TIME-VARIATION OF DUAL-CLASS PREMIA

John Paul Broussard – Mika Vaihekoski*

Abstract

Dual-class share structures are common in many countries. Extant literature suggests that superior voting class shares should trade at a premium over the economic (limited-voting) shares. We revisit the dual-class shares phenomenon in a low-liquidity market environment and document highly time-varying, and at times, negative dual-class premium using Finnish data from 1982 to 2018. We document two major changes in the market for the dual class shares. First, a major decline in average premium and second, a relative decline in trading volume of the voting shares. This development took place after international investors were allowed to freely enter the Finnish market suggesting that the benefits of higher liquidity for economic shares has outweighed the voting premium creating at times negative dual-class premium.

Keywords: dual-class shares; voting rights; liquidity risk; dividend privileges

JEL classification: G32, G34.

* In alphabetical order. Broussard: Price College of Business, University of Oklahoma. Email: jpb@ou.edu. Vaihekoski (corresponding author): Turku School of Economics, University of Turku (UTU). Email: mika.vaihekoski@utu.fi. We thank the Sami Vähämaa (Editor), anonymous referee, Wolfgang Bessler, Michael Halling, Valtteri Peltonen and participants at the 17th Finance, Risk and Accounting Perspective Conference (Hanken), the 16th Corporate Finance Day (University of Groningen), the 11th Nordic Corporate Governance Network Conference (BI Oslo), Research Seminar (University of Vaasa) and Turku Accounting and Finance Seminar (University of Turku) for their comments. Broussard thanks Hanken and Fulbright Finland for generous support during first edition of this paper.

1 INTRODUCTION

"Activists say we should not be entertaining dual class shares, I say do it, with safeguards," David Gerald, president and CEO of the Singapore Investors Association (source: CNBC, 2017).

The advantages and disadvantages of dual class share structures have been controversial and have been debated for years (see, e.g., Jordan et al., 2016). The issue has risen to the forefront of the discussion more recently. One reason is due to a number of major technology (e.g., Facebook, Google, and Alibaba), and other companies (e.g., Berkshire Hathaway, We Company) issuing stocks with less voting rights, or no votes at all (e.g., Snap). This has forced several stock exchanges (e.g., Singapore Exchange SGX) to recently consider changing their listing rules to allow dual class share structures that were previously prohibited. On the other hand, some index providers have objected to these dual-class structures, made changes to index structure in favor of single-class share structures and at times, even excluding non-voting shares from the index despite the size of the company (see, e.g. Betzer et al., 2017).

Dual class shares have been in existence in financial markets for many years (for a review of their history in the USA, see Howell, 2017), and dual-class structures are commonly used in many countries especially in Europe, but also in the USA (c.f., Faccio and Lang, 2002). For example, 235 of the companies in the Russell 3000 (7.8 percent) have a dual (or triple) voting-class structure as of January 2018.[1] Typically, one class of shares (henceforth voting class shares) provides superior voting power over other share classes (henceforth economic class shares).

Extant literature indicates voting class shares trade at a premium over economic shares. The main explanation for the premium is the superior voting rights attached to the voting shares, even though the price difference can also reflect other differences between the share classes. The seminal empirical effort in this area is by Lease, McConnell and Mikkelson (1983), who show that superior voting shares in the US trade at a premium of around 5%. Horner (1988) analyzes dual class shares in Switzerland, and finds a voting premium of only around 1%. A large premium of around 80% is found in Italy by Zingales (1994). Smith and Amoako-Adu (1995) find a premium in Canada around 19% for 1988-1992, which is close to the premium documented in Sweden by Rydqvist (1992) of 15%, and Megginson (1990), who documents a premium around 13% in the UK.

However, there is evidence even of a discount for the voting class shares. For example, Neumann (2003) reports a negative premium (discount) for several firms over a long time horizon in Denmark and Ødegaard (2007) in Norway between 1988 and 1994. Their results emphasize the fact that the observed dual-class price differential also reflects liquidity. Besides liquidity, the voting premium can also reflect the fact that limited-voting share class may provide preferred access to economic benefits (e.g., in form of dividend privileges). Bigelli and Croci (2013) study this issue in Italy using annual panel data for 1999-2008. They find the value of the voting right to be +20.35%, but once the differences in the dividend privileges are taken into account, the average voting right has even higher value of +35.63%.

[1] See https://www.cii.org/dualclass_stock for the a complete list of the companies and the structures. For example, in January 2022, Council of Institutional Investors (CII) lists 353 US-incorporated publicly listed companies that have at least $200 million in market capitalization.

Obviously, the three main explanations (differences with respect to voting rights, liquidity, and dividend privileges) for the voting class shares' price premium are affected by a number of various company and country specific factors. For example, the value of voting rights increases if the likelihood of a control contest increases. Similarly, if there are fundamental changes in the relative liquidity of the stock classes, the premium adjusts accordingly. Nenova (2003) performs an exhaustive cross-country analysis using data for 1997 and finds the variation in the value of control-block to depend on various factors, including institutional structures and legal environments.

We focus on the main explanations for both cross-sectional and time-series differences in the relative prices between voting and economic class share series data for Finland over a long sample period from January 1982 to April 2018. Finland is an excellent case to study dual class share behavior because the proportion of companies with dual class structure is relatively high – at times, close to 20 percent of the listed companies had dual share classes publicly listed. Several companies have also given their economic shares dividend privileges. Moreover, market liquidity has varied considerably over time (see, e.g., Vaihekoski, 2009), and across share series suggesting illiquidity may be a driving feature related to dual-class premium behavior.

We also consider three major institutional and structural changes that have taken place in Finland, which may have had an effect on the premium. In particular, the decision to abolish all restrictions on foreign investments from the beginning of 1993 is expected to have a major effect on the dual-class premium as it basically lifted all restrictions on foreign ownership of voting class stocks. Finally, we also consider the effect of locked-in dual-class premium, which often happens when a decision is made to consolidate two series into one, or to delist the whole company. In both cases, the premium is often fixed before the actual unification of the series or delisting.[2]

We make several contributions to the literature. First, we analyze both the time series behavior of the dual class premium, as well as the cross-sectional structure. The long sample period of more than 35 years allows us to observe temporal, institutional, and structural changes in the dual-class premium. Second, we connect the premium to all main determinants of interest: differences in share classes' voting rights and dividend privileges as well as liquidity. We utilize daily data in the analysis as it allows us to study the effect of liquidity and thin trading in much more detail, as the illiquidity measures typically benefit from daily observations and since the illiquidity discount is typically considered to be highly time-varying (Watanabe and Watanabe, 2008). Daily data comes with a cost – non-trading may bias the results. Thus, we also provide a detailed discussion of the issues in using daily data to estimate the dual-class premium.

Third, we are one of the first ones to report a major decrease in the voting-class price premium after the restrictions on foreign investments were removed. Ødegaard (2007) finds the opposite to happen in the Oslo Stock Exchange in Norway after 1995 removal of foreigners' voting cap. We also document a clear shift in trading volume from voting class shares to economic class shares at the same time. In Norway, the relative liquidity of share classes did not change considerably. In Finland, however, the economic class shares increased their share of the combined trading volume from less than 50 percent to more than 80 percent. This suggests that

[2] For example, if a decision is made at the Annual Meeting to consolidate company's two share series, say, on 1:1 basis at the end of the year, the premium will most likely come down to zero almost immediately – often once the Board's proposal is made public.

foreign investors valued liquidity over corporate control, most likely due to their restricted ability to monitor the management, which arguably explains the different results for Norway and Finland.

Our results show that the dual-class premium is clearly time-varying, and, that the dual-class premium is connected to the number of voting rights, liquidity and dividend privileges in a way that is mostly consistent with expectations. The average effect of a single voting right on the price difference is approximately +0.52%. Thus, with the most prevalent 20 to 1 voting structure, the average premium for voting shares is +10.4%. Contrary to our expectations, we do not find the dual-class premium to be reduced after the new Securities Market Act (SMA) came into force in 1989, nor after the IFRS reporting requirement in 2005. However, we do find the average premium clearly shifts downward in early 1990, and especially after the abolishment of the restrictions on foreign ownership in 1993.

The paper is structured as follows. Section 2 explains the theoretical background and presents our hypotheses. Section 3 presents the institutional features of the Finnish stock market, data, and the model applied to test the hypothesis. Section 4 presents the results and robustness tests. Section 5 concludes.

2 THEORETICAL BACKGROUND AND HYPOTHESES

2.1 Background

It is well known that value of control is manifest in the market through pricing shares with more voting rights higher than shares with less voting rights (see, e.g., Bigelli and Croci, 2013). The premium[3] is due to the anticipated (option) right of the holders of the superior voting power class of shares to extract additional benefits through their ability to affect the decision making and/or ability to extract more information (for discussion, see e.g. Nenova, 2003). As a result, companies that want to sell economic shares to investors may be forced to offer some sort of dividend "sweetener" to the owners of the economic shares. These privileges might include a minimum dividend right, or a first right to the dividend, with or without an upper cap (see Bigelli and Croci, 2013, for a list of potential dividend related rights).

It is also known that investors price liquidity (see, e.g., Amihud, 2002). If the dual-class structure leads to an uneven division of liquidity across the series, one can expect the prices to be affected similarly. The concept of liquidity is, however, multifaceted. Trading volume is a traditional measure, with a focus on the overall ability to trade the stock. Bid-ask spread, another indicator of liquidity, can be seen as measuring the cost of trading, including information asymmetry between investors. Amihud's (2002) measure, on the other hand, is widely understood to measure the price impact of trading.

Obviously, the value of voting rights and liquidity are indirectly functions of several factors that cause time variation in the dual class premium. For example, the value of voting rights is

[3] Note that we make a difference between premium on value – difference in prices – and premium on required return. Higher premium on required return leads to lower price, ceteris paribus. Here, the dual class premium refers to the price difference between voting class shares and economic class shares. The term liquidity premium typically refers to the higher required rate of return set for illiquid assets. To avoid confusion, we utilize the term '(dual-class) premium' for the difference in prices.

influenced by likelihood of takeovers, changes in ownership structure, legislation, as well as other items (see, e.g., Smith and Amoaku-Adu, 1995). At times, it may be that opposing effects of multiple factors make the relative price difference negative.

Figure 1 shows how the relative price difference has varied for two Finnish companies. Figure 1a shows the variation for Nokia – once a leader in mobile phone market – and Figure 1b for Stockmann – the company behind the largest department store in the Nordic countries. Nokia ended its dual-class share structure in 1999 whereas Stockmann still maintains its dual-class structure, which was introduced in May 1982. We can easily observe that the dual-class premium has varied over time. At times, the premium has been in excess of 40 percent, but then there are times when it is clearly less than 10 percent. In addition, a preliminary analysis of the graph seems to suggest that the overall trend has been towards smaller premia.

Insert Figure 1 approximately here

2.2 Hypothesis development

We argue that the voting premium is a function of the voting rights difference between the share series. Since we cannot observe the voting premium directly, we take the price difference between voting and economic share classes as an estimate of the dual-class premium. We formulate the following hypothesis.

> H1: *The dual-class premium is positively related to the number of votes attached to the voting class shares*.

Giving dividend privileges to the economic class shares should lower the voting-class premium. There are two reasons for this. First, economic shares have higher expected cash flows (dividends). As a result, investors may require a higher rate of return from their investment into voting shares. Higher discount rate results in lower price. Thus, we form the following hypothesis.

> H2: *The dual-class premium is negatively related to the dividend privilege given to economic class shares*.

Similarly, research has clearly shown that liquidity is priced by the stock market and as such, differences in liquidity may cause prices of dual class shares to diverge (see, e.g., Schultz and Shive, 2010). Since higher liquidity should lead to lower liquidity premium, and hence higher valuation, ceteris paribus, we form the following testable hypothesis.

> H3: *The dual-class premium is positively (negatively) related to the higher liquidity (illiquidity) of the voting class shares (vis-à-vis economic shares)*.

We also study whether certain changes in the legislation and institutional setting have had an effect of the overall premium. We consider three specific changes. First, the Securities Market Act (SMA) that came into force in 1989, made it harder for insiders and majority owners to extract private benefits at the expense of the minority owners. For example, it basically made trading on insider information illegal, among other things. As a result, the premium attached to owning extra votes should decrease. As trading on insider information became less valuable,

one would expect that the value of control rights became less valuable. Thus, we hypothesize that the dual-class premium decreased after 1989.

H4: *The dual-class premium is reduced after the introduction of the SMA legislation.*

Second, we consider the abolishment of all restrictions on foreign investors from the beginning of 1993. This change can be argued to have opposing effects on the dual-class premium. On one hand, foreign investors are often found to be less willing to participate in the actual decision making of the company. If they are not satisfied with management, they vote with their feet. Thus, they are less likely to pay up for control rights – they rather pay more for higher liquidity. In addition, they are less likely to be able to enjoy private benefits from control, and thus they consider voting and economic shares as equivalent. They may even engage in trading strategies (e.g. pairs trading) that can eliminate the premium (Schulz and Shive, 2010). Thus, having more foreign investors can be argued to lower the premium. On the other hand, once the foreign investors are given a chance for a higher level of control, one would expect the demand for voting shares to go up vis-à-vis economic shares. This should drive up the value of the voting premium. Overall, considering both aspects, we hypothesize that the 1993 change had a decreasing effect on the dual-class premium.

H5: *The dual-class premium is reduced after restrictions on foreign investments were abolished.*

Finally, we study the requirement that publicly listed companies report financial performance according to IFRS, instead of Finnish accounting principles. Hong (2013) suggests that the introduction of the requirement for the IFRS accounting standards made it harder for insiders and majority owners to extract private benefits. The requirement for IFRS statements was initiated early 2005. Coincidentally the OECD introduced a new corporate governance guidance standard that was implemented in Finland beginning July 2004. By the end of 2004, the OECD required more information on management options and salaries to be reported. Although the changes introduced by the OECD are separate from the IFRS requirement, they all suggest a lower dual-class premium. In practice, the effect of these institutional changes do not happen overnight, and it is difficult to separate their effect as the effects are intertwined. Thus, we formulate the following hypothesis.

H6: *The dual-class premium is reduced after the introduction of the IFRS requirement.*

Even though some companies introduced the IFRS requirements into their financial statements prior to 2005, we study whether the premium is lower after 2005.

3 DATA

3.1 Finnish institutional setting

Several interesting institutional features differentiate the Finnish stock market (established in 1912) from other countries, especially the US, during the sample period analyzed in this paper, 1982-2018. First, Finnish companies have been able to issue different classes of shares ever since the Limited Companies Act went into force in 1895. Companies with dual shares were listed on the stock exchange as early as mid-1910, but it was not until the 1960s when Finnish companies began increasingly to issue common shares with lower voting rights. Figure 2 shows

the number of companies with two different share classes simultaneously listed in the Main List of the Helsinki Stock Exchange. Common shares with lower voting rights are known in Finland as preference (class) shares. Note that Finnish 'preference' shares differ from 'preferred' shares issued typically in the USA. Preferred shares typically have a priority over common shares for dividends. This may, or may not be the case with the Finnish preference shares. In addition, preferred shares typically have a cap on dividends, whereas in Finland, preference shares typically receive at least the same dividend as the common shares. Finally, preferred shares quite often do not have any voting rights, whereas preferences shares do have.

Insert Figure 2 approximately here

Finnish preference shares (from now on labelled as economic shares) are often labelled as E series (labels such as B or II were also commonly used) while ordinary common shares (henceworth voting shares) are often known as K series (A and I are also used).[4] There were many reasons for issuing economic shares. Economic shares were commonly seen at the time as a method of raising new capital, while keeping company control mostly unchanged. In some sense, their usage was a response to restrictions on foreign ownership. Some companies also used economic shares as a method to become publicly traded, but kept the voting shares private (e.g. Kone).

Second, a number of Finnish companies with a dual-class structure also provide dividend privileges to the economic share class. A common privilege is the first right to the dividend. For example, Nokia's preference shares (economic shares) had a first right up to a 10 percent dividend. If the dividend was less than ten percent, the right carried over to the next year. In addition, if the dividend paid to the common shares (voting shares) was more than ten percent, the preference shares were entitled to the same dividend.

Third, the Finnish stock market was in many ways underdeveloped and segmented from international markets until the 1990s. The first steps in the integration process were taken in the early 1980s, e.g., when foreign interest in Finnish stocks started to increase. As a result, foreigners started buying Finnish stocks, which led the government to restrict foreign ownership to 20 percent (later raised to 40 percent from the beginning of 1989) of the total equity. The shares made available to all investors (including Finnish investors) were labelled as *unrestricted*. Shares only available to Finnish investors were labelled as *restricted* stocks. Both instruments were traded and priced separately by the stock exchange from 1984 forward.[5] Nokia had as many as four listed stock instruments (common and preference, both available as restricted and unrestricted). Unrestricted stocks traded typically with a premium to the restricted ones (Hietala, 1989). The restrictions on foreign ownership were abolished from the beginning of 1993, and the number of listed stock series was cut almost by half (see Broussard and Vaihekoski, 2012, and Nyberg and Vaihekoski, 2014, for details).

Finally, liquidity in the Finnish stock market was fairly low, especially in the early 1990s, due to an economic crisis. This low level of liquidity generates a substantially thinly-traded market, which is manifest by low trading volumes and high bid-ask spreads. At times, the cross-sectional value-weighted average spread across all stocks listed in the stock exchange approached ten percent (see Vaihekoski, 2009). The median spread in the USA at the time was

[4] In the USA stocks with higher amount of voting rights are typically titled as common class B shares (e.g., Alphabet's class A shares have 1 vote, B shares have 10 votes), but there are also examples of the contrary (e.g., UPS's class B shares have 1 vote, A shares have 10 votes).
[5] The situation was similar in Norway and Sweden.

around two to three percent (see, e.g., Chung and Zhang, 2014). Spreads started to decrease, partly attributable to the government decision to remove the one percent of the value tax levied on all trades (i.e., stamp duty) in an effort to increase on-exchange trading. Ultimately, spreads declined to less than one percent for many stocks by the early 2000s. However, there are still major cross-section differences in liquidity between companies and shares series.

3.2 Sample data

Our sample period begins in January of 1982, and extends to the end of April 2018. Data include daily closing prices, returns, bid-ask (closing) offers as well as trading volumes of all stocks listed in the Official List (later Main List) of the Nasdaq OMX Helsinki Stock Exchange. Prior to 1991, the closing prices were not reported by the Stock Exchange. The closing prices for this period are calculated as the average of highest and lowest prices for the actual trades. After 1991, the Stock Exchange provides closing prices for each day. Data for 1982 to 2004 are from the Department of Finance and Statistics, Hanken School of Economics' database. The data after 2004 are mostly from Datastream.[6] Some data were hand edited or also collected from other sources to correct erroneous entries. All prices and bid-ask offers have been converted to euros prior to 1999 to keep the liquidity measures consistent around year-end 1998 when stock trading in Finnish Markka was replaced with euros.

We select those companies that have at least two different share classes listed simultaneously anytime during the sample period. As a result, we have 52 companies in our sample. We utilize data for the time period when the two series have both been listed. In many cases, one of the series was listed earlier and/or longer than the other series. If the company had both restricted and unrestricted dual-class shares available before 1993, when all shares became unrestricted, we have used the restricted series, which were typically more actively traded.

Our main variable is the dual-class premium i.e. the relative price difference between the prices of shares with more voting rights (voting class shares) and those with less voting rights (economic class shares). In practice, we first calculate the difference between the observed prices and divide it by the price of economic class shares. This measure is similar to what Bigelli and Croci (2013) use, among other measures.

When we calculate the price difference, we utilize daily closing prices for both series. As is always the case working with daily data – especially on a thinly traded market such as Finland – one has to be extremely careful in defining and operationalizing the variables. One would like to use real traded closing prices in calculating the premium.[7] However, if either or both of the voting and economic class shares' closing prices are missing (no trading) for a particular day, we have to select from different approaches to calculate the dual-class premium. The first alternative is to delete the whole observation. As a result, time series contains only real observed premiums. The downside is that the number of observations can decrease considerably. Moreover, if one is interested in calculating the cross-sectional average of the voting premium for the whole market, the average can show dispersion that is counterintuitive. To illustrate this, assume two companies in a cross-section. One company has a constant

[6] Hanken database is the best and most commonly used database for Finnish historical stock market data for the period covered. Datastream provides stock market time series for Finnish companies from March 1988 onwards. However, these time series are well known to have some errors and occasionally 'dead' (delisted) series are either hard to find or missing.

[7] As we are combining databases with different data structure, we harmonize the data before creating our variables. More details are available upon request.

observed premium of 10 percent, while the other has 110 percent, but its share series trade only every other day. Thus, the market average will be 60 percent and 10 percent on every second day.

As a remedy to the low number of observations, one can impute either missing price observation with the previous one. The downside of this alternative is that the premium can become systematically biased. Say we have voting and economic class shares with closing prices of 100 and 90, respectively. The next day, voting class share's price goes down to 85, but there are no trades on the economic class shares. Using the previous available closing price for the economic class shares leads to a premium of -5 (i.e., 85–90). A potential solution to this issue is to impute missing transaction prices with bid offers for the same day. This mitigates the problem, but one can still observe an unwarranted negative premium. A solution is to avoid mixing closing prices and bid offers. If either series' price is missing, one should impute both prices with bid offers, if they are available. Otherwise, one should delete the observation (i.e. set it to missing). As a result, the premium is measured as the difference in prices or bid offers.

Another potential approach is to use lagged premium observations to impute missing ones, i.e. the premium stays the same until we observe a new value based on actual market transactions. The result is convenient when one is interested in the cross-sectional average. The downside is, of course, that the observations are not actual, and one has introduced autocorrelation from smoothing the series. In large samples, the difference between the different alternatives is small, but in small samples, the difference can be quite significant.

We combine several alternative approaches when we create the dependent variable (dual-class premium) for the panel regression. We utilize true observed price difference, but if either price observation is missing due to illiquidity, we calculate the difference from the bid offers, if both are available. This creates a balanced trade-off between truly traded premiums and the number of observations. For the cross-sectional visual analysis (i.e., Figures 3 and 4), we utilize the last approach and impute companies premium series with last known value for the premium when even the bid offers are not available (taking into account delisting dates). This reduces unwarranted dispersion in the average cross-sectional premium.

Our first cross-sectional explanatory variable is the number of voting rights attached to the voting class shares divided by the number of voting rights given to economic class shares. Typically, the economic class shares have one vote and the voting class shares have either ten or twenty. The latter was the upper limit set by law prior to 2006, with some transitional provisions for companies whose bylaws were approved before 1978.[8]

Our second cross-sectional explanatory variable is a dummy for those companies that have given dividend privileges in one form or another to the economic class shares. Obviously, dividend privileges vary, but given their nature, one expects them to bring positive value to the owners of the economic class shares.[9] Of the 52 companies included in our sample, 15 had

[8] As an example of these older exceptions, Rosenlew (listed until 1987) had A and B shares listed. Voting class shares –A shares – had one voting right, whereas class B shares had one vote for each 100 B shares.

[9] During our sample period there was one exception. Namely, forestry company Kaukas Ltd. had three different share series. It had two economic share series, B and C, besides the voting shares series A. Series B and C had equal voting rights (1 vote for hundred shares owned), but series B did not have any preferential dividend right. Series C, on the other hand, had cumulative first right for dividend up to eight percent. Interestingly, if more that 8% was paid, C shares were paid one percent *less* than A and B shares. For the analysis in this paper, series A and B were selected to keep the dividend indicators consistent in the analysis.

given economic shares these privileges. The most common privilege was the first right to dividend up to certain level (typically either six or eight percent) and, if more was paid, right to at least equal dividend to that of the voting shares. This was the case for ten companies. Often the right carried over to the next year, i.e., if the dividend did not meet the threshold level, the missing part was paid first the next year. The next common privilege was a right to receive always two percent higher dividend than the voting shares.

The dividend rights could also be changed by amending the company bylaws. Interestingly there are two opposite examples of this in our sample. Namely, Rosenlew decided to make the economic shares more interesting to its shareholders. They called for an extraordinary meeting to change the company bylaws in August 1984. As a result, the company promised to pay both series the same dividend with the exception that the dividend on economic shares would be 2–5% higher if the dividend on the voting shares was at least 7%. The opposite took place with Ålandsbanken. The board made a proposal in March 2015 to remove the economic shares' first right to dividend up to six percent on the grounds of EU banking regulatory authorities' suggestion. The proposal, which was later accepted, also stated that no compensation will be given to the holders of the economic shares (i.e. B shares) for the removal of the right. This suggestion was justified by the fact that the right had merely a theoretical value as the dividend had always been higher than six percent and ``*... [we haven't] been able to see anything in the stock market's pricing of Series B shares indicating that the theoretical preference element in Series B shares should be assigned any value compared to Series A shares*" (Company announcement March 19, 2015). For these two companies, the values of their dividend dummy variable have been flipped after the decision of the Company Meeting (Rosenlew) or the Board's proposal (Ålandbanken).

Our third variable is both a cross-sectional as well as time-series explanatory variable. Namely, we use a variable to measure the relative liquidity difference between the two share series. Following the discussion earlier, we create three different measures of liquidity that potentially capture its differential aspects. The first one is the traditional bid-ask spread in percent of the midpoint. In the regression analysis, we use the difference between the log bid-ask spread for the voting shares and economic shares. If the bid-ask spread is missing for either series, value is set as missing. This variable measures relative illiquidity of the voting shares, and on a daily level. If their bid-ask spread grows wider (i.e., their illiquidity increases) vis-a-vis the economic shares, then the values of this variable increase.

The second measure is the difference in the series' trading volumes. In practice, we operationalize this variable as the percentage share of trading volume taking place on the voting class shares, i.e., the trading volume of the voting shares divided by the sum of trading volume of both voting and economic share classes, calculated over past 30 trading days (present day included).[10] If there are no trades taking place during the thirty-day period for either share series, the measure is not defined.

The last liquidity measure is based on the Amihud (2002) measure of illiquidity. It is basically the average of the daily absolute return to volume ratio within the selected period. A higher value suggests higher illiquidity – a given amount of trades have a bigger price impact on more illiquid stocks. Although a good measure as such, the Amihud measure does not work well in highly illiquid markets or if measured over short intervals. This is simply caused by the fact

[10] When the series have been simultaneously listed for less than 30 days, the sums are taken over those days that are available.

that if only few trades take place during the selected time interval, the Amihud values can vary extremely. To some degree, the variation can argued to be driven by issues other than the true liquidity (e.g., bid-ask bounce, overall market development, which is finally shown in the return, or by some more or less random trade). For this reason, we utilize the modified Amihud measure by Kang and Zhang (2014) which is defined as

$$\text{AdjILLIQ}_{i,t} = \left[ln\left(\frac{1}{Days_{i,t}}\sum_{d=0}^{Days_{i,t}-1}\frac{|R_{i,t-d}|}{Vol_{i,t-d}}\right)\right](1 + ZeroVol_{i,t}), \quad (1)$$

where $Days_{i,t}$ is the total number of non-zero trading volume days for stock i within the selected measurement interval, $Vol_{i,t-d}$ is the trading turnover (euro volume) on day t-d, $|R_{i,t-d}|$ is the absolute value of daily percentage return for stock i on day t-d, and $ZeroVol_{i,t}$ is the percentage of zero-volume days within the selected period.[11] If there are no trades taking place during the selected interval, the measure is not defined.

The Amihud measure is often measured on a monthly basis using trading days within each month. Thus, the measurement interval is approximately 20 trading days. Here, however, we utilize a rolling interval over the last 60 trading days (again less at the beginning of the sample/listing) i.e. approximately three months. The reason is that on illiquid markets, such as the Finnish market, it is not uncommon to have stocks without a single trade every month. As such, using only a few trade observations to calculate the Amihud measure, even when modified, can lead to major outliers or biased measurement.

As one can see from the definition, the values of $AdjILLIQ_{i,t}$ can be negative or positive and a higher value suggests higher illiquidity. For the empirical analysis here, the difference in liquidity between the series is calculated as the simple difference between the modified Amihud measures for both voting and economic shares.

In addition, we add indicator variables for the securities market act (value one for year 1989 and thereafter), the abolishment of all restrictions on foreign ownership (value one for year 1993 and thereafter), as well as for the adoption of IFRS (value one for year 2005 and thereafter). Finally, we also test whether there is month-specific behavior by adding monthly indicator variables into the model. In particular, we want to see if there exists some sort of turn-of-the year type of behavior or if the premium is higher ahead of the general meetings in the Spring.

3.3 Testable model and econometric considerations

To test our hypotheses, we form the following linear unbalanced panel model

$$RPD_{it} = \delta_0 + \delta_1 VotingD_i + \delta_2 Div_{it} + \delta_3 LiqD_{it} + \delta_4 TSctrls_t + \mu_i + \varepsilon_{it}, \quad (2)$$

where RPD_{it} is the percentage relative price difference between voting class shares over shares with fewer votes for company i at time t. δ_0 is the common intercept that captures the mean risk premium across companies and time. $VotingD_i$ is a company specific multiplier defined as

[11] Since the Hanken database calculates returns using prices augmented with bid offers, we have recalculated observations using only price observations. In practice, we have cumulated log returns between trading days to the first day with a trade.

the voting rights attached to the company's voting series shares (typically ten or twenty) divided by that of the economic shares (in most cases one). $DivD_{it}$ is a dummy that gets a value one if economic class shares have some kind of dividend privileges over the voting share class for company i at time t (constant for all but two companies). $LiqD_{it}$ is the difference in liquidity between voting class shares over economic class shares at time t. $TSctrls_t$ includes time series control variables (e.g., time specific fixed effects). Finally, μ_i is the constant (fixed) unobserved company specific effect not captured by other variables.

Since our model includes company specific fixed effects, one would proceed in estimating the model as a fixed effects (FE) model although a random effects (RE) estimator is more efficient if its underlying assumptions hold. However, the RE estimator assumes that the firm-specific effects are random. This is a usable assumption, if one has sampled N companies randomly from a large population. However, this is clearly not the case here. Moreover, a Hausman test statistic rejects the underlying assumptions behind the RE estimator.

Unfortunately, the FE estimator cannot estimate the effect of any time-invariant variables (here: especially $VotingD_i$ and to a great extend $DivD_{it}$) if we include a company-specific constant in the model (c.f., Baltagi, 2013). Although recently some advances have been made to circumvent this restriction under certain assumptions (see, e.g., Pesaran and Zhou, 2018), one typically proceeds with a pooled least squares approach which is also the case here. However, in our case, the number of individual dummies grows too large and the time-invariant variables are spanned by the individual dummies creating multicollinearity (c.f., Baltagi, 2013) which forces us to exclude company specific constants from the full model.[12]

4 RESULTS

4.1 Descriptive statistics

We have 52 unique cases in our sample. Our sample is cross-sectionally somewhat smaller than Bigelli and Croci (2013) with 72 unique firms (the number of firms simultaneously listed varied from 28 to 72) although our sample period (1982–2018) spans a longer time period than theirs (1999–2008). Similar to Bigelli and Croci (2013) as well as others (e.g., Braggion and Giannetti, 2019), we observe a negative trend in the number of firms with listed dual-class structures from 1990s forward (c.f., Figure 2). There can also be companies that have a dual-class structure where one of the classes is non-listed (typically the voting class). For example, Bessler and Vendrasco (2019) note that in 1994, Finland had 85 listed firms and 60 of them had a dual-class share structure.

Table 1 shows descriptive statistics for the variables used in this study. The mean number of companies over time with a dual-class premium observation is 15.2 with the minimum being ten and maximum of 23. The average voting rights multiplier for the voting class shares is 19.67 with variation from three to one hundred. On average 26.9 percent of the companies have given dividend privileges to the economic share class.

Insert Table 1 approximately here

[12] The Fixed-Effects Filter routine used in Pesaran and Zhou (2018) is not suitable for the model employed here as it does not estimate or report a common intercept for the model.

Figure 3 shows daily time-series evolution of the equally weighted average as well as cross-sectional dispersion of the price difference series for companies with dual-listed voting and economic class shares during the sample period. One can easily see that the price difference has clearly two different regimes – the period before and after 1993. Before 1993, the price difference is clearly higher and the cross-sectional dispersion high. From 1993 onwards, the average price difference is clearly lower and more stable with some short-lived increases. For example, year 2008 brought an increase in the price difference which cannot be contributed just to a few individual companies. The situation stabilized after 2009 and the price difference has slowly decreased.

Insert Figure 3 approximately here

Panel B in Table 1 shows the descriptive statistics for the cross-sectional average for the companies' dual-class premium time series. The results show a mean premium of 30.7 percent (standard deviation of 41.0 percent) when calculated over the price of the economic shares, and a 26.6 percent premium when calculated over the average price of both series. The maximum value was 169 percent in 1988 and the minimum minus 0.8 percent in 1997. At the company-level, the highest premium of 793 percent took place in August 1990, when WSOY A shares traded at FIM 2500 whereas B shares traded at FIM 280. The corresponding lowest premium took place in December 1989 when Suomen Trikoo's A series traded at FIM 19 against B series FIM 28. The average also shows strong autocorrelation (0.997). At the individual level, the autocorrelation is not as strong with an average of 0.904.

Panel C in Table 1 shows the cross-correlation matrix for the variables. In general, the variables do not show major correlations although, as expected, the liquidity variables show some evidence of correlation. The highest coefficient of correlation is between the trading volume and bid-ask spread variables.

Figure 4 shows the development of our three measures of liquidity (cross-sectional average). Table 1 shows the descriptive statistics for all three series. In Figure 4a we can see that the bid-ask spread of the voting class shares is typically higher than that of the economic class shares. On average, the log difference is 85.3 percent with a minimum value of -79.8% and maximum value of 262.9%. We can also see that the difference is highly time-varying. Interestingly, the relative difference in spreads remained quite stable until the early-1990s, after which the difference started to grow; bid-ask spread for voting class shares became higher increasing their illiquidity. This implies that investors increased their liquidity premium for the required rate for the voting shares vis-à-vis economic shares, thus implying a lower valuation and dual-class premium.

Insert Figure 4 approximately here

Figure 4b shows the cross-sectional average of the share of trading volume attributable to the voting class shares out of the total trading volume for both classes. On average, the voting class shares' trading volumes account for 24.6 percent of the trading with a minimum of 2.4% and maximum of 61.9%. Interestingly, on average, approximately half of the trading took place on the voting class shares until the early 1990s, after which the trading moved more and more towards the economic class shares. Of course, the division of trading between the classes reflects the number of shares issued to begin with in both classes, but the shift is still highly visible and interesting as such. As this variable measures relative liquidity, an increase in its value implies higher valuation for the voting class shares and thus higher dual-class premium.

Since the share of trading taking place on voting class shares has been declining, one expects the premium to be lower towards the end of the sample period, *ceteris paribus*.

Figure 4c shows the cross-sectional average of the difference between the modified Amihud (2002) measure for voting and economic class shares. Since it is a measure for illiquidity, a positive difference indicates that voting class shares are more illiquid, and a negative value the opposite. Somewhat surprisingly, the difference is negative, on average, almost until 2004, after which the voting shares became are clearly found to be more illiquid with this measure. The time series average for the difference in modified Amihud measure is 0.289 with minimum value of -3.132 and maximum of 4.455.

The results for liquidity warrant a closer look, especially with regards to the situation before 1993. Similar to Schultz and Shive (2010), our expectation is that voting class shares are typically less liquid – they are usually held for longer periods by long-term (controlling) investors and for many markets there are often fewer voting class shares issued to begin with. However, contrary to our expectation, liquidity is rather evenly divided between the classes before 1993. Bid-ask spreads are also quite similar. Voting class shares have actually lower values for modified Amihud measure indicating higher liquidity. To study whether this can be attributed to uneven distribution of the equity capital between the classes, we collected information on companies' equity capital.

In our sample, there are 32 companies listed before 1993. For these companies, the voting class shares represented, on average, 58.4 percent of the equity capital in 1992 (or earlier if there were delisted by then). Usually the capital is quite evenly divided between the classes, but there are eight companies for which voting class shares represent more than 70% of the total equity. If we also take into account that the liquidity for each class could have been divided between restricted and unrestricted shares, if listed separately, and compare the same ratio for those companies with and without adjustment for this, we can see that the ratio is 53.1% without the adjustment and 59.8% with the adjustment.[13] As such, voting class shares' surprisingly high liquidity in Finland before 1993 can be explained by the fact that Finnish companies issued relatively small proportion of economic class shares and, if unrestricted shares were listed separately, a larger fraction of them were voting class shares.

4.2 Regression results from the simplified model

We begin our panel regression analysis by analyzing the relationship between the dual-class premium and our three candidate explanatory variables for liquidity sequentially (Models Ia–Ic). Since none of the explanatory variables is time-invariant, we include a company specific constant into our pooled regression model to control for the company-specific effects. In addition, as the earlier results clearly indicated that there are two regimes, we decided to control also for the period before and after 1993. Table 2 shows the results. Since the daily premium series show strong autocorrelation we have also decided take into account autocorrelation and heteroscedasticity using the Newey-West heteroskedasticity and autocorrelation consistent

[13] The adjusted ratio takes into account only restricted shares as they were in most cases selected for our sample if unrestricted shares were listed separately. As an example, assume that company has voting A and economic B shares which represent book equities of 60 and 40, respectively. For B shares, there are restricted and unrestricted subclasses both of which are traded in the stock exchange. Restricted A and B class shares account for 80% and 70% of the A and B shares, respectively. Now, unadjusted ratio is 60/(60+40)=60% and the adjusted ratio is (60× 80%)/(60×80%+40×70%)=68.18%.

(HAC) covariance matrix. As a result, the reported parameter estimates are not affected, but the standard errors are typically, but not always, higher.

Insert Table 2 approximately here

The results show that all liquidity variables have significant relationship to the dual-class premium. Consistent with our expectation, higher values of the bid/ask spread and modified Amihud variables lead to lower dual-class premium (Models Ia and Ic), i.e., both measures are negatively associated with the dual-class premium. Thus, higher illiquidity of voting class shares leads to disproportionally higher required rate of return, and thus lower relative valuation and smaller premium. The results also support the hypothesis that if the share of total trading volume attributable to the voting class shares increases, the premium becomes higher (Model Ib). All parameter coefficients are highly significant. Finally, we combine all liquidity variables together and estimate the model again. The results (Model Id) show that all three variables are still statistically significant, and their signs remain consistent with the expectations.

In the next step, we test a model where we use two (almost fully) time-invariant company specific variables to explain the premium. Our first variable measures the difference in voting rights between the classes (Model IIa) and the second is an indicator variable for companies who have granted a dividend privilege to their economic class shares over the voting class shares (Model IIb). We also control for the regime before and after 1993. Due to time-invariant variables, we no longer have a company specific coefficients in the model. The results from pooled regression models are reported in Table 3.

Insert Table 3 approximately here

The results show that the dual-class premium is positively related to voting rights (0.004, *t*-value of 9.04) and negatively, although not significantly to dividend privileges (-0.016, *t*-value of -1.55). Both results are consistent with the expectations. The result holds even if we have both of them as regressors in the model (Model IIc). Next, we add the three measures for liquidity to the model (Model IId). Now even the dividend privileges variable becomes statistically significant (-0.026, *t*-value of -2.11). However, the signs for the coefficients for the bid-ask spread, and for the trading volume variables, flip and as such, they are no longer consistent with the expectation. The coefficient for the modified Amihud is in line with expectation. This result is likely to be due to the cross-correlation between the liquidity measures. Specifically, the bid-ask spread and trading volume variables were found to be highly correlated. Hence, for the remainder of the paper, we utilize the modified Amihud variable as our measure of liquidity.

4.3 Regression results from the full model

To test for the structural changes in the dual-class premium, i.e. our fourth, fifth and sixth hypothesis, we estimate the full model with dummies for periods after 1989 (for the introduction of the Securities Market Act), 1993 (foreign ownership freed), and 2005 (the IFRS requirement introduced). The results are reported as Model IIIa in Table 4.

Insert Table 4 approximately here

The results are at odds with our fourth and sixth hypotheses. Namely, the premium has increased on average after 1989 and 2005. These results are significant and contrary to our expectation that the Securities Market Act and the IFRS requirement would reduce the premium. To analyze this in more details, we re-estimate the model while controlling for year-specific effects. The results reveal interesting insight into how the premium began to decrease after 1989, and more so especially in 1993 (see Figure 5). In particular, the graph raises the question why was the premium especially high in 1986-1991. Comparing the period with that in Figure 3, one can see that at the same time there was record cross-section dispersion between the companies in their dual-class premia. Hence, it is evident that the premium is driven by a handful of companies. Therefore, one has to be careful before making any generalizations, but based on the historical analysis of the time period, we argue that the high premium at the end of the 1980s reflects two (or even three) main banking groups' fight for control in the Finnish economy.[14] Namely, at the time, Finland's financial system had a main-bank structure and as such, the biggest companies were typically considered to belong to one of the bank's sphere of influence, at times through bank's partial equity stake at the company. As the liberalization of the financial markets began in the early 1980s, the market for corporate control also started to take shape in Finland increasing the value of voting (control) premium.

Insert Figure 5 approximately here

The results in Table 4 give strong support for the fifth hypothesis, i.e. abolishment of the restrictions on foreign ownership decreases the premium. In fact, the results reveal a clear structural shift in the market dynamics. As the trading began to move more and more into the economic class shares (c.f. Figure 4b) increasing its liquidity, the net dual class premium collapsed. The same phenomenon took also place in Sweden (c.f., Holmén, 2011).[15]

Next, we re-estimate the model by taking into account locked premia in the sample. Namely, the sample includes companies where the two share classes have been unified or where the company has become delisted. In unification, voting class shares are converted into economic shares, or the other way around. In our sample, we can find eighteen companies for which this has happened (c.f., Maury and Pajuste, 2011, who find six such unifications in Finland during 1996–2002). In all cases, the conversion ratio has been announced before the actual consolidation and eventual delisting of the consolidated share class.[16] Similarly, when a company is delisted, we often face a situation where the voting class premium is locked prior to the delisting. A typical situation is a merger, where the buyer pays the shareholders of the target company either with cash or with its own shares, locking the premium paid on the voting class. In our sample, there are thirteen cases like this and, in almost all cases, a premium is paid on the voting shares. There is also one company where the owners of the target company were offered voting and economic shares in the buyer company. In this case, the premium – after the merger has been announced to the public – reflects the conversion ratio, and the prevailing dual-class premium of the target company. In all of these cases, the dual-class premium has

[14] Hyytinen et al. (2003) provide a detailed review of the historical development taking place in Finland. Wahlroos (2021) provides an eloquent first-hand view on the development during that time.

[15] Holmén (2011) finds the premium to be higher also in Sweden before 1993. He finds the mean premium to be 10.7 percent (11.3 % when calculated over the price of economic shares) during the 1985-1992 period and 4.1 (4.2 %) percent during the 1993–2000 period. The seemingly large difference between the average premium in Sweden and Finland can be attributed, at least to some degree, to differences in legislation, e.g., with respect to allowable premium paid to voting class shares in a takeover (see Ilmonen, 2016, for more information on the differences).

[16] The consolidation decisions are made after the fact – there were no companies with pre-set sunset provisions for the unification.

been locked-in after the information became public. Naturally, the observed premium on the market is not always strictly locked-in – the merger plan could be cancelled or the board's suggestion for the series consolidation could backfire. The observed prices vary within their bid-ask bounds creating small variation in the premium indicating that the observed dual-class premium is no longer determined by the market.

To take into account the locked-in periods, we go through the announcements made by the companies to find the earliest date where the lock-in was made publicly. Due to our long sample span, there is no known repository of announcements that covers the whole sample. Thus one has to painstakingly hand-collect them from various sources. Ultimately, we could find announcement dates for 26 cases. After this, we re-run the panel estimations with the data for lock-in period removed.

The results are reported in Table 4 as Model IIIb. For this analysis, we loose 2022 observations (1.6 percent of all) which is quite small fraction of the observations. Therefore, it comes as no surprise that the results are almost identical with the ones before for Model IIIa. Although the locked up premiums can potentially bias the results, the effect seems to be minor since the period for which the lock-up took place is typically relatively short.

One can also raise an issue whether our results are driven by the fact that we are using daily data. We acknowledge that daily data may include noise outside our control. Thus, we re-estimate Model IIIa using monthly data. We use month-end values for all variable. The results are reported as Model IIIc in Table 4. It is immediate clear that the results do not differ much from those estimated with the daily data. The number of observations is 6,244 and the adjusted R-square is 0.358. The biggest difference is that the dividend privilege indicator is significant only at the 5.5 percent level (-0.079, *t*-value of -1.91). Overall, although the results with the monthly data differ slightly from those with the daily data, we argue that it is due to fewer observations in the monthly analysis.[17]

Finally, we want to study whether the main results change if we estimate the model using only data after 1993 as the descriptive statistics shows that there was a clear structural shift in the dual-class premium. The results are reported as Model IIId in Table 4. Again, the results are consistent with the earlier ones. There are few differences, though. The main difference is that the average premium is clearly lower (5.3%) than for the full sample as suggested by the Figure 3. In addition, we can observe that the value of voting rights as well as dividend privilege are lower than before.

4.4 Additional analysis and robustness checks

To calculate the time-series average value (premium) for one additional voting right, we estimate Model IIIa while controlling for annual effects. The results (not reported) show that the average voting premium of 31.7 percent is increased by 0.52 percent for every voting right (indicating that 20 voting rights add premium by 10.4 percentage points). On the other hand, if the economic class shares have dividend privileges, it decreases the premium by 8.3 percentage points. Both results can be considered economically meaningful.

[17] We also test the model using modified Amihud measure and trading volume variables calculated using the trading days within the month in question. The results do not differ materially.

We also conduct additional tests to check the robustness of our results. First, we re-run Model IIIa with daily data based purely on observed closing prices. This naturally decreases the number of usable observations (here from 129,630 to 90,262). The results (not reported) are in line with previous results with the exception that the dividend privileges dummy is statistically significant only at the ten percent level (*p*-value of 5.44%).

Second, we estimate a dynamic version of the panel model. In practice, we estimate our model IIIa with the lagged dependent variable RPD_{it-1} among the regressors reflecting serial correlation in the premium. The results (not reported) show expectedly that the lagged premium is highly significant. The voting rights are still found positively related to the premium, and the dividend privilege negatively, although the latter relationship is significant only at the ten percent level (*p*-value of 6.90%).

5 SUMMARY AND CONCLUSIONS

We analyze dual-class share prices in a low-liquidity market environment using daily and monthly data from Finland over a long horizon from January 1982 to April 2018. Finnish publicly listed companies proved to be excellent cases for the analysis providing a rich variation in all variables considered. Our country-specific analysis with smaller sample size also highlights the fact that one has to be extremely careful in collecting data on corporate policies, as parts of the data have to be hand-collected from various, often historical, archives.

The results show that the dual-class premium varies across time and cross-section. We found support for the two main components of the dual-class premium, namely the voting premium and the cash-flow premium. The dual-class premium – the price difference between voting and economic class shares – is positively related to the voting rights difference between the voting class and economic class shares. On the other hand, the premium is negatively related to the dividend privileges given to the economic class shares.

Our third hypothesis argued that the time series variation of the premium is related to the differences in the series' liquidity. More specifically, higher liquidity for voting class shares vis-a-vis economic shares should lead to lower (relative) liquidity premium driving the price difference higher. Similar to earlier studies, our results show clear support for the liquidity explanation with the modified Amihud measure. This result has a clear implication for practice: Using the dual-class premium as a proxy for the value of voting rights is biased – one has to take into account differences in liquidity and dividend rights.

Interestingly, we also found a strong overall shift in the trading volumes from voting shares to economic shares that began in the early 1990s, around at the same time as the foreign ownership restrictions were abolished. This clearly contributed to the decrease in the dual class premia. It remains to be seen if this rather novel finding can be generalized and found from other countries, where similar development has taken place or is about to take place. As such, the observed pattern is important information portfolio managers as well as for different trading strategies (e.g., pairs trading), among others.

Finally, we also studied the connection between the dual-class premium and changes in both legal and institutional structures. We found a clear reduction in the premium after remaining restrictions on foreign ownership were lifted from the beginning of 1993. On the other hand,

we did not find evidence that the Securities Market Act or the IFRS adoption, both of which made the extraction of private benefits from controlling ownership harder, decreased the premium. To the contrary, the dual-class premium remained surprisingly high several years especially after the Act became effective. We argue that this reflects the prevailing birth of the market for corporate control in the late 1980s/early 1990s and Finland's largest banking groups' well-known fight for enlarging their economic sphere at the time.

As an extension for this study, it would also be interesting to study the company-specific drivers of the different parts of the dual-class premium as well as differences in trading volumes using more detailed information. However, these analyses would require a larger sample to get meaningful results.

REFERENCES

Amihud, Y. (2002) Illiquidity and stock returns: Cross-section and time-series effects. Journal of Financial Markets, 5(1), 31-56.

Baltagi, B. H. (2013) Econometric analysis of panel data. 5th Edition. Wiley: UK.

Bessler, W. – Vendrasco, M. (2019) Corporate governance and the relevance of shares with unequal voting rights in Europe. Unpublished working paper presented at the 11th Nordic Corporate Governance Network Conference, Oslo, Norway.

Betzer, A. – van den Bongard, I. – Goergen, M. (2017) Index membership vs. loss of voting power: The unification of dual-class shares. Journal of International Financial Markets, Institutions and Money, 49, 140-153.

Bigelli, M. – Croci, E. (2013) Dividend privileges and the value of voting rights: Evidence from Italy. Journal of Empirical Finance, 24, 94-107.

Braggion, F. – Giannetti, M. (2019) Changing corporate governance norms: Evidence from dual class shares in the UK. Journal of Financial Intermediation, 37, 15-27.

Broussard, J. P. – Vaihekoski, M. (2012) Profitability of pairs trading strategy in an illiquid market with multiple share classes. Journal of International Financial Markets, Institutions & Money, 22, 5, 1188-1201.

Chung, K. H. – Zhang, H. (2014) A simple approximation of intraday spreads using daily data. Journal of Financial Markets, 17, 94-120.

Faccio, M. – Lang, L. H. P. (2002) The ultimate ownership of western European corporations. Journal of Financial Economics, 65, 365-395.

Gompers, P. A. – Ishii, J. – Metrick, A. (2010) Extreme Governance: An Analysis of Dual-Class Firms in the United States. The Review of Financial Studies, 23, 1051-1088.

Hietala, P. T. (1989) Asset pricing in partially segmented markets: Evidence from the Finnish Market. Journal of Finance, 44(3), 697-718.

Holmén, M. (2011) Foreign Investors and Dual Class Shares. Unpublished working paper presented at the Nordic Corporate Governance Forum Conference, Helsinki.

Horner, M. R. (1988) The value of the corporate voting right: evidence from Switzerland. Journal of Banking and Finance, 12, 69-83.

Hong, H. A. (2013) Does Mandatory Adoption of International Financial Reporting Standards Decrease the Voting Premium for Dual-Class Shares? The Accounting Review, 88(4), 1289-1325.

Howell, J. A. (2017) The survival of the U.S. dual class share structure. Journal of Corporate Finance, 44, 440-450.

Hyytinen, A. – Kuosa, I. – Takalo, T. (2003) Law or Finance: Evidence from Finland. European Journal of Law and Economics, 16, 59–89.

Ilmonen, K. (2016) Dynamics of EU Corporate Governance Regulation -- Nordic Perspectives. University of Helsinki. Doctoral Dissertation.

Jordan, B. D. – Kim, S. – Liu, M. H. (2016) Growth opportunities, short-term market pressure, and dual-class share structure. Journal of Corporate Finance, 41, 304-328.

Kang, W. – Zhang, H. (2014) Measuring liquidity in emerging markets. Pacific-Basin Finance Journal, 27, 49-71.

Lease, R. – McConnell, J. – Mikkelson, W. (1983) The market value of control in publicly-traded corporations. Journal of Financial Economics, 11, 439-471.

Maury, B. – Pajuste, A. (2011) Private Benefits of Control and Dual-Class Share Unifications. Managerial and Decision Economics, 32(6), 355-369.

Megginson, W. (1990) Restricted voting stock, acquisition premiums, and the market value of corporate control. The Financial Review, 25, 175–198.

Nenova, T. (2013) The value of corporate voting rights and control: A cross-country analysis. Journal of Financial Economics, 68, 325-351.

Neumann, R. (2003) Price Differentials between Dual-Class Stocks: Voting Premium or Liquidity Discount? European Financial Management, 9(3), 315-332.

Nyberg, P. – Vaihekoski, M. (2014) Equity Premium in Finland and Long-Term Performance of the Finnish Equity and Money Markets. Cliometrica, 8, 2, 241-269.

Pesaran, M. H. – Zhou, Q. (2018) Estimation of time-invariant effects in static panel data models. Econometric Reviews, 37(10), 1137-1171.

Rydqvist, K. (1992) Dual-class shares: a review. Oxford Review of Economic Policy, 8, 3, 45–57.

Smith, B.F. – Amoaku-Adu, B. (1995) Relative prices of dual class shares. Journal of Financial and Quantitative Analysis, 30(2), 223-239.

Schulz, P. – Shive, S. (2010) Mispricing of dual-class share: Profit opportunities, arbitrage, and trading. Journal of Financial Economics, 98, 524-549.

Vaihekoski, M. (2009) Pricing of liquidity risk: Empirical evidence from Finland. Applied Financial Economics, 19(19), 1547-1557.

Wahlroos, B. (2021) Barrikadeilta pankkimaailmaan – Eräänlaiset päiväkirjat 1952-1992. Otava.

Watanabe, A. – Watanabe, M. (2008) Time-Varying Liquidity Risk and the Cross Section of Stock Returns. Review of Financial Studies, 21(6), 2449-2486.

Zingales, L. (1994) The value of the voting right: a study of the Milan Stock Exchange experience. Review of Financial Studies, 7, 125-148.

Ødegaard, B. A. (2007) Price Differences Between Equity Classes. Corporate Control, Foreign Ownership or Liquidity? Journal of Banking and Finance, 31, 3621-3645.

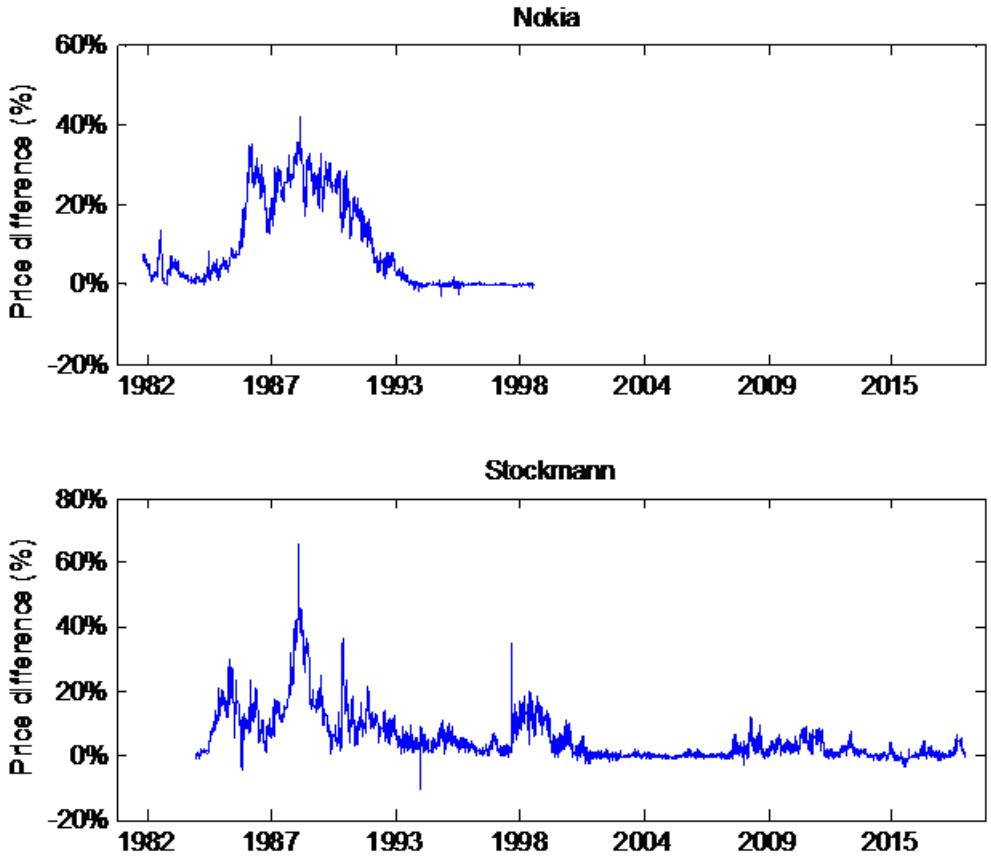

Figure 1. Daily price difference (percent of the economic share price) for Nokia and Stockmann for the periods, when they had both restricted share classes listed. In case price observation is missing for either class but bid offers are available for both series, bid offers are used. Nokia unified the share classes in 1999.

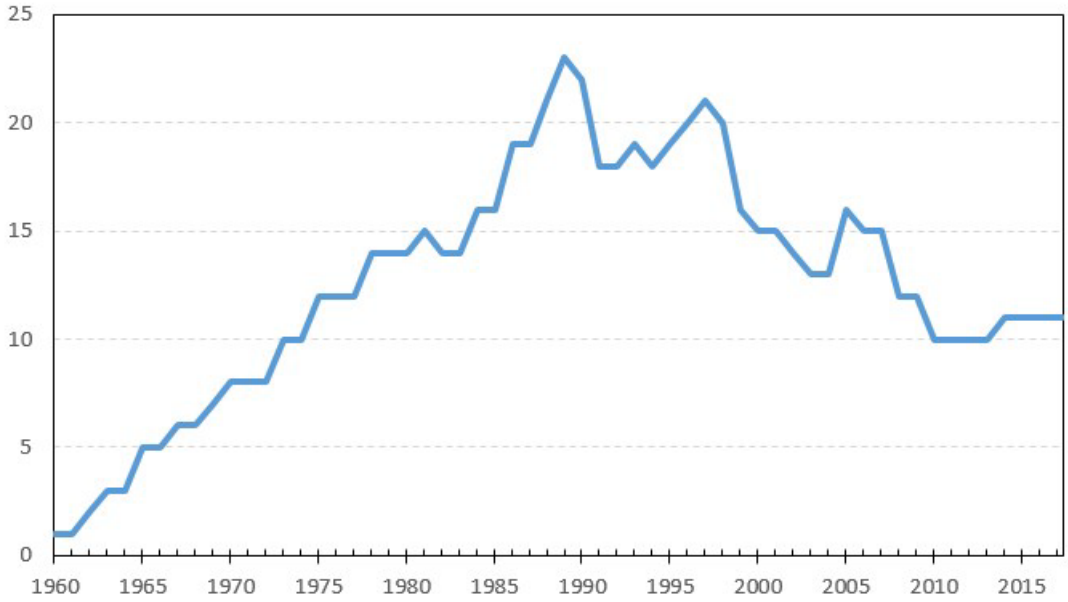

Figure 2. Number of companies with two (or more) different share classes simultaneously listed on the Main List of the Helsinki Stock Exchange 1960–2018 (year-end figures, 2018 from April).

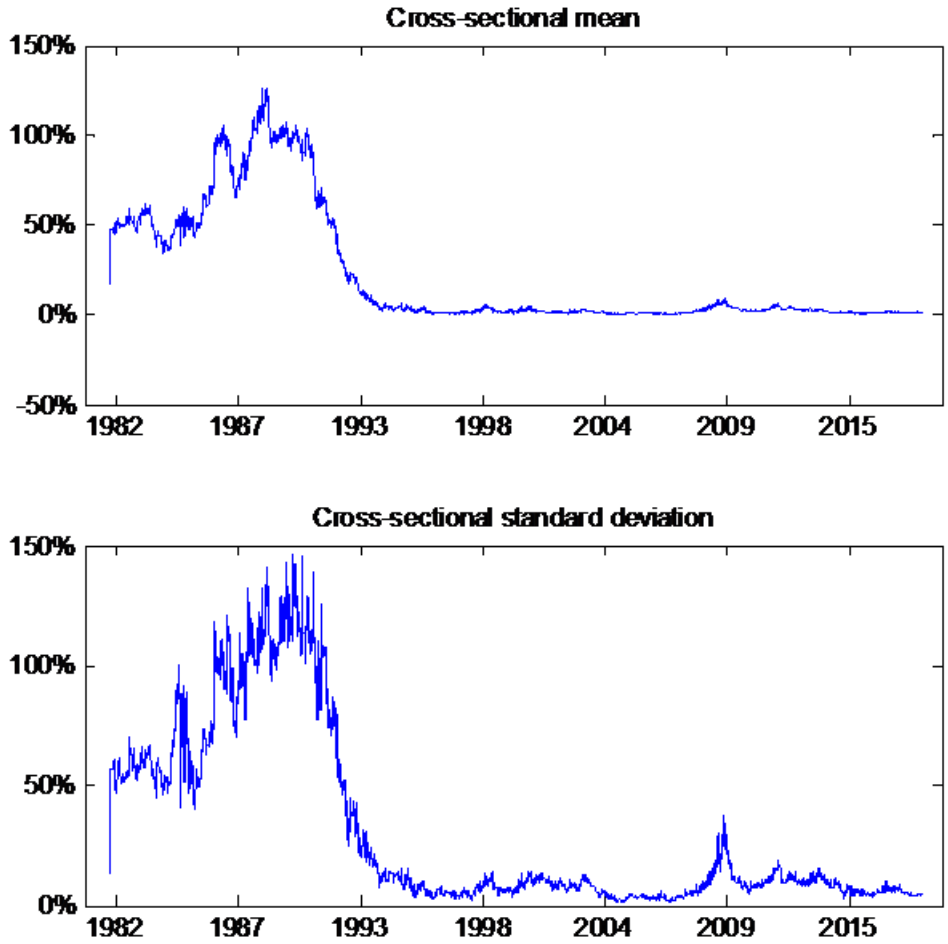

Figure 3. Equally weighted cross-sectional average and standard deviation (dispersion) of the dual class premiums, percent of the preference share price 1982–April 2018. If no trades on either of share classes, bid offers are used to impute price matrix if available for both. If not, previous premium is used.

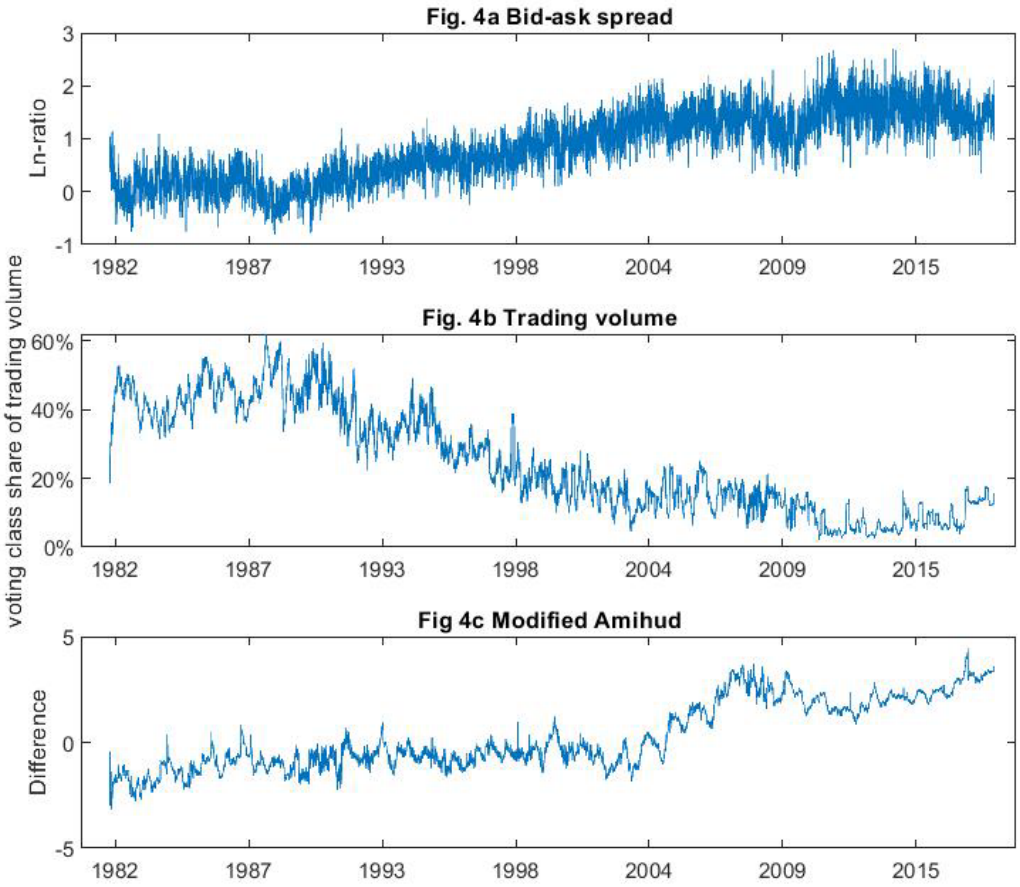

Figure 4. Equally weighted cross-sectional average of the log-ratio of bid-ask spreads for voting and economic class shares (Fig 4a), voting class shares' proportion of combined trading volume (Fig 4b) and the simple difference between modified Amihud measures (Kang and Zhang, 2014) for voting and economic class shares (Fig 4c), all from January 1982 to April 2018.

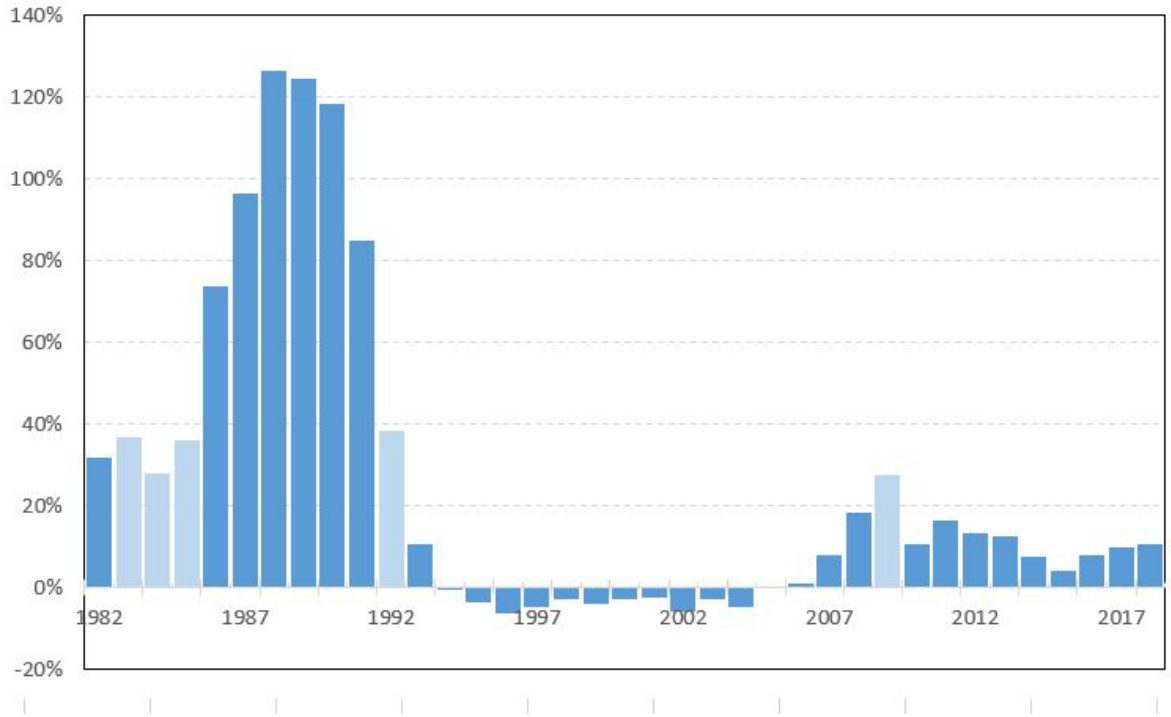

Figure 5. Fixed year effect from Model IVa. Values significantly different from the effect for year 1982 are with darker shade.

Table 1. Descriptive statistics

Descriptive statistics for the cross-sectional variables are shown in Panel A and time series average for the equally weighted cross-sectional average across the series each day are shown in Panel B. Panel C shows the cross-correlation matrix for the variables. Number of companies is the mean number of companies with dual-listed share classes during the sample period. Voting power multiplier is the number of voting rights given to the voting class shares divided by the number voting rights given to the economic class shares. Dividend privilege is an indicator variable with value one if economic class shares are given these rights, zero otherwise. Dual-class premium is the price difference between voting and economic class shares, divided by the economic class shares' price. Trading volume is the fraction of trading volume contributed to the voting class shares (0-100%). Bid-ask spread is the log-ratio of bid-ask spreads for voting and economic class shares. Modified Amihud is the simple difference between the modified Amihud (Kang and Zheng, 2014) measure of illiquidity for voting and economic class shares.

Variable	Mean	Min	Max	SD	Jarque-Bera (p-value)	1st order AC
Panel A: Cross-sectional statistics						
Voting rights multiplier	19.673	3	100	20.714	n/a	n/a
Dividend privilege	0.269	0	1	0.448	n/a	n/a
Panel B: Time-series properties of the equally-weighted cross-sectional average						
Number of companies	15.218	10	23	3.727	n/a	n/a
Dual-class premium	0.307	-0.009	1.691	0.410	<0.001	0.997
Trading volume	0.246	0.024	0.619	0.151	<0.001	0.996
Bid-ask spread	0.853	-0.798	2.629	0.646	<0.001	0.877
Modified Amihud	0.289	-3.132	4.455	1.586	<0.001	0.996
Panel C: Cross-correlation matrix						
Dual-class premium	1					
Bid-ask spread	-0.1131	1				
Trading volume	0.1078	-0.4858	1			
Modi_ed Amihud	-0.2710	0.1434	-0.1708	1		
Voting rights multiplier	0.1528	0.0126	-0.0302	-0.2119	1	
Dividend privilege	0.0890	-0.1245	0.2098	-0.3646	-0.0078	1

Table 2. Panel regression results for the liquidity measures

Relative voting class shares' price premium is regressed against a number of explanatory variables. Variables are explained in Table 1, expected sign in parenthesis. Unbalanced panel data for 52 companies is used with daily data from 1982 to April 2018 (9,072 days). Parameter values from pooled linear regression are reported together with the robust heteroscedasticity and autocorrelation consistent Newey-West (1987) standard errors in parenthesis. Company specific effects and the period before 1993 are controlled for in all Models. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

Variable (expected sign)	Model Ia	Model Ib	Model Ic	Model Id
Constant (+)	0.047***	-0.046***	-0.006	-0.031***
	(0.007)	(0.011)	(0.008)	(0.012)
Bid/ask spread (-)	-0.068***			-0.053***
	(0.003)			(0.003)
Trading volume (+)		0.430***		0.438***
		(0.021)		(0.025)
Modified Amihud (-)			-0.014***	-0.012***
			(0.002)	(0.002)
N	131,359	137,868	129,630	123,279
Adj. R^2	0.411	0.414	0.401	0.422

Table 3. Panel regression results

Relative voting class shares' price premium is regressed against a number of explanatory variables. Variables are explained in Table 1. Unbalanced panel data for 52 companies is used with daily data from 1982 to April 2018 (9,072 days). Parameter values from pooled linear regression are reported together with the robust heteroscedasticity and autocorrelation consistent Newey-West (1987) standard errors in parenthesis. Period before 1993 is controlled for in all models. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

Variable (expected sign)	Model IIa	Model IIb	Model IIc	Model IId
Constant (+)	0.012**	0.073***	0.016**	0.145***
	(0.006)	(0.003)	(0.007)	(0.012)
Voting rights (+)	0.004***		0.004***	0.001***
	(0.000)		(0.000)	(0.000)
Dividend privilege (-)		-0.016	-0.014	-0.026***
		(0.010)	(0.010)	(0.012)
Bid/ask spread (-)				0.014***
				(0.003)
Trading volume (+)				-0.482***
				(0.026)
Modified Amihud (-)				-0.032***
				(0.002)
N	137,880	137,880	137,880	123,279
Adj. R^2	0.334	0.328	0.334	0.376

Table 4. Panel regression results, full model

Relative voting class shares' price premium is regressed against the main explanatory variables. Variables are explained in Table 1. Unbalanced panel data for 52 companies is used with daily data from 1982 to April 2018 (9,072 days). Model IIIa uses the original data. Model IIIb is similar to IIIa, but now data for the periods after locked-up premium have been removed from the sample. Model IIIc is similar to IIIa, but monthly data is used. Models IIId is estimated using a subsample after 1993. Parameter values from pooled linear regression are reported together with the robust heteroscedasticity and autocorrelation consistent Newey-West (1987) standard errors in parenthesis. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5% and 10% level, respectively.

Variable (expected sign)	Model IIIa	Model IIIb	Model IIIc	Model IIId
Constant (+)	0.726***	0.723***	0.731***	0.053***
	(0.020)	(0.020)	(0.062)	(0.006)
Voting rights (+)	0.003***	0.003***	0.003***	0.002***
	(0.000)	(0.000)	(0.001)	(0.000)
Dividend privilege (-)	-0.080***	-0.083***	-0.079***	-0.014***
	(0.013)	(0.014)	(0.041)	(0.004)
Modified Amihud (-)	-0.038***	-0.039***	-0.040***	-0.007***
	(0.002)	(0.002)	(0.006)	(0.001)
Post 1989 (-)	0.254***	0.259***	0.242***	
(SMA legislation)	(0.027)	(0.027)	(0.082)	
Post 1993 (-)	-0.964***	-0.965***	-0.955***	
(Foreign ownership)	(0.022)	(0.022)	(0.066)	
Post 2005 (-)	0.126***	0.127***	0.132***	
(IFRS)	(0.006)	(0.006)	(0.016)	
N	129,630	127,680	6,244	82,019
Adj. R^2	0.360	0.360	0.358	0.024