0.002	−0.013**	−0.013**	0.003	0.007	−0.028***			
Ab(Prod)	−0.001	−0.014**	−0.003	0.005	0.001	0.004	0.004	−0.024***	−0.018***	−0.008	−0.018***		
Ab(DisExp)	0.009	−0.016	−0.010	−0.018*	−0.010	−0.003	0.003	0.022**	0.025**	0.021	−0.086***	−0.070***	
BM	0.028***	0.021***	0.119***	0.014***	0.048***	0.153***	0.111***	−0.022***	−0.035***	0.006	−0.002	0.004	−0.023**
DA	0.092***	−0.013**	−0.095***	−0.118***	−0.056***	0.154***	0.156***	−0.068***	−0.087***	0.012*	−0.018***	0.019***	−0.007
ROE	0.033***	−0.049***	−0.266***	−0.100***	−0.193***	−0.420***	−0.387***	−0.154***	−0.146***	0.063***	0.039***	−0.028***	0.008
g <sub>Sales</sub>	−0.001	0.003	0.003	0.005	0.004	0.004	0.015***	0.002	0.007*	0.000	0.000	0.002	0.005
$\sigma_{Ret}$	−0.020***	0.095***	0.241***	0.008*	0.216***	0.319***	0.356***	0.133***	0.137***	−0.004	−0.013***	0.000	0.000
Size	0.119***	−0.258***	−0.820***	−0.496***	−0.426***	−0.283***	−0.296***	−0.100***	−0.097***	0.035***	0.015***	0.002	0.031***
ROA	0.052***	−0.038***	−0.244***	−0.104***	−0.177***	−0.333***	−0.329***	−0.163***	−0.166***	0.080***	0.044***	−0.036***	0.006
$\sigma_{ROA}$	−0.074***	0.041***	0.224***	0.122***	0.181***	0.232***	0.221***	0.286***	0.286***	−0.020***	−0.012**	−0.005	0.020**
DY	0.027***	−0.010**	−0.099***	−0.019***	−0.078***	−0.112***	−0.100***	−0.100***	−0.097***	0.012*	0.007	−0.009*	−0.008

  

	BM	DA	ROE	g <sub>Sales</sub>	$\sigma_{Ret}$	Size	ROA	$\sigma_{ROA}$
DA	0.005							
ROE	−0.033***	−0.104***						
g <sub>Sales</sub>	0.000	0.000	0.001					
$\sigma_{Ret}$	0.025***	0.033***	−0.311***	−0.002				
Size	−0.103***	0.051***	0.342***	0.002	−0.294***			
ROA	0.009**	−0.045***	0.851***	0.001	−0.308***	0.322***		
$\sigma_{ROA}$	−0.039***	−0.103***	−0.364***	0.001	0.302***	−0.284***	−0.389***	
DY	0.029***	−0.039***	0.258***	0.002	−0.188***	0.110***	0.261***	−0.184***

*Dual* suggest that dual class firms manipulate earnings more than do single class firms. The correlation coefficients of real activities-based earnings management metrics with *Dual* are insignificant; we provide insights about this finding in Section 4.2 when we review the multivariate results of Table 5. The correlation coefficients of information environment measures with the various firm characteristics consistently indicate that information asymmetries are more pronounced in smaller, more volatile, less leveraged firms, with higher book-to-market ratios, lower stock returns, operating performance, and dividend yields. The correlation coefficients of earnings management measures with the firm characteristics show that larger firms, those with higher book-to-market ratios, leverage, dividend yields, stock return and operating performance, and lower volatility, manage earnings more. In general, the correlations between the variables in our sample are moderately low. Consistent with this finding, the unreported variance inflation factors (VIFs) in all our multivariate tests are below 10 thus highlighting no explicit concern about multicollinearity.

#### 4. Assessing the relationships

In this section, we compare the information environment and earnings management metrics at dual class firms to those at single class firms. We also evaluate whether and how investor protection impacts the relationship between dual class ownership structure and earnings management.

##### 4.1. Information environment at dual class firms

Information asymmetries arise as managers possess more information about the firm than does the rest of the market. Divergence

between voting and cash flow rights increases the likelihood that managers at dual class firms extract private benefits of control at shareholders' expense. Consequently, these managers may disclose less information to shareholders leading to lower transparency. Indeed, the univariate analysis in Table 2 confirms that firms with dual class status exhibit higher information asymmetries than do single class firms.

Table 4 presents the results of the firm-level panel OLS regressions of information environment metrics on the key explanatory variable *Dual*, which takes the value of 1 if a firm employs a dual class ownership structure in year  $t - 1$ , and 0 if otherwise. We control for the firm characteristics that are previously shown to affect the firm's information environment, as discussed in Section 3.4, and measured in year  $t - 1$ . The dependent variables in Models M1-M6 are the following information environment measures - Easley et al. (2002) probability of informed trading (*PIN*), Amihud's 2002 illiquidity measure (*Illiq*), probability of zero return (*ZRP*), percentage bid-ask spread (*PerSpread*), analyst forecast errors (*FError*), and analyst forecast dispersion (*FDisp*), respectively. Throughout this study, all our firm-level multivariate analyses also incorporate unreported industry, country, and year fixed effects (as applicable), and all the associated t-statistics are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering.

The highly positively significant coefficients of *Dual* across all models suggest that dual class firms exhibit higher information asymmetries than do single class firms. Specifically, the regression coefficients of *Dual* are 0.014, 0.340, 0.039, 0.016, 0.021, and 0.009 in Models M1-M6, respectively, which are significant at 1% in Models M2-M4 and M6, and at 5% in Models M1 and M5. Based on the means for single class firms of 0.233, −1.915, 0.192, 0.027, 0.083,

**Table 4**

The Relation between Information Environment and Dual Class Status. This table presents firm-level OLS regressions, where the dependent variables in Models M1 through M6 are the following information environment metrics, respectively: *PIN* - Easley, Hvidkjaer, and O'Hara's 1996 probability of informed trading; *Illiq* - Amihud's 2002 illiquidity measure; *ZRP* - proportion of zero stock returns; *PerSpread* - average daily bid-ask spread over the daily mean of bid and ask prices; *FError* - analyst forecast error; *FDisp* - analyst forecast dispersion. The key independent variable is *Dual*, an indicator variable that takes the value of 1 if a firm employs a dual class ownership structure, and 0 if otherwise. All regressions include industry, country, and year controls, and all associated p-values reported in parentheses are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

Independent variables	Trading environment				Analyst var-s	
	<i>PIN</i> M1	<i>Illiq</i> M2	<i>ZRP</i> M3	<i>PerSpread</i> M4	<i>FError</i> M5	<i>FDisp</i> M6
Dual	0.014** (0.013)	0.340*** (0.000)	0.039*** (0.000)	0.016*** (0.000)	0.021** (0.012)	0.009*** (0.000)
BM	−0.001*** (0.000)	−0.010* (0.059)	−0.001* (0.074)	−0.003 (0.136)	0.018** (0.010)	0.005*** (0.005)
DA	−0.007 (0.184)	−0.109* (0.056)	−0.030*** (0.000)	0.008 (0.131)	0.177*** (0.000)	0.049*** (0.000)
ROA	0.009* (0.066)	−0.114** (0.022)	0.010* (0.079)	−0.018*** (0.000)	−0.323*** (0.000)	−0.100*** (0.000)
$\sigma_{ROA}$	−0.015** (0.011)	−0.151** (0.031)	−0.012* (0.092)	0.010 (0.148)	0.107*** (0.000)	0.041*** (0.000)
Size	−0.015*** (0.000)	−1.101*** (0.000)	−0.056*** (0.000)	−0.018*** (0.000)	−0.024*** (0.000)	−0.006*** (0.000)
Age	0.000 (0.564)	0.005*** (0.001)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.004)	0.000** (0.024)
DY	−0.023 (0.468)	−2.704*** (0.000)	−0.162*** (0.000)	−0.142*** (0.000)	−0.405*** (0.000)	−0.066*** (0.000)
ADR	−0.007 (0.195)	−0.559*** (0.000)	−0.013** (0.021)	0.019*** (0.000)	0.012*** (0.007)	0.004*** (0.002)
MSCI	−0.023*** (0.000)	−1.031*** (0.000)	−0.085*** (0.000)	−0.006*** (0.001)	0.011*** (0.003)	0.004*** (0.000)
Intercept	0.356*** (0.000)	12.137*** (0.000)	1.235*** (0.000)	0.268*** (0.000)	0.256*** (0.000)	0.078*** (0.000)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	44,168	80,853	78,488	39,663	50,077	43,242
Adj R <sup>2</sup>	19.68%	78.10%	50.70%	28.10%	16.78%	20.52%

**Table 5**

The Relation between Earnings Management and Dual Class Status. This table presents firm-level regressions, where the dependent variables in Models M1 through M6 are the following earnings management measures, respectively: *Smooth* - earnings smoothness; *Corr* - correlation coefficient between the change in accruals and change in operating cash flow; *Acc(MN)* - McNichols (2002) discretionary accruals; *Ab(CFO)* - abnormal levels of cash flows from operations; *Ab(Prod)* - abnormal levels of production costs; *Ab(DisExp)* - abnormal levels of discretionary expenses. The key independent variable is *Dual*, an indicator variable that takes the value of 1 if a firm employs a dual class ownership structure, and 0 if otherwise. All regressions include industry, country, and year controls, and all associated p-values reported in parentheses are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

Independent variables	Accrual-based			Real activities-based		
	<i>Smooth</i> M1	<i>Corr</i> M2	<i>Acc(MN)</i> M3	<i>Ab(CFO)</i> M4	<i>Ab(Prod)</i> M5	<i>Ab(DisExp)</i> M6
Dual	−0.037** (0.013)	−0.021** (0.041)	0.018* (0.076)	0.002 (0.819)	−0.006 (0.598)	0.011 (0.689)
BM	−0.001 (0.273)	−0.001 (0.176)	0.000 (0.124)	0.001 (0.446)	0.001 (0.281)	−0.033*** (0.003)
Size	−0.006*** (0.009)	−0.007*** (0.000)	0.005** (0.021)	0.002 (0.380)	0.001 (0.622)	−0.001 (0.760)
ROE	−0.156*** (0.000)	−0.134*** (0.000)	0.022** (0.028)	0.093*** (0.000)	−0.033*** (0.004)	−0.027 (0.245)
$\bar{g}_{Sales}$	0.000*** (0.000)	0.000 (0.313)	0.000*** (0.000)			
$\sigma_{Ret}$	0.126*** (0.000)	0.087*** (0.000)	0.007 (0.640)			
DA	−0.162*** (0.000)	−0.166*** (0.000)	0.058*** (0.001)			
ADR	0.065*** (0.000)	0.054*** (0.000)	−0.001 (0.959)	−0.003 (0.827)	0.001 (0.925)	0.029** (0.040)
MSCI	−0.007 (0.482)	0.009 (0.179)	−0.004 (0.580)	−0.006 (0.570)	0.013 (0.177)	0.024* (0.079)
Intercept	0.605*** (0.000)	−0.785*** (0.000)	−0.084*** (0.007)	−0.036 (0.197)	−0.012 (0.703)	0.005 (0.899)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	68,901	62,637	20,923	45,497	45,110	11,595
Adj R <sup>2</sup>	7.71%	9.67%	3.09%	1.56%	1.00%	3.13%



and 0.025 for *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*, respectively, these coefficients are economically significant as they imply that the information asymmetries are between 6 and 59 percent stronger for dual class firms. The consistent results across the various information asymmetry proxies suggest the robustness of our finding. They also imply that the information environments are significantly different between dual class and single class firms. Such results support the notion that managers of dual class firms have incentives to conceal private benefits of control from the outside shareholders. The results pertinent to control characteristics are broadly consistent with those of other studies (e.g., [Bharath et al., 2009](#); [Brockman and Chung, 2003](#)). For instance, larger firms and those that are MSCI index members exhibit lower information asymmetries.

#### 4.2. Earnings management at dual class firms

We have demonstrated above that dual class firms exhibit higher information asymmetries than do single class firms. We now attempt to assess whether dual class firms are also more likely to manage earnings than their single class counterparts. [Table 5](#) reports the results of the firm-level OLS regressions of earnings management measures on the key explanatory variable, *Dual*, defined in the same manner as the one in [Table 4](#). Models M1–M3 focus on accrual-based measures - earnings smoothing (*Smooth*), earnings correlation (*Corr*), and [McNichols \(2002\)](#) discretionary accruals (*Acc(MN)*); and models M4–M6 examine real activities-based measures - abnormal levels of cash flows from operations (*Ab(CFO)*), of production costs (*Ab(Prod)*), and of discretionary expenses (*Ab(DisExp)*). We condition on the firm characteristics identified to influence the firm-level accrual-based or real activities-based earnings management, as discussed in Section 3.4, and measured in year  $t - 1$ . We expect negative coefficients of *Dual* in the regressions of earnings smoothing (M1) and earnings correlation (M2), and a positive coefficient in the regression of *Acc(MN)* (M3). The results in Models M1–M3 are consistent with our conjecture. The coefficients of *Dual* are -0.037 (significant at 5%), -0.021 (significant at 5%), and 0.018 (significant at 10%) in the three models, respectively. Based on the means for single class firms of 0.687, -0.785, and -0.033 for *Smooth*, *Corr*, and *Acc(MN)*, respectively, these coefficients are economically significant as they underscore that dual class firms exhibit between 3 and 55 percent more earnings management than their single class counterparts. Such findings suggest that managers of dual class firms are more prone to earnings manipulation.

In the regressions which focus on real activities management, we expect negative coefficients of *Dual* in models M6 (*Ab(CFO)*) and M8 (*Ab(DisExp)*), and a positive coefficient in model M5 (*Ab(Prod)*). The coefficients of *Dual* are, however, insignificant across models M6–M8. This finding is interesting in the context of evidence that the U.S. firms prefer real to accrual-based earnings management. For example, in a sample of 400 executives of the U.S. firms, [Graham et al. \(2005\)](#) document survey evidence that managers are more inclined to engage in real activities manipulation than in accrual-based within-GAAP earnings management. Also, in the samples of the U.S. firms, [Cohen et al. \(2008\)](#) and [Zang \(2012\)](#) find that firms shift from accrual- to real activities-based earnings management subsequently to the Sarbanes-Oxley Act of 2002 (SOX). These studies attribute such a change to the firms' desire to avoid auditor and regulator scrutiny following the major accounting scandals. It is, however, noteworthy that our finding reconciles with prior literature as [Cohen and Zarowin \(2010\)](#) report that real activities manipulation is positively correlated with the costs of accrual management, and [Zang \(2012\)](#) concludes that the two earnings management approaches are substitutes. Furthermore, our result is consistent with [Evans et al. \(2015\)](#), who find

that the U.S. firms employing U.S. GAAP rely heavily on real earnings management, while the non-U.S. firms using IFRS or U.S. GAAP are more inclined to employ accrual-based earnings management. In sum, our evidence suggests that the non-U.S. dual class firms manage earnings more than single class firms employing accrual-based measures. It is plausible that since real activities manipulation does not appear to prevail in the non-U.S. firms, we are unable to draw the same inference regarding the real earnings management metrics.

The results on the control characteristics are broadly consistent with extant literature. For instance, higher leverage is associated with lower earnings quality ([Dechow et al., 2010](#)); earnings management is positively associated with firm size ([Jensen and Meckling, 1976](#)).

#### 4.3. Dual class status and earnings management in the context of investor protection

In this sub-section, we are interested to investigate whether dual class status plays a distinct role in earnings management, even after conditioning upon investor protection measures, or its effect is well captured by country-level legal enforcement and thus dissipates. [Table 6](#) contains the results of the firm-level OLS regressions of earnings management measures on the key explanatory variable, *Dual*, as well as investor protection measures - revised anti-director rights index (*Antidir*) and common law dummy (*Common*). The anti-director rights index represents protection of minority shareholders in the corporate decision-making process, including the right to vote ([Djankov et al., 2008](#)). Higher anti-director rights index implies better investor protection. Further, [La Porta et al. \(1998\)](#) argue that common law countries provide both the shareholders and the creditors the strongest protection.

To capture the differential effects, we introduce the interaction terms of *Dual* and each of the investor protection variables. We employ the following earnings management measures as the dependent variables - accrual-based metrics in models M1–M6 and real activities-based variables in models M7–M12. All these variables as well as the control characteristics are the same as those in [Table 5](#).

Interestingly, the coefficients of *Dual* are insignificant across all models, except that of model M6 (significant at 1% level), which highlights stronger accrual manipulation at dual class firms. The coefficients of investor protection measures - both of *Antidir* and *Common* are significant across most models, except models M5–M7, and M9–M10. Such results underscore that earnings management decreases in legal protection. Models M11–M12, however, suggest that the abnormal discretionary expenses decrease in investor protection (i.e., more real activities manipulation). The interaction terms of *Antidir* or of *Common* with *Dual* are significant in models M1–M3, M6, and M8, providing some evidence that the role of dual class status in earnings management persists when investor protection is accounted for. Specifically, the findings imply that although investor protection helps mitigate earnings manipulation, dual class ownership structure weakens such favorable impact. In sum, we show that even if dual class firms operate in countries with strong investor protection, they are inclined to manipulate earnings more than single class firms. Thus, the effect of dual class status on earnings manipulation persists even in presence of country-level legal protection metrics.

#### 5. Robustness tests

In this section, we aim to assess the robustness of our key findings by focusing on the following four tests - (i) addressing the endogeneity concerns; (ii) examining the effect of selected countries

**Table 6**

The Relation between Earnings Management and Dual Class Status in Context of Investor Protection. This table presents firm-level OLS regressions, where the dependent variables are the following earnings management metrics – *Smooth*, *Corr*, *Acc(MN)*, *Ab(CFO)*, *Ab(Prod)*, and *Ab(DisExp)* in Models M1–M2, M3–M4, M5–M6, M7–M8, M9–M10, and M11–M12, respectively. The key independent variable is *Dual*, an indicator variable that takes the value of 1 if a firm employs a dual class ownership structure, and 0 if otherwise. The tests control for investor protection measures and their interactions with *Dual* – *Antidir* (Models M1, M3, M5, M7, M9, and M11), and *Common* (Models M2, M4, M6, M8, M10, and M12), as well as the various control characteristics. All regressions include industry and year controls, and all associated p-values reported in parentheses are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

Independent Variable	Accrual-based						Real activities-based					
	Smooth		Corr		Acc(MN)		Ab(CFO)		Ab(Prod)		Ab(DisExp)	
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Dual	0.056 (0.368)	−0.023 (0.156)	0.057 (0.100)	−0.015 (0.147)	0.042 (0.601)	0.036*** (0.001)	0.009 (0.665)	0.006 (0.271)	0.007 (0.850)	−0.006 (0.473)	−0.035 (0.537)	0.010 (0.686)
Dual*Antidir	−0.026* (0.083)		−0.023*** (0.006)		0.002 (0.916)		−0.002 (0.668)		−0.004 (0.635)		0.014 (0.217)	
Dual*Common		−0.067* (0.056)		−0.030 (0.219)		0.111** (0.023)		−0.032*** (0.002)		−0.031 (0.597)		0.016 (0.525)
Antidir	0.009* (0.050)		0.007** (0.025)		−0.006 (0.152)		0.001 (0.676)		0.008 (0.247)		−0.015** (0.012)	
Common		0.058*** (0.000)		0.053*** (0.000)		−0.001 (0.988)		0.012** (0.044)		0.006 (0.533)		−0.029** (0.017)
BM	−0.002 (0.218)	−0.002 (0.241)	−0.002 (0.189)	−0.002 (0.192)	0.001 (0.172)	0.001 (0.164)	−0.001 (0.811)	0.001 (0.720)	0.001 (0.269)	0.001 (0.271)	−0.031*** (0.007)	−0.032*** (0.007)
Size	−0.006*** (0.008)	−0.005** (0.031)	−0.008*** (0.000)	−0.006*** (0.000)	0.001 (0.557)	0.002 (0.456)	0.001 (0.578)	0.002 (0.441)	0.002 (0.348)	0.002 (0.408)	0.001 (0.983)	−0.001 (0.785)
ROE	−0.167*** (0.000)	−0.163*** (0.000)	−0.142*** (0.000)	−0.140*** (0.000)	0.026*** (0.009)	0.025** (0.013)	0.090*** (0.000)	0.090*** (0.000)	−0.032*** (0.004)	−0.031*** (0.005)	−0.026 (0.277)	−0.026 (0.268)
$g_{Sales}$	−0.001** (0.019)	−0.001** (0.016)	−0.001 (0.755)	−0.001 (0.736)	−0.001*** (0.000)	−0.001*** (0.000)						
$\sigma_{Ret}$	0.119*** (0.000)	0.118*** (0.000)	0.082*** (0.000)	0.082*** (0.000)	0.015 (0.350)	0.013 (0.399)						
DA	−0.199*** (0.000)	−0.177*** (0.000)	−0.184*** (0.000)	−0.164*** (0.000)	0.071*** (0.000)	0.073*** (0.000)						
ADR	0.091*** (0.000)	0.083*** (0.000)	0.072*** (0.000)	0.064*** (0.000)	0.004 (0.762)	0.004 (0.727)	−0.002 (0.846)	−0.003 (0.807)	−0.001 (0.968)	−0.001 (0.993)	0.027* (0.053)	0.029** (0.043)
MSCI	−0.008 (0.394)	−0.011 (0.238)	0.009 (0.140)	0.007 (0.305)	0.012 (0.215)	0.011 (0.257)	−0.006 (0.490)	−0.006 (0.442)	0.007 (0.392)	0.008 (0.353)	0.022** (0.043)	0.024** (0.026)
Intercept	0.614*** (0.000)	0.606*** (0.000)	−0.784*** (0.000)	−0.797*** (0.000)	−0.023 (0.478)	−0.051 (0.107)	−0.031 (0.284)	−0.038 (0.149)	−0.060 (0.240)	−0.025 (0.430)	0.070 (0.169)	0.032 (0.467)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	No	No	No	No	No	No	No	No	No	No	No
Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	68,901	68,901	62,637	62,637	20,923	20,923	45,497	45,497	45,110	45,110	11,595	11,595
Adj R <sup>2</sup>	6.56%	6.81%	8.20%	8.64%	2.62%	2.62%	1.58%	1.65%	1.66%	1.56%	3.93%	4.19%

that constitute the majority of the dual class sample, on our observed relationships; (iii) focusing on the sub-sample periods; (iv) and mitigating the survivorship bias.

### 5.1. Endogeneity

Because ownership structure, information environment, and earnings management may be determined simultaneously, further analysis is required to assure robustness of our key findings. In our multivariate tests, we attempt to mitigate endogeneity concerns by regressing information environment and earnings management measures on the lagged dual class status and control characteristics. Importantly, however, it is also plausible that dual class status is an outcome of poor governance which could be associated with stronger earnings manipulation and information asymmetries, and we do not aim to rule out such reverse causality possibilities.

To further address endogeneity concerns, we undertake several two-stage estimation approaches - a Heckman's 1979 selection model, bootstrapping methodology, and propensity score matching (PSM). We report the results in Table 7 Panel A. In the first stage of the Heckman approach, we estimate the Probit model which predicts the likelihood of a firm's dual class status. We follow Gompers et al. (2009) to select the regressors for the first stage, while also account for data availability in our cross-country analysis, and include sales to total assets (*STA*), annual stock return (*Ret*), R&D expense scaled by sales (*RDNS*), gross property, plant, and equipment (*PPE*), as well as the control characteristics employed in Table 5. In the second stage, inverse Mills ratio (*IMR*) is included to estimate the OLS regressions which test the effect of dual class status on information environment and on earnings management in Models M1 and M4, respectively.

We next employ the bootstrapping methodology following the same steps as those of the Heckman estimation procedure except we do not include the inverse Mills ratio in the second stage. Instead, we use the predicted values of *Dual* to substitute for original values of *Dual* in the second stage, and bootstrap the system 500 times to obtain consistent standard errors. Results are reported in models M2 and M5 for information environment and earnings management measures, respectively.

Finally, we undertake propensity score matching methodology to mitigate the concern that the observable firm characteristics associated with the dual class status cause differences in the relationship between dual class status and information environment or dual class status and earnings management. In the first stage, we model the dual class status likelihood to obtain propensity scores. The logistic regression incorporates similar explanatory variables to those of the estimations above - *STA*, *Ret*, *RDNS*, *PPE*, as well as industry, year, and country fixed effects. We next match dual to single class firms by propensity scores. We then employ the propensity score-matched sample to estimate the OLS regressions of the effect of dual class status on information environment and on earnings management, and report the results in Models M3 and M6, respectively. All results in Panel A are reported with one measure of information environment and of earnings management - *Smooth* and *PIN*. In unreported models, we also focus on the alternative information environment and earnings management metrics and obtain similar results. All results across models M1-M6 are statistically significant at 1% and are consistent with our expectation that dual class firms exhibit stronger information asymmetries and engage in earnings manipulation more than do their single class counterparts. These results are thus robust to endogenizing the dual class status and confirm that it is associated with and leads to stronger information asymmetries and earnings management.

### 5.2. Effect of selected countries with large proportions of dual class firms

In Table 1, we observe that Korea, Brazil, Germany, Italy, and Sweden constitute a majority of dual class firms in the sample with 23, 17, 11, 10.6, and 8.3 percent of dual class firm-years, respectively, or a total of 70 percent of the dual class sample. It is therefore important to assure that our key results are insensitive to the inclusion of each of the above five countries. In Table 7 Panel B, we present the results of the estimations that resemble Tables 4 and 5, while focus on the sub-samples of firms which exclude South Korea, Brazil, Germany, Italy, or Sweden. Models M1-M5 include tests pertinent to information environment, while models M6-M10 address the estimations that relate to earnings management. It is noteworthy that our research relies on the cross-country variation to study the country effects; thus, removing a large proportion of our sample at once may mitigate the observed relationships. Our results remain robust to exclusion of each of these five countries across all models.

### 5.3. Sub-sample periods

Doidge (2004) examines the cross-listing of dual class firms during the period of 1994–2001, while we extend the dual class sample obtained from the author to 2010. To assure that our results are not driven by the possible errors pertaining to manual data collection, we also perform all the tests for the period of 1994–2001. Untabulated results are qualitatively similar to those of the extended sample. Such finding rules out the concern that our results may be inconsistent across the varying sample periods.

Further, we are mindful that the various exogenous events have taken place during our sample period of 1994–2010 and it is plausible that these events have exhibited varied impacts on our studied relationships. To address this concern, and in addition to controlling for year fixed effects in the analyses, we re-estimate regressions from Tables 4 and 5, while focusing on several partitions of the sample period. We report the results in Table 7 Panel C. Models M1-M2 partition the sample into 2 almost equal sub-samples - a 9-year and an 8-year period of 1994–2002 and 2003–2010. We also focus on the sub-samples of 2000–2004, 2006–2010, as well as 2006–2007 and 2009–2010 in models M3-M4 and M5-M6, respectively. The sub-periods in models M3-M4 and M5-M6 are centered around the 2005 International Financial Reporting Standards (IFRS) adoption and the 2008 global financial crisis, respectively. Albeit, we recognize that the analysis of such partitions is unable to distinguish the effects of the above two major events from those of the potential confounding factors.<sup>19</sup> We thus cautiously abstain from interpreting that the observed effects are attributed to IFRS or the global financial crisis of 2008.

To conserve space, we only report the coefficients of *Dual* across all information environment as well as earnings management measures. We note that the results are insignificant in selected sub-periods for selected metrics, which is especially the case for real earnings management measures, consistent with results in Table 5. Broadly, however, the results suggest that dual class status is positively significantly related to information asymmetries as well as to earnings manipulation.

### 5.4. Survivorship bias

To assure that the survivorship bias is minimized in our tests, we follow prior literature to not restrict our sample to firms that

<sup>19</sup> See, for instance, Armstrong et al. (2012) and Ng et al. (2011), which caution about relying on sub-sample analyses before and after the event to draw inferences about the event effects.



**Table 7**

Robustness Tests. This table presents various robustness tests. Panel A focuses on the following two-stage approaches - 1979 selection model, bootstrapping methodology, and propensity score matching. Panel B replicates the baseline regressions of Tables 4 and 5, while excludes Korea, Brazil, Germany, Italy, or Sweden. Results in Panels A and B are displayed based on *PIN* and *Smooth* to represent information environment and earnings management, respectively. Panel C replicates the baseline regressions of Tables 4 and 5, while partitions by the sub-sample periods, and reports the coefficients of *Dual* along with the associated p-values. Panel D reports the number of firms that survive between 1 and 17 years in the sample, the number of live firms and of the new listings by year and by dual class status. All associated p-values reported in parentheses are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering. All variables are defined in the Appendix. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

Panel A Two-stage approaches							
Independent variables	Information environment			Independent variables	Earnings management		
	Heckman M1	Bootstrapping M2	PSM M3		Heckman M4	Bootstrapping M5	PSM M6
Dual	0.016*** (0.005)	0.052*** (0.000)	0.016** (0.011)	Dual	−0.036** (0.016)	−0.158*** (0.000)	−0.037** (0.024)
BM	0.001*** (0.000)	0.000*** (0.000)	0.001 (0.794)	BM	−0.002 (0.252)	−0.006*** (0.000)	−0.013*** (0.005)
DA	−0.014** (0.021)	−0.012*** (0.000)	−0.023** (0.012)	DA	−0.154*** (0.000)	−0.149*** (0.000)	−0.159*** (0.000)
ROA	0.005 (0.362)	0.004*** (0.000)	−0.011 (0.246)	ROE	−0.153*** (0.000)	−0.156*** (0.000)	−0.148*** (0.000)
$\sigma_{ROA}$	−0.036*** (0.000)	−0.021*** (0.000)	−0.034*** (0.008)	$\mathcal{G}_{Sales}$	−0.001*** (0.000)	0.000*** (0.000)	−0.001*** (0.006)
Size	−0.016*** (0.000)	−0.015*** (0.000)	−0.015*** (0.000)	$\sigma_{Ret}$	0.130*** (0.000)	0.126*** (0.000)	0.134*** (0.000)
Age	0.000 (0.589)	0.000*** (0.000)	−0.001 (0.455)	Size	−0.006** (0.021)	−0.008*** (0.000)	−0.004 (0.299)
DY	−0.053 (0.123)	−0.014*** (0.000)	0.004 (0.934)	ADR	0.063*** (0.001)	0.078*** (0.000)	0.041 (0.119)
ADR	−0.007 (0.189)	−0.009*** (0.000)	−0.024*** (0.001)	MSCI	−0.005 (0.576)	0.001** (0.028)	−0.007 (0.624)
MSCI	−0.024*** (0.000)	−0.023*** (0.000)	−0.022*** (0.000)	IMR	0.001** (0.015)		
IMR	0.001*** (0.002)			Intercept	0.592*** (0.000)	0.671*** (0.000)	0.578*** (0.000)
Intercept	0.486*** (0.000)	0.349*** (0.000)	0.388*** (0.000)	Industry controls	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Country controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Year controls	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	No. of Obs	63,345	63,345	25,402
No. of Obs.	37,482	37,482	15,317	Adj R <sup>2</sup>	7.17%		7.24%
Adj R <sup>2</sup>	20.59%		22.99%				

(continued on next page)

Table 7 (continued)

Panel B Sub-samples without selected countries											
Independent variables	Information Environment Without					Independent variables	Earnings Management Without				
	Korea M1	Brazil M2	Germany M3	Italy M4	Sweden M5		Korea M6	Brazil M7	Germany M8	Italy M9	Sweden M10
Dual	0.017** (0.013)	0.015** (0.011)	0.012** (0.033)	0.011* (0.078)	0.016** (0.012)	Dual	-0.034** (0.033)	-0.039** (0.014)	-0.039** (0.015)	-0.037** (0.020)	-0.036** (0.020)
BM	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	BM	-0.001 (0.521)	-0.001 (0.286)	-0.001 (0.296)	-0.001 (0.276)	-0.001 (0.272)
DA	-0.007 (0.234)	-0.008 (0.141)	-0.009 (0.105)	-0.006 (0.269)	-0.008 (0.143)	DA	-0.145*** (0.000)	-0.162*** (0.000)	-0.161*** (0.000)	-0.160*** (0.000)	-0.158*** (0.000)
ROA	0.011** (0.028)	0.008* (0.072)	0.011** (0.025)	0.009* (0.070)	0.008 (0.114)	ROE	-0.155*** (0.000)	-0.158*** (0.000)	-0.158*** (0.000)	-0.157*** (0.000)	-0.157*** (0.000)
$\sigma_{ROA}$	-0.013** (0.040)	-0.015** (0.013)	-0.019*** (0.003)	-0.015** (0.012)	-0.014** (0.023)	$g_{Sales}$	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.025)
Size	-0.015*** (0.000)	-0.015*** (0.000)	-0.017*** (0.000)	-0.015*** (0.000)	-0.015*** (0.000)	$\sigma_{Ret}$	0.149*** (0.000)	0.127*** (0.000)	0.113*** (0.000)	0.126*** (0.000)	0.126*** (0.000)
Age	0.000 (0.387)	0.000 (0.539)	0.000 (0.860)	0.000 (0.396)	0.000 (0.560)	Size	-0.007*** (0.006)	-0.007*** (0.005)	-0.003 (0.328)	-0.006*** (0.009)	-0.007*** (0.007)
DY	-0.028 (0.411)	-0.016 (0.636)	-0.037 (0.266)	-0.017 (0.604)	-0.023 (0.492)	ADR	0.063*** (0.000)	0.067*** (0.000)	0.057*** (0.001)	0.064*** (0.000)	0.069*** (0.000)
ADR	-0.007 (0.179)	-0.006 (0.257)	-0.005 (0.369)	-0.007 (0.186)	-0.007 (0.201)	MSCI	-0.006 (0.519)	-0.007 (0.451)	-0.014 (0.158)	-0.007 (0.440)	-0.004 (0.693)
MSCI	-0.025*** (0.000)	-0.022*** (0.000)	-0.021*** (0.000)	-0.023*** (0.000)	-0.023*** (0.000)	Intercept	0.610*** (0.000)	0.606*** (0.000)	0.583*** (0.000)	0.617*** (0.000)	0.609*** (0.000)
Intercept	0.349*** (0.000)	0.356*** (0.000)	0.383*** (0.000)	0.354*** (0.000)	0.353*** (0.000)	Industry controls	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Country controls	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Year controls	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes	No. of Obs	61,685	67,682	61,803	66,690	66,036
No. of Obs.	41,281	43,868	39,622	42,635	42,384	Adj R <sup>2</sup>	8.03%	7.83%	7.35%	7.73%	7.56%
Adj R <sup>2</sup>	19.14%	19.81%	18.40%	19.53%	19.49%						
Panel C Sub-sample periods											
	'94-'02	'03-'10	'00-'04	'06-'10	'06-'07	'09-'10					
Information Environment	PIN	0.006	0.009*	-0.002	0.019**	0.019**	0.002				
		(0.468)	(0.098)	(0.817)	(0.010)	(0.011)	(0.428)				
	Illiq	0.277*** (0.001)	0.306*** (0.003)	0.374*** (0.000)	0.389*** (0.000)	0.305*** (0.006)	0.514*** (0.000)				
	ZRP	0.050*** (0.000)	0.037*** (0.000)	0.036*** (0.000)	0.043*** (0.000)	0.035*** (0.000)	0.049*** (0.000)				
	PerSpread	0.007** (0.034)	0.018*** (0.000)	0.010** (0.020)	0.021*** (0.000)	0.015*** (0.001)	0.028*** (0.000)				
	FError	0.021* (0.058)	-0.001 (0.899)	0.020 (0.220)	0.002 (0.689)	0.003 (0.373)	0.001 (0.876)				
	FDisp	0.011*** (0.000)	0.003** (0.011)	0.007** (0.027)	0.002* (0.056)	0.004*** (0.000)	0.002 (0.237)				
Earnings Management	Smooth	-0.057***	-0.067***	-0.090***	-0.048*	-0.029	-0.065**				
		(0.001)	(0.002)	(0.000)	(0.055)	(0.312)	(0.042)				
	Corr	-0.034*** (0.003)	-0.048*** (0.000)	-0.058*** (0.000)	-0.037** (0.025)	-0.026 (0.180)	-0.034 (0.102)				
	Acc(MN)	0.041** (0.018)	0.012 (0.308)	0.031*** (0.004)	0.016 (0.335)	0.017* (0.071)	-0.004 (0.946)				
	Ab(CFO)	0.002 (0.680)	0.002 (0.826)	-0.001 (0.964)	0.001 (0.831)	0.005 (0.555)	0.013* (0.067)				
	Ab(Prod)	-0.022* (0.057)	-0.012 (0.128)	-0.001 (0.986)	-0.018*** (0.009)	-0.017* (0.068)	-0.015** (0.049)				
	Ab(DisExp)	-0.009 (0.401)	0.052 (0.273)	0.007 (0.527)	0.078 (0.290)	0.013 (0.434)	0.280 (0.314)				

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Table 7 (continued)

Panel D Firm survival							
No. yrs	No. live	Year	Live firms			New listings	
in sample	firms		Single	Dual	All firms	Single	Dual
1	1049						
2	1163	1995	7769	467	8236	739	40
3	1631	1996	8430	479	8909	1169	8
4	2060	1997	9394	483	9877	1427	9
5	2011	1998	9833	491	10,324	1132	6
6	3399	1999	10,106	491	10,597	999	16
7	1570	2000	10,242	463	10,705	805	1
8	1193	2001	10,636	427	11,063	1021	2
9	1173	2002	10,979	258	11,237	893	0
10	1180	2003	11,196	258	11,454	885	3
11	1024	2004	11,556	258	11,814	862	0
12	1205	2005	11,768	259	12,027	797	1
13	947	2006	11,845	258	12,103	661	1
14	952	2007	11,684	257	11,941	544	1
15	885	2008	11,445	255	11,700	502	1
16	795	2009	10,940	255	11,195	296	0
17	2091	2010	10,526	255	10,781	53	0



have all earnings management, information environment measures, as well as control characteristics (e.g., Kothari et al., 2016). We thus allow sample sizes to vary across the different tests and models, depending on the data availability. Table 7 Panel D depicts the composition of our sample to underscore the above strategy. It presents the number of firms that appear between 1 and 17 years in the sample, the number of live firms and of the new listings by year. Since the sample sizes vary in all tables depending on the data availability for each test, we generate the current sample by requiring that either the stock return data or any of the following financial characteristics be available in a given year - return on assets, market value, total assets, or dividend yield. We observe that 1049 firms exist for only 1 year in the sample, while 2091 firms span the entire 17-year period. We have 8236 firms in the sample in 1995, among which 7769 are single class and 467 are dual class firms, and 10,781 firms in 2010, of which 10,526 and 255 are single and dual class firms, respectively. The new listings are included into the live firms sample - that is, 739 newly listed single class firms are included into the sample of 7769 live single class firms in 1995. The new listings vary substantially by year, with 739 single class and 10 dual class firms in 1995, and 53 single class and 0 dual class firms in 2010. Panel D thus underscores how our sample incorporates the firms regardless of the data availability of the key measures or of how many years they appear in the sample, to help mitigate the survivorship bias in our analyses.

## 6. Unification events

Prior literature establishes that unification announcements are associated with positive abnormal returns (e.g., Ehrhardt et al., 2005) and that the institutional ownership increases substantially after unification (e.g., Li et al., 2008). In a more recent study, Lauterbach and Pajuste (2015) report positive valuation responses to governance improvements following unification events. We are therefore interested to ascertain whether and how the change from dual to single class status affects firm-level information asymmetries and earnings management, thereby also providing some insights into the direction of causality. We, however, caution that the caveat of such causality inference is that it does not account for endogenous nature of the switch from dual to single class ownership structure.

If entrenched dual class managers report for self-serving reasons and expropriate private control benefits, it is plausible that the minority investor pressure for more managerial alignment with shareholder interests causes a switch from dual to single class ownership structure. Subsequently, information environment and earnings quality may improve at these firms. We first identify unification events at dual class firms. Unifications are intra-firm transactions of voting rights, which imply the change from dual to single class status. We then examine the firm information environment and earnings management before and after unifications.

Focusing on dual class firms, we conduct univariate analyses of changes in information asymmetries and earnings management from the before- to the after-unification period. Table 8 reports the means and medians of information asymmetry and of earnings management measures around unification events. Year  $t$  is the year in which a dual class firm unifies into a single class firm. Years  $t + 1$ ,  $t + 2$ , and  $t + 3$  represent 1, 2, and 3 years after unification, respectively. The last three columns show the differences in means and in medians between year  $t$  and each of the following years -  $t + 1$ ,  $t + 2$ , and  $t + 3$ , respectively. P-values for differences in means and in medians are reported in parentheses below these parameters. We observe insignificant changes from year  $t$  to year  $t + 1$  or  $t + 2$ . We interpret that it takes time for firms to make changes to their information environment and earnings management. We observe negative significant changes in *PIN*, *Illiq*,

*PerSpread*, and *FDisp* and a positive significant change in *Smooth* three years following unification, implying less information asymmetry and less earnings manipulation. Such results suggest the improved quality of information environment and decreased earnings manipulation after the change from dual to single class status takes place. Untabulated results depicting changes in information environment and in earnings management between years  $t$  and  $t + 4$  as well as  $t$  and  $t + 5$ , are qualitatively similar, while somewhat stronger than those representing changes between years  $t$  and  $t + 3$ .

We next employ changes regressions to shed further light on the effects of unification events on information environment and on earnings management. Specifically, we regress the changes in information asymmetry measures and in earnings management metrics on *Unification*, the dummy variable that takes the value of 1 if the firm changes from dual to single class status in year  $t$ , and 0 if otherwise. Non-unifying dual class firms serve as a control group. Therefore, we expect that *Unification* captures changes in information environment and in earnings manipulation caused by unification events rather than by other common factors pertinent to dual class firms.

The regression results are contained in Table 9. Panel A focuses on the effects of unification events on information environment measures, while Panel B depicts the effects on earnings management. All the dependent variables represent changes from year  $t$  to year  $t + 3$ . The control variables in Panel A (B) are the same as those in Table 4 (Table 5), and are measured in year  $t$ .

Results in Panel A show that *Unification* is significant in Models 1, 2, and 5 where the changes in *PIN*, *Illiq*, and *FErr*, respectively, are employed to measure the information asymmetries. Such findings imply that dual class firms enjoy better information environment following unification. This evidence corroborates the univariate findings in Table 8, suggesting that the change in ownership structure leads to changes in information environment. Panel B depicts significant coefficients of *Unification* in Model 1, with the change in *Smooth* as a measure of earnings management. This result implies that firms manage accruals less once the dual class ownership structure is eliminated. It is noteworthy that, consistent with Table 5, the results pertinent to real activities management, are insignificant. In sum, both univariate and multivariate analyses show some evidence that dual class firms which unify into single class companies, experience improvements of their information environment as well as a decrease in earnings manipulation.

## 7. Conclusion

Dual class ownership structure is typically characterized by high managerial holdings which may help align the interests of controlling owners with those of investors with minority stakes. Controlling holdings, however, also trigger the entrenchment effect as insiders may use power to expropriate investors with minority stakes. Such entrenchment effect is especially pronounced at dual class firms due to divergence between voting and cash flow rights. Specifically, controlling insiders may extract wealth and the various benefits, while not bear the pro rata wealth implications of their decisions because of low cash flow rights. Motivated by the pronounced entrenchment phenomenon, we conjecture that dual class firms may adopt corporate disclosure choices and use judgment in financial reporting so as to conceal the consumption of private control benefits. Specifically, we focus on the sample of 12,672 unique firms from 19 countries for the period of 1994–2010, to examine the information environment and earnings management of dual class firms versus those of single class firms. We further explore the relationship between dual class status and earnings manipulation in context of investor protection.

**Table 8**

Univariate Tests for Changes in Information Environment and Earnings Management around Unification Events. This table reports mean and median values of information environment measures - *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*, and of earnings management metrics - *Smooth*, *Corr*, *Acc(MN)*, *Ab(CFO)*, *Ab(Prod)*, and *Ab(DisExp)* around unification. *T* is unification year, while *t* + 1, *t* + 2, and *t* + 3 are 1, 2, and 3 years following unification, respectively. The last three columns present the differences in mean and median values of each variable between year *t* and each of the following years, *t* + 1, *t* + 2, and *t* + 3. P-values of t-tests for the differences in mean values and of Wilcoxon rank-sum test for the differences in median values are shown in parentheses below the difference values. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

		t			t+1			t+2			t+3			Difference:(t+1)-t		Difference:(t+2)-t		Difference:(t+3)-t	
		Mean	Median	Obs	Mean	Median	Obs	Mean	Median	Obs	Mean	Median	Obs	Mean	Median	Mean	Median	Mean	Median
Information Environment	PIN	0.289	0.227	83	0.256	0.233	82	0.290	0.244	84	0.238	0.202	84	-0.033 (0.210)	0.006 (0.371)	0.002 (0.957)	0.017 (0.945)	-0.051** (0.036)	-0.025* (0.058)
	Illiq	-0.296	-0.147	175	-0.090	-0.174	138	-0.530	-0.285	124	-1.189	-0.826	114	0.205 (0.625)	-0.026 (0.658)	-0.234 (0.582)	-0.138 (0.546)	-0.894** (0.038)	-0.679** (0.031)
	ZRP	0.229	0.112	142	0.230	0.123	109	0.249	0.138	107	0.229	0.117	100	0.001 (0.970)	0.011 (0.766)	0.020 (0.515)	0.026 (0.212)	0.000 (0.998)	0.006 (0.887)
	PerSpread	0.041	0.016	50	0.049	0.016	44	0.040	0.013	45	0.044	0.010	44	0.007 (0.710)	0.000 (0.937)	-0.001 (0.948)	-0.003 (0.549)	0.003 (0.878)	-0.006** (0.046)
	FError	0.127	0.046	99	0.216	0.045	83	0.184	0.053	73	0.088	0.031	60	0.089 (0.186)	-0.001 (0.859)	0.057 (0.332)	0.007 (0.583)	-0.039 (0.304)	-0.015 (0.149)
	FDisp	0.042	0.019	97	0.043	0.018	69	0.044	0.013	56	0.028	0.010	52	0.001 (0.953)	-0.002 (0.735)	0.002 (0.871)	-0.006 (0.233)	-0.014 (0.201)	-0.009** (0.038)
Earnings Management	Smooth	0.592	0.460	428	0.565	0.431	139	0.581	0.514	125	0.646	0.598	115	-0.027 (0.523)	-0.029 (0.653)	-0.011 (0.768)	0.054 (0.427)	0.054 (0.219)	0.138** (0.036)
	Corr	-0.843	-0.952	415	-0.878	-0.956	130	-0.865	-0.948	124	-0.863	-0.942	114	-0.035 (0.165)	-0.004 (0.256)	-0.022 (0.445)	0.004 (0.646)	-0.020 (0.429)	0.010 (0.848)
	Acc(MN)	-0.019	0.008	120	-0.029	-0.018	22	-0.033	-0.018	22	-0.002	-0.004	21	-0.011 (0.862)	-0.026 (0.357)	-0.014 (0.812)	-0.026 (0.833)	0.017 (0.786)	-0.012 (0.846)
	Ab(CFO)	0.007	0.000	219	-0.006	0.000	74	-0.023	0.000	71	0.024	0.000	72	-0.013 (0.283)	0.000* (0.068)	-0.030** (0.041)	0.000** (0.011)	0.017 (0.682)	0.000 (0.348)
	Ab(Prod)	-0.006	0.000	248	-0.006	0.000	89	0.006	0.000	86	-0.471	0.000	80	0.000 (0.991)	0.000 (0.954)	0.011 (0.560)	0.000 (0.555)	-0.465 (0.332)	0.000 (0.693)
	Ab(DisExp)	0.189	0.000	48	0.026	0.000	16	0.024	0.000	17	-0.002	0.000	18	-0.163 (0.375)	0.000 (0.266)	-0.165 (0.371)	0.000 (0.202)	-0.191 (0.301)	0.000 (0.702)

**Table 9**

Regressions of Changes in Information Environment and Earnings Management around Unification Events. This table reports firm-level OLS regressions, where the dependent variables in Panel A are the changes ( $\Delta$ ) from year  $t$  to year  $t + 3$  of the following information environment metrics - *PIN*, *Illiq*, *ZRP*, *PerSpread*, *FError*, and *FDisp*; while those in Panel B are the changes of the following earnings management measures - *Smooth*, *Corr*, *Acc(MN)*, *Ab(CFO)*, *Ab(Prod)*, and *Ab(DisExp)*. The key independent variable is *Unification*, an indicator variable that takes the value of 1 if a dual class firm unifies into a firm with the single class ownership structure, and 0 if otherwise. All regressions include industry and country controls, and all associated p-values reported in parentheses are computed based on standard errors adjusted for heteroscedasticity and firm-level clustering. All variables are defined in the Appendix. The sample period is from 1994 to 2010. \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10% levels, respectively.

Panel A Effects on information environment						
Independent Variable	Trading environment				Analyst var-s	
	$\Delta PIN$ M1	$\Delta Illiq$ M2	$\Delta ZRP$ M3	$\Delta PerSpread$ M4	$\Delta FError$ M5	$\Delta FDisp$ M6
Unification	−0.036* (0.081)	−0.630*** (0.000)	−0.006 (0.688)	0.012 (0.422)	−0.011* (0.095)	0.003 (0.659)
BM	−0.001 (0.469)	0.018 (0.108)	0.001 (0.279)	0.000 (0.575)	0.028 (0.311)	0.004 (0.393)
DA	−0.043 (0.114)	0.015 (0.964)	0.006 (0.750)	−0.002 (0.549)	0.312*** (0.004)	0.015 (0.184)
ROA	−0.056 (0.300)	−1.679** (0.032)	0.017 (0.702)	0.022 (0.466)	0.248 (0.271)	−0.014 (0.601)
$\sigma_{ROA}$	0.009 (0.929)	2.436** (0.014)	0.184*** (0.005)	−0.052** (0.045)	−0.588 (0.135)	−0.103 (0.215)
Size	−0.004 (0.216)	0.239*** (0.000)	0.005** (0.018)	0.001 (0.425)	−0.006 (0.605)	0.002 (0.186)
Age	0.001 (0.322)	−0.048*** (0.000)	0.000 (0.397)	0.000 (0.744)	−0.003** (0.013)	−0.001*** (0.001)
DY	0.388* (0.051)	0.771 (0.696)	−0.096 (0.371)	0.012 (0.827)	−0.228 (0.500)	−0.072 (0.206)
ADR	0.007 (0.545)	−0.795*** (0.000)	0.005 (0.619)	−0.002 (0.403)	−0.038** (0.039)	−0.006** (0.016)
MSCI	−0.001 (0.895)	−0.693*** (0.000)	−0.014* (0.076)	−0.005* (0.064)	0.018 (0.645)	−0.002 (0.672)
Intercept	0.130** (0.019)	−0.846 (0.187)	−0.058 (0.279)	0.020 (0.159)	0.018 (0.908)	−0.011 (0.676)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	No	No	No	No	No	No
No. of Obs.	1192	3217	3318	1865	2082	2077
Adj R <sup>2</sup>	5.14%	9.89%	4.47%	3.29%	7.94%	5.56%

  

Panel B Effects on Earnings Management						
Independent variables	Accrual-based			Real activities-based		
	$\Delta Smooth$ M1	$\Delta Corr$ M2	$\Delta Acc(MN)$ M3	$\Delta Ab(CFO)$ M4	$\Delta Ab(Prod)$ M5	$\Delta Ab(DisExp)$ M6
Unification	0.073* (0.087)	−0.023 (0.425)	0.021 (0.537)	0.032 (0.538)	0.004 (0.852)	−0.016 (0.553)
BM	−0.002 (0.645)	−0.001 (0.514)	−0.001 (0.731)	−0.001 (0.487)	0.001 (0.897)	−0.037 (0.253)
Size	0.000 (0.972)	0.004 (0.401)	−0.003 (0.584)	−0.001 (0.925)	0.001 (0.830)	0.033 (0.421)
ROE	0.052 (0.329)	−0.032 (0.289)	−0.062 (0.262)	0.008 (0.799)	0.009 (0.643)	−0.038 (0.546)
$g_{Sales}$	0.000 (0.780)	0.000 (0.519)	0.094*** (0.001)			
$\sigma_{Ret}$	0.045 (0.156)	0.019 (0.300)	0.014 (0.612)			
DA	0.002 (0.978)	−0.002 (0.966)	0.045 (0.496)			
ADR	−0.010 (0.782)	−0.018 (0.366)	−0.095*** (0.004)	0.021* (0.079)	−0.003 (0.803)	−0.207 (0.239)
MSCI	0.003 (0.903)	−0.028* (0.079)	0.013 (0.544)	−0.010 (0.409)	−0.016 (0.286)	0.048 (0.323)
Intercept	0.007 (0.947)	−0.080 (0.275)	−0.322 (0.333)	0.106 (0.196)	0.002 (0.969)	−0.351 (0.470)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	No	No	No	No	No	No
No. of Obs.	3197	2994	580	1506	1753	265
Adj R <sup>2</sup>	1.36%	1.98%	12.10%	2.56%	2.06%	3.34%

Consistent with our hypotheses, we find that information environment and earnings management are associated with dual class ownership structure. Specifically, firms with dual class status exhibit a high degree of information asymmetry as well as more

accrual-based earnings manipulation. These results are robust to a multitude of sensitivity analyses.

Strong investor protection plays an important role in reducing earnings management. However, dual class status weakens the mitigating role of investor protection on earnings manipulation.

We thus verify that the role of dual class status in earnings management is distinct and persists when legal protection is conditioned upon.

We also examine changes in information environment and in earnings management around unification events which imply a change from dual class to single class ownership structure. We show evidence that information environment is significantly improved, while that earnings manipulation decreases following unification.

In sum, it appears that to conceal private control benefits consumption, dual class firms attempt to withhold proprietary information from minority investors by exhibiting stronger information asymmetries, as well as mask the firm's true performance by engaging in more aggressive earnings manipulation, compared to their single class counterparts.

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## Appendix A. Variable definitions

Variable	Definition
<b>Information environment measures</b>	(Data sources: I/B/E/S, Datastream, TRTH)
Easley, Hvidkjaer, and O'Hara's 1996 probability of informed trading (PIN)	$PIN = \frac{\alpha \times \mu}{\alpha \times \mu + \varepsilon_S + \varepsilon_B}$ , where $\alpha \times \mu + \varepsilon_S + \varepsilon_B$ is the arrival rate for all orders; and $\alpha \times \mu$ is the arrival rate for information-based orders; $\varepsilon_S$ and $\varepsilon_B$ are the daily arrival rates of the sell and buy orders from uninformed investors.
Amihud's 2002 illiquidity measure (Illiq)	$Illiq = \ln \left[ \frac{1}{D_{iy}} \times \sum \left( \frac{ R_{iyd} }{VOLD_{iyd}} \right) \right]$ , where $D_{iy}$ is the number of days for which data are available for stock $i$ in year $y$ ; $R_{iyd}$ is the return for stock $i$ on day $d$ in year $y$ ; $VOLD_{iyd}$ is the respective daily volume in dollars.
Proportion of zero stock returns (ZRP)	The ratio of the number of days with zero stock returns to the total number of days with non-missing stock returns in a given year.
Percentage bid-ask spread (PerSpread)	Average daily bid-ask spread over the daily mean of bid and ask prices in year $t$ .
Analyst forecast errors (FError)	The absolute value of the difference between announced earnings and the mean of estimated earnings scaled by the mean of analyst forecasts in year $t - 1$ , and scaled by the stock price.
Analyst forecast dispersion (FDisp)	The standard deviation of analyst forecasts scaled by the mean of analyst forecasts in year $t - 1$ , and scaled by the stock price.
<b>Earnings management measures</b>	(Data sources: Datastream & Worldscope)
Earnings smoothness (Smooth)	The ratio of the standard deviation of operating income to standard deviation of operating cash flows over the previous 5 years.
Earnings correlation (Corr)	The correlation coefficient between the change in accruals and change in operating cash flows over the previous 5 years.
McNichols (2002) discretionary accruals (Acc(MN))	Residuals from the following estimated expectations model: $Accruals_{it} = \alpha + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{it} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta Sales_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$ , where $Accruals_{it}$ is total accruals for firm $i$ in year $t$ , and the calculation is shown below; $CFO_{i,t-1}$ , $CFO_{it}$ , and $CFO_{i,t+1}$ is cash flow from operations for firm $i$ in years $t - 1$ , $t$ , and $t + 1$ , respectively; $\Delta Sales_{it}$ is the difference in sales for firm $i$ between years $t$ and $t - 1$ ; $PPE_{it}$ is gross property, plant, and equipment for firm $i$ in year $t$ ; all the variables are scaled by the lagged total assets.
Total accruals (Accruals)	$Accruals = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta CMLD - \Delta TP) - DEPN$ , where $\Delta CA$ represents a change in total current assets; $Cash$ is cash and equivalents; $CL$ is current liabilities; $CMLD$ includes current maturities of long-term debt; $TP$ is income taxes payable; $DEPN$ comprises depreciation and amortization expense; change ( $\Delta$ ) is computed as the difference in values from year $t$ to year $t - 1$ ; all the variables are scaled by total assets.
Abnormal levels of cash flows from operations (Ab(CFO))	Residuals from the following estimated expectations model: $CFO_{it}/A_{i,t-1} = \alpha + \beta_1 (1/A_{i,t-1}) + \beta_2 (S_{it}/A_{i,t-1}) + \beta_3 (\Delta S_{it}/A_{i,t-1}) + \varepsilon_{it}$ , where $CFO_{it}$ is cash flow from operations for firm $i$ in year $t$ ; $A_{i,t-1}$ is total assets of firm $i$ in year $t - 1$ ; $S_{it}$ is the sales of firm $i$ in year $t$ ; $\Delta S_{it}$ is net sales of firm $i$ in year $t$ minus net sales for year $t - 1$ .
Abnormal levels of production costs (Ab(Prod))	Residuals from the following estimated expectations model: $PROD_{it}/A_{i,t-1} = \alpha + \beta_1 (1/A_{i,t-1}) + \beta_2 (S_{it}/A_{i,t-1}) + \beta_3 (\Delta S_{it}/A_{i,t-1}) + \beta_4 (\Delta S_{i,t-1}/A_{i,t-1}) + \varepsilon_{it}$ , where $PROD_{it}$ comprise cost of goods sold, $COGS$ , and change in inventory, $\Delta INV$ , during year $t$ ; $A_{i,t-1}$ is total assets of firm $i$ in year $t - 1$ ; $S_{it}$ , $\Delta S_{it}$ , and $\Delta S_{i,t-1}$ are sales in year $t$ , and the changes in sales between years $t$ and $t - 1$ , and years $t - 1$ and $t - 2$ .
Abnormal levels of discretionary expenses	Residuals from the following estimated expectations model:

(continued on next page)



(continued)

Variable	Definition
(Ab(DisExp))	$DisExp_{it}/A_{i,t-1} = \alpha + \beta_1(1/A_{i,t-1}) + \beta_2(S_{i,t-1}/A_{i,t-1}) + \epsilon_t$ , where $DisExp_{it}$ is discretionary expense of firm $i$ in year $t$ , which comprises advertising, R&D, and SG&A expenses; $A_{i,t-1}$ is total assets of firm $i$ in year $t-1$ ; $S_{i,t-1}$ is the sales of firm $i$ in year $t-1$ . (Data sources: Datastream & Worldscope)
<b>Control Characteristics</b>	
Dual class status (Dual)	Takes the value of 1 if the firm employs a dual class ownership structure in year $t-1$ , and 0 if otherwise.
Book-to-market ratio (BM)	Total assets divided by total assets minus book equity plus market capitalization in year $t-1$ .
Leverage ratio (DA)	Ratio of total debt to total assets in year $t-1$ .
Return on assets (ROA)	Net income as a proportion of total assets in year $t-1$ .
ROA volatility ( $\sigma_{ROA}$ )	Standard deviation of return on assets, computed over the previous five years in relation to year $t$ .
Firm size (Size)	Logarithm of a firm's market capitalization denominated in U.S. dollars in year $t-1$ .
Firm age (Age)	The number of years from the listed date to year $t$ .
Dividend yield (DY)	Average dividend yield during year $t-1$ .
Return on equity (ROE)	Net income as a proportion of total equity in year $t-1$ .
Sales growth rate ( $g_{Sales}$ )	(Net sales $_t$ - Net sales $_{t-1}$ ) / Net sales $_{t-1}$ .
Return volatility ( $\sigma_{Ret}$ )	Standard deviation of monthly stock returns during year $t-1$ .
MSCI membership (MSCI)	Takes the value of 1 if the stock is an MSCI country index component in year $t-1$ , and 0 if otherwise.
ADR issuance (ADR)	Takes the value of 1 if the firm is cross-listed on a U.S. stock exchange in year $t-1$ , and 0 if otherwise.

## References

- Adams, R., Ferreira, D., 2008. One share-one vote: the empirical evidence. *Rev. Finance* 12, 51–91.
- Ali, A., Zhang, W., 2015. CEO Tenure and earnings management. *J. Accounting Econ.* 59 (1), 60–79.
- Amihud, Y., 2002. Illiquidity and stock returns: cross-section and time-series effects. *J. Financial Markets* 5, 31–56.
- Amoako-Adu, B., Baulkaran, V., Smith, B.F., 2011. Executive compensation in firms with concentrated control: the impact of dual class structure and family management. *J. Corporate Finance* 17 (5), 1580–1594.
- Armstrong, C.S., Balakrishnan, K., Cohen, D., 2012. Corporate governance and the information environment: evidence from state antitakeover laws. *J. Accounting Econ.* 53 (12), 185–204.
- Arugaslan, O., Cook, D.O., Kieschnick, R., 2010. On the decision to go public with dual class stock. *J. Corporate Finance* 16 (2), 170–181.
- Athanasakou, V., 2010. Discussion of the impact of dual class structure on earnings management activities. *J. Bus. Finance Accounting* 37, 486–494.
- Badertscher, B.A., 2011. Overvaluation and the choice of alternative earnings management mechanisms. *Accounting Rev.* 86 (5), 1491–1518.
- Bagehot, W., 1971. The only game in town. *Financial Analysts J.* 27 (2), 12–22.
- Balakrishnan, K., Billings, M.B., Kelly, B., Ljungqvist, A., 2014. Shaping liquidity: on the causal effects of voluntary disclosure. *J. Finance* 69 (5), 2237–2278.
- Banerjee, S., Masulis, R. W., 2013. Ownership, investment and governance: the costs and benefits of dual class shares. Working paper.
- Bebchuk, L., Kraakman, R., Triantis, G., 2000. Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights. *Concentrated Corporate Ownership*, pp. 295–318.
- Bekaert, G., Harvey, C.R., Lundblad, C., 2007. Liquidity and expected returns: lessons from emerging markets. *Rev. Financial Stud.* 20 (6), 1783–1831.
- Bharath, S.T., Pasquariello, P., Wu, G., 2009. Does asymmetric information drive capital structure decisions? *Rev. Financial Stud.* 22, 3211–3243.
- Bhattacharya, N., Desai, H., Venkataraman, K., 2013. Does earnings quality affect information asymmetry? evidence from trading costs. *Contemporary Accounting Res.* 30 (2), 482–516.
- Boone, A.L., White, J.T., 2015. The effect of institutional ownership on firm transparency and information production. *J. Financial Econ.* 117 (3), 508–533.
- Brockman, P., Chung, D.Y., 2003. Investor protection and firm liquidity. *J. Finance* 58, 921–937.
- Bushman, R., Piotroski, J., 2006. Financial reporting incentives for conservative accounting: the influence of legal and political institutions. *J. Accounting Econ.* 42, 107–148.
- Byard, D., Li, Y., Yu, Y., 2011. The effect of mandatory IFRS adoption on financial analysts information environment. *J. Accounting Res.* 49 (1), 69–96.
- Chae, J., 2005. Trading volume, information asymmetry, and timing information. *J. Finance* 60 (1), 413–442.
- Chan, L.H., Chen, K.C.W., Chen, T.Y., Yu, Y., 2015. Substitution between real and accruals-based earnings management after voluntary adoption of compensation clawback provisions. *Accounting Rev.* 90 (1), 147–174.
- Chemmanur, T.J., Jiao, Y., 2012. Dual class IPOs: a theoretical analysis. *J. Banking Finance* 36 (1), 305–319.
- Chou, D.W., Gombola, M., Liu, F.Y., 2006. Earnings management and stock performance of reverse leveraged buyouts. *J. Financial Quant. Anal.* 41 (02), 407–438.
- Chung, H., 2006. Investor protection and the liquidity of cross-listed securities: evidence from the ADR market. *J. Banking Finance* 30, 1485–1505.
- Claessens, S., Djankov, S., Fan, J.P.H., Lang, L.H.P., 2002. Disentangling the incentive and entrenchment effects of large shareholdings. *J. Finance* 57, 2741–2771.
- Claessens, S., Djankov, S., Lang, L.H.P., 2000. The separation of ownership and control in east asian corporations. *Journal of Financial Economics* 58, 81–112.
- Cohen, D.A., Dey, A., Lys, T.Z., 2008. Real and accrual-based earnings management in the pre- and post-sarbanes-oxley periods. *Accounting Rev.* 83 (3), 757–787.
- Cohen, D.A., Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *J. Accounting Econ.* 50 (1), 2–19.
- Collin-Dufresne, P., Fos, V., 2015. Do prices reveal the presence of informed trading? *J. Finance* 70 (4), 1555–1582.
- Corwin, S.A., 2003. The determinants of underpricing for seasoned equity offers. *J. Finance* 58 (5), 2249–2279.
- Cronqvist, H., Nilsson, M., 2003. Agency costs of controlling minority shareholders. *J. Financial Quant. Anal.* 38, 695–719.
- Cumming, D., Johan, S., 2007. Regulatory harmonization and the development of private equity markets. *J. Banking Finance* 31 (10), 3218–3250.
- Cumming, D., Walz, U., 2010. Private equity returns and disclosure around the world. *J. Int. Bus. Stud.* 41 (4), 727–754.
- Darrrough, M., Rangan, S., 2005. Do insiders manipulate earnings when they sell their shares in an initial public offering? *J. Accounting Res.* 43 (1), 1–33.
- DeAngelo, H., DeAngelo, L., 1985. Managerial ownership of voting rights: a study of public corporations with dual classes of common stock. *J. Financial Econ.* 14, 33–69.
- DeAngelo, H., DeAngelo, L., Skinner, D., 1994. Accounting choice in troubled companies. *J. Accounting Econ.* 3, 113–127.
- Dechow, P., Ge, W., Schrand, C., 2010. Understanding earnings quality: a review of the proxies, their determinants and their consequences. *J. Accounting Econ.* 50, 344–401.
- Dechow, P.M., 1994. Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals. *J. Accounting Econ.* 18 (1), 3–42.
- Dechow, P.M., Dichev, I.D., 2002. The quality of accruals and earnings: the role of accrual estimation errors. *Accounting Rev.* 77, 35–59.
- Dechow, P.M., Kothari, S.P., Watts, R.L., 1998. The relation between earnings and cash flows. *J. Accounting Econ.* 25 (2), 133–168.
- Dhaliwal, D.S., Salamon, G.L., Smith, E.D., 1982. The effect of owner versus management control on the choice of accounting methods. *J. Accounting Econ.* 4, 41–53.
- Diether, K.B., Malloy, C.J., Scherbina, A., 2002. Differences of opinion and the cross section of stock returns. *J. Finance* 57, 2113–2141.
- Dimitrov, V., Jain, P.C., 2006. Recapitalization of one class of common stock into dual-class: growth and long-run stock returns. *J. Corporate Finance* 12 (2), 342–366.
- Djankov, S., La Porta, R., Lopez-de Silanes, F., Shleifer, A., 2008. The law and economics of self-dealing. *J. Financial Econ.* 88, 430–465.
- Doidge, C., 2004. U.S. cross-listings and the private benefits of control: evidence from dual-class firms. *J. Financial Econ.* 72, 519–553.
- Dou, Y., Khan, M., Zou, Y., 2016. Labor unemployment insurance and earnings management. *J. Accounting Econ.* 61 (1), 166–184.
- Dyck, A., Zingales, L., 2004. Private benefits of control: an international comparison. *J. Finance* 59, 537–600.
- Dyregang, S.D., Hanlon, M., Maydew, E.L., 2012. Where do firms manage earnings? *Rev. Accounting Stud.* 17 (3), 649–687.
- Easley, D., Hvidkjaer, S., O'Hara, M., 2002. Is information risk a determinant of asset returns? *J. Finance* 57 (5), 2185–2221.
- Easley, D., Kiefer, N.M., O'Hara, M., 1996. Cream-skimming or profit-sharing? the curious role of purchased order flow. *J. Finance* 51 (3), 811–833.
- Easley, D., O'Hara, M., 1987. Price, trade size, and information in securities markets. *J. Financial Econ.* 19 (1), 69–90.
- Ehrhardt, O., Kuklinski, J., Nowak, E., 2005. Unifications of dual-class shares in germany - empirical evidence on the effects of related changes in ownership structure, market value, and bid-ask spreads. *Swiss Finance Institute Research Paper Series*.

- Evans, M.E., Houston, R.W., Peters, M.F., Pratt, J.H., 2015. Reporting regulatory environments and earnings management: U.S. and non-U.S. firms using U.S. GAAP or IFRS. *Accounting Rev.* 90 (5), 1969–1994.
- Faccio, M., Lang, L.H.P., 2002. The ultimate ownership of western European corporations. *J. Financial Econ.* 65, 365–395.
- Fan, J.P.H., Wong, T.J., 2002. Corporate ownership structure and the informativeness of accounting earnings in east Asia. *J. Accounting and Econ.* 33, 401–425.
- Fields, T.D., Lys, T.Z., Vincent, L., 2001. Empirical research on accounting choice. *J. Accounting Econ.* 31 (13), 255–307.
- Francis, J., Schipper, K., Vincent, L., 2005. Earnings and dividend informativeness when cash flow rights are separated from voting rights. *J. Accounting Econ.* 39, 329–360.
- Gao, L., Zhang, J.H., 2015. Firms earnings smoothing, corporate social responsibility, and valuation. *J. Corporate Finance* 32, 108–127.
- Glosten, L.R., Milgrom, P.R., 1985. Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *J. Financial Econ.* 14 (1), 71–100.
- Gompers, P.A., Ishii, J., Metrick, A., 2009. Extreme governance: an analysis of dual-class firms in the United States. *Rev. Financial Stud.* 23, 1051–1088.
- Gopalan, R., Jayaraman, S., 2012. Private control benefits and earnings management: evidence from insider controlled firms. *J. Accounting Res.* 50, 117–157.
- Goyenko, R., 2005. Stock and bond pricing with liquidity risk. Working paper.
- Graham, J.R., Harvey, C.R., Rajgopal, S., 2005. The economic implications of corporate financial reporting. *J. Accounting Econ.* 40 (13), 3–73.
- Grossman, S.J., Hart, O.D., 1988. One share-one vote and the market for corporate control. *J. Financial Econ.* 20, 175–202.
- Gunny, K.A., 2010. The relation between earnings management using real activities manipulation and future performance: evidence from meeting earnings benchmarks. *Contemporary Accounting Res.* 27 (3), 855–888.
- Harris, M., Raviv, A., 1988. Corporate governance, voting rights and majority rules. *J. Financial Econ.* 20, 203–235.
- Haw, I., Hu, B., Hwang, L., Wu, W., 2004. Ultimate ownership, income management, and legal and extra-legal institutions. *J. Accounting Res.* 42, 423–462.
- Healy, P.M., Palepu, K.G., 2001. Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature. *J. Accounting Econ.* 31 (13), 405–440.
- Healy, P.M., Wahlen, J.M., 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13, 365–383.
- Heckman, J., 1979. Sample selection bias as a specification error. *Econometrica* 47 (1), 153–161.
- Hope, O.K., 2003. Accounting policy disclosures and analysts' forecasts. *Contemporary Accounting Res.* 20 (2), 295–321.
- Huang, R.D., Stoll, H.R., 1996. Dealer versus auction markets: a paired comparison of execution costs on NASDAQ and the NYSE. *J. Financial Econ.* 41 (3), 313–357.
- Hutton, A.P., Lee, L.F., Shu, S.Z., 2012. Do managers always know better? the relative accuracy of management and analyst forecasts. *J. Accounting Res.* 50 (5), 1217–1244.
- Jarrell, G.A., Poulsen, A.B., 1988. Dual-class recapitalizations as antitakeover mechanisms: the recent evidence. *J. Financial Econ.* 20, 129–152.
- Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *J. Financial Econ.* 3, 305–360.
- Johan, S., Zhang, M., 2014. Reporting bias in private equity: reporting frequency, endowments, and governance. Working paper.
- Jones, J.J., 1991. Earnings management during import relief investigations. *J. Accounting Res.* 29, 193–228.
- Jung, B., Soderstrom, N., Yang, Y.S., 2013. Earnings smoothing activities of firms to manage credit ratings. *Contemporary Accounting Research* 30 (2), 645–676.
- Karpoff, J.M., Lee, G., Masulis, R.W., 2013. Contracting under asymmetric information: evidence from lockup agreements in seasoned equity offerings. *J. Financial Econ.* 110 (3), 607–626.
- Kim, J., Lin, J. C., Singh, A., Yu, W., 2007. Dual-class splits and stock liquidity. Working Paper.
- Kim, J., Yi, C.H., 2006. Ownership structure, business group affiliation, listing status, and earnings management: evidence from Korea. *Contemporary Accounting Res.* 23, 427–464.
- Kothari, S.P., Mizik, N., Roychowdhury, S., 2016. Managing for the moment: the role of earnings management via real activities versus accruals in SEO valuation. *Accounting Rev.* 91 (2), 559–586.
- Kyle, A.S., 1985. Continuous auctions and insider trading. *Econometrica* 53 (6), 1315–1335.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., 1999. Corporate ownership around the world. *J. Financial Econ.* 54, 471–517.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. *J. Political Econ.* 106, 1113–1155.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor protection and corporate valuation. *J. Finance* 57, 1147–1170.
- Lai, S., Ng, L., Zhang, B., 2014. Does PIN affect equity prices around the world? *J. Financial Econ.* 114 (1), 178–195.
- Land, J., Lang, M.H., 2002. Empirical evidence on the evolution of international earnings. *Accounting Rev.* 77, 115–133.
- Lang, M., Lins, K., Miller, D., 2004. Concentrated control, analyst following, and valuation: do analysts matter most when investors are protected least? *J. Accounting Res.* 42, 589–623.
- Lang, M., Raedy, J., Wilson, W., 2006. Earnings management and cross listing: are reconciled earnings comparable to US earnings? *J. Accounting Econ.* 42, 255–283.
- Larcker, D.F., Richardson, S.A., Tuna, I., 2007. Corporate governance, accounting outcomes, and organizational performance. *Accounting Rev.* 82, 963–1008.
- Lau, S.T., Ng, L., Zhang, B., 2012. Information environment and equity risk premium volatility around the world. *Manage. Sci.* 58, 1322–1340.
- Lauterbach, B., Pajuste, A., 2015. The long-term valuation effects of voluntary dual class share unifications. *J. Corporate Finance* 31, 171–185.
- Lee, C.M.C., Mucklow, B., Ready, M.J., 1993. Spreads, depths, and the impact of earnings information: an intraday analysis. *Rev. Financial Stud.* 6 (2), 345–374.
- Lee, C.M.C., Ready, M.J., 1991. Inferring trade direction from intraday data. *J. Finance* 46 (2), 733–746.
- Lesmond, D.A., 2005. Liquidity of emerging markets. *J. Financial Econ.* 77 (2), 411–452.
- Leuz, C., 2006. Cross listing, bonding and firms' reporting incentives: a discussion of lang, raedy and wilson. *J. Accounting Econ.* 42, 285–299.
- Leuz, C., Nanda, D., Wysocki, P.D., 2003. Earnings management and investor protection: an international comparison. *J. Financial Econ.* 69, 505–527.
- Leuz, C., Verrecchia, R.E., 2000. The economic consequences of increased disclosure. *J. Accounting Res.* 38, 91–124.
- Li, K., Ortiz-Molina, H., Zhao, X., 2008. Do voting rights affect institutional investment decisions? evidence from dual-class firms. *Financial Manage.* 37, 713–745.
- Maskara, P.K., Mullineaux, D.J., 2011. Information asymmetry and self-selection bias in bank loan announcement studies. *J. Financial Econ.* 101 (3), 684–694.
- Masulis, R.W., Pham, P.K., Zein, J., 2011. Family business groups around the world: financing advantages, control motivations, and organizational choices. *Rev. Financial Stud.* 24 (11), 3556–3600.
- Masulis, R.W., Wang, C., Xie, F., 2009. Agency problems at dual-class companies. *J. Finance* 64, 1697–1727.
- McNichols, M.F., 2002. The quality of accruals and earnings: the role of accrual estimation errors: discussion. *Accounting Rev.* 77, 61–69.
- Mizik, N., Jacobson, R., 2007. Myopic marketing management: evidence of the phenomenon and its long-term performance consequences in the SEO context. *Marketing Sci.* 26 (3), 361–379.
- Morck, R., Yeung, B., Yu, W., 2000. The information content of stock markets: why do emerging markets have synchronous stock price movements? *J. Financial Econ.* 58, 215–260.
- Myers, J.N., Myers, L.A., Skinner, D.J., 2007. Earnings momentum and earnings management. *J. Accounting Auditing Finance* 22, 249–284.
- Nenova, T., 2003. The value of corporate voting rights and control: a cross-country analysis. *J. Financial Econ.* 68, 325–351.
- Ng, L., Sibilkov, V., Wang, Q., Zaiats, N., 2011. Does shareholder approval requirement of equity compensation plans matter? *J. Corporate Finance* 17 (5), 1510–1530.
- Nguyen, V.T., Xu, L., 2010. The impact of dual class structure on earnings management activities. *J. Bus. Finance Accounting* 37, 456–485.
- Niu, F., 2008. Dual-class equity structure, nonaudit fees and the information content of earnings. *Corporate Governance* 16, 90–100.
- Pinkowitz, L., Stulz, R., Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? a cross-country analysis. *J. Finance* 61, 2725–2751.
- Roychowdhury, S., 2006. Earnings management through real activities manipulation. *J. Accounting Econ.* 42 (3), 335–370.
- Rydqvist, K., 1992. Dual-class shares: a review. *Oxford Rev. Econ. Policy* 8, 45–57.
- Schmid, M., 2009. Ownership structure and the separation of voting and cash flow rights - evidence from Switzerland. *Appl. Financial Econ.* 19, 1453–1476.
- Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. *J. Finance* 52 (2), 737–783.
- Shroff, N., Sun, A.X., White, H.D., Zhang, W., 2013. Voluntary disclosure and information asymmetry: evidence from the 2005 securities offering reform. *J. Accounting Res.* 51 (5), 1299–1345.
- Smart, S.B., Zutter, C.J., 2003. Control as a motivation for underpricing: a comparison of dual and single-class IPOs. *J. Financial Econ.* 69, 85–110.
- Tinaikar, S., 2014. Voluntary disclosure and ownership structure: an analysis of dual class firms. *J. Manage. Governance* 18, 373–417.
- Trueman, B., Titman, S., 1988. An explanation for accounting income smoothing. *J. Accounting Res.* 26, 127–139.
- Venkatesh, P.C., Chiang, R., 1986. Information asymmetry and the dealer's bid-ask spread: a case study of earnings and dividend announcements. *J. Finance* 41 (5), 1089–1102.
- Warfield, T.D., Wild, J.J., Wild, K.L., 1995. Managerial ownership, accounting choices, and informativeness of earnings. *J. Accounting Econ.* 20, 61–91.
- Zang, A.Y., 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *Accounting Rev.* 87 (2), 675–703.