Timing and Wealth Effects of
German Dual Class Stock Unifications[#]

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Abstract:

This paper studies the reasons and the costs of separating ownership from control by analyzing the decision of German dual class firms to consolidate their share structure from dual to single class equity between 1990 and 2001. We find that the firm value increases significantly by an average 4% on the announcement day. A significant part of the variation in abnormal returns can be explained by the ownership structure. A logit analysis of the unification decision yields that firms with less entrenched management are more likely to unify. Also, firms that are financially constrained are more likely to abolish dual class shares; these firms often issue additional shares after the stock unification.

JEL Classification Codes: G32, G34

1. Introduction

Dual class shares are common in many countries around the world. Among the 49 countries analyzed by La Porta et al. (1998), 38 permit some form of separation between ownership and control and at least 21 of them actually do have dual class firms.[1] This paper addresses the question whether dual class structures create or destroy value. The theoretical literature on this issue is indecisive as it just points out the costs and benefits of separating ownership from control but cannot determine the net effect. On the other hand, there is surprisingly little empirical evidence on the efficiency of dual class shares, and empirical results are mixed and often inconclusive.[2]

This paper analyzes a unique sample of 89 German dual class firms from 1990 to 2001. Over this period, 32 firms decided to abolish their dual class structure. By analyzing the abnormal returns to the stock unification announcement, we can answer the question about the efficiency of dual class shares for the subset of firms that choose to abolish them. In addition, this approach allows us to distinguish between several potential sources of inefficiency, so that we can identify the main costs of dual class shares. We also analyze firms' decisions to abolish the dual class structure in order to understand why and when controlling shareholders agree to a dilution of their voting power.

We work with German data, because Germany is one of the largest capital markets where a large fraction of firms maintains a dual class structure.[3] Also, dual class structures are more homogenous in Germany than in many other countries, especially in the U.S. or the U.K., because German law severely restricts a firm's choice of dividend and voting rights of inferior voting shares. Moreover, German legislation on dual class shares did not change during our sample period. In particular, there was no legal change that forced firms to abolish dual class shares as in Israel (see Hauser and Lauterbach, 2004) or Switzerland (Kunz, 2002).

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[1] In a study on cross-listed dual class firms, Doidge (2003) analyzes a sample of dual class firms from 20 countries which are included in the La Porta et al (1998) list. The 21st country is the U.S.

[2] See Section 2 for a brief review of the literature on the costs and benefits of dual class structures.

[3] In 1995, 26 of the largest 100 publically traded German firms had dual class stock.

In our event study, we find a 10% significant positive abnormal return for non-voting shares and a 3% marginally significant positive abnormal return for voting shares. The total market capitalization increases significantly by 4% on average. Since the controlling shareholder must have agreed to the unification, the positive abnormal returns imply that dual class structures destroyed corporate value for those firms that choose to unify. Our results do not imply, however, that *all* dual class structures are inefficient. Existing event studies (Ang and Megginson, 1989, for U.K. data and Kunz, 2002, for Swiss data) do not find a significant effect of the announcement of a stock unification on a firm's market capitalization. Ang and Megginson (1989) work with monthly share prices, so that their tests have comparatively low power. The stock unifications analyzed by Kunz (2002) were largely anticipated due to a previous change in legislation that leveled the differences between the individual share classes. In our dataset, we can also find indications that stock unifications were partly anticipated. Therefore, the 4% abnormal announcement return should be regarded a conservative estimate of the discount at which these dual class firms traded in the past.

In regressions of the cumulative abnormal returns we find strong evidence that the discount at which dual class firms trade before the unification announcement is mainly determined by agency costs. About 19% of the variation in the cumulative abnormal returns can be explained by the size of the largest voting block: Firms with larger blocks experience higher abnormal returns. Interestingly, the second largest block is not significantly related to the abnormal return, but the sum of all reported blocks is more significant than the largest block alone and can explain approximately 32% of the variation. This finding suggests that the smaller blockholders do not prevent the largest blockholder from extracting private benefits, but rather enter into a coalition with the largest blockholder to share in the private benefits. In addition, we find weak evidence for the hypotheses that dual class firms trade at a discount because liquidity is spread over two classes of shares or because dual class firms are less likely to be included in a stock market index. In contrast, we cannot find any evidence that international investors avoid dual class firms.

In the second part of the paper, we investigate when and why controlling shareholders agree to abolish the firm's dual class structure. We argue that the discount at which dual class companies trade in the market translates into a cost for the controlling shareholder if she wants to sell some of her shares or if the company

plans to issue additional shares to outside shareholders. If these costs exceed the blockholder's expected private benefits from control, she will agree to a stock unification. Therefore, we expect that financially constrained firms (which need new equity capital) and firms with less entrenched managers[4] (who have fewer opportunities to extract private benefits) are more likely to perform a stock unification. In a logit analysis, we find that the size of the largest voting block has a significant negative impact on the unification probability, which corroborates that firms with more entrenched managers are less likely to perform a stock unification. On the other hand, zero dividend payments significantly increase the probability of a stock unification, so financially constrained firms are more likely to abolish dual class shares.

Our empirical results are in stark contrast to the reasons for the stock unification given by the firms themselves. The reasons most frequently given are to improve liquidity, to become more attractive to international investors and to improve the chances of the firm being included in a major stock index. Interestingly, these reasons are hardly significant in our empirical analysis. Instead, corporate governance issues turn out to be the main determinants of the decision to abolish dual class shares and the subsequent stock market reaction. Only three firms in our sample officially admitted that they abolished dual class shares in order to improve corporate governance.

We also establish that a stock unification is only one aspect of a more general transformation of a firm's ownership structure. In particular, we find that the average size of the largest voting block gradually decreases from 62% four years prior to the unification to 46% immediately before the unification and to 41% two years after the unification. Hence, the general picture that emerges from our analysis and previous research is that the introduction and the abolition of a dual class structure are two natural points of the life cycle of a firm. Young firms are typically financed by an individual or a family. As a firm grows, it needs more equity capital and the controlling shareholder might decide to issue non-voting shares in order to stay in control and continue consuming private benefits of control. As such a firm grows further and issues additional shares, the dual class structure becomes more and more costly to the controlling shareholder. Therefore, at some critical firm size, the

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[4] We do not distinguish between controlling shareholder and managers in this paper.

blockholder decides to abandon the dual class structure and to give up her exclusive control. Consequently, a dual class structure should be considered a phase a firm is going through rather than a fixed characteristic of a firm.[5]

The paper is organized as follows. The next section reviews the literature on the costs and benefits of dual class structures. On this basis, we develop a few hypotheses in Section 3 that will guide the subsequent empirical analysis. Section 4 introduces the dataset and some institutional details. Sections 5 and 6 contain the empirical analysis. Section 5 studies the wealth effects of a stock unification and Section 6 investigates the unification decision. Finally, Section 7 concludes. The appendix explains how the variables used in the analysis have been constructed.

2. Review of the literature on the costs and benefits of dual class structures

Dual class firms typically have a blockholder who holds more than 50% of the voting rights but considerably less than 50% of the cash flow rights.[6] Such a controlling shareholder pays less than 50 cents for each dollar of private benefits she extracts from the firm. Consequently, more private benefits of control are extracted under a dual class structure than under a single class structure. If the controlling shareholder is risk neutral and wealthy enough to hold 50% of the cash flow rights, a single class structure is clearly more efficient than a dual class structure, because the

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[5] This argument could be analyzed with a duration model that models the time passed until the retirement of non-voting shares. Since our independent variables can only be sampled at annual intervals, a discrete proportional hazard model would be the most obvious choice. However, under the assumption that the baseline hazard does not depend on the duration (i.e. age) of the dual class structure, the discrete proportional hazard model is identical to the logit model used in our analysis (see Beck, Katz and Tucker, 1998).

[6] In our sample, the largest shareholder controls a median 52.9% of the votes (see Table 2) and owns 36.8% of the cash flows (not reported in the tables). This is in line with DeAngelo and DeAngelo (1985) who report for the United States that corporate officers and their families hold a median 56.9% of the votes and 24% of the cash flows. In contrast, Bergström and Rydqvist (1990) find that the largest shareholder coalition of Swedish dual class companies holds an average 40.3% of voting rights and 31.9% of cash flow rights. These results suggest that the proportion of votes needed for the extraction of private benefits differs between countries. In the following, we use the 50% threshold for illustrative purposes only. The argument continues to hold for any higher or lower threshold than 50%.

additional private benefits extracted under the dual class structure are more expensive to the firm than their value to the controlling shareholder is. However, if either the controlling shareholder is not wealthy enough to buy 50% of the cash flow rights or she is risk averse and therefore not willing to invest more money in the firm, a dual class structure can be efficient, because it allows the extraction of efficient private benefits that have a higher value to the controlling shareholder than they cost to the firm (see Bebchuck, 1999, and Gomes, 2000). In addition, a dual class structure can improve the managements' incentives to exert effort (Aghion and Tirole, 1997), to invest in firm specific human capital (DeAngelo and DeAngelo, 1985, Denis and Denis, 1994), or to pursue the firm's growth opportunities (Attari and Banerjee, 2003).

An additional cost of dual class structures can arise when there are competing management teams that differ in their management quality and the amount of private benefits they can extract from the firm. Grossman and Hart (1988) and Harris and Raviv (1988) show that an inefficient team might end up managing the firm under a dual class structure, because they can extract more private benefits. In contrast, Blair, Golbe and Gerard (1989) and Burkart, Gromb and Panunzi (1998) argue that dual class structures can be efficient because they potentially raise the probability of a welfare increasing takeover.

Given these contrary theoretical results, the question whether or not dual class structures are efficient remains an empirical issue. In order to answer this question, estimates of the costs of the dual class structure to the firm and estimates of the additional private benefits obtained by the controlling shareholder are needed, and accordingly the empirical literature falls into two branches. The first branch is concerned with the estimation of private benefits of control. Barclay and Holderness (1989) and Dyck and Zingales (2001) estimate private benefits of control from the price difference between block trades and market prices, whereas Nenova (2003) and Dittmann (2003), among others, estimate private benefits of control from dual class share prices.

The second branch, to which this paper contributes, attempts to estimate the costs of the dual class structure to minority shareholders. Smart and Zutter (2003) find that dual class IPO firms have a markedly higher earnings-to-price multiplier than single class IPO firms. Partch (1987) finds a significantly positive price response of 1.2% to the announcement of plans to create a second class of shares in the US, but the median

price response is not significantly different from zero. In contrast, Jarrell and Poulsen (1988) find a small significantly negative wealth effect of –0.8% for a wave of dual class recapitalizations in the mid 1980s. For the UK, Ang and Megginson (1989) report a positive abnormal return of 5.1% to the announcement of a plan to issue restricted voting shares. A potential explanation for these contradictory findings is that the introduction of a dual class structure also helps to overcome financing constraints faced by the firm. Such financing constraints can arise when the controlling shareholder is neither willing to invest more money in her firm nor to relinquish control by selling new equity to outsiders (see Attari and Banerjee, 2003). In such a situation, the announcement of a dual class reclassification means that a financially constrained single class firm becomes a financially unconstrained dual class firm, and it will be difficult to disentangle the two effects.

A more promising way to quantify the costs of the dual class structure is to study the abnormal returns to the announcement of a dual class stock unification, i.e. the abolition of inferior voting shares. To our knowledge, there are only two other papers that perform such an event study: Ang and Megginson (1989) consider 49 UK firms that announced a stock unification between 1955 and 1982. Kunz (2002) analyzes 46 Swiss dual class unifications between 1992 and 1994. Neither study finds a significant effect of the unification announcement on the firm value. The reason for the insignificance of the results presumably is that Ang and Megginson (1989) work with monthly returns, so that their tests have comparatively low power, while the stock unifications analyzed by Kunz (2002) were largely anticipated due to a previous change in Swiss legislation that greatly reduced the practical differences between voting and non-voting shares. Nevertheless, Kunz (2002) reports a significantly positive abnormal return of non-voting shares of 2.6%.

Our paper makes several contributions to the literature. It is the first paper that finds a statistically and economically significant abnormal increase in firm value to the announcement of a stock unification. It is also the first paper that analyzes the main determinants of these abnormal returns. As the controlling shareholders must have agreed to the stock unifications analyzed in this paper, we can also estimate an upper bound of the additional private benefits the controlling shareholder obtained in

the past under the dual class structure.[7] Moreover, we can at least partially judge the efficiency of dual class structures. Finally, our paper is – together with independent work by Pajuste (2004) – the first paper that analyzes the decision to abolish dual class stock and hence to give up the separation between ownership and control.[8]

3. Hypothesis development

3.1 Hypotheses on the wealth effect of dual class stock unifications

From the literature reviewed in the previous section, we derive the general hypothesis that a dual class structure has a negative impact on the market value of the firm, where the market value is defined as the number of voting shares multiplied by the market price of voting shares plus the number of non-voting shares multiplied by the market price of non-voting shares. Note that this market value does not include private benefits of control. Therefore, this hypothesis does not state that dual class firms are inefficient; it merely asserts that minority shareholders are better off with a single class firm.[9] We list the potential reasons for the discount at which dual class firms trade in the form of four hypotheses:

Hypothesis A1 (agency costs): Dual class firms with more entrenched management trade at a higher discount. We call the management of a firm 'entrenched' if (1) they have incentives to extract inefficient private benefits (i.e. the costs of these private benefits to the firm exceed their value to the management) and

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[7] If the total market capitalization increases by 4% on the announcement day and the controlling shareholder held 50% of the voting rights before the stock unification, the value of the additional private benefits consumed under the dual class structure must have been lower than 2% (=50%*4%) of the market capitalization. Otherwise the controlling shareholder would not have agreed to the stock unification.

[8] The decision to *introduce* dual class shares has been studied by Lehn, Netter and Poulsen (1990) and Mikkelson and Partch (1994).

[9] We could also formulate the reverse hypothesis that a dual-class structure is beneficial to minority shareholders, because it provides better incentives for managers to exert effort, to invest in firm-specific human capital, or to pursue the firm's growth opportunities. Under this hypothesis, however, it is not clear why we should observe any stock unifications. In what follows, we do not derive additional hypotheses from the potential benefits of dual class shares, because our dataset does not allow testing them.

(2) they are not prevented from such inefficient rent extraction. In a dual class firm, managers are more entrenched if they control a large proportion of voting rights but own only a small proportion of the cash flow rights. On the other hand, entrenchment is potentially mitigated by minority blocks of voting shares, especially if these blocks are held by institutional investors. Empirical evidence in favor of the agency costs hypothesis A1 has been presented by Gompers, Ishii and Metrick (2004) who show that Tobin's q of U.S. dual class firms tends to increase in the proportion of cash flow rights held by insiders and to decrease in the proportion of voting rights held by insiders.

Hypothesis A2 (international investors): International investors avoid dual class shares, so dual class firms trade at a discount. We hypothesize that international investors prefer to invest in standardized stock, i.e. in stock of single class firms. One share-one vote is a straight-forward form of shareholder organization that does not differ much across countries or firms. In contrast, the potential characteristics of superior and inferior voting shares vary considerably across countries and firms. As international investors are unlikely to know all these details, they simply avoid dual class firms. As a consequence, a dual class firm has a smaller investor base which results in less efficient risk sharing and therefore lower share prices (see Merton, 1987).

As international investors only invest in firms they have "heard of," we conjecture that the dual class discount is larger for bigger firms and for firms with a large proportion of foreign sales. An international investor is unlikely to invest in a small, local firm – independently of its share structure. Also, this discount is likely to be lower for firms that already have an international block investor.

Hypothesis A3 (liquidity): Dual class firms trade at a discount, because total liquidity is spread over two classes of shares. Under liquidity aspects, dual class structures can be regarded as an artificial segmentation of the market for the company's stock. When this segmentation is overcome by a stock unification, the merged market is likely to be more liquid in terms of volume or bid-ask spread. Higher liquidity leads to higher market values, as shown by Amihud and Mendelsohn (1986). We will test this hypothesis by considering the abnormal returns to the announcement of a stock unification separately for each class of shares. According to this hypothesis, the abnormal return should be higher for a class of shares with low liquidity that is unified with a class of shares with high liquidity.

Hypothesis A4 (index membership): A dual class firm has lower chances to be included in a major stock index. Therefore, dual class firms trade at a discount. Two important criteria for a class of shares being included in one of the two major German indices[10] are its market capitalization and its average turnover. A stock unification improves both measures and therefore improves the probability of being included in a stock index. Shleifer (1986), Dhillon and Johnson (1991) and Beneish and Whaley (1996) show that a firm that is added to the S&P 500 enjoys a permanent price increase of 3 to 4 percent. If a similar index effect is present in Germany, we expect a larger abnormal return to the announcement of a stock unification for those firms that are close to being included in or excluded from one of the two major indices.

There is a sizeable empirical literature which regresses the relative price difference between voting and non-voting shares on liquidity measures, the firm's ownership structure, and other proxies for agency costs (e.g. Smith and Amoako-Adu, 1995, and Nenova, 2003). Zingales (1995), Rydqvist (1996), and Dittmann (2004) theoretically show that the price difference depends on the stability of the ruling coalition and on the private benefits that can be extracted by insiders, but it does not depend on the costs of the dual class structure. Consequently, this branch of the literature cannot provide any evidence for or against our hypotheses A1 to A4.

3.2 Hypotheses on the timing of dual class stock unifications

According to the hypotheses formulated in the previous section, dual class firms trade at a discount in the market, which implies that dual class firms could increase their market value by abolishing the dual class structure. As a consequence, dual class structures are not stable in firms with dispersed ownership, because all shareholders would be better off with a single class structure. In the presence of a price discount for dual class firms, dual class structures can only be stable when there is a controlling shareholder. This implication is corroborated by the empirical evidence (see, among others, DeAngelo and DeAngelo, 1985, Bergström and Rydqvist, 1990, Megginson,

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[10] The two major German stock indices are the DAX and the MDAX. The DAX contains the largest 30 companies which are traded at the Frankfurt stock exchange. Before 24 March 2003, the MDAX contained the largest 70 firms not already included in the DAX. Since 24 March 2003, the MDAX contains only the largest 50 firms not already included in the DAX.

1990, and Table 2 in this paper): Dual class firms almost always have a controlling blockholder.

We argue that the discount at which dual class companies trade is the key reason for the controlling shareholder to agree to a stock unification. If the controlling shareholder sells some of her shares or if the firm issues new stock, the price discount translates into a cost to the controlling shareholder which she can only avoid by abolishing the dual class structure before such a transaction. On the other hand, as long as no additional shares are sold to outsiders, there is no reason to give up the separation between ownership and control. This argument leads to four hypotheses about the timing of dual class stock unifications.

Hypothesis B1 (entrenchment): Dual class firms with more entrenched management are less likely to abolish the dual class structure. Recall that we call managers 'entrenched' if (1) they have incentives to extract inefficient private benefits and (2) they are not prevented from such inefficient rent extraction. Entrenched managers have more opportunities to extract private benefits of control so the value of the dual class structure to managers (weakly) increases in the degree of entrenchment.

Hypothesis B2 (growth opportunities): Dual class firms with strong growth opportunities are more likely to abolish the dual class structure. In order to pursue its growth opportunities, the firm will have to issue additional equity. In this situation, the controlling shareholder incurs a significant cost from the dual class structure, as the company's shares trade at a discount in the market. There are three possible actions for the controlling shareholder: When private benefits of control are low, she will abolish the dual class structure first and then issue additional equity. On the other hand, if private benefits are high, the controlling shareholder will not agree to a stock unification. Then she will either decide to issue new equity at a discount or she will not issue any equity and pass up the growth opportunity. She will pass up the growth opportunity if the expected growth is small, because then the costs from issuing new shares at a discount are higher than the benefit from growth. Hence, dual class firms can be expected to grow at a slower rate than comparable single class firms.

Hypothesis B3 (financing constraints): Financially constrained dual class firms are more likely to abolish the dual class structure. We call a firm financially constrained if it has difficulties financing its current operations from retained earnings or additional debt. Financial constraints can be overcome by issuing additional equity, but under a dual class structure this incurs additional costs to the firm and its

controlling shareholder. Therefore, we hypothesize that financially constrained firms are more likely to abolish the dual class structure and to issue new equity subsequently. One reason for financial constraints are positive growth opportunities, so hypotheses B2 and B3 are closely related. However, firms can also be financially constrained without having strong growth opportunities, for instance when they are restructuring their operations.

Hypothesis B4 (cashing out): Dual class firms whose controlling shareholders want to sell a significant amount of their shares are more likely to abolish the dual class structure. When controlling shareholders want to sell shares, they will consider abolishing the dual class structure first and then offering their shares in order to avoid selling at a discount. This argument only holds if the shares will be sold to small shareholders or to an institutional investor. When a block of shares is sold to another non-institutional blockholder, the discount of the share price in the market is irrelevant. Institutional investors, on the other hand, typically have little incentives to extract private benefits of control and are interested in a high market valuation of their investments.

In independent work, Pajuste (2004) presents a logit analysis of the decision to abolish dual class stock for a sample of dual class firms from seven European countries including Germany.[11] Her evidence mainly corroborates our entrenchment hypothesis B1. In particular, she finds that firms are more likely to abolish the dual class structure if the separation between ownership and control is low, if the largest shareholder is a financial institution, or if the firm is cross listed in the US. Also, the number of acquisitions has a positive impact on the unification probability. This finding supports our growth opportunities hypothesis B2. Amoako-Adu and Smith (2001) list the reasons given by 54 Canadian firms why they consolidated their share structure from dual to single class equity. These self-reported reasons are in line with

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[11] Pajuste's (2004) works with a sample of dual class firms from seven European countries (including Germany) that is constructed from different data sources than our sample. She considers the period from 1996 to 2002, while we analyze the years 1990 to 2001. She also includes firms with only one type of stock listed whereas we restrict our analysis to firms with both types of shares listed. Finally, her ownership data are from 1996 while we work with annual ownership data. Pajuste (2004) does not consider announcement effects, which is the main contribution of our paper. Also, our results on the relevance of the ownership structure for the unification decision nicely complement Pajuste's (2004) results.

the financing constraint hypothesis B3, the cashing out hypothesis B4 and the international investor hypothesis A2. Note that Amoako-Adu and Smith (2001) do not investigate these hypotheses empirically.

4. Dataset and institutional details

German law distinguishes between voting and non-voting shares. Shares with multiple or fractional votes are not permitted and the number of non-voting shares must not exceed the number of voting shares. Non-voting shares must be vested with a cumulative minimum dividend, the size of which (typically between 2% and 10% of the face value) is laid down in the company's charter. Accordingly, the total dividend is distributed among the two types of shares in the following order: First, minimum dividends and arrears on non-voting shares are settled. Then each voting share receives an amount up to the minimum dividend of non-voting shares. Finally, what remains is distributed equally among all shares, so that the dividend of a voting share never exceeds that of a non-voting share. If the minimum dividend is not paid in two consecutive years, each non-voting share receives a temporary voting right until the arrears are fully paid. Moreover, a reduction of the minimum dividend or a conversion of non-voting shares into voting shares can only be declared if – in addition to the general annual meeting – 75% of non-voting shareholders agree in a separate meeting. In all other circumstances, only voting shares have the right to vote.

Our dataset is based on the Karlsruher Kapitalmarkt Datenbank (KKMDB), a scientific database that contains German stock market data from 1960 onwards. Dual class companies have been identified by their securities' identification number and name.[12] For the identified 139 firms, we compiled ownership information[13], the

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[12] The first five digits of the six-digit German security identification number identify the firm and the last digit the type of security. A last digit between 0 and 2 is reserved for classes of common voting shares, whereas digits of 3 and higher typically identify non-voting shares and other securities (like participation certificates or options). We searched for pairs of stock with the same first five digits and at least one last digit of 3 or higher. Then we analyzed the names of these securities in order to eliminate all pairs that obviously were not shares of a dual class firm.

[13] Before 1995, German disclosure laws required that share holdings of 25% or more must be published. From 1995 onwards, all voting blocks of at least 5% are to be reported. Consequently, our ownership data are comparatively imprecise before 1995. Note, however, that for only 5% of our observations before 1995 the size of the largest blockholding is not reported (and therefore set equal to

number of outstanding shares and charter provisions regarding voting power and dividend differences from *Handbuch der deutschen Aktiengesellschaften*, the German equivalent of Moody's Manual. We excluded firms for which (1) we could not obtain stock market data for both shares on at least 60 days (22 firms), (2) both types of shares carry voting rights[14] (8 firms), (3) we could not find any information on the voting arrangement (4 firms), (4) the two types of shares differed in their transferability[15] (2 firms), or (5) there was a maximum dividend for non-voting shares (2 firms). We also excluded one company that unified its dual class structure twice within eight years only to issue new non-voting shares a few weeks later both times. No other company introduced new non-voting shares after unifying its dual class structure. We obtained price, volume, and dividend series as well as information on seasoned equity offerings from KKMDB. Accounting data were extracted from the Worldscope database.

If one of the two types of shares of a company ceased to trade before December 2001, we searched the leading German business papers *Handelsblatt*, *Börsenzeitung*, and *Frankfurter Allgemeine Zeitung* for the reason of the discontinuation and its first announcement. Since this search was often not successful for discontinuations that took place before 1990 and since we could identify only three stock unifications before 1990, we focus on the period from January 1990 to December 2001 in our logit analysis. For this period, we could identify the reasons of all discontinuations. We dropped another 11 firms from our sample, because we do not have market data on both types of shares for any year after 1990. Our final dataset contains 89 dual class companies and 814 firm-year observations. For 42 of these companies, one or both

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zero). Our results do not change when we drop these observations from our dataset. Nevertheless, information on smaller blocks must be considered unreliable before 1995. We address this problem by using year dummies and by repeating our analysis for the subsample from 1995 to 2001. In our event study sample, we verify our ownership data using newspaper articles, so that the data reflect the situation immediately before the unification announcement. In this sample, we always have information on the largest voting block.

[14] In German, non-voting shares are – rather euphemistically – called preference shares as they are entitled to a minimum (or preferred) dividend. The preference shares of eight firms were voting shares.

[15] For these firms, voting shares must be registered with the firm, and the firm may refuse to register shareholders. Non-voting shares are bearer shares. We exclude these firms, because in a stock unification registered voting shares and bearer non-voting shares are exchanged for bearer voting shares. Hence a stock unification also improves the transferability of voting shares.

types of shares ceased to trade during our observation period. We classify 32 of these discontinuations as stock unifications: One company bought back its non-voting shares, and 31 companies converted each non-voting share into one voting share. In one of these 31 conversions, non-voting shareholders had to make an additional payment, and in eight cases there were outstanding past minimum dividends that were not paid before the conversion. The remaining 10 discontinuations were due to bankruptcy (1), mergers (8), or tender offers (1).

Figure 1 displays the frequency of stock unifications for each year in our sample. In 1990, 1991 and 1994, there were no stock unifications and, before 1996, the frequency never exceeded 3%. In contrast, the frequency of stock unifications was always above 6% after 1997 with a peak of over 10% in 2000. There are a number of reasons for the growing popularity of stock unifications in the mid 1990s. First, during the 1990s, the German stock market became more internationally oriented. Firms were concerned about the attractiveness of their capital structure to international investors and dual class shares were generally seen as an impediment for international investments. In addition, in August 2000, Deutsche Börse announced a change of the rules that determine which companies are included in the major German stock indices. After the change had taken effect in June 2002, companies were ranked according to the free float of their most liquid class of stock – and not anymore according to their total market capitalization. Hence, some companies unified their dual class shares in order to stay in an index or to increase the probability to be included in an index. Table 1 summarizes the reasons for the stock unification given by the firms at the time of the announcement. Firms most frequently claim to unify in order to improve liquidity, to become more attractive for international investors, or to secure their index membership.

We consider 21 variables in order to explain timing and wealth effects of dual class stock unifications. A detailed description of all variables can be found in Appendix A; Table 2 displays a brief description and summary statistics. Table 2A contains those variables that describe the ownership structure and the market environment of the firms in our sample. The overall frequency of stock unifications (*Conversion*) is 4.1%. The largest block of voting shares (*BSize1*) is, on average, 55.6% and the second-largest block of voting shares (*BSize2*) is 7.2%. 69% of the firms have no institutional investor (*NoInstInv*) and 85% no international investor (*NoInterInv*) among their reported blockholders. The proportion of voting shares (*PropVS*) varies from 50% to

97% and averages 69%. The market capitalization (*MCap*) varies between € 0.3m and € 61bn with an average of € 1.5bn. Finally note that the firms in our sample issued additional shares (*SEO*) every eighth year on average. Dual class firms perform an SEO significantly more often than single class firms which issue additional shares every 12 years. The reason for this difference presumably is the guaranteed minimum dividend on non-voting shares which forces dual class firms to pay out more dividends than single class firms.

Table 2B contains the summary statistics for ten variables that are based on accounting data. Here and in the following analysis, we exclude financial firms (i.e. firms whose SIC code starts with '6') whenever we use these accounting variables, because accounting data are generally not comparable between financial and non-financial firms. As proxies for growth opportunities, we use Tobin's q, investment scaled by total assets and sales growth. Proxies for financial constraints are dividends, cash flows, cash, and increase in total debt (all scaled by total assets), as well as leverage and the payout ratio.

5. Market reaction to the announcement of a stock unification

This section presents the results of an event study for 29 German firms that announced a stock unification between 1989 and 2002 and actually performed a stock unification thereafter. To our knowledge there was never an announcement of a stock unification that was not completed. In order to increase the number of firms in the event study, we consider a slightly larger time period than in the logit dataset and include five firms in addition to the 32 stock unifications described in the previous section.[16] We then exclude eight of these 37 firms for the following reasons. For two firms, we could not find the date of the first announcement in the business press; three firms simultaneously announced other important events like a merger, a major

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[16] We include one firm (Massa) that announced a stock unification in 1989 and three firms (Escada, Heidelberger Zement, MAN) that announced a unification during the first eight months of 2002. We did not include 1989 and 2002 in the logit dataset, because there was only a single stock unification in 1989 and we could not obtain the 2002 data for all firms at the time we constructed the dataset. The fifth additional firm is Sixt which we dropped from the logit dataset, because they introduced new non-voting shares two months after they unified their share structure.

restructuring program or an immediate trading halt; two firms continued to have two types of shares with equal voting right but different registration requirements[17]; and one firm had more than 64% missing return observations in the estimation window and the event window.[18]

According to German law, non-voting shares can be converted one-to-one into voting shares if – in addition to the general annual meeting – 75% of non-voting shareholders agree in a separate meeting. Then the dual class structure is immediately abandoned. Alternatives are to repurchase non-voting shares in the market, or to offer non-voting shareholders to exchange each non-voting share plus a fixed cash payment for one voting share. In both cases, non-voting shareholders cannot be forced to participate in the conversion, so that the dual class structure – at least formally – continues to exist.[19] Presumably, this is the reason why one-to-one conversions are much more popular in Germany than in Israel (see Hauser and Lauterbach, 2004).

Table 3 provides a list of the 29 companies in our event study. It shows the company name, the date of the first announcement, the terms of conversion, and additional announcements made on the same day. The typical terms of conversion are that each non-voting share is converted into one voting share without any additional payment or any compensation to old voting shareholders. Column 3 of Table 3 shows the deviations from this general rule. In five cases, outstanding minimum dividends were not paid. In two cases, non-voting shareholders had to make an additional payment equal to two thirds of the previous price difference between voting and non-voting shares. One company announced to buy back non-voting shares for 80% of the price of voting shares. As some companies announced other events like a stock split, an SEO, or an extra dividend, we separately analyze a group of 13 firms that exclusively announced a stock unification and that did not require an additional

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[17] These firms initially had non-voting shares, unregistered voting shares, and registered voting shares. They announced the conversion of non-voting shares into unregistered voting shares.

[18] All remaining firms have less than 8% missing values in either window.

[19] MAN, for example, announced an exchange offer for non-voting shareholders in March 2002. During a period of six weeks, each non-voting share could be exchanged for one voting share for an additional payment of €3.30, which corresponds to two thirds of the average price difference between voting and non-voting shares during the previous three months. 86.2% of all non-voting shares were exchanged at these terms, so that the proportion of voting shares increased from 72% to 96%. In June 2004, non-voting shares were still listed on the Frankfurt stock exchange.

payment from non-voting shareholders. The names of these companies are printed in bold letters in Table 3.

We use a 41 day event window and a 200 day estimation window from trading day –220 to –21 relative to the announcement date. We estimate a market model using the full Frankfurt market portfolio (DAFOX) provided by KKMDB. Figure 2 shows the average cumulative abnormal returns (CAR) for voting shares, non-voting shares and the total market capitalization of the 29 firms in our sample. Figure 3 displays the corresponding plot for the 13 firms with "clean" announcements. Both plots suggest that there was a run-up for voting and non-voting shares to a CAR between 6% and 10% on day –1. On the announcement day, non-voting shares experience an additional abnormal return of 3% in the full sample and 2.5% in the 'clean' sub-sample, while there is no distinct reaction for voting shares. In the full sample, the CAR declines gradually over the remaining event window for both shares. In the 'clean' sub-sample, however, the CAR fluctuates around its day 1 value over the remaining days of the event window.

Table 4 displays the results of three tests for zero abnormal return around the announcement date. The Standard Test is the most popular parametric test in event study analysis.[20] Cowan and Sergeant (1996) show in a simulation study that the Standard Test rejects the null hypothesis too often in two situations: (1) if the announcement has an impact not only on the mean but also on the variance of the abnormal returns, and (2) if the shares under consideration are thinly traded. As some of the companies in our sample are very small, we are particularly worried about the thin trading bias and therefore also report the results of two non-parametric tests: the Corrado (1989) Rank Test and the Generalized Sign Test proposed by Corrado and Zivney (1992). In Cowan and Sergeant's (1996) simulation study, these two tests turned out to be robust to thin trading and to changes in the return variance.

Panel A of Table 4 shows that the reaction of non-voting shares is significantly positive according to all three tests. The abnormal returns of voting shares (shown in Panel B) are also positive but smaller than the abnormal returns of non-voting

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[20] Campbell, Lo and MacKinlay (1997) describe this test ('J_2') on p. 162. Cowan and Sergeant (1996) call it 'Patell test'.

shares.[21] In both samples, the generalized sign test cannot reject the null hypothesis of zero abnormal returns for voting shares. In contrast, the Corrado rank test finds a significant abnormal reaction in the full sample but not in the 'clean' sub-sample. The standard test rejects the null hypothesis in both samples. We conclude that there is some evidence that voting shares experience a positive abnormal announcement return. Finally, Panel C displays that the reaction of the full market capitalization (i.e. the weighted sum of the reactions of voting and non-voting shares) is again significantly positive in both samples according to all three tests. Across the three windows and the two samples, estimates for the average increase of the firms' market value vary between 3.3% and 6.3%.

Altogether, Table 4 corroborates our general hypothesis that dual class firms trade at a discount in the stock market. In order to learn about the reasons why this is the case, we present univariate regressions of the cumulative abnormal return (CAR) in Table 5. Panel A displays the results for the [-4, 1] window, Panel B for the [-10, 10] window. We do not perform multivariate regressions as the sample size (29 firms) appears to be too small.

The table shows that the size of the largest block of voting shares, *BSize1*, has a significant positive effect on the CAR, whereas the second largest block, *BSize2*, is insignificant. Given the two results on *BSize1* and *BSize2*, it is not surprising that the proportion of voting shares not contained in the reported blocks, *Freefloat*, has a significantly negative impact on the cumulative abnormal returns. It is interesting to note, however, that this impact is larger and considerably more significant than the effect of *BSize*. Also, the variable *Freefloat* explains 32% of the variation in abnormal market returns over the [-4, 1] window compared to only 19% that is explained by the largest block size *BSize*. This result suggests that smaller blockholders do not prevent the largest blockholder from extracting private benefits (then *Freefloat* should have *less* explanatory power than *BSize*), but rather enter into a coalition with the largest blockholder in order to share private benefits. The effect of *Freefloat* is also economically significant: A decrease of the free float by five percentage points will lead to an average increase of the abnormal announcement return by one percentage

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[21] The difference in the abnormal returns of voting and non-voting shares is statistically significant at the 5% level in the full sample. In the 'clean' sub-sample, the difference is insignificant. These results are not shown in the tables.

point. Therefore, the agency costs hypothesis A1 is clearly corroborated by the data. We also find weak evidence that the presence of an institutional investor results in a lower abnormal return as predicted by this hypothesis. In contrast the proportion of voting shares (*PropVS*) is insignificant.[22]

Our results from Table 5 do not support the international investors hypothesis A2. Neither the presence of an international investor, nor the size of the firm have a significant effect on the cumulative abnormal returns. The percentage of foreign sales has a highly significant *negative* effect on the CAR over the [-4, 1] window, but this effect is not robust as demonstrated in Panel B for the [-10, 10] window. According to the index membership hypothesis A4, firms that are close to be included in or excluded from an index (i.e. for which *IndexDistance* is small) should enjoy a larger cumulative abnormal return. The sign of *IndexDistance* is indeed negative as expected, but this variable is only marginally significant for the [-4, 1] window and insignificant for the [-10, 10] window.[23]

The liquidity hypothesis A3 implies that the abnormal return of a particular class of shares should be higher if this class of shares has low liquidity and if it is unified with a more liquid class of shares. In order to check this implication, we regress the voting CARs on the trading volume of voting shares and on the trading volume of non-voting shares.[24] The results are reported in the upper part of Table 6. The signs of the estimated coefficients are indeed as expected but none of the coefficients is significantly different from zero. The lower part of Table 6 shows the results of two similar regressions of the non-voting CARs. For the [-4; 1] window, we find that the cumulative abnormal return is significantly higher for less liquid non-voting shares. However, the same coefficient is insignificant for the [-10; 10] window.

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[22] We also considered additional dummy variables that indicate whether the largest blockholder is an institution, an individual (or a family), or the state. These variables remain insignificant in all regressions, so we do not report these results.

[23] One could also argue that the positive abnormal returns might be due to changes in future growth expectations. It is difficult, however, to find proxies for *changes* in growth expectations. The only evidence we can provide on this issue is that the incidence of a future SEO (as measured by our variable *SEO*) is not significantly correlated with abnormal returns. In addition, this growth expectation hypothesis cannot explain the influence of the ownership structure on abnormal returns.

[24] Our data source does not contain bid or ask prices, so we cannot use bid-ask spreads.

6. Empirical analysis of the timing of stock unifications

In this section, we turn to the question why and when the controlling shareholder agrees to a stock unification. We first consider only those firms that did announce a stock unification during our sample period. Table 7 displays the average value of 17 firm characteristics for each of the five years from two years before to two years after the announcement. The average size of the largest block of voting shares decreases monotonically and significantly from 54% two years before the announcement to 41% two years after the announcement. Figure 4 demonstrates that the gradual decline of *BSize1* already starts four years before the announcement of a stock unification.[25] However, the average proportion of cash flow rights held by the largest blockholder *increases* from year 0 to year 1 as some controlling shareholders buy additional shares around the unification time in order to secure control. This refutes the cashing out hypothesis B4; controlling shareholders do not disinvest after the stock unification. Figure 4 also displays the proportion of non-voting shares held by the controlling shareholder. There is a slight increase from 3.7% to 5.4% during the year before the announcement of a stock unification, but this increase in not significant. Hence, we do not find any evidence for Bigelli's (2004) hypothesis that the controlling shareholder buys non-voting shares prior to the announcement in order to benefit from the dual class unification.[26]

Apart from the change in *BSize1*, the ownership structure of the firms that abolished dual class shares does not change significantly as Table 7 shows. The incidence of a seasoned equity offering (*SEO*) is higher in years 0 and 1 than in years −1 and +2. Even though these changes are not significant, they suggest that dual class

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[25] There is no general decrease in *BSize1* over time, neither in the full sample nor in the sample of dual class firms that never unified. On the contrary, *BSize1* increases from an average 55% in 1995 to 60% in 2001 in the full sample.

[26] In the business press, we found only one report of a controlling shareholder who bought additional non-voting shares prior to the announcement of a stock unification. The reported motivation was to secure a majority of the voting rights rather than to make a trading gain from buying non-voting shares at a lower price. Note however that, according to German disclosure laws, blocks of non-voting shares need not be reported.

firms choose to unify before they issue new shares.[27] Our proxies for growth opportunities (*TobinsQ*, *Investment,* and *SalesGrowth*) suggest that unifying firms grow faster before the unification (–2 to 0) than after the unification (+1 and +2), even though the individual changes are not significant. Finally, the payout ratio (*PayoutR*) rises significantly from 13% two years before to 24% two years after the unification. However, the other proxies for financing constraints do not indicate that a stock unification helps to relax financing constraints.

The next step in our analysis is to compare firms that abolished their dual class structure during our sample period with those firms that did not give up dual class shares. Table 8 displays the means of the 20 variables in our analysis for the two groups. Most characteristics do not vary across the two subsets. At the 5% significance level, only the dummy *NoDiv2* – which signals that no dividends have been paid on non-voting shares during the last two years – is significantly higher for firms that abolish dual class shares.[28] This finding can be interpreted as evidence for our financial constraints hypothesis B3. Note, however, that in years in which *NoDiv2* = 1, non-voting shares have the right to vote until the unpaid minimum dividends are paid. Hence, this variable could also signal lower management entrenchment and therefore be interpreted as evidence for the entrenchment hypothesis B1.

At the 10% significance level, the seasoned equity offering dummy *SEO* is significantly higher for firms that abolish dual class shares than for those that do not. We interpret this finding as evidence for the growth opportunities hypothesis B2, because an SEO clearly signals future growth. This interpretation is consistent with the results for the other three proxies for growth opportunities (*TobinsQ*, *Investment* and *SalesGrowth*), although none of these differences are statistically significant.

We now turn from comparing *firms* with and without stock unification to comparing *firm-years* with and without stock unification, i.e. we also consider the within-firm variation in addition to the between-firm variation. Table 9 shows that the size of the largest voting block *BSize1* is significantly smaller in unification years than

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[27] There are eight firm-years in our dataset, in which the firm announced a stock unification *and* issued new equity. In all cases, the equity was issued after the unification announcement.

[28] We also considered dummy variables that signal 'no dividends on non-voting shares in the current year' or 'no dividends on voting shares'. The empirical results are very similar for these variables. The reason is that these dummies are highly correlated, because voting shares cannot receive dividends when non-voting shares do not receive any.

in other years. Also, the proportion of voting shares *PropVS* is significantly higher for firm-years in which a unification is announced. This implies that, on average, dual class firms repurchase non-voting shares before they announce a stock unification. Both results corroborate the entrenchment hypothesis B1.

We now consider a logit analysis that allows us to obtain multivariate results. In order to appropriately accommodate the time dimension of our dataset, we apply a logit model with year dummies:

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \alpha_t + X_{it}\beta \tag{1}$$

Here, $p_{it} = \Pr(Y_{it} = 1)$, where Y_{it} is a dummy variable equal to one if firm *i* decides to unify its dual class structure in year *t*. X_{it} is a vector of independent variables and β is the parameter vector we want to estimate.[29] Figure 1 shows that the unconditional probability of a stock unification varies considerably between 1990 and 2001. The year dummies α_t in model (1) remove this variation over time, so that β only captures the effect of the independent variables across firms.

Although Figure 1 already suggests that the unconditional unification probability is not constant, we formally test this hypothesis with a likelihood ratio test. We perform this test without additional independent variables and find that the hypothesis that the unification probability is constant over time is rejected at the 0.5% significance level for the full sample. If we restrict the sample to the years 1996 to 2001, we cannot reject the hypothesis at any significance level below 50%.[30] Therefore, we will report two sets of results: one for the full sample using the model with year dummies (1) and another one for the 1996-2001 sample without year dummies, where $\alpha_t = \alpha$. The results can be found in Table 10.

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[29] The structure of the data does not allow the consistent estimation of firm fixed effects. Since firms leave our sample after performing a stock unification, the number of observations per firm is limited even if the time dimension becomes arbitrarily large. Also, an elimination of the firm fixed effects using a conditional logit approach is not feasible, because the firms in our sample either never perform a stock unification or they perform exactly one stock unification and leave the sample thereafter. Hence, the sum of all stock unifications performed by a firm completely determines the dependent observations for this firm. As a consequence, the conditional likelihood is constant and cannot be used for the estimation of additional parameters.

[30] These results are not reported in the tables.

The table shows that the proportion of voting shares *PropVS* is highly significant in the univariate logit regression (model 2) but becomes insignificant in the multivariate regressions (model 4). On the other hand, *BSize1* and *NoDiv2* remain significant and can explain a considerable fraction of the variation in the sample. We do not include *SEO* in the logit regression, because firms are likely to decide simultaneously on a stock unification and an SEO, so that the SEO dummy is not exogenous in regressions of the unification decision. In linear instrumental variables regressions where we use all remaining variables listed in Table 2 as instruments (results not shown in the tables), *SEO* has no significant influence on the unification decision.[31] We conclude from Table 10 that firms with less entrenched management and financially constrained firms are more likely to abolish dual class shares.

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[31] We also analyzed the two decisions jointly in an unordered logit model. The only additional insight of this exercise is that firms are more likely to perform an SEO when leverage is high. We therefore do not report these results in the tables.

7. Conclusions and further notes

In this paper, we empirically study the costs of separating ownership and control and the reasons for giving up this separation. We use a panel dataset of 89 German dual class firms over a time period of 12 years and show in an event study that abolishing the dual class structure results in a 4% abnormal increase in total market capitalization. The average abnormal announcement return for non-voting shares (approx. 10%) is markedly higher than for voting shares (approx. 3%). In regressions of the cumulative abnormal returns, we find strong support for the agency cost hypothesis A1 that firms with more entrenched management trade at a higher discount in the stock market, as the announcement return is significantly positively related to the size of the largest block of voting shares and negatively related to the proportion of shares in the free float. We also find weak evidence in favor of the liquidity hypothesis A3 and of the index membership hypothesis A4. Compared to agency costs, however, liquidity and index membership appear to be second order effects. We do not find any evidence for hypothesis A2 that international investors avoid dual class firms.

The second part of the paper analyzes the decision to abolish dual class shares. We find substantial evidence for our argument that firms with more entrenched management are less likely and that firms in need of additional equity capital are more likely to consolidate their share structure from dual to single class equity. We find no evidence, however, that the controlling shareholder opts for a stock unification because she wants to divest her investment. On the contrary, the average controlling shareholder invests additional money in the firm at the time of the stock unification in order to secure control.

The fact that our logit analysis can identify a number of determinants of stock unifications suggests that the market should – at least to some extent – anticipate stock unification announcements. In our sample of 29 firms that announce a stock unification we find indeed clear evidence for such an anticipation: The spread at which non-voting shares trade relative to voting shares declines on average by 44% from two years before the unification announcement to four weeks before the announcement. Therefore, the 4% abnormal increase in firm value should be regarded a conservative estimate of the net costs of the dual class structure for these firms.

Our event study yields that non-voting shares enjoy a significantly higher abnormal return to the unification announcement than voting shares. This result raises the question why voting shareholders give away so much value to non-voting shareholders. Why doesn't the firm buy back the non-voting shares instead of converting them into voting shares? This question implicitly assumes that non-voting shares can be bought by the company at a price equal to or slightly above their pre-announcement price. Whether this assumption is reasonable critically depends on what happens to the remaining non-voting shareholders who are not willing to sell their shares. There are three possible scenarios. First, if the remaining non-voting shareholders can be forced to sell, a buy-back might indeed be cheaper than a stock unification. In Germany this is not feasible, except if the corporate charter explicitly allows it.[32] Even if this is the case, German courts might prevent a forced buy-back because of a violation of the principle of proportionality. Alternatively, the remaining non-voting shares continue to exist. In this case, a buy-back is cheaper than a stock unification, but the original aim to simplify the capital structure and to abandon non-voting shares is not achieved.[33] Finally, the company can convert the remaining non-voting shares into voting shares. If non-voting shareholders correctly anticipate this, they will not be willing to sell their shares for the pre-announcement price. In fact, there is little difference between a buy-back with subsequent stock unification and a straight stock unification right away. Hence, a buy-back is not a cheaper alternative to a stock unification as it may seem to be at first glance.

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[32] Such a rule must be laid down in the corporate charter *before* the first offering of non-voting shares. Typically, corporate charters of German dual class firms do not include such a rule.

[33] In fact, this is the case for the only buy-back in our sample: RWE AG announced a buy-back on June 25, 1999. Two and a half years later, only 53% of the non-voting shares have been bought back by the company. In June 2004, RWE non-voting shares were still listed and traded on the Frankfurt stock exchange.

Appendix: Description of variables

All variables are compiled for the year Y under consideration if not stated differently. For years in which a firm announced a stock unification, we made sure that the ownership variables reflect the situation *before* the announcement date.

Conversion is a dummy variable that is set equal to one for those years in which the firm announced a dual class unification. In all cases, the unification was completed in the same calendar year.

BSize1 is the largest block of voting shares expressed as a percentage of all outstanding voting shares. Separate stakes that were obviously or reportedly held by members of one family were counted as one block.

BSize2 is the second-largest block of voting shares.

Freefloat is equal to one minus the sum of all blocks of voting shares reported in *Handbuch der deutschen Aktiengesellschaften*.

NoInstInv is a dummy variable that is set equal to one for those years in which none of the voting blockholders was an institutional investor. We counted neither the state nor specialized holdings that were founded only to invest in the considered company as an institutional investor.

NoInterInv is a dummy variable that is set equal to one for those years in which all voting blockholders were German individuals or German firms.

PropVS is the number of voting shares divided by the number of voting and non-voting shares.

MCap is the market capitalization in million euro at the end of June of year Y−1.

logMCap is the natural logarithm of MCap.

IndexDistance is the natural logarithm of the distance to the smallest constituent of the next index in terms of market capitalization. More precisely, it is defined as $\ln\left(\min\left\{\left|MCAP_i - MCAP_{DAX}\right|, \left|MCAP_i - MCAP_{MDAX}\right|\right\}\right)$, where $MCAP_{DAX}$ is the market capitalization of the smallest firm in the DAX index, $MCAP_{MDAX}$ is the market capitalization of the smallest firm in the MDAX index, and $MCAP_i$ is the market capitalization (Worldscope code 08001) of the considered firm i. All inputs are from year Y-1.

SEO is a dummy variable that is set equal to one for those years in which the firm issued new shares in a seasoned equity offering.

TobinsQ is total assets (02999) plus market capitalization (MCap) minus book equity (03501) scaled by total assets. All inputs are from year Y-1.

Investment is capital expenditure (04601) of year Y-1 scaled by total assets of year Y-2.

SalesGrowth is sales (01001) of year Y-1 divided by sales of year Y-2 minus one.

Dividends is dividends (04551) of year Y-1 scaled by total assets of year Y-2.

NoDiv2 is a dummy variable that is set equal to one for those years in which the firm did not pay dividends on non-voting shares for at least two consecutive years (years Y and Y-1). In this situation, non-voting shares carry a voting right until the arrears are fully settled. NoDiv2 is calculated from KKMDB data.

Cashflow is the free cash flow of year Y-1 scaled by total assets of year Y-2. Free cash flow is EBITDA (18198) minus taxes (01451) minus capital expenditure (04601).

Cash is cash and short-term investments (02001) of year Y-1 scaled by total assets of year Y-1.

DebtChange is total debt (03255) of year Y-1 minus total debt of year Y-2 scaled by total assets of year Y-2.

Leverage is total debt (03255) divided by the sum of total debt and book equity (03501). All inputs are from year Y-1.

PayoutR Payout ratio is the quotient of dividends (04551) plus stock repurchases (04751) on the one hand and EBITDA (18198) minus interest (01251) minus taxes (01451) on the other hand. All inputs are from year Y-1.

ForeignSales is international sales (07151) divided by net sales (01001). All inputs are from year Y-1.

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Table 1: Reasons for abolishing dual class shares

This table summarizes the reasons why the dual class companies in our sample decided to consolidate their share structure from dual to single class equity. This information was compiled from company disclosures and newspaper articles. Some firms gave more than one reason. For some other firms, no justification for the stock unification could be found.

Reason	Frequency
Improve liquidity	7
Improve attractiveness for international investors	7
Secure current index membership	6
Improve chances of being included in higher index	4
Improve corporate governance	3
Reason for lock on control is not given any longer	3
Flexibility for future acquisitions	2
Protection against takeovers	1

Table 2: Description of variables used in our analysis

This table contains a brief description of 22 variables used in our analysis. See Appendix A for detailed information on the construction of these variables. The table also displays mean, median, minimum and maximum across firm-years for each variable. Panel A contains stock market data and variables that describe the ownership structure for all firms. Panel B contains the variables constructed from accounting data for non-financial firms only.

Panel A: Ownership and stock market data for all firms

Acronym	Brief Description	N	Mean	Median	Minimum	Maximum
Conversion	Dummy variable that signals a stock unification	773	0.041	0.000	0.000	1.000
BSize1	Size of largest voting block	756	0.556	0.529	0.000	1.000
BSize2	Size of second-largest voting block	756	0.072	0.000	0.000	0.500
Freefloat	Proportion of voting shares in the free float	747	0.354	0.305	0.000	1.000
NoInstInv	Dummy variable "no institutional investor"	764	0.690	1.000	0.000	1.000
NoInterInv	Dummy variable "no international investor"	764	0.848	1.000	0.000	1.000
PropVS	Proportion of voting shares among all shares	773	0.688	0.667	0.500	0.981
MCap	Market capitalization (in million euro)	682	1526.070	206.003	0.276	61318.200
logMCap	Natural logarithm of market capitalization	682	5.402	5.328	-1.287	11.024
IndexDistance	Distance of market capitalization to the next index	670	5.740	5.820	0.222	10.765
SEO	Dummy "seasoned equity offering"	773	0.125	0.000	0.000	1.000

Panel B: Accounting data for non-financial firms

Acronym	Brief Description	N	Mean	Median	Minimum	Maximum
TobinsQ	Tobin's Q	491	1.589	1.275	0.453	24.469
Investment	Investment scaled by total assets	545	0.100	0.068	0.000	1.515
SalesGrowth	Sales growth	548	0.150	0.075	-0.579	14.916
Dividends	Total dividends scaled by total assets	536	0.016	0.011	0.000	0.228
NoDiv2	Dummy "no dividend on non-voting shares for 2 years"	759	0.146	0.000	0.000	1.000
Cashflow	Cash flow scaled by total assets	540	0.027	0.040	-1.280	0.670
Cash	Cash scaled by total assets	557	0.093	0.067	0.001	0.661
DebtChange	Increase in total debt scaled by total assets	545	0.039	0.007	-0.357	1.669
Leverage	Book leverage: debt over the sum of debt and equity	547	0.404	0.422	0.000	0.974
PayoutR	Payout ratio	301	0.165	0.127	0.000	1.380
ForeignSales	Percentage of foreign sales	504	0.412	0.448	0.000	1.000

Table 3: Firms included in the event study

The table displays the names of the 29 companies in our event study, the date of the first announcement of the stock unification decision, and additional announcements made at the same time. The column 'special terms of conversion' only reports departures from the general rule that each non-voting share is converted into one voting share without additional payment. Firms with names in bold letters belong to the sub-sample with 'clean announcement' and without additional payments.

Company name	Date of announcement	Special terms of conversion	Additional announcements
AdCapital AG	7. Apr. 2001		high earnings after a period of losses, firm resumes dividend payments
Carl Schenck AG	22. Apr. 1999		
CompuGROUP Holding AG	20. Jul. 1999		dividends increase by approx. 50%
Deutsche Babcock AG	26. Jan. 1993		abolition of a by-law that restricted the voting power of each shareholder to 5%
Deutsche Beteiligungs AG	29. Jan. 1996		dividends increase by 20%, shares will trade in higher market segment
Deutsche Lufthansa AG	2. May. 1996		stock split
Escada AG	18. Jul. 2002		
FAG Kugelfischer AG	25. Apr. 1996		stock split
Gerry Weber International AG	24. Feb. 2000		
Heidelberger Zement AG	15. Mar. 2002		
Herlitz AG	17. Apr. 1999	outstanding past minimum dividends not paid	
Koenig & Bauer AG	11. Apr. 2001		
MAN AG	22. Mar. 2002	for each non-voting share a fee of 2/3 of the price difference must be paid	
Massa AG	6. Jul. 1989		
Metro AG	22. May. 2000	for each non-voting share a fee of 2/3 of the price difference must be paid	
MLP AG	4. Oct. 2000		seasoned equity offering for repurchasing previously spun off subsidiaries
Moenus Textilmaschinen AG	19. Jan. 2000	outstanding past minimum dividends not paid	turn-around: cost cutting efforts are successful
NAK Stoffe AG	19. May. 1995	outstanding past minimum dividends not paid	
Pegasus Beteiligungen AG	24. Jul. 1999		stock split, share repurchase program
Pongs & Zahn AG	16. Apr. 1998		stock split

Company name	Date of announcement	Special terms of conversion	Additional announcements
RWE AG	25. Jun. 1999	non-voting shares will be repurchased for 80% of the voting share price	
SAP AG	1. Mar. 2001		
Sixt AG	8. Apr. 1997		stock split, extra dividend
Strabag AG	20. May. 1998	outstanding past minimum dividends not paid	
Stuttgarter Hofbräu AG	5. Mar. 1996		extra dividend
Südzucker AG	8. Jun. 2001		
VK Mühlen AG	29. Oct. 1996	outstanding past minimum dividends not paid	seasoned equity offering
Wanderer-Werke AG	23. Jun. 1992		
WKM Terrain- und Beteiligungs-AG	9. Apr. 1998		

Table 4: Abnormal market reaction

to the announcement of a stock unification

This table shows the Cumulative Abnormal Returns (CAR) for three different event windows for all 29 firms and for the 13 firms with 'clean' announcement. In addition, the table displays the test statistics of three two-sided tests for zero abnormal reaction over the respective window. p-values are shown in parentheses. Panel A displays the results for non-voting shares, Panel B for voting shares, and Panel C for the total equity of the firms.

Panel A: Abnormal reaction of non-voting shares

Window	all 29 firms				13 firms with clean announcement			
	CAR	Standard test	Corrado rank test	Generalized sign test	CAR	Standard test	Corrado rank test	Generalized sign test
[-1; 0]	7.3%	13.640 (<0.01%)	4.215 (<0.01%)	2.611 (0.90%)	5.2%	5.580 (<0.01%)	2.678 (0.74%)	1.365 (17.22%)
[-4; 1]	9.9%	9.793 (<0.01%)	3.990 (0.01%)	1.949 (5.13%)	10.3%	5.942 (<0.01%)	3.472 (0.05%)	1.975 (4.83%)
[-10; 10]	9.2%	5.324 (<0.01%)	3.085 (0.20%)	1.422 (15.51%)	15.5%	4.813 (<0.01%)	3.942 (0.01%)	2.657 (0.79%)

Panel B: Abnormal reaction of voting shares

Window	all 29 firms				13 firms with clean announcement			
	CAR	Standard test	Corrado rank test	Generalized sign test	CAR	Standard test	Corrado rank test	Generalized sign test
[-1; 0]	2.4%	4.207 (<0.01%)	2.241 (2.50%)	1.028 (30.39%)	2.5%	2.483 (1.30%)	1.657 (9.74%)	1.011 (31.21%)
[-4; 1]	3.9%	4.042 (0.01%)	2.574 (1.00%)	1.241 (21.46%)	3.1%	2.537 (1.12%)	1.067 (28.62%)	0.458 (64.68%)
[-10; 10]	1.7%	1.337 (18.12%)	1.465 (14.30%)	0.099 (92.10%)	4.9%	1.820 (6.88%)	1.577 (11.49%)	0.525 (59.93%)

Panel C: Abnormal reaction of market capitalization

Window	all 29 firms				13 firms with clean announcement			
	CAR	Standard test	Corrado rank test	Generalized sign test	CAR	Standard test	Corrado rank test	Generalized sign test
[-1; 0]	4.3%	9.827 (<0.01%)	4.206 (<0.01%)	3.263 (0.11%)	3.3%	4.054 (0.01%)	3.292 (0.00%)	3.016 (0.26%)
[-4; 1]	5.4%	7.031 (<0.01%)	3.762 (0.02%)	3.075 (0.21%)	3.7%	3.528 (0.04%)	2.656 (0.79%)	2.233 (2.56%)
[-10; 10]	3.4%	3.076 (0.21%)	2.518 (1.18%)	1.684 (9.22%)	6.3%	2.776 (0.55%)	2.983 (0.29%)	1.975 (4.83%)

Table 5: Univariate CAR regressions

This table shows univariate regressions of the Cumulative Abnormal Returns (CAR) of the market capitalization of the 29 firms listed in Table 3. Panel A displays the results for the CARs over the [-4; 1] window and Panel B for the CARs over the [-10; 10] window. The independent variables are described in Appendix A and Table 2. The table displays estimates for the intercept, the slope coefficient, the p-value of the two-sided t-test for zero slope and the regression R^2.

Panel A: CARs over the [-4; 1] window

Independent variable	Intercept	Slope	p-value	R^2
BSize1	-0.0290	0.1824	1.78%	19.10%
BSize2	0.0520	0.0224	87.27%	0.10%
Freefloat	0.1260	-0.2019	0.16%	32.42%
NoInstInv	0.0377	0.0295	8.35%	3.88%
NoInterInv	0.0532	0.0008	98.65%	0.00%
PropVS	0.0761	-0.0305	73.07%	0.45%
logMCap	0.0889	-0.0059	37.48%	2.93%
IndexDistance	0.1203	-0.0105	10.09%	10.40%
Foreign_Sales	0.1215	-0.1670	0.02%	51.54%

Panel B: CARs over the [-10; 10] window

Independent variable	Intercept	Slope	p-value	R^2
BSize1	-0.0735	0.2371	5.15%	13.33%
BSize2	0.0162	0.2118	32.47%	3.59%
Freefloat	0.1367	-0.2815	0.60%	25.65%
NoInstInv	0.0306	0.0066	88.40%	0.08%
NoInterInv	0.0478	-0.0152	83.69%	0.16%
PropVS	0.0371	-0.0039	97.75%	0.00%
logMCap	0.0922	-0.0071	36.25%	0.90%
IndexDistance	0.0840	-0.0088	39.84%	3.33%
Foreign_Sales	0.0451	0.0016	98.05%	0.00%

Table 6: Liquidity and CARs

This table displays the results of regressions of the voting or non-voting Cumulative Abnormal Returns (CAR) on the liquidity of voting and non-voting shares. 'Voting Volume' is the natural logarithm of the total euro trading volume in voting shares during the year prior to the announcement of the stock unification. 'Non-voting Volume' is the natural logarithm of the corresponding trading volume in non-voting shares. The table displays estimates for the slope coefficient, the p-values of the two-sided t-tests for zero slope and the regression R^2.

Dependent variable	Window	Number of Obs.	Voting Volume	Non-voting Volume	R^2
Voting CAR	[-4;1]	23	-0.014 (0.1948)	0.015 (0.1818)	9.27%
Voting CAR	[-10; 10]	23	-0.006 (0.6727)	0.013 (0.3617)	5.74%
Non-voting CAR	[-4; 1]	23	0.009 (0.5301)	-0.299 (0.0603)	25.89%
Non-voting CAR	[-10; 10]	23	-0.001 (0.9571)	-0.021 (0.3180)	14.88%

Table 7: Changes in firm characteristics over event time

This table displays average values of 16 firm characteristics for the five years from two years before the announcement to two years after the announcement. See Appendix A and Table 2 for a description of the variables. Some observations are lost, because we only consider firms for which we have non-missing values for all five years. Also, for variables based on accounting data, only non-financial firms are considered. The right-most column displays the p-value of the combined two-sample t-test for equal mean in year –2 and year 2.

Variable	Number of Obs.	Average value in year					p-value –2 vs. 2
		-2	-1	0	1	2	
BSize1	29	0.542	0.521	0.468	0.442	0.413	1.44%
BSize2	29	0.079	0.070	0.093	0.074	0.070	72.16%
Freefloat	26	0.378	0.430	0.430	0.459	0.496	1.01%
NoInstInv	28	0.679	0.679	0.679	0.679	0.679	100.00%
NoInterInv	28	0.821	0.821	0.786	0.821	0.786	31.73%
SEO	21	0.238	0.095	0.238	0.190	0.095	17.09%
TobinsQ	18[a]	2.003	2.029	1.848	1.654	1.502	21.51%
Investment	18[a]	0.126	0.099	0.107	0.057	0.051	11.94%
SalesGrowth	17[a]	0.967	0.119	0.223	0.050	0.000	26.94%
Dividends	18[a]	0.017	0.027	0.015	0.015	0.017	52.22%
Cashflow	17[a]	-0.011	0.010	0.014	0.052	0.043	23.52%
Cash	18[a]	0.086	0.083	0.080	0.091	0.090	85.24%
DebtChange	18[a]	0.025	0.071	0.039	0.370	-0.004	27.01%
Leverage	16[a]	0.393	0.415	0.393	0.406	0.393	88.92%
PayoutR	10[a]	0.130	0.135	0.167	0.171	0.237	1.44%
ForeignSales	15[a]	0.337	0.367	0.392	0.420	0.406	5.67%

[a] Non-financial firms only.

Table 8: Comparison of firms with and without stock unification

This table displays average values of 20 firm characteristics for 32 firms that abolished their dual class structure and 57 firms that did not abolish dual class shares. We first calculate the average of each variable for each firm across all years (before the announcement) in order to obtain a single value for each firm. Then we average these values across firms. See Appendix A and Table 2 for a description of the variables. For variables based on accounting data, only non-financial firms are considered. The right-most column displays the p-value of the two-sample t-test for equal mean.

Variable	without unification		with unification		p-value
	N	**Mean**	**N**	**Mean**	**of t-test**
BSize1	57	0.570	32	0.551	68.74%
BSize2	57	0.065	32	0.076	55.79%
Freefloat	57	0.345	29	0.369	58.78%
NoInstInv	57	0.729	32	0.707	80.44%
NoInterInv	57	0.856	32	0.867	86.06%
PropVS	57	0.682	32	0.726	19.34%
logMCap	57	5.372	29	5.198	70.43%
IndexDistance	57	5.516	30	5.803	31.67%
SEO	57	0.110	32	0.171	6.79%
TobinsQ	47[a]	1.454	17[a]	1.882	12.04%
Investment	47[a]	0.099	20[a]	0.112	63.00%
SalesGrowth	47[a]	0.122	20[a]	0.402	18.38%
Dividends	47[a]	0.016	19[a]	0.020	32.41%
NoDiv2	47[a]	0.061	21[a]	0.209	1.14%
Cashflow	46[a]	0.022	19[a]	0.014	76.98%
Cash	47[a]	0.090	21[a]	0.085	80.13%
DebtChange	47[a]	0.035	20[a]	0.064	30.89%
Leverage	47[a]	0.409	20[a]	0.371	50.65%
PayoutR	42[a]	0.174	13[a]	0.174	99.81%
ForeignSales	46[a]	0.392	17[a]	0.379	86.14%

[a] Non-financial firms only.

Table 9: Comparison of firm-years with and without stock unification

This table displays average values of 20 variables for firms-years with and without stock unification. See Appendix A and Table 2 for a description of the variables. For variables based on accounting data, only non-financial firms are considered. The right-most column displays the p-value of the two-sample t-test for equal mean.

Variable	without unification		with unification		p-value
	N	Mean	N	Mean	of t-test
BSize1	724	0.560	32	0.464	2.64%
BSize2	724	0.070	32	0.102	12.10%
Freefloat	718	0.351	29	0.415	15.66%
NoInstInv	732	0.691	32	0.656	67.57%
NoInterInv	732	0.851	32	0.781	28.18%
PropVS	741	0.686	32	0.742	4.66%
logMCap	663	5.389	19	5.869	30.27%
IndexDistance	640	5.743	30	5.679	83.95%
SEO	741	0.120	32	0.250	2.99%
TobinsQ	477[a]	1.589	14[a]	1.595	98.98%
Investment	525[a]	0.101	20[a]	0.093	77.52%
SalesGrowth	528[a]	0.147	20[a]	0.230	59.76%
Dividends	519[a]	0.016	17[a]	0.015	85.38%
NoDiv2	555[a]	0.076	21[a]	0.286	0.06%
Cashflow	521[a]	0.027	19[a]	0.023	87.69%
Cash	536[a]	0.094	21[a]	0.071	20.79%
DebtChange	525[a]	0.039	20[a]	0.032	85.79%
Leverage	528[a]	0.405	19[a]	0.381	67.04%
PayoutR	288[a]	0.164	13[a]	0.194	56.29%
ForeignSales	487[a]	0.412	17[a]	0.417	94.25%

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[a] Non-financial firms only.

Table 10: Logit regressions of the decision to unify

This table displays the slope estimates of 16 logit regressions of firm i's decision Y_{it} to unify the dual class structure in year t (Y_{it} equals one in case of unification and zero otherwise). We only consider non-financial firms. See Appendix A and Table 2 for a description of the variables. All regressions in panel A include a constant and eleven year dummies whose coefficients are not reported. Panel B displays the corresponding estimates for the 1996-2001 sub-sample. These regressions include a constant but no year dummies. P-values of the two-sided t-test for zero slope, calculated with White heteroscedasticity consistent standard errors, are shown in parentheses. In addition, the table provides the McFadden pseudo R^2.

Panel A: Full sample (1990-2001) with year dummies

Model	BSize1	PropVS	NoDiv2	Pseudo R^2
1	-3.022 (0.0063)			14.83%
2		3.765 (0.0069)		14.10%
3			1.643 (0.0017)	15.33%
4	-3.919 (0.0005)	2.659 (0.1119)	1.926 (0.0002)	24.60%
5	-4.181 (0.0001)		2.015 (0.0001)	23.03%

Panel B: 1996-2001 sub-sample without fixed effects

Model	BSize1	PropVS	NoDiv2	Pseudo R^2
1	-3.333 (0.0045)			6.19%
2		3.339 (0.0420)		3.56%
3			1.594 (0.0059)	4.63%
4	-3.354 (0.0124)	2.529 (0.1770)	1.702 (0.0062)	13.15%
5	-3.584 (0.0063)		1.795 (0.0063)	11.43%

Figure 1:

Frequency of stock unifications by year

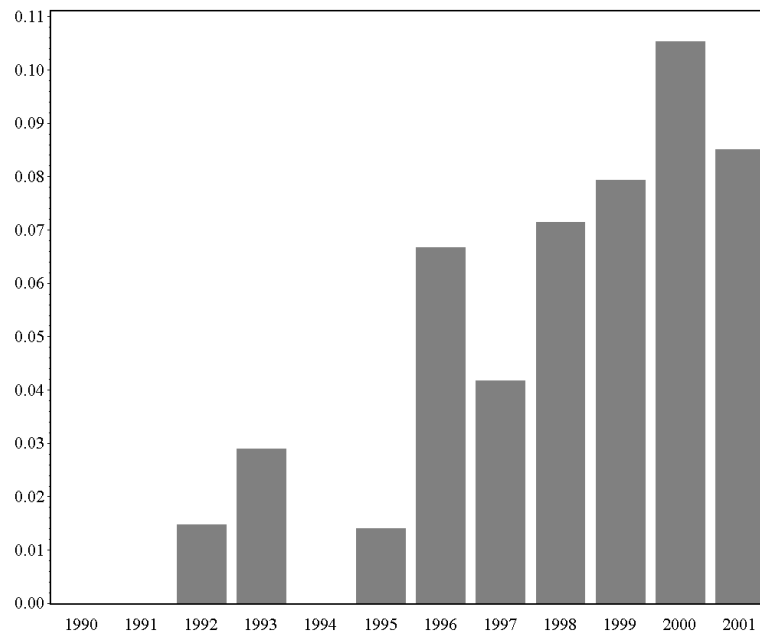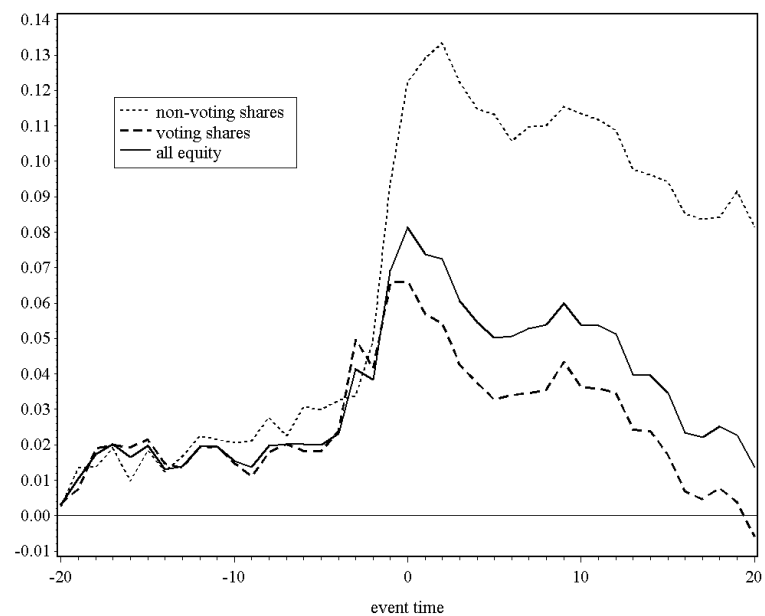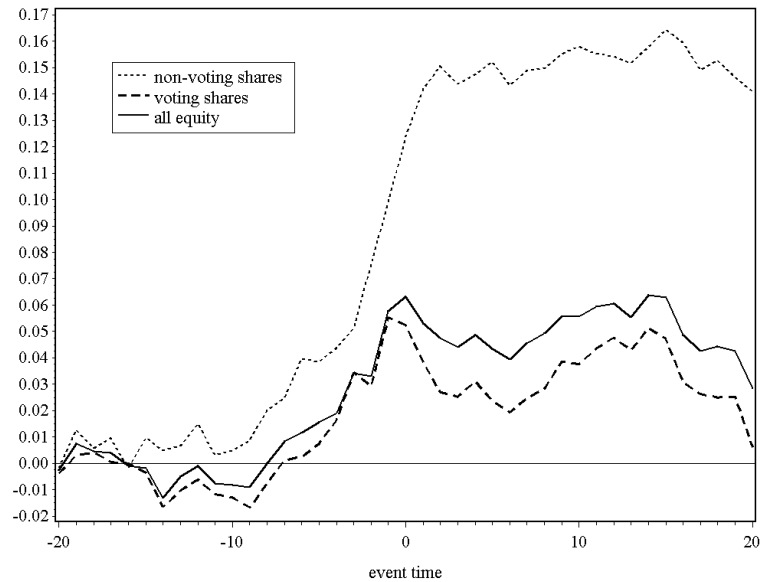For each year, the plot displays the proportion of dual class firms that performed a stock unification.

Figure 2:

Cumulative average abnormal returns for all 29 companies

Figure 3:

Cumulative average abnormal returns for 13 companies with 'clean' announcement

Figure 4:

Average block of voting and non-voting shares held by largest blockholder

The plot displays the average proportion of voting shares in the largest voting block (i.e. *BSize1*), the proportion of non-voting shares and the proportion of cash flow rights held by the same individual for the eight years from 5 years before the announcement to 2 years after the announcement of a stock unification. The plot is based on 22 firms for which we have non-missing values for all eight years.