Information Efficiency and the European Transparency Directive: Does the disclosure of changes in voting rights matter? – Evidence from Germany

Research Paper

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Abstract
This study analyses the impact on the capital market of disclosures of changes in voting rights as determined by the European Transparency Directive I and implemented through Sections 21-30 German Securities Trading Law (WpHG). An event study is used to analyse the disclosures of the top 160 German corporations for the period 2006-2012. Significant capital market reactions can be demonstrated, especially for disposal disclosures. The analysis reveals that the crossing of the 5% threshold in either direction results in significant reactions within the equity market. In contrast, other thresholds such as the 3% or the 10% threshold do not have the same impact. This study provides a first empirical analysis in this field and augments extant judicial literature on the disclosure of changes in voting rights. Additionally, it provides the policy makers with first evidence of the information relevance of its implemented standards.

1 Introduction

Fully functional and transparent capital markets are the foundation of a modern economy, and are essential for the optimal allocation of capital. In its Transparency Directive I, the European Parliament has introduced European-wide mandatory reporting requirements on the acquisition of or disposal of significant shareholdings in listed companies (Directive 88/627/EEC). The German legislator has implemented these obligations in Sections 21-30 German Securities Trading Law (WpHG).

Companies whose shares are admitted to trade on a regulated market, so-called domestic issuers, must immediately publish information about any changes in their ownership in accordance with Section 26 (1) German Securities Trading Law (WpHG). The legislator has fixed thresholds in Section 21 (1) German Securities Trading Law (WpHG). If a shareholder reaches or crosses any of the following thresholds: 3%, 5%, 10%, 15%, 20%, 25%, 30%, 50% or 75% of the voting rights of a domestic issuer, s/he has to report this to the company in question which correspondingly has to disclose this on the European capital market.

The disclosure of changes in voting rights should improve the investment decisions of capital market participants through an improved information base and, accordingly, strengthen Germany as a financial centre (Dehlinger & Zimmermann, 2009, Preliminary Note Sections 21-30 German Securities Trading Law (WpHG), Para. 1.; Justification for the government draft bill to Section 21 Para. 1 German Securities Trading Law (WpHG), Federal German Parliamentary Document 12/6679, p. 33). The normative justification for such a regulation is given. Empirical evidence on the information and decision relevance of participation reporting is, however, still lacking. For a standard-setter, such as the European Parliament or the German legislature, the question is what information is necessary for capital market participants and, therefore, what should be provided on the capital market. At the same time, s/he must take into account the extensive information requirements for companies and the associated macroeconomic information costs. It is generally accepted that increased disclosure obligation is not necessarily linked to improved decisions. Furthermore, it can also lead to an information overload of the capital market participants. In such a case, the macroeconomic information costs outweigh the minimal or non-existent macroeconomic benefit embodied in the information.

It is therefore crucial for the standard-setter to obtain information about the decision relevance of its standards, and thus enabling the adequate development of the law. At present, there are no empirical studies available on the information relevance of participation reporting in Germany; the current literature focuses on the interpretation and the application problems of Sections 21 et seq. German Securities Trading Law (WpHG). This study addresses this research gap. By analysing capital market reactions, i.e. aggregated market behaviour, this study examines whether the disclosure of changes in the voting rights of a company is perceived and processed by capital market participants. The analysis focuses here on the reaction of equity investors.

The empirical analysis is not only of national interest. All EU Member States have had to translate the Transparency Directive I into national law. The extent, to which this additional and supposedly decision-relevant information from the respective capital markets is perceived within the EU, has not been studied so far for these markets. This study provides a first indication for the German capital market, and also opens up additional research potential for empirical analyses for participation disclosure in other EU Member States.

In the following section, the legal basis for participation disclosure is discussed, followed by a review of the literature in section three. Section four, research methodology and sample composition, culminates in the findings, which are presented in section five. The paper concludes with a brief overview of the key findings and offers a rationale for further research in this area.

2 Regulatory framework

2.1 The Regulatory Purpose of Sections 21 et seq. German Securities Trading Law (WpHG)

The European requirements for the disclosure of acquisition and disposal transactions of major shareholdings in listed companies are translated into Sections 21-30 German Securities Trading Law (WpHG) (Schneider, 2012, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 1). This legal regulation is based on the Transparency Directive I of 12.12.1988 (Directive 88/627/EEC) and was amended in the Transparency Directive II of 15.12.2004 (Directive 2004/109/EC) and in the Implementing Directive of 08.03.2007 (Directive 2007/14/EC).

German legislature has adopted the objective of Transparency Directive I in the determination of aims of Sections 21 et seq. German Securities Trading Law (WpHG) (Schwark, 2010, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 4; Schneider, 2012, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 21). Reporting on the ownership structure of listed companies should, therefore, (i) protect investors in the European Union, (ii) enhance both transparency and confidence in the securities markets, and (iii) promote the functioning of the capital market (Justification for the government draft bill to Section 21 (1) German Securities Trading Law (WpHG), Federal German Parliamentary Document 12/6679, p. 52). The German legislator has also formulated further objectives: the abuse of insider information should be counteracted and the competitiveness of Germany as a financial centre should be strengthened (Justification for the government draft bill to Section 21 (1) German Securities Trading Law (WpHG), Federal German Parliamentary Document 12/6679, p. 33 and p. 52).

Participation reporting also has both a regulatory and a corporate function. Whilst providing the company with equity, the shareholder carries the ultimate responsibility for the company (Schneider, 1990, p. 322) whereby his responsibility increases commensurately with his level of participation. For the public, it is relevant who is the bearer of this ultimate responsibility (Schneider, 2012, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 26). Regulatory measures also require knowledge of this carrier. From a corporate and group-legal perspective, the shareholders should also receive an overview of the shareholder structure and the percentages of voting rights (Schwark, 2010, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 4; Schneider, 2012, Preliminary Note Section 21 German Securities Trading Law (WpHG), Para. 28).

The risk of a "cold acquisition" provides a further reason for the disclosure of ownership (Krause, 2011, p. 669). Thus, the law will prevent any "stalking" of a target company and ensure that information about shareholders increasing, retaining or decreasing of a substantial stake is provided (Schneider, 2012, Preliminary Note Section 21 (9) German Securities Trading Law (WpHG)).

Finally, it should be noted that the German legislator has intended to improve the functioning of capital markets and the implementation of further investor protection regulations. The capital market participants should be able to make investment decisions on a broad information base (Dehlinger & Zimmermann, 2009, Preliminary Note Sections 21-30 German Securities Trading Law (WpHG), Para. 1) to facilitate their individual decision-making (Justification for the government draft bill to Section 21 (1) German Securities Trading Law (WpHG), Federal German Parliamentary Document 12/6679, p. 35 and p. 52). The following section will address the specific design of the disclosure requirements of changes in voting rights and their practical implementation.

2.2 Legal Requirements for the Disclosure of Changes in Voting Rights

The disclosure of changes in voting rights is subject to a two-stage process (Schneider, 2012, Section 26 German Securities Trading Law (WpHG), Para. 3). Firstly, natural and legal persons (so-called Reportables) are obliged to immediately submit notification of his/her voting rights to the issuer and to the Federal Financial Supervisory Authority (BaFin), whenever 3%, 5%, 10%, 15%, 20%, 25%, 30%, 50% or 75% of the voting rights are reached or crossed (Section 21 (1) 1 German Securities Trading Law (WpHG)). Secondly, the domestic issuer is then obliged to immediately reveal this transaction to the public and disclose it to the business register for storage in accordance with Section 26 (1) 1 German Securities Trading Law (WpHG). At the same time, the domestic issuer must submit the text, the media and the date of disclosure to the Federal Financial Supervisory Authority (BaFin), pursuant to Section 26 (2) German Securities Trading Law (WpHG). Figure 1 presents this process.

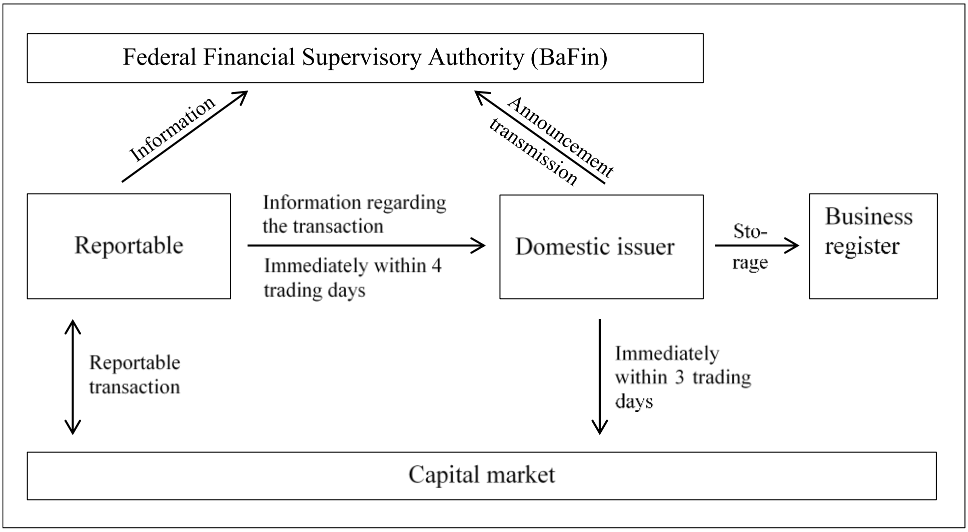

Figure 1: Process of the participation reporting in Germany

Section 21 (1) German Securities Trading Law (WpHG) governs everyone (Schwark, 2010, Section 21 German Securities Trading Law (WpHG), Para. 7), irrespective of his/her domicile or nationality or of his/her legal status, or the registered office of a legal person (Schneider, 2012, Section 21 German Securities Trading Law (WpHG), Para. 9). The duration of participation does not exempt anyone from the notification requirement. Accordingly, even a short-term crossing of the threshold leads to a reporting obligation pursuant to Section 21 (1) German Securities Trading Law (WpHG) (Schneider, 2012, Section 21 German Securities Trading Law (WpHG), Para. 24). Whether a fixed threshold has been reached or crossed is determined by the number of voting rights, not by the number of shares. Here, the Sections 22 et seq. German Securities Trading Law (WpHG) are relevant, which govern the consideration of voting rights of the declarant. In order to determine the reaching or crossing of the fixed thresholds, the domestic issuer must publish the total number of voting rights pursuant to Section 26a German Securities Trading Law (WpHG). A notification of voting rights must be made truthfully and promptly within four trading days (Schwark, 2010, Section 21 German Securities Trading Law (WpHG), Para. 29; Schneider, 2012, Section 21 German Securities Trading Law (WpHG), Para. 113 and Para. 128).

The domestic issuer must then publish the notice immediately, not later than three trading days, after receiving it from the declarant (Dehlinger & Zimmermann, 2009, Section 26 German Securities Trading Law (WpHG), Para. 16; Schneider, 2012, Section 26 German Securities Trading Law (WpHG), Para. 10). The public is therefore only informed at the second stage by the domestic issuers through the disclosure of the changes in ownership. The German legislator has provided various types of media for this disclosure, for example, electronically-operated information processing systems, news providers, news agencies, print media and internet sites (Schneider, 2012, Section 26 German Securities Trading Law (WpHG), Para. 44). The Federal Financial Supervisory Authority (BaFin) requires, as a minimum standard, the disclosure of a notice in one of each of the aforementioned media types. Additionally, a Europe-wide distribution in one of these media types must be guaranteed. In practice, professional service providers are often engaged to ensure compliance with the information requirements. The German Society for Ad-hoc Publicity (DGAP) provides, inter alia, the service of Europe-wide disclosure of transmission to the Federal Financial Supervisory Authority (BaFin), and of storage in the business register.

3 Literature Review and Hypothesis Development

Research activity on the share price performance of companies dependent upon their ownership structure has a long tradition. Berle and Means (1932) were able to show that a strong dispersion of the ownership structure results in the owners not being able to enforce a maximization of corporate value. The management then is subject to unfavourable incentives or adverse behaviours such as shirking, over-investment or empire-building. Following the reasoning of Jensen and Meckling (1976), the cost of the deviation from the maximization of corporate value decreases commensurate to the increase in managerial self-interest. It can thus be concluded that an increasing concentration of ownership to a few, or individual, shareholders will lead to an increase in corporate value. This argument is, therefore, referred to as the "convergence-of-interest" hypothesis (Morck, Shleifer & Vishny, 1988). In contrast, Fama (1980) and Jensen and Ruback (1983) argue that a manager who holds only a small share of the company is more strongly subjected to market discipline on the labour market for executives, also referred to as the market for corporate control, than a manager with a high percentage of voting rights. The latter is much more able to defend his position in the company and enforce the aforementioned adverse behaviour against the resistance of the minority shareholders than the former. Based on this assumption, an increasing concentration of voting rights to a few individual shareholders will reduce the company's value. This contrary assumption is referred to in the literature as the "entrenchment" hypothesis (Morck, Shleifer & Vishny, 1988). It can be assumed that a change in the ownership structure may lead to a shift of wealth between majority and minority owners, whereby the conflicting hypotheses here do not allow a prediction of the direction.

Empirical studies on changes in voting rights are predominantly concerned with investigating merger and acquisition transactions. Assuming planned synergies as an exclusive background for such transactions, the joint corporate value of the bidding and target companies will increase. In contrast, if one assumes a principal-agent conflict between business owners and management the joint corporate value will decrease or it will result in significant transfers of wealth between the owners of the bidding company and those of the target company. Indeed, the empirical evidence for this is rather ambivalent. In particular, it seems that the shareholders of the target company benefit while the shareholders of the bidder company suffer losses (Jenson & Ruback, 1983; Roll, 1986; Bradley, Desai & Kim, 1988; Kaplan & Weisbach, 1992; Servaes, 1991; Berkovitch & Narayanan, 1993; Mulherin & Boone, 2000; Andrade, Mitchell & Stafford, 2001). However, it should be noted that such studies always focus on takeover bids, which mainly relate to the acquisition of control at the internationally accepted threshold of 30%. Furthermore, only offers made by bidder companies that are also listed companies are usually considered in these studies, which mean that only the transactions of large bidder companies are included in the studies.

Studies on the capital market relevance of acquisitions that do not lead to the acquisition of control are currently not available. Relevant, however, in this context, are studies of block trading activities, as these can also lead to the acquisition of large blocks of shares and can comprise considerable voting rights packages. In comparison to studies of information relevance, very short-term time horizons are considered in these studies. Sometimes even rate changes from one price-setting to another are observed. This particular method of analysis is used to examine the "short-run liquidity-cost" hypothesis. According to this hypothesis, the transaction performed on the stock exchange might have a direct effect on the stock price by increasing the demand by a purchasing order or increasing the supply through a sell order. An initial investigation of block transactions on the New York Stock Exchange (NYSE) was conducted by Krauss and Stoll (1972). Examining a total of 1,466 block transactions, the authors were able to determine that seller-initiated block transactions led to a negative abnormal return, both on an intra-day basis as well as on a long-term basis. Contrariwise, buyer-initiated block transactions induced positive abnormal returns. The authors, therefore, regard both the "short-run liquidity-cost" hypothesis and the "information relevance" hypothesis as being confirmed. A simultaneous study by Scholes (1972) on off-exchange transactions likewise confirms these findings. A key study by Barclay and Holderness (1991) was able to demonstrate a significant abnormal return of 5.1% on the day of the event. In the period from 1978-1982, the authors analysed 106 purchasing transactions which represented more than 5% of the outstanding shares of the target company and, at the same time, the intention was made clear by the bidder company to take over the remaining shares. Within one year after the transaction, the abnormal return amounted to 16.5%. Even those target companies over which no control could be acquired recorded an abnormal return of 5.6% for the same period. These findings are mirrored and supported by Dann, Mayers and Raab, 1977; Grier and Albin, 1973; Holthausen, Leftwich and Mayers, 1987; Ball and Finn, 1989; Holthausen, Leftwich and Mayers, 1990; Seppi, 1992; Chan and Lakonishok, 1993; Chan and Lakonishok, 1995; Hansch and Neuberger, 1995; Keim and Madhavan, 1996; Madhavan and Cheng, 1997; La Plante and Muscarella, 1997; Ellul, 1999; Schäffner, 2003.

Information processing in the capital markets is the subject of the "capital market efficiency" hypothesis. This classifies the information efficiency of capital markets into three different degrees: a strong, a semi-strong, and a weak form of information efficiency (Fama, 1970, p. 383). If security prices include all publicly available information and private information, this represents a strong form. The semi-strong form implies that security prices include only public information such as, for example, the disclosure of changes in voting rights. However, if security prices are based only on historical price data, this is a weak form of information efficiency.

The degree of information efficiency of the German capital market has not yet been clearly determined empirically. While the strong-form of information efficiency could not be confirmed (Bak & Bigus, 2006, p. 433; Steiner, Bruns & Stöckl, 2012, p. 42), the vast majority of empirical studies confirmed the validity of the semi-strong form (Möller, 1985; May & Schweder-Weber, 1990; Sapusek, 1998). Also, the semi-strong informational efficiency is assumed for the following analysis. This is necessary because in the weak form of capital market efficiency hypothesis only historical price information is processed in the prices of securities. However, the reporting on changes in voting rights can only develop an effect on the capital market if albeit publicly available information is processed in the prices of securities as described in the semi-strong form of capital market efficiency hypothesis. Accordingly, an event then has an information content when it is processed in the stock market prices, and relevant price reactions take place. A price reaction on the capital markets also presupposes that there is decision-relevant information that is both unknown to market participants in advance and is unexpected.

The reporting on changes in voting rights should improve the investment decisions of capital market participants through an expanded information base. The legislature has, through the anchoring of Sections 21 et seq. German Securities Trading Law (WpHG), presumed that the information on changes in the ownership structure is relevant for the decisions of the capital market participants. The empirical evidence for this, however, remains to be seen. This gives rise to a particular economic relevance. The primarily legal literature on the reporting on changes in voting rights focuses only on the problems of the interpretation and application of Sections 21 et seq. German Securities Trading Law (WpHG). However, there are no studies on the information relevance of the disclosure of changes in voting rights.

The need for such an empirical analysis also arises for reasons of the development of the law. A standard-setter as well as a legislator does not know a priori the impact of its standards (Schmidt, 2007, p. 533, with respect to accounting standards). The normative justification for the participation reporting is indeed plausible and understandable. Whether the given information will be used by the capital market participants in the desired sense, or merely represents more extensive reporting without practical relevance, should be examined by the standard-setter ex post. The IFRS Foundation has introduced, for example, in relation to accounting standards of the IASB a post-implementation review (IFRS Foundation, 2013, Para. 6.52 to 6.54). This should be done in the form of a consultation process, two years after the introduction of the standard, and discover potential application problems and unexpected costs of a standard (Ewert & Wagenhofer, 2012, p. 280). The reporting on changes in voting rights is also connected with time and financial expenses for the reporting party and domestic issuers. Accordingly, here the question arises whether the Sections 21 et seq. German Securities Trading Law (WpHG) are relevant for the capital market participants for decision-making, or whether the need exists for a legal adjustment by the legislature due to a lack of use of the information.

The empirical analysis in this study is focussed on equity shareholders and their behaviour as they have a special interest in information about changes in ownership. If previously unknown information regarding the changes in voting rights which is relevant for decision-making is published, price adjustments should occur due to a revision of expectations of the capital market participants. Both the "convergence-of-interest" hypothesis and the "entrenchment" hypothesis also imply price reactions, but the direction of effect cannot be clearly predicted. The following hypothesis 1 is, therefore, formulated on the basis of the economic theories discussed:

Hypothesis 1: "The information about changes in the ownership structure of a company leads to capital market reactions in the disclosure period."

The type of capital market transaction also includes a signal for assessment of the acting capital market participants regarding the future development of his financial position. So, it can be concluded from the complete sale of the shares that the former investor has a negative expectation regarding the future position of the investment object, and has thus disposed of his interest in the company (Dehlinger & Zimmermann, 2009, Preliminary Notes Sections 21 to 30 German Securities Trading Law (WpHG), Para. 17). A particularly high level of investment in the form of a significant exceeding of a threshold or several thresholds, however, can signal a positive expectation of the investor regarding the future development of the investment object. The empirical results to date regarding buyer and seller-initiated block transactions also imply different capital market reactions as these studies have found positive abnormal returns on the buyer side, negative abnormal returns on the seller side. The following hypothesis 2 is, therefore, formulated for the empirical analysis of reporting on changes in voting rights:

Hypothesis 2: "The excess or shortfall of the thresholds for the disclosure of changes in voting rights leads to different capital market reactions in the disclosure period."

Finally, the amount of excess or falling below for the participation threshold may have an influence on the behaviour of the capital market participants, since the voting rights for the company change due to the transaction and thus also change the potential degree of influence on the decisions of the company. For example, exceeding the 10% threshold can cause different capital market reactions than exceeding the 3% threshold, when this results in significant changes to the influencing of strategic decisions of the company, for example, by a potential formation of a coalition. The direction of the corresponding capital market reactions here is open, and depends on the individual case. The withdrawal of an investor can, for example, be positive for one's own influence, when one's own position is thereby strengthened. At the same time, a strategic alliance can be omitted, resulting in adverse consequences for one's own influence on the investment object. Essentially, it must be noted that, with the excess or shortfall of the various thresholds, different signals with respect to the influence on the company are sent, resulting in different capital market reactions. Accordingly, the following hypothesis 3 is formulated:

Hypothesis 3: "The amount of excess or shortfall for thresholds for the disclosure of changes in voting rights leads to different capital market reactions in the disclosure period."

4 Methodology

4.1 Sample and Data Base

The empirical analysis focuses on those 160 companies that were listed in the HDAX index (DAX, MDAX and TecDAX) and SDAX in November 2013. The data analysed in this event study are the notifications of voting rights of these companies in the period 1 January 2006 - 31 December 2012 published via the DGAP.

A total of 28,270 voting rights notifications were obtained within this period. After removing those not pertaining to the sample companies and after adjusting for simultaneous double reporting and corrections, 5,744 notifications form the data base for this paper. The remaining notifications are broken down using the content analysis approach (text mining) and are displayed in terms of the acquisition and disposal of shares. Furthermore, it is determined which of the thresholds are exceeded or fallen below for each disclosure. A total of 2,133 were identified as ambiguous. These are, in particular, those which combine several different notifications in one disclosure. Notifications for the purchase or sale of treasury shares also belong to this group. Since the group of ambiguous notifications cannot be evaluated, these have been removed from the sample. Thus, 3,611 relevant observations remain in the sample.

The closing prices of the Xetra-trading system for the period 2005-2012 form the analytical basis of this event study, whereby the data of 2005 is used exclusively for the parameter estimation of the market model.

4.2 Event Study Methodology

In this paper, the event study methodology is applied which already has a long history in empirical accounting and capital market research (cf. in particular Ball & Brown, 1968; Fama et. al., 1969, but also McWilliams & McWilliams, 2000; Kothari & Warner, 2007; Cichello & Lamdin, 2006; MacKinlay, 1997; McWilliams & Siegel, 1997; Corrado, 2011; Peterson, 1989; Armitage, 1995; Serra, 2004; Lamdin, 2001; Binder, 1998; Brown & Warner, 1985). The share price of a company is observed in a very limited period of time around the event day, the so-called event or observation window. Should the voting rights notification be relevant to the capital market, an unexpected abnormal return $AR_{s,t}$ would be observable during this period. In oder to determine this, it is initially necessary to identify the continuous days' yield $R_{s,t}$ of the observed shares s, and to set these against the expected returns $ER_{s,t}$ of the day t. The daily abnormal stock returns: $AR_{s,t} = R_{s,t} - ER_{s,t}$ will thus be obtained. Sharpe´s (1964) market model, which estimates the expected returns using a linear regression model $ER_{s,t} = \alpha_s + \beta_s \cdot R_{m,t}$, is used here. The regression parameters α_s and β_s are calculated for the time interval [-221,-21] in days prior to the event date. The overall market´s continuous daily yield $R_{m,t}$ is represented by the DAX performance index. All stock price series had previously been adjusted by "opération blanche" by dividend payments, corporate actions and stock splits.

In order to calculate the event-specific Cumulative Abnormal Returns $CAR_e = \sum_{t=T1}^{T2} AR_{s,t}$, the daily abnormal returns $AR_{s,t}$ of the stock s are cumulated within the event window, i.e. within the time interval [T1,T2] around the event day T. In the present study, the time interval [-10,10] is used which is typical in the context of short-window event studies (Goerke, 2009, p. 76). The observation intervals [-5,5] and [-1,1] are used additionally for a sensitivity analysis, which also incorporates the time windows [-10,-1] and [0,10] in order to study separately the period immediately before and immediately after the disclosure of the information. This procedure is used to identify insider effects ("leakage") or other anticipation effects and market inefficiencies.

Since other information and events, so-called confounding events, can be responsible for the price reaction when considering only a single event, many similar events in the context of event studies have to be observed. The individual effects are averaged, so that the errors of confounding events are minimised and only the systematic effect induced by the event is revealed. The Cumulative Average of Abnormal Returns (CAAR) is calculated as the average of all CAR_e of all observed events e. The following applies: $CAAR = \frac{1}{n} \sum_{e=1}^{E} CAR_e$.

If a specific type of event, here a voting rights notification, leads to systematic capital market reactions within the event period, the result is a significantly different CAAR from zero. In the present case, therefore, the different hypotheses can be verified by H0: CAAR=0 and H1: CAAR≠0. Since the conditions for the application of the Student's t-test are not guaranteed in the context of event studies in each case, the non-parametric Wilcoxon rank-sum test, a robust test method, is also used (Brown & Warner, 1985; Serra, 2004). For this the hypotheses H0: Median(CAR_e)=0 and H1: Median(CAR_e) ≠0 apply. A present significance at the 10%, the 5% and the 1% confidence interval is indicated respectively.

Due to the effects of possible confounding events in the context of voting rights notifications, and due to the inclination of the event study methodology to strengthen statistical outliers in their effect, 5% trimmed mean values were calculated for the Student's t-test. Furthermore, to a lesser extent, records were removed for which no sufficient capital market data was available. The number of incoming observations in the tests after trimming and correction are given in parentheses.

5 Results

5.1 Presentation of Results

The distributions of the Cumulative Abnormal Returns (CAR_e) shows in all studied cases a capital market-typical appearance (Brown & Warner, 1985): A pronounced kurtosis is noticeable for the distribution of the CAR_e in comparison to the normal distribution. A visual inspection of the sample and the sub-samples resulted in no distinct outlier problem after trimming. A remaining skewness of the distributions in individual cases is, therefore, not attributable to outliers.

During the observation interval [-10,10], with all notifications at n=3,611 (3,342), there is a CAAR=-0.293%* or a Median(CAR_e)=-0.117% respectively. The stock market thus responds to the presence of voting right notifications negatively with low significance of the mean, and none of the median. Hypothesis 1 cannot be answered satisfactorily based on this data. Although significant capital market reactions can be demonstrated with regard to the disclosure of information concerning changes in the ownership structure on the equity capital market, these are not available for each calculated parameter, and also only a weak significance at the 10% level is present in part. Both frequency distributions differ significantly from the normal distribution and indicate a two-peak characteristic, so that a separate analysis for acquisitions and disposals - as already requested in Hypothesis 2 - is required.

Upon acquisition the stock market reaction at n=1.911 (1.760) observations with a CAAR=-0.001% and Median(CAR_e)=0,276% respectively is insignificant. A completely different picture can be demonstrated for the capital market reactions on disposals to which the stock market at n=1.700 (1.581) observations with a CAAR= -0.638%*** or a Median(CAR_e)=-0,488%** respectively reacted strongly negative. Our hypothesis 2 - that exceedances or shortfalls to the thresholds for the disclosure of changes in voting rights lead to different capital market reactions in the disclosure period - cannot be confirmed. Although such reactions are different for acquisitions and disposals, as well as the expected signs on the stock market in part, these are only significant for disposals. It seems to be that the disposal of shares in a company sends a stronger capital market signal than acquisitions, since current shareholders may hold insider information which motivates them to sell.

A breakdown of acquisitions and disposals with exceeded or shortfall thresholds is used to check our hypothesis 3. Such a breakdown is provided in table 1 for the acquisitions and table 2 for the disposals.

Table 1: Results for acquisition announcements differentiated by the crossing of certain thresholds.

Acquisition Announcements [-10,10]		Acquisition raised stake above... (highest exeeded threshold)				
Acquisition raised stake from under... (lowest exeeded threshold)		3%	5%	10%	≥15%	all
3%	n (n_{Trim})	1,134 (1,041)	195 (179)	59 (56)	48 (45)	1,436 (1,322)
	CAAR	0,245%	-1,171%	-1,123%	0,685%	0,069%
	CAR_{Median}	0,408%	-0,564%	-2,561%	0,187%	0,217%
5%	n (n_{Trim})		330 (303)	18 (17)	3 (2)	351 (322)
	CAAR		-1,349% **	-2,226%	-36,146%	-1,385% ***
	CAR_{Median}		-0,780% *	-2,861%	-36,146%	-1,027% **
10%	n (n_{Trim})			51 (48)	5 (4)	56 (53)
	CAAR			0,893%	-21,080%	0,339%
	CAR_{Median}			1,988%	-9,385%	1,942%
≥15%	n (n_{Trim})				68 (64)	68 (64)
	CAAR				4,166% ***	4,166% ***
	CAR_{Median}				3,783% ***	3,783% ***
all	n (n_{Trim})	1,134 (1,041)	525 (481)	128 (121)	124 (116)	1,911 (1,760)
	CAAR	0,245%	-1,217% ***	-1,144%	2,363% ***	-0,001%
	CAR_{Median}	0,408%	-0,672% *	-0,607%	3,186% ***	0,276%

Table 2: Results for disposal announcements differentiated by the crossing of certain thresholds.

Disposal Announcements [-10,10]	Disposal reduced stake from above... (highest threshold fallen below)					
Disposal reduced stake under... (lowest threshold fallen below)		3%	5%	10%	≥15%	all
3%	n (n_{trim})	997 (935)	185 (163)	39 (35)	36 (32)	1.257 (1.164)
	CAAR	-0,123%	-2,400% ***	4,089% **	-2,138%	-0,300%
	CAR_{Median}	-0,102%	-1,057% **	2,559% **	-1,584%	-0,268%
5%	n (n_{trim})		300 (283)	15 (14)	6 (5)	321 (304)
	CAAR		-2,350% ***	-3,443%	-2,100%	-2,300% ***
	CAR_{Median}		-2,456% ***	-0,804%	3,884%	-2,243% ***
10%	n (n_{trim})			64 (60)	5 (4)	69 (65)
	CAAR			1,564%	-7,014% *	0,959%
	CAR_{Median}			0,436%	-4,842% *	0,094%
≥15%	n (n_{trim})				53 (49)	52 (49)
	CAAR				-1,888%	-1,888%
	CAR_{Median}				-0,300%	-0,300%
all	n (n_{trim})	997 (935)	485 (447)	118 (109)	100 (91)	1.700 (1.581)
	CAAR	-0,123%	-2,297% ***	2,154% **	-1,853% *	-0,638% ***
	CAR_{Median}	-0,102%	-1,839% ***	0,819% *	-1,295% *	-0,488% **

Exceeding the 3%-voting rights threshold does not display, in the context of acquisitions, any significant capital market relevance. It can be concluded that the appearance of a previously unknown investor is not perceived by the stock market.

If the 5%-voting rights threshold is exceeded - in contrast to the 3%-voting rights threshold - this is perceived very negatively by the stock market. With n=330 (303) observations there is a CAAR=-1.349%** and a Median(CAR_e) =-0.780%* respectively. The behaviour of the stock market is even further confirmed and strengthened when further voting rights thresholds are exceeded. The significant negative reaction of the stock market in excess of the 5%-voting rights threshold is initially counter-intuitive. Thus, this observation contradicts the often repeated empirical observation that, in the context of corporate transactions, with the acquisition targets significantly positive abnormal returns can be found (Weston, Mitchell & Mulherin, 2014, pp. 195 et seq.). However, this finding refers regularly to the (targeted) exceeding of significantly higher thresholds, usually the internationally uniform control threshold of 30%, which, in Germany, is anchored in Section 29 (2) German Takeover Law (WpÜG). A possible explanation for this observation could be that the crossing of the 5%-voting rights threshold can effectively avoid the exclusion of minority shareholders, a so-called squeeze-out, in accordance with Sections 39a to 39c German Takeover Law (WpÜG) or Sections 327a to 327f German Stock Corporation Law (AktG). This makes the company less attractive as a potential takeover candidate which could lead to a negative capital market reaction.

Exceeding the 10%-voting rights threshold again does not show any significant capital market reaction, also in combination with other exceedances. A strong positive reaction in the stock market is still shown with the exceedance of the voting rights thresholds
≥ 15%. With n=68 (64) observations there is a CAAR=4.166%*** and a an(CAR_e)=3.783%*** respectively. This behaviour is observed, albeit with a smaller data base, as being consistent with the observation described in the literature on corporate transactions.

The classification of the disposals by the individual voting rights thresholds results in a partially mixed picture. The 3%-voting rights threshold has, in a single crossing no significant capital market relevance, as already observed with the acquisitions.

The crossing of the 5%-voting rights threshold is perceived very negatively by the stock market. With n=300 (283) observations there is a CAAR=-2.350%*** and a Median(CAR_e)=-2.456%*** respectively. This behaviour is confirmed in cases with simultaneous crossings of further voting rights thresholds.

The single crossing below the 10%-voting rights threshold again shows no significant capital market reaction in the stock market. In combination with other thresholds, significant capital market reactions are observable, but in total with a smaller number of observations. The falling below of thresholds ≥ 15% results in no significant abnormal returns.

Based on the previous results, hypothesis 3 - the amount of exceedance or shortfall for thresholds relating to the disclosure of changes in voting rights leads to different capital market reactions in the disclosure period - can be regarded as confirmed, whereby significant capital market reactions focus strongly on the 5% threshold and on combinations of multiple thresholds, and the higher thresholds of ≥ 15%.

5.2 Sensitivity Analysis

In a sensitivity analysis, the stability of the results should be examined when changing the selected examination parameters. In the context of event studies, this is usually the pre-cut of the observation windows which should be varied because substantial changes in results are possible here. At the same time, this approach opens up the possibility of examining the temporal position with a focus on the spread of the capital market reactions in relation to the event day. Table 3 shows the results of the study broken down by acquisition or disposal, and in accordance with the observation windows [-10,10], [-5,5], [-1,1], [-10,-1] and [1,10].

Table 3: Results for acquisition and disposal announcements in different event windows.

	Time period	n (n_{Trim})	CAAR	CAR_{Median}
All announcements	[-10,10]	3,611 (3,342)	-0.293% *	-0.117%
	[-5,5]	3,611 (3,338)	-0.046%	0.057%
	[-1,1]	3,611 (3,336)	0.232% ***	0.048% **
	[-10,-1]	3,611 (3,336)	-0.326% ***	-0.388% **
	[0,10]	3,611 (3,342)	0.028%	-0.114%
Acquisition announcements	[-10,10]	1,911 (1,760)	-0.001%	0.276%
	[-5,5]	1,911 (1,759)	0.370% **	0.483% **
	[-1,1]	1,911 (1,758)	0.417% ***	0.165% ***
	[-10,-1]	1,911 (1,758)	-0.287% *	-0.185%
	[0,10]	1,911 (1,760)	0.257%	0.153%
Disposal announcements	[-10,10]	1,700 (1,581)	-0.638% ***	-0.488% **
	[-5,5]	1,700 (1,578)	-0.529% ***	-0.484% **
	[-1,1]	1,700 (1,577)	0.015%	-0.037%
	[-10,-1]	1,700 (1,577)	-0.383% **	-0.596% ***
	[0,10]	1,700 (1,581)	-0.230%	-0.315%

It turns out that the stock market reacts very positively in the observation window [-1,1] to voting rights notifications. This positive reaction is obviously driven by the positive reaction to acquisitions in the same event window. The significance is blurred with the expansion of the observation window to [-5,5] and [-10,10]. The breakdown in the observation window [-10,-1] and [0,10] respectively provides no further explanation. It can, therefore, be assumed that acquisitions are positively perceived by the stock market in general. Insider and anticipation effects that would draw premature information processing in the capital market play as little a role as capital market inefficiencies which would produce a delayed reaction.

It is also noted that in the observation window [-10,-1] the stock market shows a significantly negative reaction to voting rights notifications. This negative reaction is obviously driven by the negative reaction to disposal notifications in the same time window. In contrast to the above-described positive effect, disposal notifications seem to be processed very early in the capital market. That a non-significant reaction is observed in the observation window [-1,1] is possibly due to averaging acquisition and disposal notifications.

Confounding events can distort the findings of an event study (Goerke, 2009). Essentially, there is a risk that other price-sensitive corporate information can lead to significant capital market reactions during the observation period (Fidrmuc, Goergen & Renneboog, 2005, p. 17), which are not due to the disclosure of changes in voting rights. Consequently, the results and interpretations of the empirical analysis are distorted since significant abnormal returns cannot be clearly associated with the event under investigation. To address this fundamental problem, a further sensitivity analysis is performed. The DGAP collects all notifications and records published through it, and records these in different categories. In the analysis so far, only those events were recorded in the content analysis which can be clearly assigned to the object of study (the reporting on changes in voting rights). All other events were not considered. However, these may also contain price-sensitive information which can cause significant abnormal returns in the analysed period. To eliminate this risk, every event that is included in the analysis is examined as to whether in the given period [-10,10] further corporate notifications from other categories, such as Director's Dealings notifications or notifications regarding corporate performance, were issued for the company in question.

Overall, an overlap of two events was found for 63 corporate notifications. To minimise the risk of distortion, these events are eliminated from the sample (Goerke, 2009). Subsequently, the main analysis of the three hypotheses is carried out again on the basis of the adjusted data. Both the determined signs and the significance of the CAAR still remain. Accordingly, no impact from confounding events can be found from the sensitivity analysis, and the results are robust. In addition, a possible criticism regarding the presence of confounding events must be countered, that both the high number of data points at various times in the period 2006-2012 and the trimming of the data address and significantly minimise this fundamental problem in the event study approach.

5.3 Discussion of the Results

The study of information relevance of the disclosure of changes in voting rights was carried out on the basis of a market-based approach in the form of an event study. This approach presupposes certain premises which are not given in any case in reality. In particular, the calculation of expected returns assumes the validity of the market model and the representativeness of the time window used for the calculation of expected returns. Often, in this context, a criticism is cited for the test of associated hypotheses because, on the one hand, the validity of the market model to identify the expected returns is assumed and, on the other hand, the information relevance is examined (Steiner, Bruns & Stöckl, 2012, pp. 43-44).

The analysis is limited to the period from 2006-2012 and the companies of HDAX and SDAX that fulfil their reporting requirements through the use of the services of the DGAP. The empirical study of different periods, of other companies and the use of another service to meet the information requirements can lead to different results which imply that further research is needed regarding this topic. Essentially, there are also alternative ways to study the information relevance of the disclosure of changes in voting rights; for example, to carry out surveys of the information addressees.

6 Conclusion

The objective of this paper is the empirical analysis of the information relevance of the disclosure of changes in voting rights in accordance with Sections 21 et seq. German Securities Trading Law (WpHG). As part of an event study, it is analysed as to whether the information regarding significant changes in ownership structures can cause significant capital market reactions in the form of abnormal returns on the stock market. The analysis focusses on voting rights notifications of the companies of the HDAX and SDAX for the years 2006-2012.

The results of the analysis show the capital market relevance of voting rights notifications pursuant to Sections 21 et seq. German Securities Trading Law (WpHG). Our empirical study demonstrates significant abnormal returns for the stock market in the sample period. This is not apparent in the sum of all such notifications, however, but is revealed very clearly in the deconstruction of the sample into acquisitions and disposals, as well as in the distribution of the sample over the various voting rights thresholds. In particular, voting rights notifications on disposals lead to significant negative abnormal returns on the stock market. The reason for this could be a differentiated perception and weighting of information on acquisitions and disposals respectively because no significant positive abnormal returns can be found for acquisitions in the stock market.

The investigation of individual voting rights thresholds shows no clear picture, as not every exceedance or falling below of a specific voting rights threshold leads to significant capital market reactions. No significant abnormal returns in the stock market can be demonstrated for the sole exceedance or falling below for the lowest voting rights threshold of 3%. In particular, this has to be viewed critically since the national legislature has anchored a deliberately lower threshold than in the EU Directive, which merely calls for a voting rights notification in the case of an exceedance or shortfall at the 5% voting rights threshold. The results of the empirical analysis argue against the information relevance for notifications for exceeding or falling below the 3% threshold.

A special role is played by the 5%-voting rights threshold as, with an exceedance or falling below, a significant negative reaction can be seen on the stock market. An explanation for the behaviour of the stock market could lie, in the case of exceedances, in the possible prevention of the exclusion of minority shareholders within the context of a squeeze-out, while with falling below negative signal effects could be the cause.

Contrary to our initial assumption, information regarding exceedances or falling below of higher voting rights thresholds only lead sporadically to significant abnormal returns. In particular, for the 10% threshold, no significant capital market reactions can be found in the stock market. Voting rights notifications regarding the exceedance or falling below of the ≥ 15% threshold only lead to significant reactions in the capital market in the case of acquisitions. One reason could be the small number of observations which can also have an influence on the results.

In summary, despite the absence of consistently significant results, an information relevance of the disclosure of changes in voting rights can be demonstrated pursuant to Sections 21 et seq. German Securities Trading Law (WpHG). The existing literature on the national reporting on changes in voting rights is extended by an initial empirical analysis. The legislator is credited with legitimacy for its implemented standards based on the empirical results. In terms of the development of the law, however, the 3% threshold has to be critically questioned since no information relevance can be found at this level. International accounting and juridical literature also receive a first indication on the effect of legally standardised reporting on changes in voting rights. In particular, this point also requires further research. On the one hand, it should be examined as to whether similar results can be achieved in other capital markets in the EU Member States, or whether the different parties on these markets behave entirely different. On the other hand, there is a complementary alternative to the empirical analysis in this paper. A survey of capital market participants and their information preferences can be conducted as well. Should it turn out, on the basis of results from event studies in other EU Member States, that there is a lack of interest in information on crossing of certain thresholds, the legal provisions at national and European level must be taken into question with respect to their practical relevance and, if necessary, be changed in order to avoid redundant reporting requirements and associated transaction costs. A flood of information would thus be avoided and the importance of corporate disclosure strengthened.

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